

The VICTORIAN
RAILWAYS MAGAZINE

1930

JANUARY

1930

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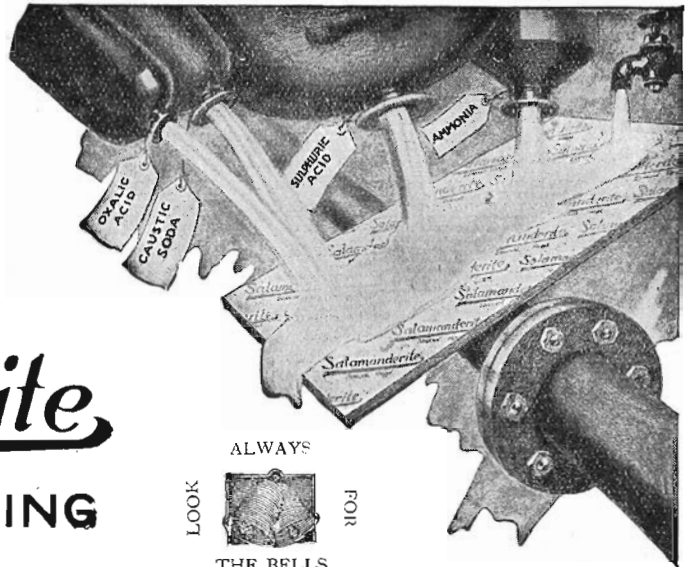
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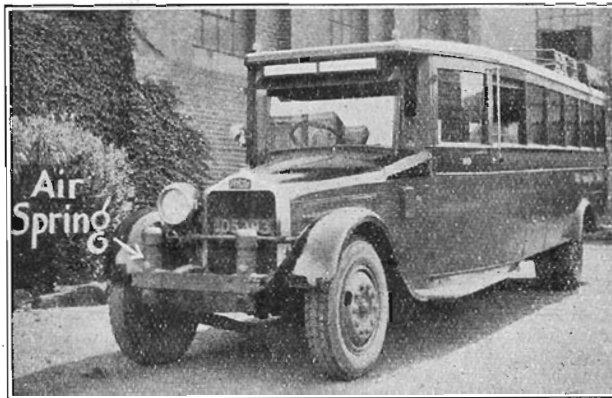
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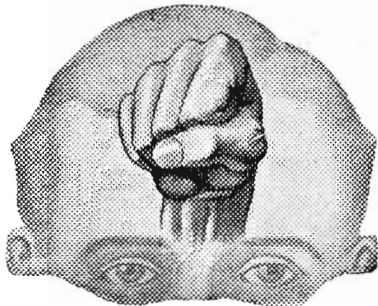
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SAFETY-HEALTH-BETTERMENT



Diagram showing personal injuries sustained by employees during November. These accounted for 144 "lost time" accidents.

Men are valuable just in proportion as they are able and willing to work in harmony with other men.

If you want to deliver the goods, you must believe in the goods.

A good way to relieve the monotony of your job is to think up ways of improving it.

Make up your mind to do the thing, and the thing is half done.

One way to get a square deal is to take it for granted that you will.

SHORTY SEZ:
A live wire
is all right
in an
organization
but not in
the hand



Play Safe—Learn to Swim!

By C. S. Blake Brownrigg

Director "Learn to Swim" Drive

RAILWAYMEN, perhaps more than any other class of workers, realise the importance of making "Safety First" their watchword. They have found care, thoughtfulness and foresight investments that yield priceless dividends of health and happiness. The observance of safety has become part of their training, in whatever branch of the railway service they may be occupied, so that in all their working hours they find themselves almost unconsciously adopting safe methods.

For any with a tendency to backslide and "take a chance," there are three constant reminders that safety always pays—their workmates, The Victorian Railways Magazine and, most compelling of all, that tragic little list of injured, the men who took a chance.

Preparation Half the Battle

So, the railwayman on the job, familiar with the dangers, large and small, seen and unseen, which surround him, and with the precautionary measures he must take to avoid them, is more or less on his mettle. He is prepared, and that is half the battle.

It is when he relaxes, when he tosses aside his denims or his office coat, and goes after recreation with typical Australian zest, that caution and the safety first code are apt to be forgotten. In no sport more than in swimming is this true, and that is why the *Herald* is conducting another "Learn to Swim" drive throughout Victoria from January 18 to February 8.

Last summer the *Herald* campaign taught more than 9000 Victorians to swim. Many of them, no doubt, were railwaymen, but no special effort was made to interest men of the railway service in the benefits of co-operation with the movement. This season we want all railwaymen who cannot swim to learn, for, unless a man can swim, he is not equipped to practice those "safety first" rules which are as essential in play as in work.

So important does the editor of the *Railways Magazine* regard this drive that he has granted me this space in your publication to tell you about it. Briefly, the scheme is this:

In every centre in Victoria where there is water, local committees are forming classes which will be under the supervision of expert instructors, distinguished by the special *Herald* instructors' badges.

Railwaymen, this is your opportunity to learn to swim. No matter where you live, you can join one of these classes. It will cost you nothing. All who learn during the campaign will receive handsome, colored diplomas, suitable for framing. Full particulars of the times and places of the classes will be published in the *Herald* shortly. All railwaymen have to do is choose the class most convenient, and join up. Country employees can enroll with classes in their districts.

In conclusion, I give you a New Year slogan—the campaign slogan. Here it is—

LEARN TO SWIM, FOR PLEASURE, HEALTH AND SAFETY.

BENEFIT BY YOUR IDEAS

THE following awards were made during November for adopted suggestions:—

Total amount ... £57
Highest award ... £20

The number of suggestions received during November was 184. Arrangements still exist for the placing of adopted suggestions of particular merit before the railways of the various States; also the Commonwealth and New Zealand Railways.

JANUARY SUGGESTIONS DRIVE

THE subject chosen for the 25th Suggestions Drive, which will be held during January, is:—

Locomotive Examination.

Suggestions should be submitted to the Betterment and Publicity Board in the usual way. Suggestions on any other subject, will, of course, also be accepted.

NEW YEAR SAFETY THOUGHT

LET'S have more recreation and less wreckreation. All in favor signify by crossing crossings cautiously.

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ARCHITECT'S SUPERVISION.—All houses are built under the most rigid supervision of a leading Independent Registered Architect (whose services are engaged on behalf of the client) and his certificate is available on completion.

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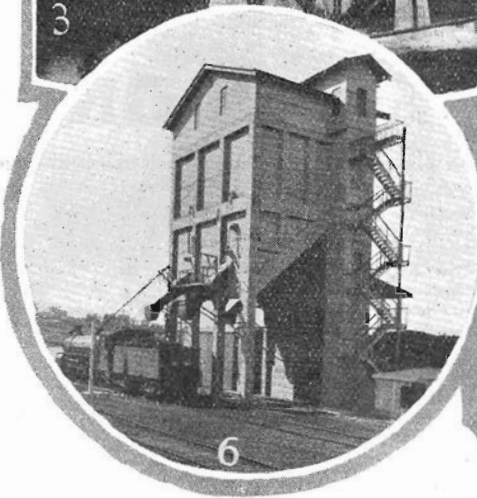
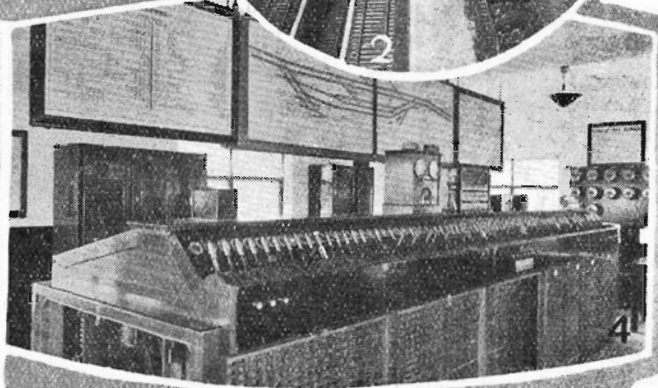
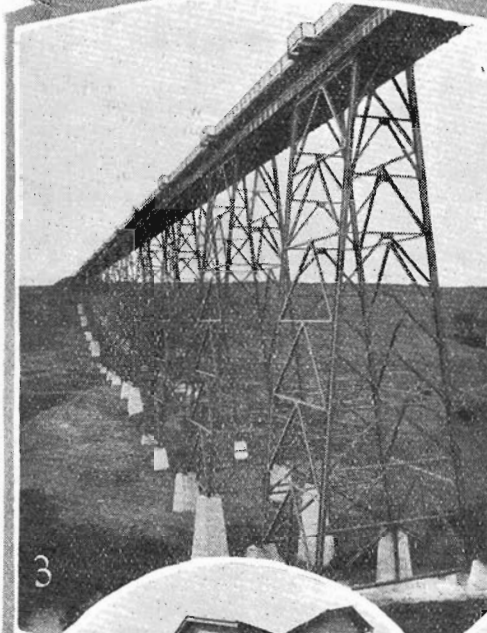
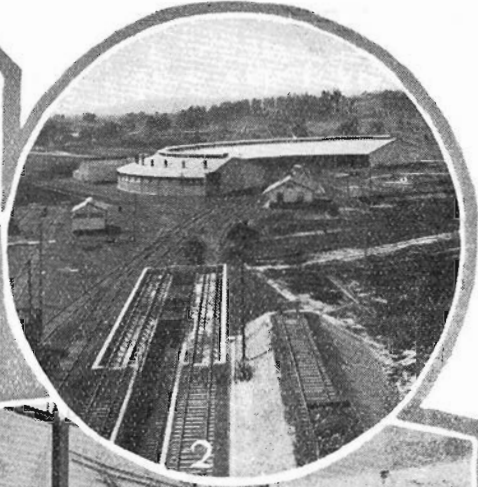
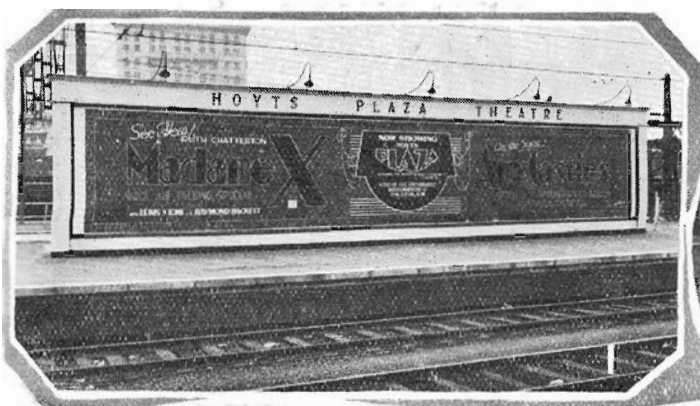
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V.R.M. 1/30



Mileposts of Rail Service in 1929

1.—One of six new hoardings erected on railway property, and said to be the largest theatrical hoardings in Australia. 2.—The new loco. sheds at Ararat. 3.—Maribyrnong viaduct, completed during the year. 4.—Power signalling frame at Dandenong. 5.—Eastmalvern station. 6.—Mechanical cooling plant built at Ararat. 7.—One of the eight electric locomotives placed in commission in 1929

NINETEEN-TWENTY-NINE

By S. C. Weetman

NOTWITHSTANDING the State-wide economic depression, there was steady progress and solid achievement in every branch of the Victorian Railways during 1929.

Construction work was necessarily restricted, but many important projects were carried through, and numerous wise economies effected.

The record of the year's work makes interesting reading.

INCLUDING the expenditure incurred on the Spencer-street bridge, a total of £293,996 was spent by the Construction branch, during the year. The Albion-Broadmeadows goods line, connecting the Tottenham gravitation yards and the Bendigo line at Albion with the north-eastern line at Broadmeadows, was completed and opened for traffic on July 1. The line is 8 miles 46 chains in length, of double track throughout, and the total cost was approximately £498,800, which includes £248,000 for the two viaducts and one embankment necessary to carry the line over the Maribyrnong-river, Moonce Ponds creek, and Spring Gully. The handling of freight has been facilitated and improved time-keeping of suburban passenger trains has resulted from the opening of this line. By using the new loop in conjunction with the Newport-Sunshine loop, goods trains from Seymour to Geelong and *vice versa* are now run through without changing engines.

Other Construction Work

The Nowingi to Millewa South railway was proceeded with and the rails are now laid for a distance of approximately 24½ miles. Work was suspended during September, pending further developments as to land settlement and water supply. Lack of funds caused the suspension of work on the Euston to Lette railway which has been extended to a point 14 miles from Euston. Similarly, the border railway from Yarrowonga to Oaklands in New South Wales, a distance of 38 miles, is at present being constructed only as far as the proposed station at 19 miles 40 chains from Yarrowonga, but the line should be ready for traffic to Oaklands by the end of 1930. The work of laying the rails over the first section is practically completed, and the line generally is sufficiently advanced to enable goods to be hauled to and from the station at 7 miles 33 chains from Yarrowonga.

A very important departmental work commenced during the year was the construction of a loco. erecting shop at Newport to replace the existing accommodation which is inadequate for requirements. The new shop will be 408 ft. by 133 ft., and will have a

machine bay annexe 216 ft. by 68 ft. Four travelling cranes, two of 75 tons and two of 10 tons capacity each, will be installed. The foundations for the supporting columns, which, on account of the heavy loads to be carried, are of massive design and taken down to solid rock, have been completed and the sewerage, water supply and track-work installed. The construction of the concrete inspection pits and machine beds is well in hand, deliveries of the steel columns, roof trusses and bracing have commenced, and contracts for the travelling cranes are in course of preparation. The estimated cost of construction and equipment of the new shop is £150,000.

Nineteen Locomotives Built

The old erecting shop, however, was kept busily engaged in the building of locomotives during the year. Nine of the new "X" class heavy goods locomotives, eight of the redesigned electric locomotives, and two more "S" class engines were built and work was commenced on ten "N", one "S", and two "X" class engines and one electric locomotive. Valuable additions were made to the rolling stock available for service by the construction during the year of 300 "I" class 16-ton open goods wagons, 38 "IZ" class 27-ton trucks, 30 "V" class 33-ton louvre trucks, 20 oil tank wagons and five "FF" bogie horse-boxes. The building of a further 262 "IZ" wagons and four oil tank wagons was commenced during the year. Automatic couplers were fitted to 1312 broad gauge trucks.

The electrified area was extended from Reservoir to Thomastown, about 2¼ miles, and from Darling to East-malvern. The work necessary to enable the service over the latter section to be extended to Glen Waverley, including the provision of a mercury arc rectifier type of substation, is well in hand. This through service will be brought into operation about April next.

A rectifier substation brought into operation at Hurstbridge in April last has worked satisfactorily, and the substation at Seaford now operates automatically. The work preliminary to equipping the substations at Caulfield,

East Camberwell, Newmarket and Middle Brighton with improved circuit breakers was also undertaken and it is hoped to complete this work by the end of June next. The installation of this equipment will add to the reliability of the substation plant and overhead equipment and will therefore lessen the costs of operation.

Nineteen miles of sidings were equipped for electrical operation during the year, and this, combined with the extra electric locomotives made available, enabled the electric operation of goods trains to be extended to include the Lilydale, Ferntree Gully, Kew, Darling, Heidelberg, St. Kilda, Sandringham, Dandenong and Frankston lines. Less than car load freight between Melbourne and certain suburban stations is now handled to advantage by road motors.

Economising in Administration

The amalgamation of the Advertising division of the Secretary's branch with the Refreshment Services branch brought under the one head the whole of the commercial activities of the department and resulted in economy in administration.

A new stall for the sale of fruit and fruit juice drinks was opened at Wangaratta, another in Flinders-street, near the Elizabeth-street entrance to the station, and a third at Princes Bridge, near the entrance barriers. The management of the leased refreshment rooms at Wycheproof and Murtoa was taken over by the department and additional and improved refreshment room accommodation was provided at Seymour. At the last point, incidentally, the rearrangement of the station and the provision of extra siding accommodation was commenced.

The Printing division of the Stores branch was transferred from the basement of the head office building to more commodious quarters at Laurens-street, North Melbourne. The location was formerly the woodworking shops of the Way and Works branch since removed to Spotswood.

The installation, in a new brick signal box, of an interlocking machine with 65 working and 15 spare levers for the power operation of the points and signals around the Dandenong

yard has enabled two signal boxes formerly in use to be abolished. Seven other interlocking machines with a combined capacity of 130 working levers and 41 spares were also installed. Sixteen miles of double track railway, including 8½ miles on the Albion-Broadmeadows goods line, were equipped with automatic signals. Wig-wag crossing signals were installed at a crossing at Ringwood East and at two points at Wangaratta.

The train control system has been extended by the equipping of 71 stations with selector telephones which has brought 236 additional miles of track under the direction of the train dispatchers. With the amalgamation of the Eastern and South-eastern districts with the Metropolitan district, the train control apparatus has been moved from Dandenong to Flinders-street. Ballarat train control room was transferred to Ararat during the year.

Telegraph and 'Phone Extensions

Seventy miles of single telephone lines have been metallic circuited and single line services converted to metallic circuit. Eighty-two telephones were provided over a distance of 454 miles in addition to the Morse telegraph working over these lines. A Morse repeating station, installed at Dimboola, enabled through Morse working to be instituted between Spencer-street and Adelaide, and obviated the necessity for a staff of telegraphists to be stationed at Serviceton to repeat the through messages.

New loco. sheds, each complete with repair shop, turntable and mechanical coal handling plant, were brought into service at Ararat and Hamilton. For the housing of the employees transferred to the new loco. depot, ten concrete residences were erected at Ararat.

On the land resumed in the vicinity of Adderley and Latrobe-streets, to

provide additional accommodation for storing passenger rolling stock, a steam shovel has been operating and more than 30,000 cubic yards of material has been removed. Advantage is being taken of the availability of this filling to extend to their full width the embankments of the new gravitation and marshalling yards at Tottenham, and the trackwork on this extension will shortly be proceeded with. These yards, when completed, will provide for the marshalling and sorting of goods traffic from all parts of the State except Gippsland. Incidentally, a sand drag was provided at Tottenham to stop runaway vehicles.

Track Maintenance

The relaying of 40 miles of track, the renewal of 430,000 sleepers and the laying of 30,000 additional sleepers, the rebuilding of 200 miles of fencing, the provision of additional siding accommodation and of improved facilities for crossing trains at a number of stations, and the construction of numerous private sidings were also attended to by the Way and Works branch during 1929.

With the through running of the Pacific engines between Melbourne and Albury and the strengthening of the line, double heading of the Sydney Limited is avoided and the maximum permissible speed has been increased to 70 miles per hour over certain sections of the line. This has enabled the running time to be reduced by half an hour in each direction. Concurrently with the rearrangement of the train schedules following on this altered running, the ordinary passenger services on both the North-eastern and the Goulburn Valley lines were accelerated, the overall time for certain trains being curtailed by over half an hour. Improved schedules were also arranged for passenger trains on the Daylesford, Bendigo, Kulwin, Robinvale, Geelong and Serviceton lines.

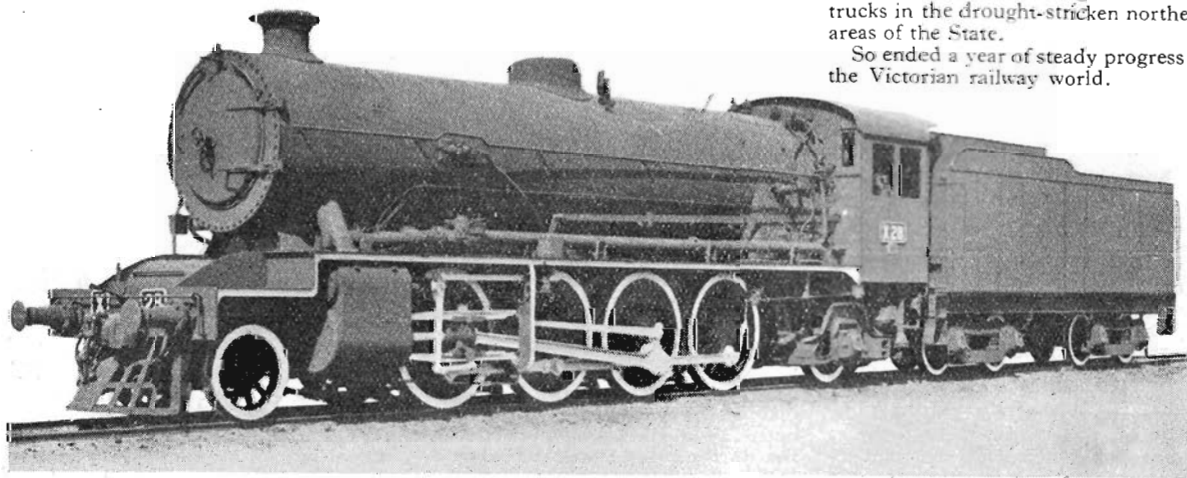
The satisfactory running of the petrol electric rail motor between Toolamba and Deniliquin has influenced the Commissioners in authorising the construction of eight additional cars of this type and five new trailers. These vehicles are now under construction, and one motor will be of a more powerful type to enable more than one car to be hauled.

In co-operation with the Queensland and New South Wales railways, an interesting series of experiments was conducted in an effort to improve the transport arrangements for bananas from the northern State. To overcome the damage caused to the fruit by the low and changing temperatures experienced *en route*, insulated trucks in each State were fitted with Stone's heating equipment which maintains the interior of the trucks at a suitable predetermined temperature while in running. The data compiled as a result of tests made with fruit in ordinary and specially-fitted trucks will be of value in considering the advisability of installing this equipment generally on trucks used for the banana traffic.

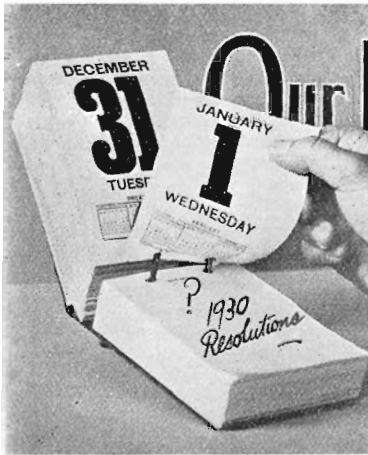
Last—But Not Least

Among other important matters of which space will not permit a more detailed treatment were the completion of the Dandenong yard rearrangement, and the provision of increased siding accommodation and improved loco. facilities at Mildura and of improved safeworking and signalling arrangements on various sections. Sunday train facilities were extended to Daylesford and Bendigo; a fleet of motor vehicles with trailers and insulated containers for each was introduced to assist in handling the export butter traffic between the cool stores and the wharves; light refreshment stalls were opened for the workmen in Flinders-street extension and at Spotswood works depot; and arrangements were made for the sale of fresh vegetables from trucks in the drought-stricken northern areas of the State.

So ended a year of steady progress in the Victorian railway world.



One of the nine "X" type heavy goods locomotives built at Newport during 1929



Our New Year Resolutions —

A NEW YEAR THOUGHT FROM THE CHAIRMAN OF COMMISSIONERS

THE resolution which I commend to each member of the Victorian Railways family is a brief one, yet it covers a world of activity, embracing as it does loyal co-operation, competent and courteous service, the will to please, and the desire to raise still higher that standard of ever-improving efficiency which Victorians have come to expect from their railways.

The resolution consists of but five words: *To be a good teamworker.*

Sincerely made and honestly kept, such a resolution cannot fail to bring closer that perfection of service which is every true railwayman's ambition.

David B. Crapp

Commissioner W. M. Shannon :

When asked for a 1930 resolution worthy of adoption by railway men, my first thought was "service," and after reflection I am content to abide by my original choice.

The word "service" is comprehensive enough to embrace a multitude of worthy ideas, but before the ultimate reward and satisfaction arising from service can be claimed much thought, hard work and sustained application are required in the endeavor to give complete satisfaction all-round. The basic principle, though, is "service."

Commissioner T. B. Molomby :

Perfection can never be attained, but if we make it our goal we can get fairly close to it.

Remember the pleasure which results from a job well done.

Secretary for Railways E. C. Eyers :

To review critically the results of the year's work, to weigh our failings, to appraise our record of lost opportunities and then to set ourselves to the task of making of those weaknesses of the past year strengths for the coming year.

That, as I see it, should be the essence of our New Year resolutions for 1930.

General Supt. of Transportation M. J. Canny :

This is a period of general depression, and if for no other reason, railwaymen must offer *better service than ever*. We must cater for and encourage greater patronage, which will in turn mean increased employment.

If we railwaymen set our hearts on team work with a view to enhancing the reputation of the department, then we must necessarily receive our legitimate share of patronage in spite of any competition.

A. Galbraith, General Secretary, Victorian Railways Institute :

I would offer a resolution to 14,000 railwaymen who, of all our employees,

are non-members of the V.R.I.

Resolve to join the finest institution in the State, and resolve, too, that you'll be guided by its influence.

Chief Mechanical Engineer N. C. Harris :

I wish to thank the members of the Rolling Stock Branch most sincerely for their co-operation during 1929 which, in many ways, has been a very difficult year. It is hoped that 1930 will bring to our patrons an increased ability to use our services, and that our resources will be fully extended to meet their demands.

Block and Signal Inspector A. E. Colson :

The well-defined and beaten track is the safest. He who departs from it courts danger.

Clerk-in-Charge J. Nolan, Flinders-street parcels office :

From last year's difficulties, it is resolved that the high standard of parcels business for 1930 will more than satisfy our customers, astonish our critics and dismay our competitors.

Assistant Chief Engineer A. Goudy (acting branch chief) :

That nothing is too small to be worth doing just a little better than before.

Advertising Representative H. de Ross :

I have made but one resolution for 1930. I will sell as much railway advertising as is possible.

Mrs. Drexler, Travel Hostess, Government Tourist Bureau :

My resolution has always been "Service before self." My aim, during the new year, will be to continue a subordination of personal interests to the offering of "Service."

The staff at the Tourist Bureau have an excellent opportunity to apply this thought to their contact with the travelling public. And — another thought — service is always acknowledged, but smiling service is always remembered.

Bookstalls Manager E. J. Letcher :

For the *Worker of Australia Today*, I *Advocate a New Idea* every week. *Better Housekeeping* should be *Everybody's* aim in making the *Australian Home-Beautiful*. Among the *Popular Hobbies*, read more books and magazines and don't forget that the children love *Comics*, but give them a little *Humor* and add *P.E.P.* to *Everyone's Home*. *Adam and Eve* did not have the training in service which is available to you, so, as an *Aussie*, dispense this asset with good grace throughout the coming year, and above all think and act as an optimist.

Metropolitan Supt. J. G. Lee :

My resolution is to avoid making last year's mistakes.

Nineteen-twenty-nine has gone with its successes and failures. If we can succeed more often and fail less frequently, we will have made a step in the right direction.

Chairman B. Kelly of the Betterment and Publicity Board :

A New Year resolution being conventionally a resolution for self-improvement, it seems to me that the universal determination of Victorian railwaymen for 1930 could well be "to submit at least two suggestions to the Betterment Board this year . . . and next year . . . and the year after."

There can be improvement without suggestions, but there cannot be a suggestion without improvement—either improvement to the job itself or improvement to the inventive capacity and mental keenness of the suggestor.

Comptroller of Stores C. W. J. Coleman :

As success is not achieved so much by individual effort as by helpful co-operation, my resolution is :

*To live a life that is clean and square
And aid my fellow man,
By lending a hand to help him bear
His burdens the best I can.
I need not fear what its close may be,
Nor how critics my life shall assail,
Nor what the future holds out for me
When I reach the end of the trail.*

Providore L. C. Brown, Refreshment Services :

Despite the increased tariff on selling lines in the Refreshment Services Branch, my resolution is to increase turnover and profits.

Overhead Supt. G. S. Scott :

Success doesn't so much mean sitting up at nights as being awake during the day.

For the coming New Year I am going to renew an old good resolution: "Give the small things their proper consideration," remembering that a man's job consists of doing a multitude of little things well. Each one taken by itself seems of little account, but they all take time, and in the aggregate, make up a day's work. "Fleas are good for a dog—they keep him busy."

Probably 80 per cent. of the time of any officer in the service is occupied with so-called small things, and only 20 per cent. with what might be termed big things, but the careful consideration of the comparatively unimportant things fits him to give the necessary prompt decision when the important thing comes up for consideration. Take care of the small things and the big things will be easy.

Some men grow in their jobs—others merely swell.

Men are never born big—they grow from babies.

Clothing Inspector H. Peel :

I will continue striving to equip the staff with attractive and well-fitting uniforms, as I believe that this, when assisted by the co-operation of the employees, will greatly assist in winning the goodwill of the public.

Actg. Auditor of Receipts D. H. Falconer :

To be more concerned with the positive side of life and of service to one's fellows, rather than with the negative side.

To attempt to do something greater and grander—with the risk of partial failure—rather than be content with present attainment or present progress.

To plan and purpose for greater achievement in every walk of life, even though difficulty and depression be constantly before one's gaze—expressed in capital letters.

To determine for myself—as each one of us should for himself—that the good—which all of us have striven for (and probably have attained)—shall not now, nor ever hence, be the enemy of the best . . . of which each one

**ASSISTANT SUPT. OF REFRESHMENT SERVICES A. W. KEOWN
CONSIDERS THE SUBJECT**

FIRST of all, I want to say how hard it is to make new New Year resolutions. I mean, everyone you think of has been used so often that it has more cracks in it than a Mallee tennis court. The need for novelty, then, is so pronounced that I conceive it a public duty to face this question of resolutions with resolution if we are to find a solution. . . .

There! There! you mustn't take on like that! I'll have to call the warder into you).

The very newest of the new New Year resolves resolves itself—(Something's snapped in my head again. . . .)

I mean this anyway. What about resolving :

- (a) not to win a certain consultation,
- (b) not to compete in Davis Cup tennis,
- (c) not to refuse promotion,
- (d) not to make New Year resolutions.

All right, Mr. Editor, I'll go quietly.

of us is capable.

To be a diligent student in the great university of life, always profiting by the experience of others, endeavoring to copy their successes, to avoid their failures.

Strive for more than you can do, then do it ;

Bite off more than you can chew, then chew it ;

*Hitch your wagon to a star
Keep your seat, and there you are.*

Tourist Bureau Manager W. T. McConnell :

People don't know half enough about Australian beauty spots—they have an idea that overseas travel is the only way to obtain maximum pleasure for tourists.

My resolution is to disprove that thought entirely. No effort will be spared during the forthcoming year to educate the public in their choice of holiday resorts within Australasia, starting, of course, first with Victoria.

Act. Chief Clerk H. L. Dickinson, Rolling Stock :

The most prosperous men are those in business for themselves.

Let us win prosperity for the department by rendering the same standard of service as if the railways business were exclusively our own.

Claims Agent J. Southam :

The New Year resolution of myself and my staff is to reduce the number of claims to a minimum, and by so doing I am confident that the department will win the goodwill of its patrons. During the past few months, damage claims have been on the increase, and if every employe handling goods pledges himself to think before he acts, goods will be protected and damage will surely be prevented.

We—railwayman and customer—should combine forces more than ever before. Let us see to it that this is not merely a pious New Year resolution to be considered, but a simple fact.

Act. Chief Inspector of Audit J. A. Mactaggart :

When asked for a 1930 resolution, my first thoughts turned to leakages in revenue. Accordingly my resolution for the New Year is :

"To do all one can to prevent leakages in the revenue of the Department."

This can be done by securing good ticket collection, prompt collection of correct freight charges on despatch or delivery of goods and parcels, strict attention to such duties and in many other directions.

Newport Workshops Manager E. W. Arthur :

Start the New Year with pep and make the railway way the only way.

Chief Clerk R. W. Easterby, Way and Works :

One can only gain a proper appreciation of his personal faults by over-hearing his staff talk about him. A supervising officer seldom by any chance hears such discussion. If my staff were asked, I believe they might say that if I could only become better tempered, it would help things a lot. Mr. Goudy declares that he is the only officer in the branch with a worse temper than I. *He is right, too.*

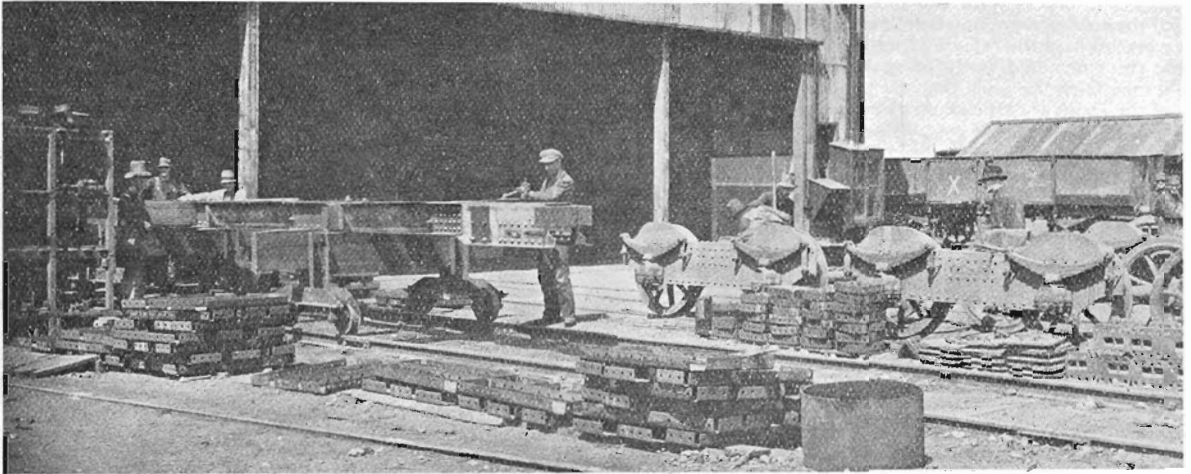
Anyhow, in all seriousness, one does reflect at this season as to whether or not he has been quite fair to everyone. I think that a resolution commending itself to each of us is to show consideration at all times and to try to see each other's point of view.

Superintending Engineer H. N. May :

With the loyal co-operation of the staff, I trust I may help to make 1930 a brighter year for the Victorian Railways than 1929.

SPOTTING

By C. SPENCER



First stage in QR truck rebuilding under the "spot" system

SUCCESSFULLY introduced last year, the "moving line"—or "spot"—system of construction, evolved by Henry Ford, is now working smoothly at the Newport Workshops with truck building, tender and truck repairs, and automatic coupling installations. Engine repairs, also, will shortly be brought under the same system.

The advantages of the system, with a simple, non-technical description of the manner in which it operates, are outlined in this article.

WAY back in 1913, the rapidly growing demand for more and more of his motor cars brought Henry Ford face to face with the problem of increasing his production without unduly extending his plant. Necessity is reputedly the mother of invention, so Ford's engineers set themselves to the task of finding a practicable solution of the problem. Shortly afterwards there came into being an experimental assembly line, adapted from the overhead trolley system used by Chicago packers in dressing beef and regarded by Ford as the first moving line ever installed.

Ford found that the undirected worker spends more of his time walking about for materials and tools than he does in working. So the first principle of the Ford assembly line was to take the work to the men instead of the men to the work. Developing from this basis, his plan ensured that supplies of the different materials and parts required would be placed at suitable points along the assembly line strictly in the order in which the respective items would be required by the workmen. At each such point, the necessary workmen were stationed, and as the motor engine or other part being assembled moved along the line the various items were added until, at the end of

the line, a completed unit was delivered.

Unqualified success attended this reorganisation, and the system has since been extended and improved until, today, the assembly line has come to be recognised as the fundamental factor enabling the huge Ford works to produce their thousands of cars each week. Inevitably, other large engineering works, recognising the advantages of the moving line, adapted the system to their operations. Nor were the railroads backward in installing the improved system in their workshops.

Introduction in Victoria

The introduction of the idea to the Victorian Railways followed the visit of Mr. H. N. May, Superintending Engineer, to Europe and America a year or two ago. Always on the lookout for improved methods, Mr. May immediately recognised the possibilities of the spot system and noted it for consideration on his return to Australia.

Before instituting the spot method of working for any job, it is essential that there shall be available a sufficient volume of that particular class of work to justify the reorganisation. For instance, under the new arrangement, the Victorian Railways practice in regard to truck repairs is to congregate sufficient vehicles of a particular class

to constitute at least two weeks' work before commencing operations.

At Newport, the output of trucks both for construction and repairs is now maintained at the rate of two per day, or 11 per week per truck or per "spot" as it is known. Incidentally, each spot comprises the necessary men and equipment to enable a group of operations on 11 vehicles weekly to be maintained. At the Ballarat and Bendigo workshops, where the bulk of the heavy truck repairs and automatic coupler conversion work is now concentrated, an improved output has also been secured with appreciable economies.

The ideal arrangement for the spot system enables the assembly to be moved continuously onward, in one end of the workshops and out at the other. In the truck repair sections of the workshops, however, this progressive movement cannot be arranged. It has been necessary in such cases to use pairs of adjacent tracks for the introduction of the system. A vehicle proceeds through a number of stages along one track and is then transferred by a traverser to the adjacent track where the work continues in the opposite direction and the vehicle ultimately leaves the shop at the same end as it arrived at.

The old system of building trucks

complete on trestles and delivering sets of each component part to every pair of trestles had a marked influence in restricting the capacity of the workshops, so that it would have been difficult to turn out more than 500 trucks a year. With the introduction of the spot system, however, new trucks were built at the rate of 22 weekly, and as this rate could easily be maintained, it may fairly be said that the capacity of the shops for truck construction was doubled at negligible cost. The volume of construction work to be carried out, however, is not sufficient at present to enable full advantage to be taken of the new system.

In the building of the new 25-ton trucks, the doors, sides and ends of the trucks are built up separately in sub-assembly areas adjacent to the main assembly line and are placed in position on the truck underframe at the correct stage of the work.

Life of Individual Parts

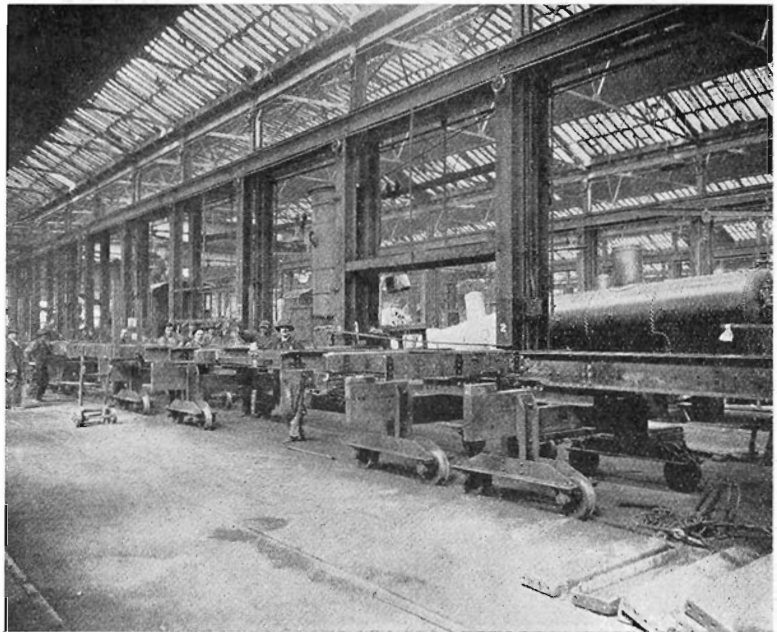
The factor which has the greatest effect on truck repairs is the life of the individual parts of the vehicles concerned. Considering the steel "I" trucks, the life of the body work is determined by the corrosion and distortion of the floor plates and the lower portions of the sides. The life of these parts is about 14 years, and, 14 years ago, about 900 new trucks of this class were placed into service annually. Consequently, until last year, not more than 600 of these vehicles received heavy repairs, and the number of trucks due for renewal or requiring heavy repairs was increasing each year.

It was therefore essential that provision be made for a substantial increase in the output to prevent the repair programme falling further into arrears. So, in 1928, the Victorian Railways workshop authorities were in much the same position as was Henry Ford fifteen years before. The increased output was necessary from the operating viewpoint while the finances of the Department demanded that no avoidable expenditure should be incurred. Again, the progressive or spot system provided the solution and enabled 900 vehicles to be handled annually more readily than 600 previously.

Three Jobs In One

With the "QR" rebuilding programme, a workshop with a through road was available for the introduction of the spot system. In the rebuilt trucks, the underframes are built of all steel members in place of partly wood and partly steel, greatly extending their lives. At the same time, the capacity of each truck has been increased from 26 to 30 tons.

When the trucks arrive at the shops, they are first completely dismantled and the parts reconditioned or replaced as found necessary. The rebuilding proper commences with the new centre



The assembly line for the construction of 27-ton trucks

sills. On arrival at Spot No. 1, the side and end sills are added, mobile trestles being used to support the assembly and to facilitate handling from spot to spot. The various fittings required for the work at each spot are previously placed in readiness alongside the track and, by this means, the work, in its progress from spot to spot, gradually takes shape. In due course, the overhauled bogies are placed in position, the floor is added, the sides and ends mounted, and the doors refitted, and the completed truck moves out of the far end of the shed to be spray-painted and tared preparatory to returning to service.

Regular Progress of Work

The vehicles must be moved from spot to spot at about the same time, and, to permit of this, the operations to be carried out by each group of men are so allotted that a movement can be made every four hours on some jobs and every eight hours on others. This scheduling of operations necessitates the effective co-ordination of the movements of all materials and parts, and in this way demands more skilful management than was necessary under the old system. The results secured constitute ample evidence of the thoroughness with which the plans were made for the introduction of the system.

A great advantage of the spot system is that the workshops authorities are now always in a position to know how many vehicles will be completed at the end of the week or at any other period desired. In addition, the necessity for other sections of the workshops to

supply the parts required for assembly in accordance with a definite schedule ensures that the work in such sections is also handled on a more systematic basis. The failure of parts to arrive at the time required would mean that the assembly line would be held up waiting for material, and this would immediately draw attention to any shortcomings in the organisation of the system.

Men Like the System

The men employed under the new system like the altered arrangements, as they can see the results of their work as the vehicles pass through their hands, and they feel that better use is being made of their efforts than formerly. Since the introduction of the spot system, it has become possible to carry out practically the whole of the work under cover, and this has been reflected in a considerable saving of expenses. While in the past, with the men working in the workshops' yard, a great deal of time was lost in wet weather, they are now able to work continuously. It is, of course, only the loyal cooperation of the men concerned that has enabled such excellent results to be obtained.

The absence of overhead cranes for lifting purposes, and of modern means for moving the vehicles from spot to spot, and for delivering materials to the various groups in the most economical manner, has prevented the ideal application of the spot system. It has been the aim, however, to secure the most effective production with the facilities available, and the successful results that have been secured will form a valuable basis for further improvements as the system is extended.

Things We Are Talking About

THERE have been few more interesting letters received by the Chairman of Railways Commissioners than the communication which was sent to him by Mr. R. N. Lynch, manager of the San Francisco Chamber of Commerce, after the highly successful Reso tour of Victoria by members of the

TRIBUTE FROM MALOLO RESONIANS

Malolo party. Mr. Lynch wrote:

"Before leaving the Reso train on the border of Victoria, may I take the occasion to express the sentiments of the entire party and our thanks to you for the remarkable trip which we have been enabled to make through the State of Victoria. It so happens that at no period during the trip around the Pacific have we had the opportunity of so intimate a glimpse of any locality. The opportunity for fifty of our party to make this visit is, of course, due to your own foresight and splendid arrangements. Nothing could be better calculated to give us a thorough insight into Australian conditions or to make more friendly contacts than this trip. It is my understanding that the Reso tours have been organised to acquaint your own people with your own State and as part of your 'See Australia First' campaign. You are to be congratulated on the wisdom and effectiveness of such a programme, and it is generous and hospitable to make the same advantages available to an American party. We have been amazed by the wonderful fertility and productiveness of the communities we visited."

CONTINUING, Mr. Lynch declared, "We are now leaving Victoria with imperishable memories of a great and thriving State, peopled by Anglo-Saxons of the highest standard, and possessed of land and basic resources that leave nothing to be

OUR BOUNDED RESPONSIBILITY

desired. The only thing I may suggest that is lacking is the bounden responsibility which rests upon you and your people to bring the world into closer contact with your favored

region. In this connection there can be nothing but praise for the efforts of the Australian National Travel Association to tell the world of your magnificent attractions and opportunities. You have boundless resources, which, if shared with people of your own choice, will magnify the value of your country and multiply the value of your own possessions. The first step in such a programme, in our experience, is to bring people of intelligence and at least moderate wealth to visit you as world tourists. We have found in California that when we have attracted visitors to see our scenery and enjoy our attractions, they invariably inquire more definitely into our commercial and agricultural opportunities. Occasional visits are followed by residence, which encourages a steady stream of other visits from their friends and connections, and in the course of years this brings a most desirable class of residents to the enrichment of our commonwealth. Surely you will find rich profit in the efforts you are making, and we would be glad in San Francisco to co-operate with you and to receive your emissaries and assist them in every way. The basic purpose and spirit of our trip has been one of goodwill. This we have received in return with good measure, pressed down and overflowing. We are gratified and most highly complimented by the way in which Victoria has received us and sent us forward with its blessing, and we would like you to communicate to all of your associates our deep appreciation of your friendly hospitality."

WHAT forceful publicity and community advertising can do in the development of a flourishing tourist business was told to the Travel Promotion League

last month by another overseas visitor, Mr. G. T. Armitage, executive secretary of the Hawaii

WOOL, WHEAT AND TOURISTS!

Tourist Bureau. Following extensive advertising, travel to Hawaii has trebled since the war, and tourists now spend £2,000,000 a year in the islands. The tourist business, in fact, is now Hawaii's third most important industry—the other two are sugar and pineapples—and Mr Armitage made it clear that he believed Australia's tourist industry could eventually be developed until it crept up behind our return from wheat and wool. Mr. Armitage is interested in the formation of an Association of Pacific travel and Tourist Bureaus, and considers that New Zealand, Australia, California, Japan, Hawaii and the Phillipines should work together to bring the world's tourists to the Pacific.



MAN FOR AMERICA

LAST month, too, saw the appointment of the Australian National Travel Association's representative in the United States and Canada. Mr. Arthur H. O'Connor was the Board of Control's choice, and he will begin his duties as Australia's travel ambassador in June or July next. He will spend six months visiting nearly all the States of America and Canada and addressing meetings of chambers of commerce, and Rotary and other clubs. He will speak generally of Australia, its attractions and business possibilities; he will establish relations with travel-selling agencies in all the great cities of America; and, in newspaper articles, he will deal with every aspect of Australian life, its flora and fauna, its history and exploration, and thus help to remove many misapprehensions and harmful reports that have been circulated about Australia. By training and aptitude, Mr. O'Connor is singularly well-equipped for his mission. He has had journalistic experience in Australia and England and is Australian correspondent for the London *Daily Express*. He was associated with the United Cable Service in London for five years and was Australian president of the A.N.A. With extensive experience as a public speaker, he has lectured in London on behalf of the Government of Western Australia.

FROM the United States Bureau of Railway Economics comes a bulletin dealing with the commodity prices of livestock—cattle and calves, hogs and sheep—in their relation to transportation costs. A comparison is made of the variations recorded over the five years ended 1928.

UNCLE SAM'S LIVE STOCK CHARGES

In setting out the distribution of the livestock purchaser's dollar, freight is shown as decreasing each year from the relatively small amount of 5.6 cents in 1924 to 3.6 cents in 1928. Investigations showed that livestock from the different American states having the same average freight charge realised different prices in the market. Consequently, it is concluded that "freight charges and other costs of distribution do not affect the relative level of the prices paid by the purchaser for livestock from the different states, but these relative levels are due to other causes such as quality, condition of stock, and general market conditions." It has also been determined that

the larger markets received their supply of live stock from a wide range of territory. For instance, Chicago received its supply of cattle and calves from at least 23 states, its supply of hogs from 14 states, and its supply of sheep from 24 states. This seems to justify the conclusion "that freight charges and other costs of distribution did not restrict the movement of livestock"—which is just as true for Victorians as it is for Americans.

TO the ordinary trials and tribulations of station staff, engine crews and safeworking mechanics in the Bendigo district was added last month the distressing suicide of a moth, which made the inconvenient choice of an electric staff instrument for its death-bed. Crawling into one of the staff instruments between Eaglehawk and Marong, the unhappy insect succeeded in simultaneously electrocuting itself and short-circuiting the terminals. As a result, the section instruments failed. A puzzled fitter eventually recovered the corpse and repaired the damage before any delay to traffic had occurred.

BIG rail customers in the Western district for some time past, the Ballarat Brewing Company recently signed an individual freight contract which brought all their traffic between Melbourne and Ballarat from the road motor back to the railway truck. The return of this traffic, combined with the heavy volume of business which already belonged to the railway, now makes this firm one of the best railway customers in the west. According to reports, freight business by road between Ballarat and Melbourne decreased by almost fifty per cent. after the Ballarat Brewing Company decided to abandon road transport. The company is very pleased with the arrangements made by the railway for the transport of its beer to Melbourne and for the prompt return of its empties.

SEVERAL improvements have recently been effected at Mt. Buffalo National Park, both to the Chalet and the plateau itself. The old one-way road leading to the Mount has been receiving the attentions of the Country Roads Board and is now available for two-way traffic for about two-thirds of the distance between the railway station and the Chalet's front door. Mountain-road and the trail to the Horn have also been reconditioned. The ballroom has been redesigned and redecorated, two new tennis courts with bituminous surface have been laid out, a handsome Cadillac 18-seater has been placed in commission between Bright and Buffalo, some fine mountain-bred horses have been purchased, and Ernie Chalwell has been appointed guide at the Chalet, his wide knowledge of the rugged heights of Mt. Buffalo National Park being now at the disposal of all holidaymakers.

THAT "all lines bargain" of the Victorian Railways—the fortnightly all-lines ticket—came in for another round of applause last month from a party of tourists who, having bought a ticket apiece, went to the Government Tourist Bureau and had a special itinerary planned for them. They were amazed at the mileage their bargains yielded, they travelled north, south, east and west, and made a point of dropping a line to the Bureau to express appreciation, not only of the cheap travel "by all trains, at all times, on all lines," but also at the service they received at every stage of their travels. "The attention of all railwaymen was all that one could desire. They seemed quite anxious to provide everything for our comfort during those long journeys." These cheap tickets should be a good selling line for the keen stationmaster.

UNCLE Sam has been reviewing the operations of his Class 1 railroads during 1928 and his discoveries embrace some staggering figures. Class 1 railways, which are systems with annual operating revenues in excess of £200,000, represent approximately

TWELVE MONTHS' WORK

91 per cent. of the total railway mileage and earn about 97 per cent. of the railway revenues of America. At December 31, 1928, there were 240,150 miles of railway which, with equipment and supplies, represented a property investment of £5,047,000,000. The year's operations resulted in a total revenue of £1,222,350,000, of which £938,000,000 was yielded by the freight traffic and £180,500,000 by passengers. To offset these huge amounts, the operating expenses amounted to £885,600,000, representing an operating ratio for the whole of the railways of 72.45 per cent. The principal items in this total were £414,000,000 for transportation, £233,400,000 for maintenance of equipment, and £167,600,000 for maintenance of way and structures. Further deductions, including £77,900,000 for taxes, reduced the net operating income to £234,600,000, a return of 4.65 per cent. on the total investment. After the payment of dividends amounting to £86,200,000, and other amounts, there remained £71,200,000 available for additions to property, reserves and similar funds. An amount of £48,300,000, or 3.9 per cent. of the gross revenue of the Class 1 railways was appropriated during 1928 for depreciation and retirements.

NO fewer than 1,656,686 employees were required for the operation of the railways, and they received £565,500,000, or 46 per cent. of the gross revenue, in salaries and wages. The average rate of pay per employee was £341 per year or 0.656 of a dollar per hour. On the passenger side, 790,327,447 persons were carried, 31,601,341,798 passenger miles being involved in their transport for an average passenger journey of 39.99 miles. Freight trains handled 2,361,622,636 tons in addition to 261,112,851 tons of the companies' freight. The average freight train consisted of 48.1 cars carrying 793 net tons of freight at an average speed of 12.9 miles per hour between terminals. The average haul per ton of freight handled was 183.31 miles. The rolling stock in use was 58,839 steam and 552 other locomotives, 53,097 passenger train cars, 108,445 service cars, and 2,327,607 freight train cars. The steam locomotives consumed a total of 129,744,541 tons of fuel, including 113,873,908 tons of coal and 2,498,144,389 gallons of fuel oil. The average prices paid for this fuel were 2.53 dollars per ton for bituminous coal, 3.34 dollars per ton for anthracite coal and 0.025 of a dollar per gallon for fuel oil.

IN a recent report, the Parliamentary Standing Committee on Railways has authorised the construction of 17 single-story lock-up shops by the Railways Department in Nicholson-street, Footscray. Taking into account the money already expended on the extension and strengthening of the bridge-flooring at Nicholson-street (£8,925), so that it will carry the shops over the regraded railway track, the addition of £14,625 for shop construction makes a total of £23,550. It is estimated that the 17 shops can be let at an average rate of £3 5s. weekly, the tenants being liable in addition for the payment of rates and taxes. This would represent a revenue during the 12 months of £169 per shop, or £2,873 per annum on the whole investment of £23,550—a gross return of approximately 12½ per cent. It may reasonably be expected, moreover, that property values will continue to mount in Footscray, where the population has increased regularly and gradually from 29,266 in 1918 to 51,655 in 1929, and the property valuations from £216,918 to £615,870 in the same period.

RAILWAY SHOPS IN FOOTSCRAY

TRANSPORTING A CIRCUS

By C. H. Cheong



Even the most efficient railway service can't please this circus passenger

WHEN Wirths' circus wound its way up to the booking window and asked for a special train and an all-lines yearly ticket, the cost and the fare worked out at £3922.

The special train provided accommodation for nine elephants, 34 horses, one hundred employes and their baggage, the troupe and its trappings, the huge menagerie and two motor cars. Altogether, 130 tons of circus was distributed over the 29 vehicles behind the "N" class engine.

And to carry the elephants, the roofs of two "M" trucks were raised and the floors heavily strengthened.

THE circus followed its advance agent. Always a week ahead, he secured the ground, plastered the town and districts with posters as only a circus agent can, flooded the local press with announcements of the wondrous show to come, and placed the victualling contract for the animals.

This food supply later brought the butcher with two hundredweight of raw beef for 10 lions and three tigers, and a gargantuan helping of choicest steaks for the bears. The grain merchant made his regular morning call with a ton-and-a-half of the best oat hay—the nine elephants eke out an existence on this daily ration—and half a ton of prime chaff, four bags of crushed oats and twelve bushels of bran for light snacks in the horses' dining room.

The circus showed in the Western district and toured through Ballarat and Bendigo, up to Swan Hill, then through Cohuna, Numurkah, Deniliquin and Tocumwal, en route to Sydney for the Royal Show. Returning through Albury, Seymour, Mansfield, Heathcote, St. Arnaud and Murrayville to Pinnaroo, Wirths gradually worked across the continent in time for the centenary celebrations in the

West. After a successful tour of Western and South Australia, they showed at Mt. Gambier, Hamilton and Werribee and synchronised the opening of the Melbourne visit with the night of the Caulfield Cup.

Wirths always aim at being in Melbourne during the racing season, and each year the winner of the Melbourne Cup is presented with a gold-mounted whip in the circus ring as a memento of his victory in the famous race. On this gala night, the winning jockey is always present, no matter what other social calls he is expected to make.

When the Circus Train Arrives

On tour, the railways supply an experienced crew who, for the duration of the trip, are as much attached to the circus as the troupe. Driven by big, genial Paddy Zinnow and superintended by Andy Fisher, the obliging guard, the circus train visits all corners of the State. Its advent in the country towns never fails to arouse a community interest, and this expectation is fostered by promises on gaily colored posters, glimpses of the menagerie being unloaded, and the whole atmosphere surrounding the active personnel.

The circus world seems bound by

tradition to live within itself. Seldom do the followers mingle with others not of their calling. Cosily ensconced in the circus train, they live picturesque and roaming lives aroused as an ant's nest only when Paddy gently applies his brakes and Andy steps from his van.

Men lead horses out, others erect temporary shelters, the cook stokes his fire, the elephants, each with his own trunk, lumber from their trucks and the trained ones unload the train.

Raucous-voiced foremen direct the energy of the rank and file in rearing the gigantic tent. The boss tentman and his assistant select the site and mark places for the centre pole, the stays and the iron pegs. The workmen follow and raise the tent in sections which are then laced together. The stakes' gang, the ropes' gang, jacks and stringer men, the canvas men, and all their assistants gradually shape the canvas theatre, and mingling with them are the electricians, rouseabouts, ushers, stackers, ticket takers, carpenters, blacksmiths, sailmakers, tailors, saddlers, watchmen, cooks, slushies and cagemen, all intent on their duties.

The stage, or rather the ring, is set for the show and tier upon tier of

seats fill with an expectant audience. Young Victoria gets its first thrill at the menagerie cages, where the lions roar, the tiger snarls and the panthers' eyes glare like green balls of fire between the bars. Perhaps an elephant shrilly trumpets or the zebra lashes his

through eurhythmics. Supremely confident in her partner, she unhesitatingly faces death in her many turns.

An intrepid horsewoman jumps her beautiful jet black beast through flaming hoops, makes him waltz and skip and kneel, and rewards his intelligence with lump sugar.

Trapeze artists fling themselves from high platforms, turn double and even treble somersaults, are caught by the arms as they hurtle past and are swung back again. The pace is amazing and the daring holds the onlookers spell-bound.

Getting It in the Neck

Then there's the strong lady—the "most powerful woman in the world"—who supports her husband in mid air by clinging to his belt with her teeth. She twirls him in giddy circles for minutes on end. Retaliating, her husband hurls heavy leaden cannon balls high in the air and these the same lady, apparently without effort, catches on the nape of her neck. A semi-intoxicated citizen in the front seats scratches his head in pathetic bewilderment as he

gear collected, the ropes rolled and the circus is ready to stroll on to the train again. Possibly the wrecking staff could pass a few hints on to Melbourne's famous Whelan.

Overnight the circus is packed on to the train, with the elephants loading the major portion. Alice, a flapper of 96 years, is reputed to know as much about truck loading as the average yard foreman knows about shunting. She is utilised to propel the animal cages into trucks, to load spars and poles, to stack the canvas sections of the tents, and she does all the shunting required. She is credited with having shunted unaided a complete train of 360 tons to the engine.

At daylight the train steams off. . . .

The driver, Paddy Zinnow, had rather a humorous experience some few tours back. His engine was reposing on the turntable at Coleraine and his application for the loan of an elephant to "push it round" was scorned by the trainer, who was lurching. Persuasive eloquence prevailed and Paddy was allowed to depart with one of the power-



Maternal cares keep Trixie, the circus monkey, quiet, while 96-year-old Alice pushes her weight in the loading operations

heels at a passing dog. The crowd is on tip toes; many of them have never seen wild animals from foreign lands, some indeed fail to recognise the rarer species of Australian fauna, and the nearness of the savage beasts incites considerable admiration.

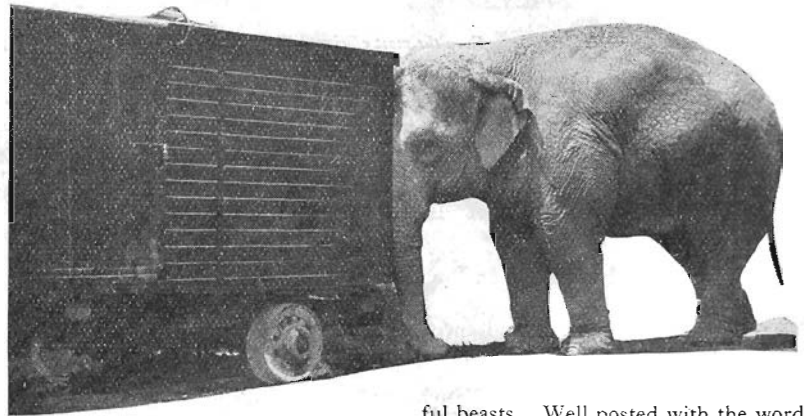
A band opens the show with a stirring march, and as the finishing bars die away, there commences the spectacular parade of the company. Rich tapestry from the Orient, Mexican splendor, cowboy accoutrements, and Red Indian trappings blend in this colorful circus pageant. Mammoth grey elephants, their trunks weaving fantastic designs, stolidly lumber in their keepers' wake, and horses—white and black—step daintily under the guidance of cowboys, Mexicans, Indians and fierce Cossacks.

Bear in a Pram

Great, shaggy, sniffing brown and polar bears, clumsy in the extreme, sit in chairs, are perambulated by kinsfolk and totter through incredible tricks at the trainer's direction. Foolish clowns in still more foolish attire make ridiculous attempts to copy the acrobats, and their quips and jests have the spectators in high humor for succeeding acts.

Now a clever horseman juggles and performs while standing on the back of a galloping white horse. He throws intricate handspings and balances perfectly. A girl, scarce out of her teens, walks and skips on a tightly drawn wire, throws herself in a back somersault and lands poised on the wire.

The "most fearless woman in the world" swarms a slender pole balanced on his shoulder by an actor. At a height of twenty feet she balances on her head and swings her slight body



recalls how his wife was knocked unconscious only the previous week with an eight-ounce teapot.

The elephants command interest in a clever turn. Incongruously they waltz their tremendous bulk to the strains of the band, and display the utmost sagacity in obeying orders.

So the programme proceeds, wonderfully skilled artists plying their calling absolutely without fear, fairly revelling in the risks which they run. Night after night they repeat the performance, night after night they flirt with death—the tiniest slip, a miscalculation, or an infinitesimal mistake means a vacancy in the troupe.

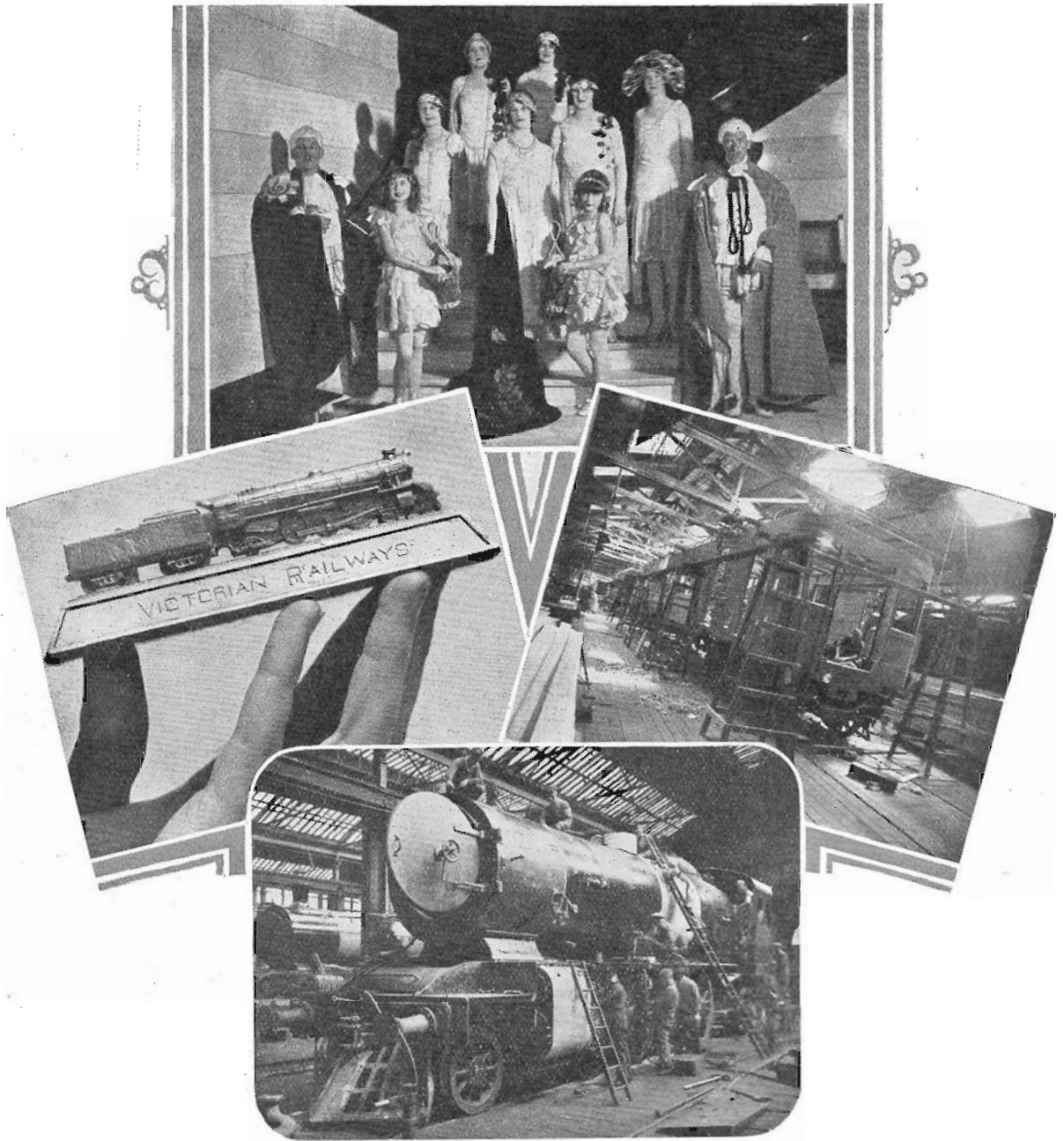
The audience, bewildered by the marvellous acts, file out silently. They linger again at the menagerie where the tawny king of beasts ramps to and fro in his cubicle. He swishes his tail and speeds their departure with his imperial voice. Scarcely has the crowd time to disperse when the tent is dismantled, the seats removed, the

ful beasts. Well posted with the word of command that set the elephant shoving with his head, Paddy soon had the turntable moving at a reasonably high speed. His cries of "whoa" and other horsey terms, however, were of no avail to stop the turntable and the sagacious elephant settled down into a merry-go-round perambulation. The advent of the trainer some half-hour later caused a cessation of activities and Paddy, more at home with his steam levathan, drove the engine back.

Behind the comprehensive organisation of this circus are the controlling and directing geniuses, George and Phillip Worth. From infancy they have been living the circus life. As far back as 1878, they appeared before the public. They have travelled the world over many times, both with their show and in search of talent, and they spare no expense to bring the world's best to Australia.

Always Wirths have had a weakness—rather, a strength—for the best of everything. Why else, for instance, would they travel by train?

The Month in Pictures

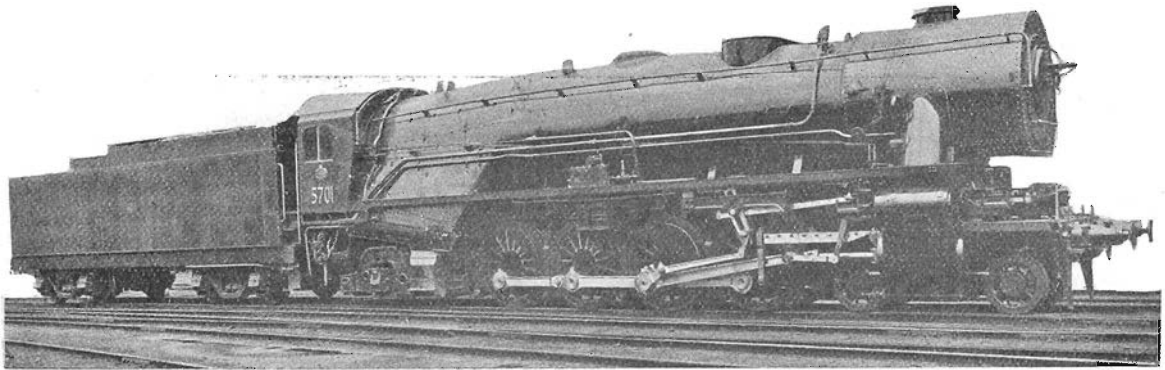


TOP—The Queen of Railways (Miss Agnes Fogarty) who was crowned Queen of Charity in the recent competition conducted on behalf of the Women's Hospital Appeal.

CENTRE (Left)—Models of the Pacific locomotive are now on sale at 3/- each. (Right)—Two petrol electrics nearing completion at Newport.

BOTTOM—Another "X" class locomotive will soon be placed in running.

Lines from Other Lines



The new "57" class locomotive which is now in running in New South Wales. Including tender, it weighs 229 tons 19 cwt. It has a tractive power of 56,000 lb. and its overall length is 83 ft. 11 in. The total heating surface is 4,163 sq. ft., and grate area 65 sq. ft.

New features of the giant locomotive in N.S.W. railway practice are the use of three cylinders, the large sand box on top of the boiler, stoker engine and compound compressor. The rear truck is so arranged that a booster may be applied at a later date if found necessary, but the huge pull of the engine alone is expected to meet N.S.W. requirements for a few years to come.

English Suburban Electrification

ELECTRIFICATION of suburban routes is now recognised as a valuable means of meeting dense traffic conditions. In Britain another extension of electrified working has just been begun by the Southern road, which operates the largest individual electric suburban system in the whole world.

Already the Southern operates electric services over 750 track miles, and on completion of extensions now in hand, the electrified trackage will total 800 miles.

The new routes to be electrified are in the London area, between Hounslow and Windsor, home of King George; Dartford and Gravesend; and Wim-

bledon and West Croydon. Direct current at 1,500 volts, with third rail transmission, is to be employed. Trains will be formed of motor and trailer cars, worked on the multiple unit arrangement.

Last year the Southern road, largely as a result of its electrification activities, carried 6,500,000 more passengers than in 1927, and in the latter year the increase was 11,500,000 over 1926.

Electrification is much appreciated by the London traveller and many new residential estates are springing up on the electrified routes of the Southern road, now that speedy and pleasant service to and from the city is assured.

RUNNING MOTORS ON TOP OF TRAINS

AUTOMOBILES will soon be running over railroad trains between Detroit and Pontiac. The Grand Trunk railroad has made definite plans to build a motor speedway above its tracks between Detroit and Pontiac.

The Grand Trunk is going to electrify its lines between those points and the speedway will be constructed on the columns carrying the trolley wires. It will be at least 40 feet wide and will have a surface of asphalt.

Four streams of traffic can be accommodated. The inner lanes of traffic in each direction will be for high speed cars, while slower moving vehicles will be confined to the outer lanes.

Slower traffic may enter and leave the speedway in certain intersections by means of ramps.

ELECTRICITY DEFINED

AT last a satisfactory definition of electricity has been found by the New York State Committee on Public Utility Information. Its "Utility Bulletin" says:

Electricity is something that starts the Lord knows where and ends in the same place. It is 1/36 of a second faster on its feet than its nearest competitor, backyard gossip, and when turned loose in Europe will get to the United States five hours before it starts. Nobody knows exactly what it is, because it has never stood still long enough. Electricity is sometimes known as science gone crazy with the heat, and if you can understand its manoeuvres, you can do anything with it except open a can of peanut butter at a picnic. Electricity was locked up in ignorance for centuries until Ben Franklin let it out with a pass key, and since then it has been pulling off more new stunts than a pet monkey. With it you can start a conversation or stop one permanently, cook dinner, curl your hair, press your trousers, blow up a battleship, run an automobile or signal Mars, and many more things are being invented.

Odds and Ends from the Railway World

The Chicago and Northwestern railway installed a number of radio sets in its main station so that patrons might hear the broadcast of the world's series baseball while awaiting trains.

Charles W. Jones of the Southern Pacific became an engineman because he suffered from seasickness. He was born and raised many miles from a railway, and started work as an oiler on a steamship. He was in the service for 15 months and was seasick every time the boat went to sea. So, not wishing to become a permanent invalid, he went to work on the railroad.

The port of Havre, France, is now being dredged and reconstructed to allow the transfer of passengers from New York and other ports directly to trains for Paris.

The No. 9000 oil-electric locomotive of the Canadian National Railways can travel across the continent without a stop at 60 miles an hour, operating at one-fourth the fuel cost of a steam locomotive.

The longest rail route tunnel in South America is to be built in Chile. Eleven American contractors are now bidding on the job. It will be about three miles in length and a link in a new Transandean railway.

An annual railway pass is not necessarily a certificate of good character, according to some judges. The Missouri Supreme Court recently ruled to this effect in sustaining the refusal of a trial court to admit in evidence the possession of such a pass by an alleged bootlegger, who sought, by means of the pass, to establish his good character.

REAL CO-OPERATION

SEVERAL years ago a claim was received from a farmer covering the sudden death of his cow on a certain American railroad. The claims agent called upon the farmer and explained to him that his railroad was in poor financial circumstances, needed money and was on the verge of bankruptcy.

A few days later, the claims agent received the following letter from the farmer: "I was surprised to learn that the railroad is in such poor financial shape. It is my intention to co-operate fully in any way I can to bring about the perpetuation of your great industry, and after hearing your talk, and considering the matter from all angles, I am withdrawing my claim for the cow you killed and am enclosing herewith my check for five dollars to help you out."

FRENCH TRAINS MAY COOL PASSENGERS ON HOT DAYS

PASSENGER trains, with artificial cooling devices, operated on the same general plan as theatre refrigeration, are to become a regular feature on French railroads between Paris and southern France during hot weather.

When the railroads made this announcement several letters appeared in Parisian newspapers suggesting that the coaches used during the winter months would be ideal for this purpose.

The letter-writers remind railroad officials that during the severe cold weather last winter a passenger on a French train froze to death while riding in a third-class coach—where practically all French workers ride.

TURKEY BUILDING RAILROADS

EXTENSIVE railroad development is being planned by the Turkish government, which recently voted £14,000,000 for railroad and harbor construction. It has in view the construction, within the next few years, of a network of railroads all over the Asiatic peninsula. The Angora-Sivas railroad is expected to be ready this year, and a year later there should be railroad connections between West Anatolia and both the Mediterranean and the Black Seas with Sivas as a centre. The railroad connecting Angora, the capital, with the coal mines along the Black Sea coast is expected to be open for traffic within three years.

Turkey has opened 490 miles of railroads in the last two years, and in the next five years it expects to open 1,400 miles more. The government has ordered 60 engines and 1,000 railroad cars from a Swedish firm.

It is now considered inevitable that there will be an all-round and substantial increase in all French railway tariffs in both passenger and goods rates to take effect as from June next.

MILKMAN DRIVES INTO RAILWAY TUNNEL

TRAFFIC through the tunnel approach to the Eads Bridge of the Terminal Railroad Association of St. Louis, was tied up for two hours recently, when Daniel Brown, milk and egg man from Licking, mistook the Railway tunnel for a darkened street and proceeded to drive his automobile truck, filled with milk cans, along the railway track.

Fortunately a signalman saw the truck enter the tunnel and he held up all trains until searchers caught up with the truck. It was necessary to take the milk truck to the Eads Bridge in order to turn it around in the narrow tunnel.

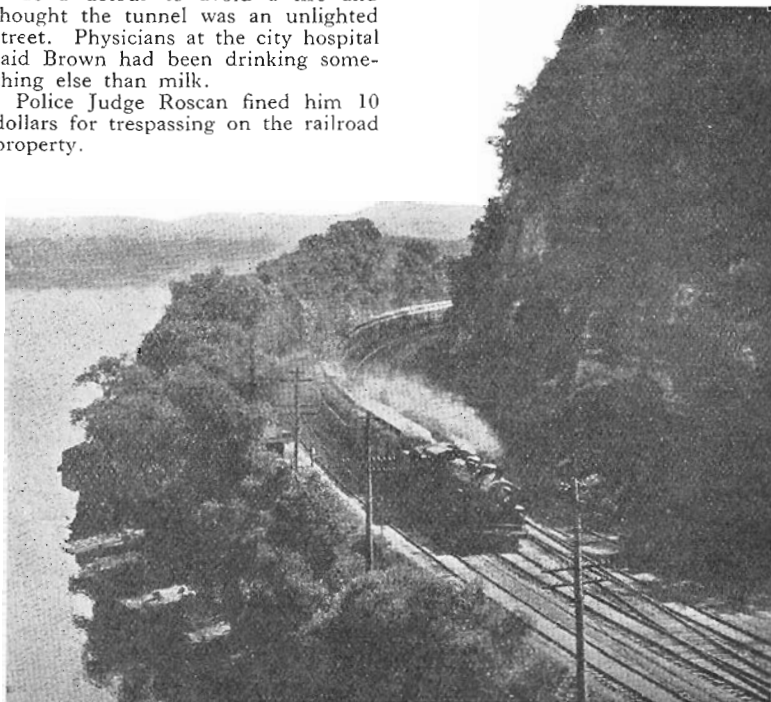
Brown's explanation was that he had made a detour to avoid a fire and thought the tunnel was an unlighted street. Physicians at the city hospital said Brown had been drinking something else than milk.

Police Judge Roscan fined him 10 dollars for trespassing on the railroad property.

RAILROADS SAVE HUGE AMOUNT IN FUEL COSTS

THE Committee on Public Relations of the Eastern Railroads reports that improved efficiency in the use of fuel has saved the railroads £90,100,000 since 1920. Of this, £71,790,000 was saved in freight service, and the remainder £18,910,000 on passenger trains.

The committee gives details which show that with the exception of 1922, the saving has been steadily progressive. Compared to the 1920 standard, 4,564,000 tons of coal were saved by improved methods in freight service in 1921. The saving next year was about 90,000 tons less. Then it began to climb until the saving in 1928 was almost 30,000,000.



The Milwaukee Railroad's Pioneer Limited near Redwing at a picturesque curve of the Mississippi river

Is This Duplication?

WESTERNERS in America are awaiting the verdict of the Interstate Commerce Commission on the application of the Great Northern and Western Pacific to span the 200-mile gap between Paxton, Cal., and Klamath Falls, Ore. At present the Southern Pacific operates the sole railroad from central California into Washington and Oregon. Both these states are rich in timber, possess abundant undeveloped water power and plenty of agricultural land.

The companies filing the petition claim that the proposed route will give a shorter route from California to the north-western states and will lead to

cheaper freight rates. The Southern Pacific will oppose the application before the commission on the grounds that its lines already give the territory adequate service and that the granting of the application would lead to needless duplication.

British railways have been paid another compliment by an American railway. The New York Central Railroad Company have adopted the chocolate and cream color scheme of the Great Western Railway on two new sets of coaches built for use on its *de luxe* day trains between Detroit and Cincinnati.

Growing an Oak Tree in a Three Inch Glass

By J. A. D. MALAN, Signal and Telegraph Branch

FORESTRY in miniature is being diligently practised by Mr. Malan, who has succeeded in coaxing an acorn to start on its long climb to an oak tree although imprisoned (the acorn, not Mr. Malan) in a small, three-inch glass indoors. Mr. Malan here relates his interesting experiment, and describes its results.

TO plant an acorn in the ground and grow an oak tree is no novelty; but exactly what happens underground before the first green shoot appears and why it happens is a closed book to the vast majority. And yet, to open this book and see the "what" even if we cannot explain the "why," is a simple matter as I will endeavor to show in this article.

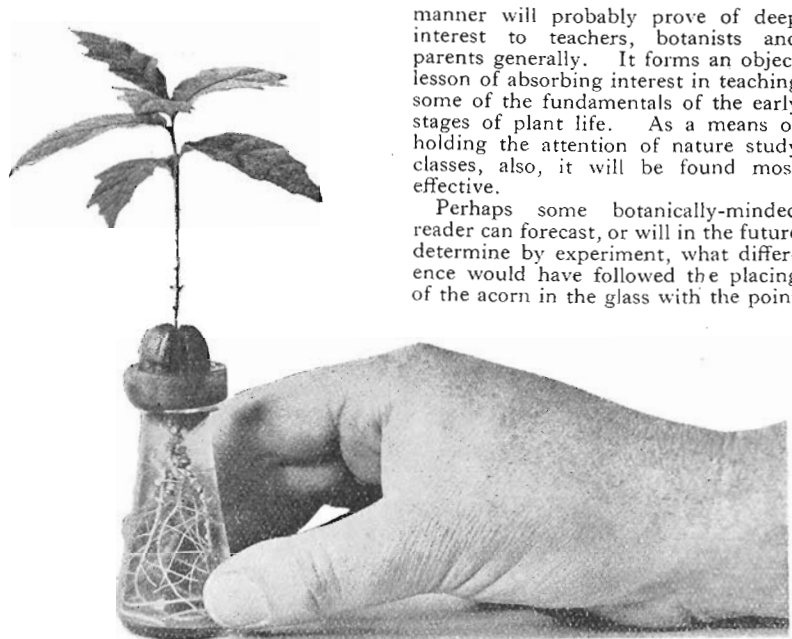
No elaborate equipment is needed, the only materials required being an acorn, an acorn glass of a type specially made for the experiment, water, and, on the labor side, patience and perseverance.

I picked up an acorn in Dandenong-road in July last and placed it point downwards in the neck of the glass, which was filled with ordinary Yan Yean tap water. Each day a small quantity of water was added to replace the wastage due to evaporation and to keep approximately half the acorn in the water. No signs of life were apparent until September when a tiny white shoot appeared at the base and descended about half-an-inch below the acorn.

When the Husk Split

Apart from swelling, there was no further development of the shoot until four subsidiary shoots appeared out of the end of it. About this time, also, the husk of the acorn split and was removed. Later on, towards the end of October, an upward green shoot became visible growing out of the junction of the two halves of the acorn with the root at its base. As the stem ascended between the halves of the acorn, the roots began to show a rapid increase.

By Saturday, November 9, the stem was half-an-inch above the top of the acorn. About this time, it was evident that the night growth was much more rapid than that during the day, so at 6.30 p.m. on this particular Saturday, the height of the stem was carefully measured. The following morning, at 9 o'clock a further measurement showed it to be $1\frac{1}{2}$ in. above the acorn, a night growth of $\frac{3}{8}$ in. in $14\frac{1}{2}$ hours. When the stem was about $1\frac{1}{2}$ in. above the acorn, the first signs of leaves appeared and shortly afterwards the six leaves shown in the illustration developed and have



steadily grown in size ever since. Incidentally, the tree was grown resting on the inside ledge of a window facing the north where all the winter and spring sunshine was obtained through the glass.

What Next?

At the time the photograph was taken—about 5 months from the starting of the experiment—the main stem and the roots seemed to have completed a stage of their growth. At about $\frac{3}{4}$ in. above the acorn, however, small shoots were appearing which may develop later into branches. It would, of course, be possible to withdraw the tree from the glass at this stage and plant it in the ground; but for the purpose of experiment I intend to leave it in the glass so long as it will grow. A time will probably come when the tree will be glass-bound, or will break the glass, or the nourishment from the water alone will be insufficient to sustain its life.

The growth of an acorn in this

manner will probably prove of deep interest to teachers, botanists and parents generally. It forms an object lesson of absorbing interest in teaching some of the fundamentals of the early stages of plant life. As a means of holding the attention of nature study classes, also, it will be found most effective.

Perhaps some botanically-minded reader can forecast, or will in the future determine by experiment, what difference would have followed the placing of the acorn in the glass with the point

upwards instead of down.

In any case, should readers try the experiment of growing oak trees in this manner and feel inclined to conduct an acorn-growing competition, the Editor of the Magazine will, I am sure, be pleased to receive entries and records. I am sure the glass manufacturers will arrange for a supply of suitable containers to be available for those who will exhibit the patience to learn from Nature in this fascinating way.

CAR STOPS EXPRESS IN CROSSING COLLISION

THE proverbial worm that turned and the rabbit that bit a bulldog "have nothing on" a motor car which disabled one of the heaviest freight locomotives of the Union Pacific in a collision in Nebraska.

The motor tore the blow-off cock from the engine, necessitating a hasty knocking of the fire. The car was demolished, but no one was injured.

Representative Railroaders

No. 28

Chief Booking Clerk D. Matthews

of Spencer-street

Caricature by ANGUS MAC

By R. H. JUNIOR



A SMILE, a million pounds, a ready reckoner, a gun and a kennel of pointers—that's Dan Matthews, chief booking clerk at Spencer-street and the station's oldest inhabitant. One puts the smile first, although Dan himself would probably place the pointers first, with the gun a close second. Which wouldn't mean that he was uninterested in the ready reckoner or the million pounds, but only that he took the former for granted and regarded the latter as a commonplace.

Take the ready reckoner aspect first. Right from the time when he was a precocious youngster at Maryborough, 45 years ago, Dan has been a wizard with figures. When he totals an attenuated column his brain leaves his pencil plodding far in the rear, and when he adroitly juggles mileage rates in his head, flabbergasted adding machines swoon in heaps around him.

That natural mathematical aptitude opened the door of his railway career for him. He was one of the 60 juvenile Maryboroughites who applied for entry into the railway service at the first Statewide call for recruits ever made by the Railways Department. So stiff was the examination that Dan had only one successful companion when the final results appeared.

"Go south, young man," was the pronouncement of the V.R. staff office, and young Dan Matthews duly travelled down to Essendon to throw himself on warehouse ledger, booking clerk's "prayer book," ticket cabinet and dating press at a salary of £36 a year. The year being 1885, the day March 16, and his chief, R.S.M. Reade.

The following year saw the appointment of the first district traffic superintendents in the Victorian Railways, and Dan went to push a pen, to splash ink, to add figures, to keep records and to make helpful clerical noises as clerk to D.T.S. Fox Pollard at Stawell. When the first express train ran through to Adelaide, Dan was officially consigned to Nhill, where he remained until 1893.

In that year, the Patterson Government jumped with heavy feet on the

district superintendent idea, and Dan Matthews came to stay at the Spencer-street main booking office and—historic incident!—to issue his first ticket at the main line booking window . . . a Maryborough second single to a passenger with muttonchop whiskers, a battered bowler hat, a bulging carpet-bag and a double squint.

With the exception of a 12-months term as chief booking clerk at Flinders-street, five or six years ago, Dan has remained at the Spencer-street ticket temple ever since, and has served as human ready reckoner under four C.B.C.'s—George Robinson, Alec. Crow, Harry Adam and J. J. Halpin.

Which introduces the million pounds . . . the amount which Dan's little staff shovel into the Department's old

oak chest every financial year. Daily at 11 a.m. or thereabouts, Dan may be seen, heavily laden and safely escorted, *en route* for the bank to pay in a contribution of his ticketsellers' spoil. He is one of the very few men in Australia who actually earn a million pounds in hard cash every year.

And that leaves the gun, the pointers and the smile awaiting analysis. Naturally the first two go together. Dan has been patting dogs since he was able to lift his right hand, and he first squinted down the sights of a gun when he was 13 years of age. He is one of the best shots in the State, and his deadly precision when a brace of quail try to fluster him with a "double rise" must be seen to be appreciated. This year, incidentally, will be his ninth as president

of the Williamstown Gun Club.

The pointer is his favorite dog, although he has taken an active interest in coursing in the past, also, and has trained some champion streaks of canine lightning. British Foot was perhaps his swiftest courser, with Puzzle, who won the last trophy that Ben Hepburn presented at Ballarat, runner-up.

Charley was his best known pointer. Dan had him for 11 years, and would have given his right hand to save the old fellow when the blight of pyorrhoea passed him out. It's six years since Charley was destroyed but, at any mention of his old four-footed friend, Dan still shakes his head and loses his cheerful and infectious smile.

And the smile? Well, that is Dan Matthews.



Preparing to break the track before moving the old bridge.

A New Bridge for An Old

By R. R. PLANT,
Assistant Engineer,
Way and Works Branch.



Lifting the new approach span into position.

HOW the 60-year-old railway bridge over the Goulburn-river was rolled away from its supports and replaced by a brand new bridge, without any interruption to traffic, is explained interestingly in this article by Mr. Plant, who was associated with the supervision of the work.

The track was broken and the replacement of the bridge begun immediately after the "Up" Sydney Limited had crossed on a recent Sunday morning. The new bridge was in position for the return passage of the Limited eight hours later.

IT was in 1872 that the railway, gradually creeping north-east from Melbourne reached the Goulburn from Seymour, and the bridge familiar to travellers was built. Sixty years is a long way to look back, but it is still longer to look forward to. Yet it is that long view into the future that the engineer takes, weighing his present requirements and, from the analogy of past developments, forecasting the future, so that his design shall be economically as well as structurally sound. Were this not done, it might be necessary to pull a bridge out every twenty years or so, supposing too conservative a view had been taken; and if a structure were built too far in advance of requirements, then an unnecessary and excessively unremunerative, interest-eating capital is locked up.

The problem is to strike the happy medium, and that it was done in the present instance of the Goulburn bridge is evidenced by the fact that the bridge was equal to the gradually increasing weight of locomotives over a span of half-a-century, until that theoretical limit of weight, set by the engineer, which no locomotive may exceed, was reached by the new "Pacific" engine with its axle load of 23½ tons.

The seriousness of the ever-increasing weights of locomotives was realised over thirty years ago, and the policy of strengthening all the bridges on the North-eastern line between Melbourne and Wodonga to provide for this increase in weight was put into operation. The small bridges with spans of about 20 ft. were first dealt with, and the superstructures of these were soon renewed.

In 1907 a commencement was made with the renewal of the superstructures of bridges with spans of 30 ft. and 40 ft. These were methodically proceeded with by spending about £7,000 every year until 1914 when the advent of the great war caused an interruption to the programme. On account of the consequent financial troubles, and the difficulty of obtaining steelwork, future progress was delayed until the close of the war since when the programme has been further steadily continued.

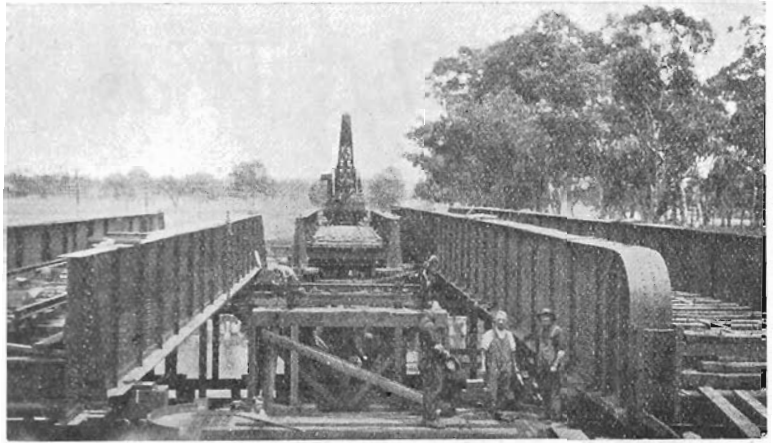
About a year ago the last of the 30 ft. and 40 ft. spans had been renewed, and also the 100 foot spans over the Broken and Ovens-rivers at Benalla and Wangaratta respectively had been strengthened by means of electric welding.

The Goulburn-river bridge at Seymour had been partly dealt with several years previously. Six of the eight 40 ft. spans had been removed, and one 40 ft. span on each side of the river immediately adjacent to the two main spans of 102 ft. had been temporarily strengthened by timber supports, and the deck of the main spans had been strengthened by reeving in extra cross girders. This arrangement was giving satisfaction when the discovery in 1928 of a serious crack in one of the main river girders made it imperative to hasten the programme, and it was then decided to complete their renewal throughout. As the piers were sufficiently strong to carry the additional loading, no alterations to them were necessary, and the existing span was therefore worked to, and drawings prepared accordingly.

According to Theory

It is the practice to design bridges so as to have a margin of strength over the theoretical requirements in order that future progress in the construction of locomotives may not be hindered. This is accomplished by adopting for design purposes a system of conventional loadings chosen to provide both for existing engines and heavier ones in the future. These conventional loadings take the form of a set of weights at specified distances representing the distribution of the weight of one or more locomotives between the several axles.

It has been customary for many years to design the bridges so as to carry what is known as Cooper's E. 50 standard loading. This corresponds to the weight of two locomotives each 56 ft. long and weighing 158 tons followed by a train load of 5,000 lb. per foot. The weight of the "S" class engine is 195 tons and its length 78 ft. 6 $\frac{1}{2}$ in. It will therefore be seen that the margin over actual loading under modern conditions has almost ceased to exist. The new bridge was therefore designed to carry Cooper's E. 55 standard loading which represents two locomotives of the same length and arrangement of axles as for the



New bridge (left) being rolled into position after removal of old bridge (right).

E. 50 loading but weighing 174 tons each, and followed by a train load of 5,500 lb. per foot.

In order that the new girders should fit accurately, measurements had to be taken with standard steel tapes, and the usual adjustments made to correct the extension of the tape due to temperature changes and the pull exerted when stretching it between marks.

Across Collins-street

The length of the girders is 102 ft. 8 $\frac{1}{2}$ in., and it is in working to that last half-inch in such an overall length that the difference is apparent between a first-class job efficiently done, and one that fails to give satisfaction and which is a source of expense and irritation. For purposes of comparison with familiar objects, if one of these girders were stretched across Collins-street with one end butted against a building on one side, the other end would project nearly four feet into the window front of the opposite building.

It can be appreciated that the transport of such a load of 34 tons was a problem in itself, so, in order to avoid traffic congestion, it was carried from the engineering yard at Burnley in the

early hours of the morning, and after some difficulty in getting it round a right angle turn out of a narrow street it was safely stowed on the special trucks at North Melbourne for transport by rail to Seymour.

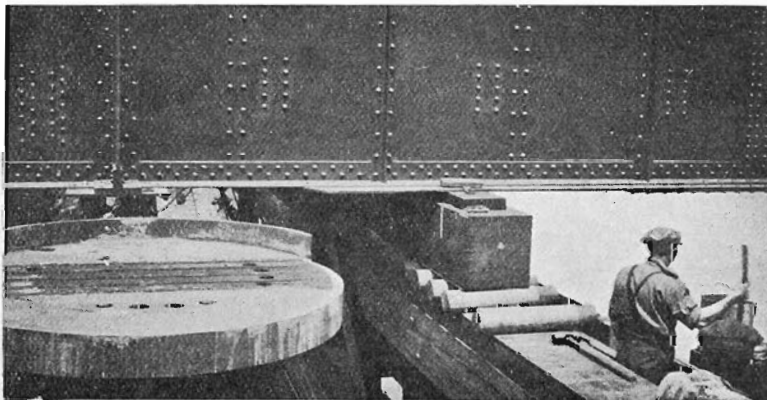
The actual erection of the new bridge called for special arrangements being made, as no delay to traffic could be allowed. The longest period available between interstate expresses was from 10.40 a.m. to 6.30 p.m., on a Sunday, and during this eight-hour period the old bridge had to be removed and the new bridge substituted.

The new girders, including cross girders, were completely riveted and fabricated on temporary staging alongside the existing bridge, the timber deck, sleepers and rails being also fixed in position.

Immediately the "Up" Sydney Limited express cleared the bridge, the track was broken and the actual replacement of the bridge commenced. The two 30-ton wrecking cranes, having been sent from North Melbourne the previous night, followed the express and arrived on the bridge fifteen minutes later. These cranes were used only for the removal of the old approach spans, and the placing in position of the new approach spans.

20 Feet in 20 Minutes

The main spans of the existing bridge were lifted approximately six inches by means of 75-ton hydraulic jacks, and timber rollers were placed under the girders. The power required to roll the old bridge out of position was obtained from two small hand winches, each worked by two men. Wire ropes were attached to the girders, and after working the winches for twenty minutes, the old bridge had been moved from the position it had occupied for so long to a location some twenty feet downstream. The new bridge was rolled into its final position in exactly the same way, the two movements being carried out without any hitch whatsoever.



How the bridge was rolled into position.

So This Was Australia!—

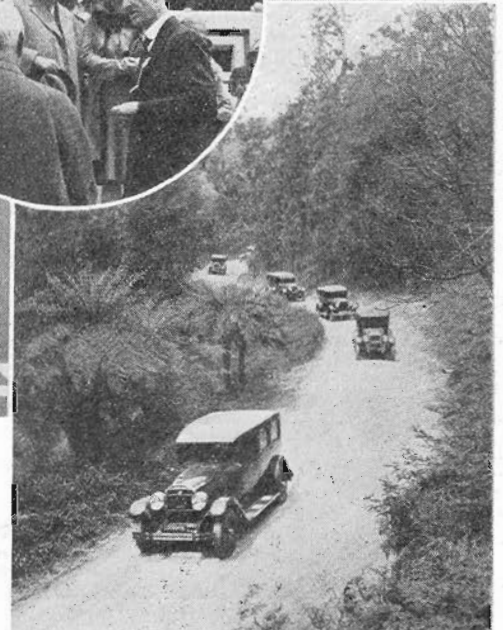


RIGHT: The "Malolo" arrives. ABOVE: Civic reception in the Alexandra Gardens. BELOW: The fleet of cars which toured the City. LOWER OVAL: Tourists at Mt. Buffalo National Park. BOTTOM: A visit to an old homestead in the Western District.



CIRCLE: Mr. Scullin welcomes the visitors to Canberra.

BELOW: On the road to Marysville.



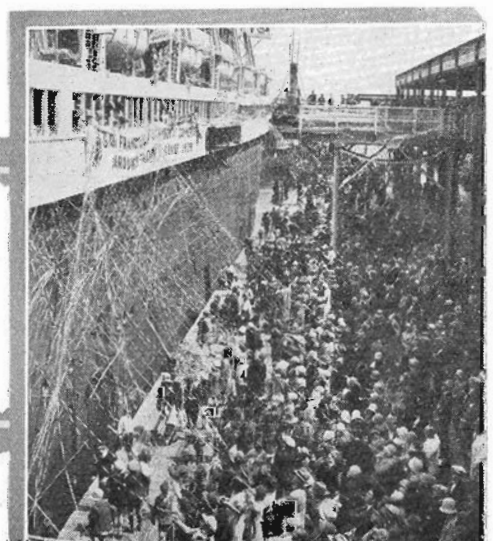
Pictures of the "Malolo's" Visit



ABOVE: Mrs. Montgomery makes the acquaintance of an Australian native.

RIGHT: Mr. Moore, chairman of the party, waves a last farewell.

TOP (left and right): Scenes on the Reso tour.
MIDDLE (right): A group of Americans at Marysville.
BELOW: Farewell scenes.



Novel Car Disinfection Plant

DETAILS of a novel plant used by the German Railways for disinfecting rolling stock by means of heat treatment and the use of formalin-charged air are described in this article, which we reproduce by courtesy of the *Railway Gazette*.

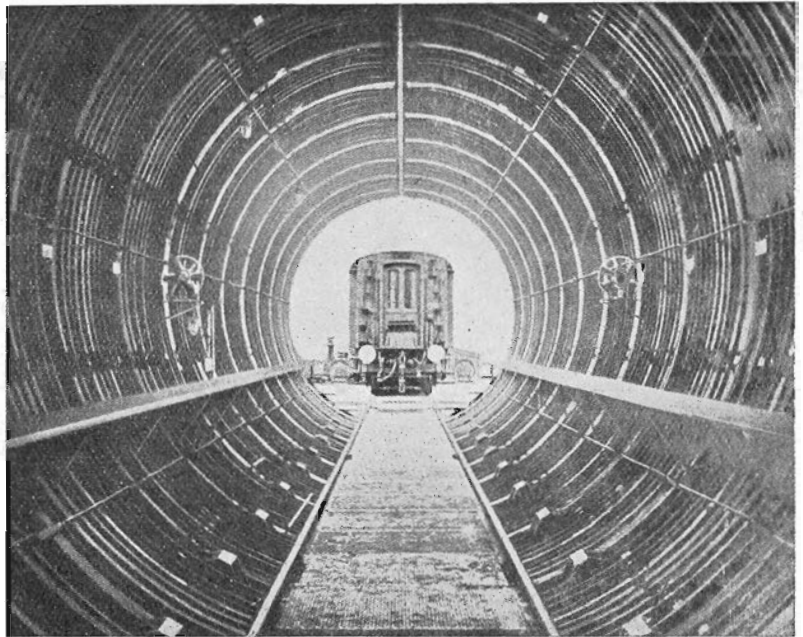
The plant cost about £4,000 to construct in 1909 and has been in active and successful use at the Potsdam Workshops ever since.

IN 1900 the German Parliament passed a law to improve the methods of dealing with contagious diseases, and other common infections, and amongst other things the duty was specially laid upon the railway administration of preparing measures for use on the occasion of an outbreak of any of the common infectious diseases, and also for the treatment of railway coaching stock in which infected persons had travelled.

The old method of dealing thoroughly with a coach in the repair shops was very costly, and involved the removal of all upholstery and partitions, disinfection and replacement, resulting in the vehicle being out of service for long periods. It also had the risk of the infection taking root amongst the staff of the works; in addition to this, it was not entirely satisfactory as regards results. It speedily became clear that a special plant of some kind would have to be built to fulfil the legal requirements.

These facts were put to the firm of Julius Pintsch, who had previously built apparatus for ship disinfection in Hamburg, and they were invited to draw up and submit plans for a plant capable of dealing with complete coaches. Experiments had shown that microbes can only be killed with certainty when a temperature of 100 deg. C. (i.e., the boiling point of water) is reached. The use of vaporised formalin increases the effectiveness, but had the disadvantage that it did not get in everywhere.

Two difficulties now presented themselves. To heat up coaches to a temperature of 100 deg. C. was not to be thought of owing to the damage to paintwork and fittings. How was the formalin to be forced to all cracks and crevices? The method adopted was to attain conditions under which water boils, but with a lesser degree of heat; it, therefore, became necessary



Interior of the cylindrical apparatus in which German rolling stock is disinfected

to reduce the air pressure, and the result of the experiments having shown that a maximum of 50 deg. C. of heat did no material damage to the coaches, this temperature was decided upon as the limiting factor for heat, and the apparatus had to be designed so that the air pressure could be reduced accordingly and water boiled at 50 deg. C., conditions under which organic life becomes impossible. At the same time the second difficulty was surmounted as the inrush of air on restoration of normal atmospheric pressure would carry the formalin charged air into the crevices.

Cylindrical Apparatus Adopted

The firm of Pintsch designed and subsequently built the apparatus. A cylindrical form was adopted, fitted with a large swing door, capable of taking a full-sized corridor coach. This cylinder is fitted with steam heat piping so that the cylinder can be heated up to a temperature of 40 deg. to 50 deg. C. It is then possible to exhaust the cylinder until the pressure has been reduced by 700 to 740 millimetres of mercury. By this combination of a moderate temperature and a low pressure it is possible to extract all water, as, under these conditions, water fluids vaporise.

The combination, therefore, secures a practicable method of dealing with infected coaches, as the temperature was not sufficiently high to damage the paint-work of the coach, while the low-pressure secured all the advantages that a high temperature could have secured. All living bodies and eggs

are destroyed through a process akin to mummification without damage to upholstery, leather, paint, wood or polish. If necessary, formalin can also be evaporated in the cylinder during the period of disinfection, and the vapor quickly fills the whole apparatus by convection currents, the fans at first installed being found unnecessary.

The cylinder is constructed of cast iron and is 25 m. long by 5 m. in diameter, and so designed that a coach weighing 60 tons can be run in. The factors worked to were 220 kg. per sq. cm. for air pressure and 110 kg. per sq. cm. for train weight, the total air pressure to be resisted being over 4,000,000 kg., of which nearly 3½ millions are on the cylinder itself and nearly 300,000 kg. on the door. The weight, including the small crane for swinging the door into position, is 135,000 kg.

The plant cost about £4,000 to construct and was brought into operation in 1909, since when it has had a very successful career. It was calculated then that the cost, reckoning one coach per day, was 35s., including depreciation and overhead charges.

On taking over, a test was carried out and in 2½ hours an air pressure reduction of 740 millimetres was made, after which the cylinder was left for over two days, during which period the rise through leakage was not more than 40 millimetres. Experiments have shown that fleas and ticks in a glass tube stopped with wadding and bound up in a linen bag were quite dead at the end of the test.

Railway Outposts

No. 20—

PASSENGER trains, mixed trains, goods trains, milk trains, and trains carrying briquettes from Yallourn are all numbered among the 32 trains which pass through Berwick in each direction daily, necessitating the manning of the station throughout the 24 hours.

Situated amongst the beautiful rolling hills for which the district is noted, Berwick is distant only 27 miles from Melbourne. The station therefore is really an inner outpost, and the fares and freight rates to Melbourne are on a relatively low basis which means that more traffic has to be handled for each £1 of revenue than is necessary at more distant stations.

Money in Passengers

Further, to stress its difference from other outposts, Berwick station's principal source of revenue is the transport of passengers. Of a total outwards revenue of approximately £2,900 for the past twelve months, no less than £1,558 was secured from passenger traffic. For this revenue, 7,569 journeys were made and these included journeys on weekly, monthly and even yearly periodical tickets, used by people travelling to business and by students attending the Dandenong High School and the Caulfield Technical School.

As the Berwick district is peopled to some extent by retired people, much of the country is not seriously farmed. The natural result is that, while the surrounding district is well suited for mixed farming, the quantities of produce railed are comparatively small.



A.S.M. Harwood, S.M. Nicholas, and A.S.M. Meagher.
Inset: Mr. William Wilson, first white man born at Berwick.



S.M. Nicholas in his spic and span office.

Dairying is one of the principal activities in the district, but increasing attention is now being given to lamb fattening

and wool growing. About 80 bales of wool were railed last season.

On the other hand, the dairymen, who send most of their produce to Melbourne and suburbs, despatch the bulk of it by road motor. This is unfortunate for the railways and is due to the presence of a perfect tar-paved roadway direct to the city which makes the journey an easy hour's run in a modern speed wagon. One of the best known Friesian stud herds in Victoria is located at Berwick, and considerable numbers of young bulls and heifers are railed each year to help improve the dairy herds in various parts of the State.

New Quarry Opened

A new source of goods revenue was recently started at Berwick by the opening of a quarry to exploit the wonderful deposits of bluestone which are found in some parts of the district. Although this quarry is just getting into production, from three to five trucks of metal are loaded each day. It is hoped to increase the output considerably in the near future, which will mean greater railway business and increased prosperity to the township.

Inwards goods for the past twelve months, consisting mainly of general merchandise and building material, amounted to 2,436 tons for a revenue of £1,125. The outwards goods for the same period totalled 1,707 tons and paid £499 in freight charges, outwards livestock adding a further £333. Parcels traffic with £460 for the year, the arrival of parties of walkers travelling across country to and from Belgrave, and the visits of huntsmen and huntswomen attended by their hounds, add variety to the station's work.

The varied duties at the station are in the capable hands of Stationmaster J. Nicholas, ably assisted by Assistant Stationmasters T. P. Meagher and L. G. Harwood.



A corner of the garden of the S.M.'s Departmental residence at Berwick.

Railwaymen of the Month

Knights' Twilight Commences

THIRTY-ONE years of railway service as a car and wagon builder is the record that Andy Knights can look back upon with pride. Commencing at Jolimont in 1898, he stayed there for 18 months and then spent 12 months at the Dudley-street shelter sheds before passing on to Newport, where he remained until his retirement last month. He has been a permanent hand since 1913. Prior to his retirement, his workmates presented him with a beautifully engraved gold watch as a token of their esteem. Then, to prove the sincerity of their wishes for his future health and happiness, they chaired the popular old veteran and carried him shoulder-high out of the shop to the accompaniment of prolonged cheering.



To Maffra

AFTER two-and-a-half years at Rochester, Stationmaster W. E. Mills has been transferred to Maffra. With R.S.M. Blewett as their spokesman, the local traders, carriers and railway staff presented the popular S.M. with a travelling bag before he left for his new charge.

Champion Ticket Seller

USUALLY, when Guard Percy Hancock of Jolimont is not fluttering a green flag he is persuading somebody to buy a ticket to help some deserving charity along. The record of his achievements as a ticket-seller reads like an extract from a bank's balance sheet, but it's worth repeating. In nine years he has sold 80,000 tickets for a total amount of £6,000, including 18,000 tickets for the 1920 Queen Carnival at the Exhibition, 10,000 tickets over the last five years for appeals by St. Vincent de Paul's Orphanage, 5,000 tickets for the Railway Queen in the recent Women's Hospital Appeal, and some 40,000-odd tickets for various appeals on behalf of railway families in distress



and the like. He doesn't like making any claim on behalf of himself, but it will take an amazing record to lower his ticket-selling colors. Do there happen to be any challenges?

D.H.F.

EIGHT years ago this month, Mr. D. H. Falconer was appointed Chief Audit Inspector. He held the position for four years and then, in August, 1926, moved into the chair vacated by the late Mr. G. K. Low, formerly Auditor of Receipts, in which position Mr. Falconer has acted ever since. Mr. Falconer has been an Audit branch man for 45 years and commenced duty as a messenger in Roberts Buildings, Collins-street, in 1885, that being the existing branch headquarters. He became Audit Inspector in 1913 and senior Audit Inspector six years later. Although a very keen cricket and rowing enthusiast, the acting branch chief's leaning has been in the direction of study rather than sport. Primary production is his favorite hobby and Darnum and its rural interests have ever had a particular attraction for him.



Welcoming Him Back

AS a sort of community demonstration against the perpetration of secret marriages, railwaymen and carriers at the Melbourne goods sheds recently staged a very effective "welcome-back-to-work" in honor of popular Delivery Clerk William Johnston of the perishable shed, who had gone on leave without announcing that his holiday was to be a honeymoon. The conspirators laid their plans well, with the result that, as Bill stepped unsuspectingly inside the shed on the first morning of his return, a dense array of cheerful motor-drivers, assembled near the shed, made the welkin ring with a sudden deafening outburst of honking and whistling. Bill's blushing progress into the shed was accompanied by the sonorous chiming of a massive cowbell and was halted by the spectacle of the striking floral and

gum-leaf decorations in which his desk had been embowered. Then the handshakes commenced.

Last Question

AFTER nine years, George Duncan Carmichael, one of the two original men in Grey, has answered his last question, solved the last travel poser of a bewildered passenger and moved into retirement. He has been asked to tip the winner of the Melbourne Cup, and to mind a baby while the mother bought a ticket; he has been directed to put more raisins in the railway raisin bread, he has been requested to delay the departure time of an important Express for 30 minutes for the convenience of a belated traveller, he has answered millions of railway queries every year, and his little railed dais on the main concourse at Spencer-street has long been a rendezvous for thousands of railway travellers and their friends. He will be missed by many travellers who have never even known his name.



January Birthdays

OF the railway birthdays recorded for January, the sixth anniversary of the birth of the Victorian Railways Magazine must not be forgotten. A long queue of railwaymen line up for congratulations also, including representatives from no fewer than nine different branches. "Many happy returns" can be extended to the following during the month:



Mr. W. Bunker.

Depot Foreman Bob White of Geelong, on the first; W. R. Bunker of Room 10, on the third; Way and Works Engineer Geo. Luttrell and Water Supply Engineer H. Willett, on the fourth; Chief Clerk Chas. Dunstan of the Ballarat goods shed, on the sixth; Assistant Chief Electrical Engineer C. G. McDonald, on the seventh; Jack Fetherstonhaugh, secretary to Commissioner Shannon, on the eighth; Commercial Agent W. Middleton, Depot Foreman R. Dawson of Maryborough and A. H. Rogerson of the Estate office, on the ninth; Electrical Engineer-in-Charge A. Horton and Supervisor of Road Transport C. G. Walker, on the 12th; Fireman J. O. Farrell of Woomeelang, on the 14th; Leading Shunter J. Palmer of Hamilton, W. J. Thornton of the Car and

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BEAMS	RING BARS	INGOTS	CRUSHED SLAG	NAPHTHALENE
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Wagon Shops, General Passenger and Freight Agent W. E. N. Keast, and Stationmaster E. W. Procter of Dandenong, on the 15th; Fireman J. E. Floyd of Stawell, on the 16th; Bendigo District Engineer Tom Coakley, on the 17th; Goods Foreman W. Ellis of Bendigo, on the 19th; Jim Miller, secretary to Commissioner Molomb, on the 20th; Travelling Audit Inspector J. G. Moore and Bonding Supervisor W. T. Tunn of Flinders-street, on the 21st; Traffic Inspector Alf. Giles, on the 22nd; Signal and Telegraph Engineer E. F. McIver, on the 23rd; Assistant Electrical Superintendent Alec. McLean, on the 25th; Block and Signal Inspector Ted Anderson, on the 26th; Lance Bromilow of the Betterment and Publicity Board and Ticket-maker George Oakley of the Stores Branch, on the 28th; Leading Shunter C. O'Halloran of the Melbourne Yard and Fireman R. Sampson of Bendigo, on the 29th; and Driver W. Busbridge of Geelong, on the 31st.

Clarkefield Change

IN the short space of nine months, Stationmaster Naylor and his wife won the high regard of local citizens and railway staff alike at Clarkefield, and there was sincere regret in the farewell to a popular couple last month, when the S.M. was transferred to the relieving staff. S.M. Naylor was presented with a silver mounted shaving mug and Mrs. Naylor with a silver cake dish and pyrex dish. The new Stationmaster is S.M. Robinson, who hails from Erica.

Last Mile Post

CHIEF CLERK W. A. RYAN OF THE ROLLING STOCK BRANCH

THE death has occurred of Mr. William A. Ryan, Chief Clerk of the Rolling Stock Branch, at the age of 58.



A son of the late Permanent Way Inspector of the Way and Works Branch, he was 16 years old when he commenced clerical duties in the Loco. Accounts office. In 1892 the Accountancy Branch claimed his services, but in 1905 he was returned to Head Office and graduated eight years later to the position of Staff Clerk.

When in July, 1918, Chief Clerk C. J. Harris left for the Refreshment Services branch, Mr. Ryan took up the train of thought suggested by his predecessor and built on the foundation of a carefully-organised staff.

Of genial personality, he was a capable and distinguished officer and in his official capacity was ever ready to listen to and advise anyone seeking his opinion. He was at all times considerate and courteous to the staff under his control.

To the railway officers intimately associated with him, his qualities of mind commanded both respect and affection.

The exceptionally long cortege at

his funeral was ample evidence of his popularity in and out of the Department.

RETIRED AUDITOR OF RECEIPTS G. K. LOW

AFTER a long illness, Mr. G. K. Low, retired Auditor of Receipts, died at his home in Hawthorn early last month.

He had 43 years service in the Audit branch, starting as a junior clerk in 1883, and retiring as branch chief in 1926. He held



the last position for four years, having been previously audit inspector (1903) and Chief Inspector of Audit (1918).

Once a prominent figure in South Melbourne cricketering circles, he later became captain of the Hawthorn club. He was also a member of the M.C.C. bowling club.

RETIRED AUDITOR OF RECEIPTS J. F. STEWART

BY a sad coincidence, the funeral of the late Mr. J. F. Stewart occurred on the same day as that of Mr. G. K. Low. Mr. Stewart was Auditor of Receipts until 1922, when he retired and was succeeded by Mr. Low. Like his successor, he had long and distinguished service in the Department.

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By AERIO

THE RADIO SLEUTH

"AERIO'S" description this month of a simple apparatus for the location of trouble in battery-operated radio receivers should start the New Year well for his wireless readers.

THERE is never any uncertainty about the mood of the wireless enthusiast. He is either wallowing in delight, telling the tale about a set he has made which, of course, is the very "last word" in all things radio, or else he is torn with frenzy, metaphorically gnashing his teeth, foaming at the mouth, and contemplating comfortable suicide because his set won't work.

His luck is dead out. Everything was quite all right till somebody was invited around to have a look and a listen in; somebody who had been told what a wonderful set it was, but who left with a satirical smile, having heard nothing. If you want to test your receiver, by the way, invite a friend to look at it. If there is any weak point about the circuit it will be made evident then. Very few sets will consent to display their "top form" to strangers whom you want to impress.

However, if anything goes wrong, there is always some really good reason

for the temporary breakdown. It is that reason which so few are able to easily discover, because it is always one of an unexpected character. It is also a peculiar fact that breakdowns often occur when a receiver is idle, and it is then even more difficult to trace the cause.

Bitter experience enables me to indicate a few directions in which trouble may be searched for, and the little instrument here described has been specially designed to carry out the necessary tests quickly and without dismantling the set.

It can be constructed for a few shillings. In fact, many of my readers will already have the necessary gear on hand in their respective junk boxes, and as a worry saver it will thoroughly justify its place in your radio kit.

Components

- A small wooden box such as a cigar box.
- 1 Valve socket—UX type.
- 1 Single pole double throw switch.

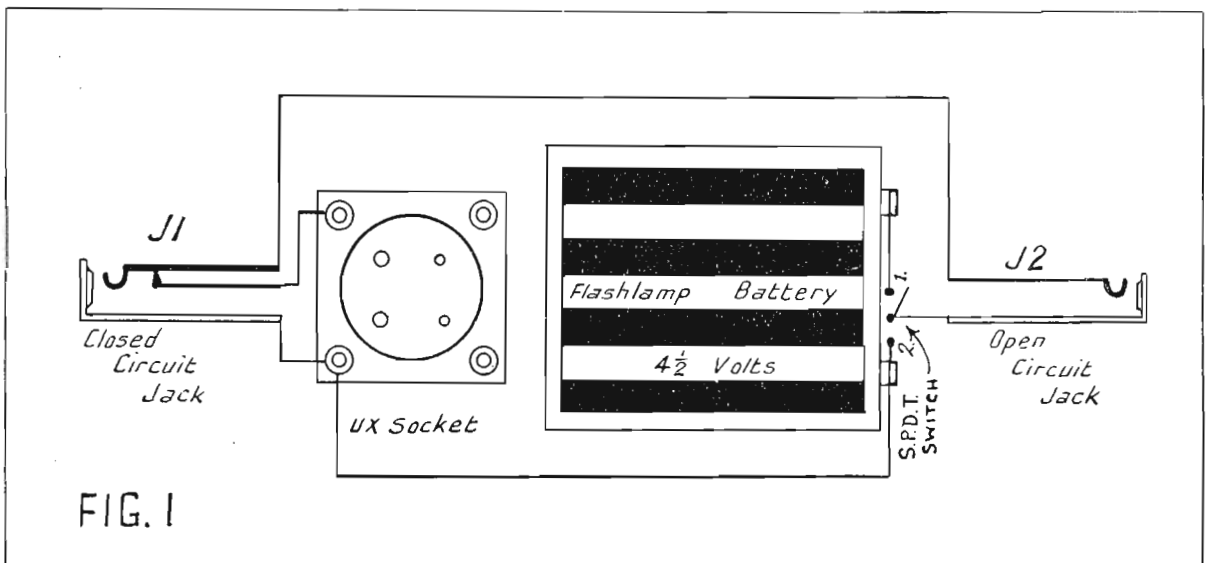
- 1 Single closed-circuit jack (J1).
- 1 Single open-circuit jack (J2).
- 1 Flash lamp battery, 4½ volt.
- 1 Old valve base.
- Flash lamp bulb (4 volt) and holder.
- Sealing wax from the top of an old B battery.
- 3 Yards of single rubber-covered flex.
- 1 Busbar.
- 1 Length of sleeving.

Construction

The circuit is shown at Fig. 1. Mount the switch and valve socket on the lid of the box; and Jacks J1 and J2 at one end, beneath the valve socket.

The flash lamp battery should be fixed in the box, and the remainder of the space partitioned off to provide storage for the plug-in section (Fig. 2), an extra lamp or two, plugs, flex, etc.

The apparatus should now be wired up with rubber covered flex, sufficient length being left to permit of the box being opened and closed without disturbing the wiring. The connections at valve socket are made to the filament terminals only.



The plug-in unit shown at Fig. 2 consists of the base of an old valve in which is to be mounted the lamp-holder connected by short wires to the filament pins only, the socket being afterwards filled up with sealing wax.

Two pieces of flex, each one yard long, should now be connected to a phone-plug, inserted at J2. If the free ends of this flex are now held together in contact the pea lamp should light up when plugged into socket and switch placed in No. 1 position.

For convenience in working, however, the free ends of the flex should be fitted with wooden or ebonite handles, to each of which is fixed about three inches of busbar, covered to within $\frac{1}{8}$ in. of the ends with insulated sleeving.

Finally the circuit (Fig. 1) should be pasted on the outside of the box, and instructions for various tests should be cut out and pasted on both sides of a piece of card which can be kept inside the box for reference.

Testing Filament Circuit

Remove valves from set one at a time and replace with pea-lamp unit which should light up when set is switched on. From the brightness of the light can be judged the condition of the A battery.

If the lamp fails to light, replace it in the sleuth, and with switch in No. 2 position, make contact with both terminals of the A battery, when the lamp should light. If it does not light the A battery is run down.

Provided A battery is O.K., and lamp fails to light when plugged into valve sockets in the set under test, the fault must be looked for in the filament circuit. Test rheostats, switches, contacts at valve sockets, and connections between the set and the battery.

Testing Filaments for Continuity

If lamp lights in all sockets, the valves should be tested for burnt out filaments as follows:—

Plug a pair of phones into the Sleuth at J2. Place valve to be tested in socket of Sleuth.

Now, upon making and breaking contact with No. 1 position of switch, clicks should be heard in phones.

If these clicks can not be heard, the valve is faulty and should be taken to a radio dealer for final test before replacement.

Supposing, however, that the valves pass this test, the plate circuit should now be looked over.

Testing the Plate Circuit

First make sure that leads from B battery to set are O.K. and in firm contact with plugs and terminals and that B battery is connected the right way around.

With valve in set and all batteries on, the sleuth is brought into commission as follows:

Plug phones in at J1 and contact tips at J2. Place switch in No. 2 position.

Now disconnect B-lead from the set, and on inserting the Sleuth between it and B-on the battery by means of the contact tips, very loud clicks should be heard in phones.

If these clicks are weak, the battery should be removed for test.

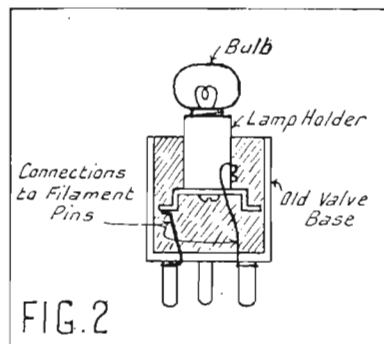
If strong clicks are heard, the B-lead should be again connected to battery, and each of the B+ leads tested in the same way.

Dead silence or very weak clicks in any of the B+ leads probably indicates a burnt out choke or primary of transformer in the set.

Rough Test for B Battery

In the absence of a volt-meter the following test will roughly indicate the condition of the B battery.

Phones and jacks are removed from J1. Switch placed in No. 2 position;



contact tips plugged in at J2. Lamp holder plugged in.

One of the contact tips is held in contact with B-on battery under test. The remaining tip is sharply brushed across the next higher voltage of battery. The lamp should flash according to the voltage applied. The tips are then placed between the voltage just tested and the next higher voltage, and so on until the whole of the battery has been tested.

If the voltages between tappings are fairly high (say 16 volts) there is of course risk of burning out the pea-lamp if the battery is up to its rated voltage. A sharp, brushing contact will, however, minimise this risk.

When testing a light-duty B battery, tapped every $4\frac{1}{2}$ volts or so, if it be found that the lamp will not light when connected across any particular tappings, these should be bridged over permanently with busbar.

On no account leave the lamp in circuit with a section of the B battery for more than a moment at a time or the battery may be damaged.

Testing Chokes, Transformers and Coils for Continuity

Plug phones in at J1; contact tips at J2; switch in No. 1 position.

Contact tips are placed across terminals of choke or transformer to be tested, resulting in clicks in headphones.

If no clicks can be heard, the wire in component under test has been broken.

Note.—When testing a transformer without removing from set, it may happen that a fixed condenser is connected across the windings, in which case, if the transformer be burnt out, one click will be heard in the phones when contact is made, this being occasioned by the condenser charging up. Subsequently no clicks will be heard until the condenser is discharging again by shorting its terminals.

Testing Condensers for Insulation

Remove phones from J1; place switch in No. 1 position; contact tips in J2; lamp in socket.

With tips in contact with terminals of a variable condenser, rotate dial, and if lamp lights, plates are touching.

If lamp lights when tips are placed across a fixed condenser, the insulation has been broken down.

Aerial Insulation

Disconnect aerial and earth from set and connect them to contact tips, with switch in No. 1 position and phones in. If clicks are heard in phones, the aerial or lead-in has become earthed in some way.

Other Tests

Grid leaks and resistances. Loud speaker or phone windings. Speaker or phone cords. Continuity of wiring in sections of set, etc.

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New Steam Unit, The Locomotor, Develops 600lb. Pressure

A NEW and unique high pressure steam engine that promises to maintain the supremacy of steam for transportation purposes in many important divisions of the railway field, where electrification or motorisation has been considered, has been acquired by the Milwaukee railroad, U.S.A.

This new type of motive power is named in honor of its progenitor, the locomotive, and is called the "Locomotor." The first unit went into service towards the end of last year.

Decade of Research

The development of the Locomotor has covered 10 years of work in the laboratories of the International Harvester Company, and during the last three years practical service tests have been made in conjunction with the Milwaukee road by the Harvester Company and the Ryan Car Company, who are putting it on the market.

To all outward appearances, the Milwaukee road's Locomotor resembles a modern steel baggage car. It is sixty-one feet long and weighs 117,000 lb. Steam is generated in a small compartment in the forward end of

the car where the controls are located. The engines themselves are fastened under the car to permit the floor space being used for baggage, express and mail. The number of coaches that can be hauled by the Locomotor is determined by the schedule to be maintained and the grades encountered in the territory where it is to be operated.

Three Times Normal Pressure

The new unit uses steam at six hundred pounds pressure, which is about three times the normal pressure of the modern steam locomotive. Steam is not stored in any large quantity but is made only as needed. The fuel used is either distillate or ordinary furnace oil, automatically fed, and is burned so completely that there is no smoke. Unlike gasoline exhaust, the gases from the burned fuel are said to be not poisonous. The steam itself is condensed and the recovered water is used again to make steam.

Power is applied to both rear and forward axles without the interposition of transmission gears. Journals are of the new roller-bearing type, enabling the car to be started with a minimum of tractive effort, and without noise or vibration.

The Milwaukee road (says the *Brotherhood of Loco. Firemen and Enginemen's Magazine*) has in mind various runs where the Locomotor promises economies in operation and benefits to the communities it will serve, while maintaining the road's high standard of service.

"This new development indicates that the possibilities of steam have not been exhausted for transportation purposes, and steam may yet prove superior to the substitutes that have been offered, without the necessity of making radical changes in equipment and other facilities," says Mr. J. T. Gillick, vice-president of the Milwaukee Company.

Highly Successful Test

The first of these smokeless steam Locomotors went from Chicago to Elgin and back recently, making the run of sixty-six miles in less than two hours, including several stops, and reaching a speed of fifty-five miles per hour.

The Baltimore and Ohio and the New York Central are said to have ordered Locomotors, and their performance is being studied by several other roads.

Buy the Engagement Ring at Newman's Realization Sale



9,274—18ct. Gold, Platinum Settings, 3 Diamonds. Usually £18 Sale Price £14/8/-



9,272—18ct. Gold, 5 Diamonds. Usually £5. Sale Price, £4. Sapphires or Rubies and Diamonds. Usually £4/10/- Sale Price, £3/12/-



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9,376—Dainty Diamond and Sapphire Ring, 18ct. Gold and Platinum Settings. Usually £25. Sale Price, £20



9,253—18ct. Gold, Platinum Settings, 8 Diamonds. Usually £20 Sale Price, £16



9,341—18ct. Gold, Platinum Settings, 14 Diamonds. Usually £15 Sale Price, £12



9,290—18ct. Gold, Platinum Settings, 9 Diamonds. Usually £15 Sale Price, £12



9,262—18 Diamonds, Platinum Settings. Usually £22/10/- Sale Price, £18

(W-McF)

RAILWAYMEN in SPORT

By REG. HUNT

Cricket Season Half Over

MATCHES in the competition for the Commissioners' Cup are now in full swing and approximately half of the V.R. Cricket Association's season is over. To date, only two of the eleven teams have not suffered a defeat, viz., Electrical Engineers and Way and Works. Several good individual performances have been registered, the most notable being Blake (Elect. Engineers) 106, O'Brien (Newport) 82, Anthony (Tel.) 73, Ellis (Coburg) 6 for 18, Hutchinson (Elec. Engineers) 5 for 13, Vance (Way and Works) 4 for 13.

Keen interest is being taken in the competition and the team to represent the Victorian Railways in the Interstate matches to be held in February will be selected in January. Scores in games played last month as follows:—

Elec. Engineers 169 (Blake 106, Miller 24, Hutchinson 2 for 16, Starr 2 for 15), defeated Signalmen 129 (Waters 44, Shaw 20).

Newport 173 (O'Brien 82, Foran 21 and 2 for 32), defeated Telegraph 110 (Anthony 73, Espie 17, Lowenthal 2 for 32, Ryder 1 for 12).

Way and Works 76 (Morrissey 22, Masterton 19, Mumford 3 for 11, Vance 4 for 13, Prouse 2 for 4), defeated Loco. North 36 (Stevens 12, Norman 11).

Melbourne Yard 138 (Patterson 50, Hogan 29, Welch 6 for 40), defeated Essendon Line 95 (Barrett 43, Coates 21, Sawyer 3 for 23).

Signalmen 91 (Waters 39, Berry 6 for 33), defeated Newport 77 (Buckley 19, Carter 4 for 32).

Williamstown Line 122 (Lee 38 and 3 for 34, Pascoe 37, Barrett 5 for 28), defeated Melbourne Yard 68 (Newman 23, Welch 5 for 35).

Coburg 162 (Ploog 46, W. Flynn 41, Ploog 4 for 21, Ellis 4 for 38), defeated Telegraph 76 (Lowenthal 20, Orchard 17, Powell 3 for 45, Espie 2 for 18).

This Month's Fixtures

Following are the fixtures for January:—

January 6, Elec. Engineers v. Essendon; 8, Jolimont Yard v. Williamstown; 10, Way and Works v. Newport; 13, Melbourne Yard v. Coburg; 15, Signalmen v. Telegraph; 17, Loco. North v. Newport; 20, Essendon v. Williamstown; 22, Melbourne Yard v. Way and Works; 24, Jolimont Yard v. Coburg; 29, Elec. Engineers v. Telegraph; 31, Signalmen v. Essendon.

FOLLOWING FATHER



YOUNG Reg. O'Haire of the Accountancy branch promises to dog paternal footsteps. Sixteen years ago, T.R.O. Sep. O'Haire of Ararat was one of the finest middleweight boxers in Australia.

Coached by Larry Copeland of the Victorian Railways Institute, Reg. has packed the last four of his 21 years with a winning series of knock-outs, technical k.o.'s and points decisions.

His recent awards include the open welterweight championship of Ballarat for two successive years, and he has been interstate railway champion for the last three years, having accompanied the V.R.I. team of athletes to all States except Western Australia.

In the Victorian amateur championships this year, Reg.'s victor in the final later won the Australian amateur title in Tasmania. And it's worth mentioning here that Reg. had wrestled the Ballarat title from him earlier in the year.

The decision of the Victorian Amateur Boxing and Wrestling Union to send representatives to Adelaide, gives the Institute boxer a further chance for laurels. When the Magazine went to press, Reg. had just left to fulfill predictions. His ambitions, and they are justified by expert opinion, are in the direction of the 1932 Olympic Games.

COUNTRY SPORT

THE Ouyen Railways cricket club, in the local competition, recently defeated the Bronzewing team, the scores being:—Bronzewing 52 and 8 for 59; Railways 115.

The best performers for the Railways were:—Bowling, Rankin (3 for 30), White (4 for 31) and Lucas (6 for 19); batting, Lucas (34) and Goodal (53).

ENDEAVORS are being made to form a social club at Maryborough, and it is expected that a cricket team from the head office will visit this centre during the holiday period.

Position of Inter-branch Tennis

THE postponed "B" grade matches were played on November 27, and resulted in a win for the Accountancy branch and Refreshment Services teams.

PREMIERSHIP POSITIONS

"A" GRADE

	Rubbbers		Pts	
	For	Ag't		
1—Transportation No. 1	9	3	75	11
2—Rolling Stock Branch	8	2	80	8
3—Way & Works Branch	6	4	60	6
4—Accountancy Branch	4	6	40	6
5—Electrical Branch	4	8	33	6
6—Secretary's Branch	5	5	50	4
7—Transportation No. 2	7	5	58	3
8—Stores Branch	1	7	12	2
9—Signal & Telegraph	2	6	25	0

"B" GRADE

1—Secretary's Branch	5	1	83	6
2—Refreshment Services	4	1	80	4
3—Traffic Branch	3	3	50	4
4—Accountancy Branch	2	4	33	2
5—Stores Branch	3	2	60	2
6—Construction No. 1	3	3	50	2
7—Signal and Telegraph	2	4	33	2
8—Construction No. 2	1	5	17	0

Head Office Tennis Championship Tournament

THE 3rd annual tournament of the Head Office Tennis Association was commenced on November 19th at the River Tennis Courts at Hawthorn Bridge. Results to date:

Singles Championship

1st ROUND

Cobham, A. W. d. Tranter, 6-2, 6-2
Carmichael d. Langford, 6-3, 6-5
Barrow d. Stenning, 6-0, 6-5
Williams v. Burns, walk-over
Coulson d. Campbell, 6-1, 6-3
Wright d. Lee, 6-1, 2-6, 6-3
Howard d. Letham, 3-6, 6-3, 6-3
McIver, K. d. Ruff, 6-1, 6-2
Ahern d. McDonald, J., 6-1, 6-1
Renfree d. Raines, 6-5, 6-4
Kennedy d. L'Huilier, 5-6, 6-2, 6-4
Ryan d. Black, 6-0, 6-2
Donaldson v. Watson, walk-over
Habgood d. Conroy, 6-0, 6-1
Johnstone d. Lane, 5-6, 6-4, 6-0
Arnold (bye).

2nd ROUND

Cobham, A. W., d. Barrow, 6-1, 6-3
Carmichael d. Williams, J., 6-5, 1-6, 6-3
Coulson d. Wright, 6-5, 6-4
McIver, K., d. Howard, 6-1, 6-5
Renfree d. Ahern, 3-6, 6-5, 6-2
Habgood d. Donaldson, 6-3, 6-2
Arnold d. Johnstone, 6-1, 6-4
Ryan d. Kennedy, 6-0 6-2

WRESTLING INSTRUCTOR GOES OVERSEAS

MR. BERT POTTS, wrestling instructor at the Victorian Railways Institute gymnasium, has applied for and been granted twelve months' leave of absence from the Department and from his duties as instructor at the Institute, to enable

him to visit America and Great Britain with a view to increasing his knowledge in the conduct of gymnasium work generally, and wrestling and physical development in particular.

Mr. Potts is taking leave without pay and is paying all his own expenses. A report was circulated through certain metropolitan newspapers that Mr. Potts was having his expenses paid by the Institute. This is incorrect.

During his association with the gymnasium, Mr. Potts has done excellent work on behalf of the members, and in this venture he carries with him the best wishes of the Council of the Institute and his colleagues.

FLINDERS-STREET STATION STAFF PICNIC

THE annual picnic of the Flinders-street station staff was held at Mordialloc on November 24 and December 1, in pleasant weather, about 600 journeying there by special train on each day.

The funds for this picnic, which is held on two days so that both shifts may attend, are raised by voluntary subscriptions on pay days. Toys, lollies, &c., are provided for the children and valuable prizes given for children's and adult races, in which much interest is taken. (Pictures on page 36).

The results were as follow:—

Sunday, 24th November

Special Boys' Race, 10 to 14 (sons of Guards and Porters only).—1st, K. Bain; 2nd, E. Dwyer; 3rd, R. Barham.

Special Girls' Race, 10 to 14 (daughters of Guards and Porters only).—1st, L. Valle; 2nd, I. Reid; 3rd, C. Bain.

Old Buffers Race.—1st, J. E. Bain; 2nd, J. Lockhead; 3rd, J. Drysdale.

Porters' Race.—1st, J. Gately; 2nd, G. Somerville; 3rd, J. Coad.

Suburban Guards.—1st, C. H. Smith; R. G. Hunt; 3rd, O. King.

Married Ladies.—1st, Mrs. Walsh; 2nd, Mrs. Sparks; 3rd, Mrs. Stewart.

Single Ladies.—1st, Miss Lynch; 2nd, Miss McNamara; 3rd, Miss Duffy.

Committee Race.—1st, G. Pike; 2nd, C. Sullivan; 3rd, T. J. Valle.

Wheelbarrow Race.—1st, E. Trew; 2nd, O. King; 3rd, J. Millen.

Sunday, 1st December

Special Boys' Race (sons of Guards and Porters only).—1st, M. Dwyer; 2nd, J. Joseph; 3rd, W. Hogan.

Special Girl's Race.—(daughters of Guards and Porters only).—1st, J. Drysdale; 2nd, E. Dickenson; 3rd, E. Aiken.

Old Buffers.—1st, S. Romsbury; 2nd, H. McDermott; 3rd, W. Lambert and H. Griffin, dead heat.

Porters' Race.—1st, M. O'Brien; 2nd, C. Morgan; 3rd, A. Lingham.

Suburban Guards.—1st, A. Dickenson; 2nd, L. Jordan; 3rd, L. O'Toole.

Married Ladies.—1st, Mrs. Legge; 2nd, Mrs. Barnes; 3rd, Mrs. Hayes.

Single Ladies.—1st, Miss Brown; 2nd, Miss Oates; 3rd, Miss G. Stark.

Committee Race.—1st, H. Krieger; 2nd, A. Billson; 3rd, W. Laing.

Wheelbarrow Race.—1st, R. J. Bowman; 2nd, L. Jordan; 3rd, S. McGrugan.

TRAIN LIGHTING DEPOT PICNIC

A VERY successful picnic was held a few weeks ago at the Aspendale Park racecourse by members of the Train Lighting Depot

Social Club.

The club has only been in existence for two years, but, owing to the enthusiasm of its committee and its members, it was enabled to provide luncheon and dinner to members, their families and their friends. After the sports program was concluded, dancing was conducted in the hall until the evening, when the picnickers returned home after voting that they had had a most enjoyable day.

What an outcry there would be if as many people were killed in railway accidents in a year as lose their lives in two or three weeks on the roads.—*Lord Mowbray in the "Evening News."*

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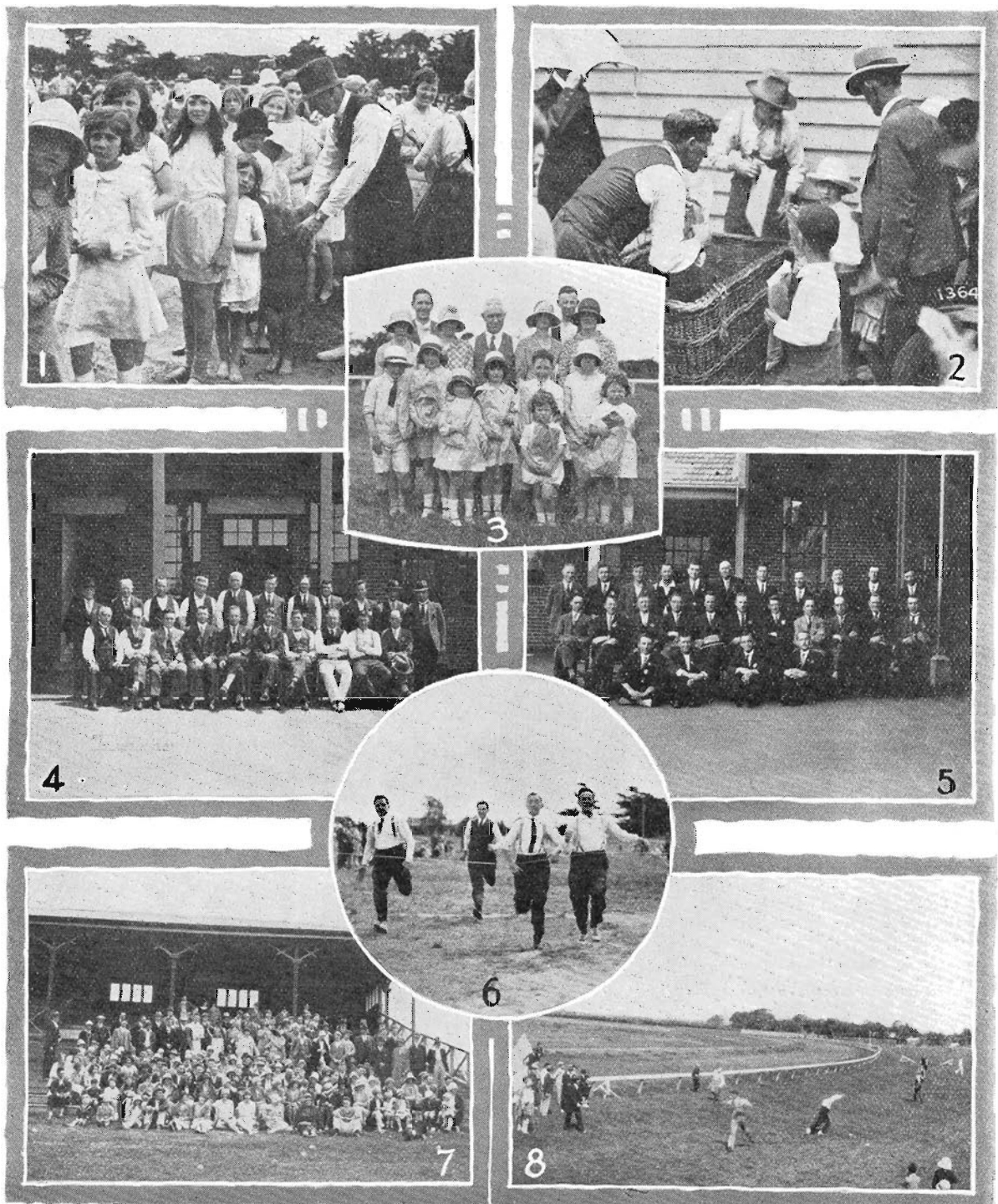


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Railwaymen and Their Families at Play



1, 2, 3, and 6.—Scenes at the Flinders-street Station Staff's annual picnic at Mordialloc. 4 and 5.—The committees which organised the two-day outing. 7 and 8.—The Social Club of Train Lighting Depot held a very successful picnic at Aspendale.

ARE YOU sticking too Close to your Business ?

YOU see them in every business—men who work too hard, who grudge themselves leisure, who are rigidly bounded on all sides by the limits of a knowledge that is founded purely on specialisation as confined to their own immediate needs.

Then there are the heads of what were once promising concerns—men who for years have guided their businesses always from "the inside." What the outside world was doing has in no way affected the conduct of their affairs. A time comes, when worn out by the struggle, they ask themselves if it has all been worth while. Jones can play golf twice a week. Brown sends his family abroad for a year. Such things are not for them.

In every instance these men are sticking too close to their businesses—or their jobs.

For them, and for you too, should you feel that you are in danger of developing a "One-track" mind, Hemingway & Robertson have incorporated in their Training Syllabus the finest post-graduate business courses the world has known.

These splendid courses compiled by the Alexander Hamilton Institute of the United Kingdom and U.S.A. deal in a broad and far-reaching manner with the trend of modern business today. Controlled and adapted as they are for Australia by so old and well-known a tutorial organisation as H. and R. they bring to the Australian executive a wider vision and breadth of knowledge that has already benefited more than 350,000 business Principals.

As one authority writes "the fortunes of today and tomorrow await students of these invaluable Institute Courses."

Hemingway and Robertson will be pleased to post you FREE, either or both of their descriptive books. "Forging Ahead in Business" tells you all you want to know about "Modern Business." "Progress and Profits" is the title of the book describing "Modern Merchandising."



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The Modern Merchandising Course and Service

SPECIALLY compiled and quite distinctive from the Modern Business Course—this splendid series of richly bound volumes contains a complete statement of the principles underlying modern merchandising and store management as conducted in the world's greatest business centres. The Science of Business, Store Management, Selling, Advertising, Accounting, are a few of the titles. This course is also accompanied by the regular monthly service to subscribers as described above.

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UP COUNTRY



First of Season's Wheat

The first load of new season's wheat has been delivered to the Nhill mill by Anderson Bros., of Woorak East. It was a fine sample of Free Gallipoli, which is beating Federation in the West Wimmera. Mr. G. M'Ewen delivered a load of Rajah, a good yielding early variety, and Mr. H. Frost delivered the first load at Netherby, which was also of the Rajah variety. Harvesting operations are not yet general on account of the cold weather prevailing. The crops on the light land are yielding exceedingly well, and the crops generally will turn out far better than was anticipated.

Wool Traffic

Wool is still coming in freely at many of the highland stations, but at this stage it is apparent that the clip will be considerably below last year's record of 135,000 bales from the district. Up to November 27, a total of 95,507 bales had been railed.

Wheat Hopes

During November a few welcome rains fell throughout the Bendigo district, but adverse conditions continue to prevail, necessitating large consignments of stock being forwarded to other districts for agistment. It is hoped, however, that the wheat crop will have somewhat benefited and that a heavier grain will be realised than was estimated last month.

Racing Arrangements Please

The Bendigo Races were held last month, when a record for these meetings was established. On the first day nearly 1,000, and on the second day approximately 700 passengers travelled from Bendigo to the racecourse by rail, in addition to many conveyed by road in the numerous cars which seized the opportunity to ply for hire to the racecourse grounds from the city. The traffic was handled in a very satisfactory manner, and one of the leading trainers of the State spoke highly of the arrangements made at the racecourse for the prompt handling of the horses after the races, and particularly appreciated the presence of a clerk in the Secretary's office to accept consignments of horses for the return journey.

Kingston's Rainfall

The rainfall for November at Kingston, according to the official figures supplied to the council on Thursday by the secretary, Mr. R. Summers, was 146 points, against 36 points last year. For 11 months it totalled 2445 against 2852 last year.

Hay and Peas

The hay crops on the Bellarine Peninsula are particularly heavy and a reflex on the favourable conditions experienced throughout this area where heavy pea crops are also being harvested.

Wool Figures

Up to date, 140,963 bales of wool have been received at Geelong against 157,426 bales during similar period last year.

Citrus Traffic

Up to the end of November, 20,668 cases of oranges and 2,966 cases of lemons were railed from Mildura this season.

Seventeen Picnic Specials

At the Bendigo Sunday Schools' annual picnic, nearly 6,000 passengers travelled to Ravenswood, Castlemaine, Axedale, Bridgewater and Marong. This involved 17 special trains running in quick succession, in addition to a race special for Boort and a show special for Heathcote. This day is observed as a holiday in Bendigo, all business places being closed, and many relatives and friends of the children accompanied them to the picnic grounds. Unfortunately, the occasion was somewhat marred by heavy rain which fell early in the afternoon, and, in the absence of sufficient shelter at the various grounds, the different organisations hastily appealed for the return trains to be placed in running as quickly as possible. This was promptly arranged and the children were brought in before any suffered harm from the rain and wet grounds. The various secretaries have spoken in high praise of the manner in which their special requirements were met, and have written in appreciative terms to the Secretary for Railways thanking all concerned for their excellent efforts in this connection.

Stock Moving

The local Bendigo stock sales continue to be heavy, a large number of trucks being received for Monday sales by early trains for despatch. After the sales it is imperative that the animals be promptly despatched to their various destinations, and this is carried through without any hitch whatever and to the satisfaction of the different livestock agents.

Dust, Rain and Dust

Some idea of the dry state of the country around Ouyen is gained, when it is learned that, following a fierce dust-storm, 57 points of rain fell, but that, within a few hours, another dust storm was raging.

Heavy Fruit Packs Assured

The frequent spells of cold weather in the Goulburn Valley have had an adverse effect on the ripening of the early peach and apricot crops and have resulted in the fruit coming in somewhat slower than usual. However, heavy packs of all classes of fruit are assured. The fruit-growers in the Shepparton district have organised and arranged to truck a large quantity of fruit from cool storage. This fruit will be transported to Melbourne, Sydney and Brisbane markets in iced trucks and it is hoped by this means to regulate the markets and so prevent gluts and unpayable prices.

Agricultural Outlook

Contrary to expectations, the light late rains in the North-East would appear to have had a beneficial effect on the crops. Harvesting is now in full swing on many of the northern farms in the district and the yield is considerably exceeding expectations in many instances. There are some particularly fine crops in the Peechelba area which are returning up to 33 bushels to the acre. So far as the whole of this district is concerned the yield will be more satisfactory than at first anticipated.

Fine Oat Crop

Notwithstanding the very dry season, there are some good crops in the Avoca district. One oat crop, measuring 6 ft. 10 in. in places and averaging 5 ft. 10 in., will give a good yield.

Beulah's Wheat Prospects

Thanks to the delightfully cool weather experienced at a critical period, combined with refreshing showers, the returns from local crops at Beulah are likely to be much better than was anticipated about a month ago. As a matter of fact some farmers will harvest as much grain as they would do in a really good season. Unfortunately this will not be the general experience, but many farmers who "fed off" earlier are now regretting having done so, as owing to the reasons stated a very large percentage would have got a deal more than seed from their acreage. On the other hand (says the *Beulah Standard*), there are farmers who will have wheat to sell, and one local resident, with several year's experience, anticipates that from 15,000 to 20,000 bags will be delivered at Beulah.

Fruit Survives Hail

Although considerable damage was caused by recent hail storms, especially in Batesford district, the prospects for a good crop of all kinds of fruit in the south-west are very promising.

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RAIL USERS SAY—

KEEPING THE TRAFFIC

I WOULD like to express my great appreciation of the help rendered to me by the staff and the S.M., in particular at Kilmore East, on all occasions, and especially in regard to my wool clip. On his own initiative, the S.M. found me a carter at a reduction on my usual rate from the woolshed to the station, and also, after I had finished loading and left the station, as the weather looked unsettled, obtained an extra tarpaulin and made sure that the wool should remain perfectly dry on its way to Geelong.

—Mr. S. R. Turner, Overdale, Kilmore East, writing to the General Superintendent of Transportation.

"SPLENDID SERVICE"

I AM instructed by the Tyabb Progress Association to write and inform the Railways Commissioners of the splendid service rendered by Porter A. McDermid, while temporarily in charge of the Tyabb railway station. He always proved capable, courteous, and obliging. In fact, local patrons state he often went out of his way to help local patrons of the Victorian Railways.

—Mr. Arnold Noble, honorary secretary, Tyabb Progress Association, writing to the Chairman of Railways Commissioners.

"YOUR SERVICE IS EXCELLENT"

MAY I express our entire satisfaction with the transport facilities offered to our Sunday School on Cup Day and congratulate your Department on the civility shown on every occasion. Your service is excellent.

—The treasurer, Chelsea Congregational Sunday School, writing to the Superintendent of Passenger Train Service.

WELL-PLANNED AND WELL-PERFORMED ARRANGEMENTS

AS secretary of the Newtown State School committee at Geelong, I would like to convey to you our congratulations on the very nice train which was provided for us last Saturday, to take the school children to Royal Park. The timetable you set out suited us admirably, and everyone concerned was more than satisfied with the excellent arrangements. We are also deeply grateful to the staff on the Geelong station, who carried out their duties in a most courteous manner, and especially to the staff in the booking office, who gave whatever assistance they could.

—Mr. E. H. Wyatt, secretary, Newtown State School, 58 Gertrude-street, Geelong West, writing to the Superintendent of Passenger Train Service.

SERVICE FOR INVALID TRAVELLER

I HAVE lately had occasion to make arrangements for the travelling comfort of an invalid relative of advanced years from Wahgunyah to Melbourne, and wish to express my grateful thanks to those of your staff concerned in the

THE BEST WAY!

IN these days when one national asset, the Victorian Railways, is being subjected to so much competition, the following is interesting. Having to remove my furniture from Rupan-yup to Stawell, a distance of 36 miles by road and no less by rail, I considered it would be to my advantage to secure a motor truck and load at my door, to be unloaded at another house in Stawell. The Rupan-yup S.M., a courteous officer, and alive to his job, hearing that the removal of my furniture was about to take place, approached me with a request that it should be transported on the railways. He assured me that the loading would be personally supervised by himself and guaranteed a satisfactory job. I decided to accede to his request.

The result, I am pleased to say, was entirely satisfactory. The furniture arrived in good condition, and the total cost, including cartage at each end, was £5 19s. 4d., made up as follows—carrier at Rupan-yup to station (close carting), £1 10s.; railway freight to Stawell, £2 14s. 4d.; carrier, Stawell to house, £1 15s. Total, £5 19s. 4d. As it required two trucks and a two-horse lorry to convey from railway to house in Stawell, you will have some idea of what the cost to me would be if conveyed by road on trucks, and further as there is about five miles of pothole road between Rupan-yup and Stawell, some damage would necessarily result.

Mr. Albert V. Phillips, Stawell, writing to the Chairman of Railways Commissioners.

carrying out of the arrangements made, which were highly satisfactory, and made more so by the courteous attention, more particularly of the Wahgunyah stationmaster and the conductor on the Limited Express from Springhurst to Melbourne.

—Mr. G. S. E. Anderson, "Ballinrabe," Wahgunyah, writing to the Chairman of Railways Commissioners.

VISITING RAILWAYMAN'S IMPRESSIONS

I DESIRE to express my appreciation of the courtesy and attention shown to me by the whole of the staff of your railways during my recent visit to your State. Being somewhat interested in your safeworking systems, I was given the opportunity of visiting some of your more important signal boxes and your suburban system, and could not help admiring the attention and assistance that was afforded me during the whole of my visit, this attention not being given because those with whom I came in contact knew that I was a visitor from the adjoining State, as in many instances I did not make myself known to those from whom I was seeking information, but, after closely mingling with all grades of your staff, I found that the courtesy and civility shown to me was extended to all travellers in Victoria, and I cannot fail but mention a few cases that came directly under my notice. During a trip on the Box Hill line, whilst the train was standing at Hawthorn, I noticed a lady on the platform with a child in a go-cart, and, although she was about three carriages away from the guard's compartment, he, the guard, very kindly came to her aid and assisted her into the guard's compartment thus obviating the necessity of the child being out of the go-cart, a kind and thoughtful action on the part of the guard, I thought. On another occasion, I was returning from Williamstown and, at Newport, I noticed the guard giving a deal of attention and assistance to an aged couple who were boarding the train at that station. There were many similar actions which came under my notice, and it appeared to me, that the staff considered it a part of their duty to always render assistance where possible. In order to convey to the staff an appreciation of their many acts of kindness shown to me, I would be pleased if you will publish this letter in the Victorian Railways Magazine.

—Mr. A. Potter, Safeworking Instructor, N.S.W. Government Railways and Tramways Institute, writing to the Secretary for Railways.

SUCCESSFUL SUNDAY SCHOOL PICNIC

WE desire to thank the Railways Department for the consideration we received regarding our Cup Day picnic. We travelled by train from South Yarra to Parkdale and back and the courtesy of all officials was indeed a very real help.

—Mr. A. W. Ladbroke, Superintendent South Yarra Church of Christ Sunday School, writing to the Superintendent of Passenger Train Service.

Snap Their Childhood While You CAN

How fast they grow! Always changing—from babies to children—to school-boys and school-girls.

But you can keep them young in Kodak snapshots.

Get a Kodak or a Brownie to-day. Let no month go by without a few pictures—some for yourself and some for them (remember how you prize the snapshots of your own childhood).

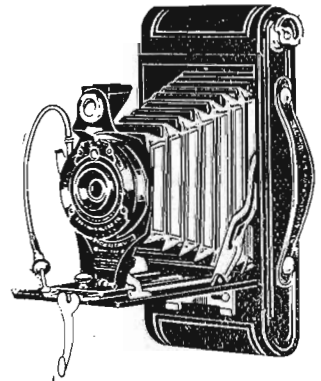
Prices: Brownies from 11/3; Kodaks from 26/6; Hawk-Eyes from 42/6.

Of all Kodak Dealers and

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TO HOTEL AND BOARDINGHOUSE KEEPERS, PROGRESS ASSOCIATIONS, HOUSE AGENTS, ETC.

The V.R. Magazine is sent each month to 30,000 railway homes. Of this number there are 1,200 railwaymen on leave for an average of a fortnight at any time of the year with free passes over the whole State railways systems. It therefore offers an unparalleled medium for making known holiday resorts, accommodation, etc. For rates and fuller particulars write the Advertising Manager, Victorian Railways, 623 Collins-st., Melb., C1, or 'phone C6414.

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Magnificent Mountain Scenery
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TARIFF, 30/-

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(Late Vict. Railways)

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"Mounterie," Healesville

A restful, charming home, amid beautiful surroundings, combined with care & comfort. Your holiday is assured. Excellent Table. Home produce, Milk, Cream and Poultry. F.L. H.B. Garage. Spacious Verandah. 10 minutes Station. *TEL. 90*

Tariff, £2/10/- Misses Woodcock & Pynn

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Or Call *Government Tourist Bureau*

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MINERAL WATERS

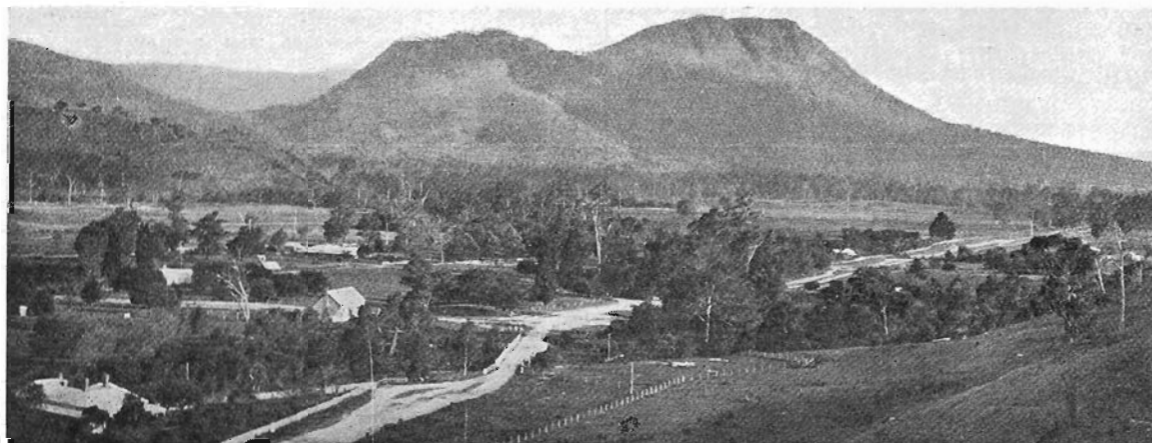
A boon to sufferers. A tonic to all.

Breathe the Mountain Air

**ENJOY the SCENIC
BEAUTIES**

Inserted by the Daylesford District
Publicity Committee. 'Phone 232

J. C. Proudfoot
Hon. Sec.



Cathedral Mount, Alexandra



Conducted by EILEEN to whom all communications for this feature should be sent

NEW YEAR RESOLUTIONS

WITH the coming of the New Year, the custom of making new resolutions again comes before our minds. Some people are under the impression that these resolutions are simply made to be broken at the first opportunity. This is the wrong spirit in which to make them, and we should think well and be determined to keep our resolutions before attempting to make them.

Resolutions That Pay

I think that, after the trying winter the Melbourne public has just passed through, one of our resolutions should be to save for a definite purpose. Girls in business require at least one holiday a year to refresh them for the following year's work, and if each one of us bound herself down to banking a certain amount each pay day, think of all the worry and trouble we would save when our annual leave was due. The usual practice is to make a big effort as our leave is drawing near, when there is the accommodation, and clothes bill to be met. Sometimes the strain is more than the holiday is worth.

If we put aside a definite amount out of each pay, our accommodation troubles are over, and the next thing is to watch the shops for bargain materials, and to think ahead. Would such and such a material be suitable for holiday wear? If it is really cheap, then buy it and put it away until needed. The January sales are a good time to buy; remnants are put out at very reasonable prices, and I have seen some very



These two smart summer frocks are quite simple to make and are cool and comfortable for the warm weather.

pretty dress materials on these tables, also crepe de chene, etc., suitable for

pretty undies.

Another good resolution among business girls would be to do as much as possible for themselves during the coming year. There is no reason why every girl should not be able to sew and cook in proper style. Most girls can sew if they only put their minds to it, and there are night schools with sewing classes at a very reasonable fee for teaching this art. One of the main points to remember in sewing is that patience is indeed a virtue, and a great help when one is trying to make a difficult frock. The girl who is impatient and drops her work at the first difficulty will never make a success of sewing. Patience brings its own reward when we are able to have two or three frocks for the price we formerly paid for one.

Learn to Cook

Most girls laugh when you suggest that they should learn cooking; but one never knows when one may be called upon to do this work. Perhaps it may be an invalid, when the food to be served must be specially nice and tempting, or a very special friend when one likes to give the best obtainable. This course is also very cheap, and one night a week is not too much to give up for this lesson.

Many other resolutions come into my head, but I have not the space to write them down. The main thought, however, should be to keep the resolutions we make, and only to make good ones.

HOUSEHOLD HINTS

Cinnamon Scones.—Three cups flour, 1 tablespoon butter, 1½ teaspoons bicarbonate of soda, 3 teaspoons cream of tartar, 1 cup milk, 1 egg, ½ cup sugar, 2 teaspoons cinnamon. Rub butter into flour, add sugar, cinnamon, soda, and, lastly, milk and egg. Make into a soft dough, roll out and cut, bake in quick oven.

Woodwork.—White paint is the housewife's bugbear. If burdened with such, the best cleanser is a few tablespoonfuls of paraffin to a pail of nice hot water. This should be used with a soft cloth and some good household soap. When the ironwork is dry, go over the paint with a soft dry rag, to give a finished surface.

A little lemon juice in warm water will remove that oily, greasy look from the face and hands, in hot weather, or after tennis and other active exertions.

A good recipe for cleaning felt hats is said to be a mixture of flour and salt rubbed well in and then brushed off with a clean cloth.

COST OF BEAUTY!

EFFICIENCY experts in Chicago have discovered that women workers consume an average of 31 hours' working time a year in applying lipsticks and other forms of beautification.

The mail-order firm, among whose employees the study was made, evidently realizing the futility of any attempt at curtailment, has enlarged its mirror space so that the operations may be performed as speedily as possible.

RAILWAY ENGAGEMENT

THE engagement is announced of Miss Bell Haskell, typist at the Newport dining rooms (who has been in the rooms since the department assumed control), to Mr. Cliff Williamson of the Electrical Engineering branch, Newport.

WISE JOHNNY

Teacher: "Johnny, what are the two genders?"

Johnny: "Masculine and feminine. The masculines are divided into temperate and intemperate and the feminines into fugid and torrid."

A KIND THOUGHT

Helen: What are you knitting, Alice?

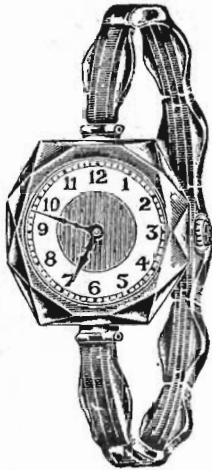
Alice: Something to cheer up the boys.

Helen: Why, the war was over long ago!

Alice: This is a bathing suit for me, my dear.

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A strong 9ct. Gold Wristlet Watch on a gold expanding bracelet to match. The high grade jewelled "Rolex" lever movement is guaranteed for five years.

OUR PRICE
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A dainty 9ct. Gold Wristlet Watch on a moire ribbon, with a gold clasp. The high grade 15 jewelled lever movement is guaranteed for five years. (As sold at £3/10/- elsewhere). Others £2/2/-, **£2/10/-** £3 upwards -

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In 15ct. gold - 12/6
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Initials engraved free




Gent.'s Solid Silver 15 jewelled Swiss Lever Wristlet Watch with a luminous dial. Stem setting, etc. Complete with a leather strap, and guaranteed in writing for five years.

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(10 year warranted gold filled case, 35/-)

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IDEAS, SKETCHES, ESTIMATES SUBMITTED ON REQUEST

Jottings From the Institute



The Maryborough Institute Debating Club which won last year's local tournament without a defeat. Back row : L. Dellar, W. Coker, A. B. Anderson, C. Stoneham, V. Took, and A. Barnes. Front row : R. Dawson, W. O'Brien, A. E. Stacey (vice-president), W. Cowan (president), E. Johnson (vice president), H. R. Jones and J. Hogan.

SOCIETY OF RAILWAY STUDENTS OF TRANSPORT

MR. SIMMS, Secretary of the Commonwealth Railways, has kindly consented to address the Society on the uniform gauge problem on the evening of Friday, January 31. All railwaymen interested are invited to attend this meeting which will be held in the Council Room of the Victorian Railways Institute at Flinders-street.

A supply of booklets containing all the examination questions set for the last examinations for graduation and associate membership of the Institute of Transport has been received from London, together with a number of copies of the complete syllabus for each subject of these examinations and other information concerning the activities of the Institute. Copies of the examination papers may be obtained, price 1/- each, from Mr. S. C. Weetman, c/o the Victorian Railways Magazine. A similar charge is made for the syllabus booklet, but the other material will be supplied free on request.

MARYBOROUGH DEBATERS' FIRST DEFEAT

THE Maryborough V.R.I. debating team, winners of the Maryborough interclub tourney, suffered their first defeat this year at the hands (or wits) of the Ballarat champion team.

The close and interesting contest was witnessed by a large audience in the local Institute rooms, and the visitors were afterwards entertained at an enjoyable supper in the refreshment rooms.

SIGNALMEN WANTED

THE defence problem having been automatically resolved into voluntary training, there comes a request from Lieut.-Col. J. E. S. Stevens for recruits to his "crack unit of the militia forces."

Commanding the 3rd Divisional Signals, he promises interesting work on Wednesday nights for men between the ages of 18 and 40 years—he mentions railwaymen in particular. Wireless, cable-laying, line telegraphy, telephony and visual signalling are included in the training at the Sturt-street drill hall.

The Adjutant, 3rd Div. Sigs., Sturt St., Sth. Melbourne, will gladly supply any further particulars.

WOMEN'S HOSPITAL APPEAL Charity Queen Quest

THE sincere thanks of the committee appointed to organise the campaign for the Railway Queen in her recent successful election, are extended to Commissioners, Heads of Branches, and all railwaymen throughout the State who contributed in any way either by cash or service.

The committee are proud to think that the Railway Queen should have been returned at the close of the poll as "Queen of Charity," and appreciate the fine spirit which prompted the response from the whole railway organisation.

RESULTS OF ART UNION DRAWING

THE Art Union organised for the £100,000 appeal for the Women's Hospital was drawn on November 23 in the Melbourne Town Hall before the Lord Mayor of Melbourne and leading citizens. Results were as follows:—

Latest Model Fiat Sedan, B. Rogers, Tungamah (253,139); two year old filly, A. Kelly, Glenormiston (70,126); billiard table and accessories, Tramway committee, (150,918); two trips to Tasmania, V. Elliott (267,948); case of cutlery, B. Wynne (98,367); set of dish covers, A. Galbraith (110,801); desk clock, D. Abbott, (106,719); H.M.V. gramophone, V. Butler, (24,351); ladies' gold watch, J. W. Mitchell, (147,965); 1 dozen pairs of stockings, J. W. Hicks, Jr. (11,615); gent.'s gold wristlet

watch, Nancy Smythe (192,321); block of land at Bittern (392,124); block of land at Bittern, Miss Condell (208,384); block of land at Bittern, Mrs. McGann (103,642); block of land at Bittern, A. Galbraith (392,381); carpet sweeper, Tramway committee (152,392); 8 days tour Grampians, Mrs. C. Whittaker (213,031); Airzone wireless set, Miss I. Stuart (45,598); portable Decca gramophone, Tramway committee (102,246); portable Decca gramophone, A. Galbraith (110,087); 5 decanters Eau-de-Cologne, Miss S. Lindsay (83,790); 1 pair crystal bowls, Miss L. McCarthy (117,878); 1 tennis racquet, A. Luckman (157,941); 1 pair golf clubs, Tramway committee (180,086); 1 barometer, Mrs. S. Holden (27,430); parasol, A. Galbraith (392,449); 1 pair silk pyjamas, J. Holt (17,041); 1 eiderdown quilt, Miss Glendenning (17,963); 20 lb. canister tea, Miss Edna Erskine (59,977); aeroplane flight, Les. Collins (137,279); aeroplane flight, Tramway committee (147,993); aeroplane flight, P. E. Potts (8,835); aeroplane flight, G. Kuhne (134,190); string of pearls, Dolly Bower (170,388); shaving outfit, Fred. Warton (57,328); travelling rug, Mrs. C. Collyer (383,579); Divinia casket perfume, G. Smith (375,791); ladies' hand bag, F. A. Rees (265,891); and electric iron, M. Lewin (260,707).

Prizes won in the name of A. Galbraith are being sold and proceeds devoted to increase the railways contribution to the Women's Hospital re-building.

Results of the drawing of the Art Union for which the railway 5/- books of tickets were issued will be published in next month's Magazine.

68-YEAR-OLD TIMETABLE

MR. ARTHUR ROGERS, retired railwayman and well-known railway antiquarian, sends word of a set of "Timetables of the Victorian Railways," issued on July 1, 1862. All the information which could be supplied concerning the railways in those days was compressed within the small space of 24 pages, measuring 2½ in. by 2¼ in.

"Motoring is a civilised amusement, if you do not go too fast; otherwise, you might much better be in an express train, which is far more comfortable, since you can read a book and stretch your legs. Railway travelling is also attended with less bloodshed."
—Dean Inge in *Evening Standard*.

VICTORIAN RAILWAYS INSTITUTE EDUCATIONAL CLASSES

1930

Classes are open to all Financial Members of the Institute

EACH member attending classes may obtain a Free Card Pass (First or Second class according to Departmental status) available from the station nearest his home to Flinders-street and return. Application to be made by the member to the Head of his branch.

The Class Year is divided into two terms of 20 weeks each term:—

1st TERM ... FEBRUARY 4 TO JUNE 22

2nd TERM ... JULY 1 TO NOVEMBER 16

SYLLABUS OF ORAL CLASSES

CLASS	FEE
ENGINE WORKING AND WESTINGHOUSE BRAKE	1/- Registration fee per annum
SAFE WORKING—Two and Three position Signalling, Electric Staff, Guards' Duties and Train Running, Double and Single line Block ...	1/- Registration fee per annum
STATION ACCOUNTS AND MANAGEMENT	1/- Registration fee per annum
TELEGRAPHY—Practice and Theory	FREE
ENGLISH COURSE—Grade 1	5/- per term of 6 months
Grade 2	
TYPEWRITING	10/- per term of 6 months
SHORTHAND	10/- per term of 6 months
BOOKKEEPING	21/- per term of 6 months
ACCOUNTANCY	42/- per term of 6 months
INTERNAL COMBUSTION ENGINE MECHANICS	20/- per term of 6 months

Any of the above classes will be commenced at Country Centre Areas on the enrolment of 10 or more students. Dependants of Country members are eligible to attend classes on payment of usual fees

CORRESPONDENCE CLASSES

Permanent Way Maintenance and Construction	1/- Registration fee per annum
Engine Working and Westinghouse Brake	1/- Registration fee per annum
Safeworking	1/- Registration fee per annum
Station Accounts and Management	1/- Registration fee per annum
Storemen's Duties	1/- Registration fee per annum
Telegraphy	FREE
Arithmetic	20/- per Course
Algebra	20/- per Course
English	20/- per Course
Shorthand	20/- per Course
Driver Foreman	60/- per Course

Correspondence papers are carried free per rail

Further particulars on application to the General Secretary, 3rd Floor, Flinders-street Station Buildings

ENROL -- OBTAIN KNOWLEDGE

THE FIRST ELEMENT OF SUCCESS IS THE DETERMINATION TO SUCCEED

What Does Spending Cost?

HOW much does it cost you to spend £100?

The answer is £100 down and at least £4 per annum for the rest of your life.



Yet what man would knowingly spend £100 that put him under obligation to pay £4 per year for life.



None, perhaps, but many do it unconsciously when they spend money that might otherwise have earned interest at 4% indefinitely.



Every pound you spend has attached to it an invisible string of pennies which you spend with it.



Keep your money in a Savings Account and earn, not spend, 4% interest per annum.

**Commonwealth
Savings Bank
of Australia**

(Guaranteed by the Commonwealth Government)

New Year Resolutions

Continued from page 10.

Asst. to Metropolitan Supt. T. Sullivan :

The public have a most up-to-date train service—one of the finest in the world—and my wish for the coming year is that our patrons will continue to utilise this fine service even more in the future than they have in the past.

Apprentice Fitter and Turner A. G. Davey, Newport :

I resolve that my education will not finish at the conclusion of my term of apprenticeship. I believe that my value to the railways will be increased by still further study.

Principal Clerk J. W. Gilbert, Newport Workshops :

I resolve to do what I can whilst passing along life's pathway to assist those less fortunately situated than myself.

Newport Dining Rooms Manager P. H. Canning :

Said the dining room manager to ev'ry man,

"We'll endeavor to please you the best way we can.

The meals that we serve you every day Are the best we can give you in every way ;

But our service won't shrink nor our efforts e'er stop

For the boys who work in the Newport shop."

Carbuilder J. H. Beere, Newport Workshops :

My resolve is to try to further the interests of the Safety First movement throughout the coming year. I strongly recommend all railwaymen to adopt this policy.

Clerk Reg. Hunt of the Metro. Supt.'s office :

There is in sport a spirit above self. For the New Year let us acquire that spirit and our work will not only be a joy but a credit to ourselves and the department.

Caretaker H. Skinner, Newport Technical College :

I resolve to drink more water.

Fitter F. Hollis, Newport Workshops :

I resolve that during the year 1930 I will strive for ultimate promotion to the best of my ability and in the interests of the department.

Waitress I. Haskell of the Newport dining room :

Said the girl in the shop who sells lollies and fruit,

Who gives you a smile and good measure to boot,

"Help us to help you," she says to herself,

"But don't let me catch you helping yourself"

Actg. Principal W. H. Grace, Newport Technical College :

Constantly showing apprentices how to solve and resolve and make resolutions in problems, factors, forces, velocities, good intentions and behaviour, Mr. Grace announces that he has "a standing resolution to help all without fear or favor."

Ideas from the Young Idea :

App. Electrical Fitter N. L. Harris :

To get my electric wiring licence as soon as possible and to follow up the latest developments in electrical engineering.

App. Fitter and Turner A. S. Herbertson :

To go my hardest at night school to qualify for an administrative position.

App. Fitter and Turner F. S. Colliver :

I resolve to continue my studies with a view to qualifying as a mining engineer.

App. Blacksmith R. A. Mowlan :

To persevere with my studies and become a thoroughly efficient engineering blacksmith.

App. Boilermaker C. W. Beaton :

To do my best to become a thoroughly efficient boilermaker.

LET US TEST YOUR EYES

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Messrs. Coles & Garrard have arranged that all Railway Employees and their families are to be included in their Special Benefit Plan. Have your eyes tested by these well-known opticians, who will allow you 20% discount

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App. Springmaker A. J. Clark :
I resolve to find out how to make better springs.

App. Fitter and Turner J. Charlesworth :

I resolve to take to the books a bit more—the school books, of course.

App. Moulder C. R. Milne :

To thoroughly learn my trade and to continue studies at night school with this in view.

App. Fitter and Turner A. Fithall :

My resolutions are to improve myself in my trade by further study and to try to become a champion runner.

App. Fitter and Turner R. G. Feltscheer :

To carry off the first prize at the May exams. and to learn to swim.

App. Fitter and Turner T. J. De Zoete :

To improve myself at my trade by attending evening classes in fitting and turning.

App. Patternmaker R. P. MacFarlane :

I resolve to finish my night school

course and to do my bit for the defence of Australia.

App. Fitter and Turner W. E. Stokes :

To continue my studies at night school and to become a qualified engineer.

App. Fitter and Turner R. Gillies :

I resolve to do some more hard work and to pass more subjects.

App. Fitter and Turner W. T. Grady :

I resolve to devote my spare time to the improvement of my education.

App. Moulder C. Sach :

My resolution is to obtain first place in the class at the May exams. and to be 100 per cent. efficient at my trade.

WASTED LABOR

THE Magazine has been interested in reports which have drifted in recently to the effect that two or three industrious readers have succeeded in proving to their own satisfaction that the calculations of a contributor, contained in an article in the November issue entitled "Spending the Railway £," were incorrect.

As the particulars set forth in this article were, of course, correct in every detail, the Magazine issues a cordial invitation to its unofficial censors to submit their amended calculations to the editorial office, where they will be duly corrected and returned, with mistakes indicated, to those responsible for their laborious and inaccurate compilation.

INJURIES—AND A GUILTY CONSCIENCE

ON a certain Irish railway a passenger put in a claim for personal injuries sustained whilst travelling by the night mail. He was seen by the company's medical officer, who recommended the payment of a certain sum as compensation, and on this being put to the passenger, he readily agreed.

Some little time afterwards the medical officer met the passenger, and during the course of conversation commented on the readiness with which the passenger had accepted the offer, suggesting that perhaps the injuries were not quite so extensive as the medical officer had thought.

The passenger replied: "Oh, I was hurt right enough, but I didn't wish to do anything which would be likely to lead to further inquiry. You see, on that night I was travelling without a ticket."

ANSWERS TO CORRESPONDENTS

L.E.R. (Patchewollock) and R.L.F. (Bungaree): Thanks. Will use prints as opportunity arises. L.K.M. (Malvern); Thanks for the opportunity to use, but sketch is far too slight.



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MIDDLE BROWN**

gives a brilliant lasting shine with a minimum of effort. Use it daily on your shoes, not only for appearance's sake but also because it preserves the leather.

THE "NUGGET" TIN OPENS WITH A TWIST!

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Market Street, Melb.

Books and New Books

Thumbnail Reviews by J. D. MICHIE

My Life on the Australian Turf.—By James Scobie. Just published, this book is full of intimate stories of men and horses, besides being richly entertaining. Horseracing has the widest appeal to Australian readers, who take especial interest in turf happenings. Anything relating to the horses of years gone by is vividly absorbed. In the smoking compartments of trains, and at camp fires in the bush, conversation often turns to the cross-country achievements of Jim Scobie and Tom Corrigan, the flat race victories of Tom Hales and Mick O'Brien, and the undetermined question as to whether Carbine was superior to Abercorn. (Our copy through Robertson and Mullen).

Ancestor Jorico.—By W. J. Locke. Mr. Locke, this time in the person of an elderly retired general, knows to a hair's-breath how much space he can take up in description of the characters, in details of their past lives, in marshalling them, in setting the stage, and in reflections by the way; which means that he is an accomplished spinner of yarns to whom you must allow scope for the exercise of his virtuosity if you want to be entertained.

The Affair at The Chateau.—By Mrs. Baillie Reynolds. This novel is somewhat of a thriller that doesn't seem convincing in its conspiratorial basis, but is readable for the interest aroused around the girl, the hero and the villain both seek to win. In such a setting the complications are many and even a rather creepy mystery is made of hypnotic powers in the service of diplomacy and spycraft. Provided one does not probe beneath the surface, The "Affair at the Chateau" is attractive as mere storytelling.

The Gun Tamer.—By Max Brand. Here is Max Brand at his brightest and best. Felipe Christobal Hernandez Consalvo was apparently the son of a great Mexican house. He was beautifully dressed, rode a valuable horse, was very young and exceedingly handsome. The old Colonel favored him immediately and asked him home. Mary, the Colonel's daughter, fell in love with him and apparently he with her; but the Colonel's wife was very doubtful and sent for the Sheriff. In fact, the Colonel's wife is the big character in this interesting book, for she it is who tamed the gun-man.

Lucky Star.—By Owen Rutter. Owen Rutter's latest novel is a wild and joyous extravaganza concerning the astonishing fate that overtook the village of Upper Shrimpton, which, by a mysterious convulsion of nature, became a tiny world of its own. The story of its adventures is told in a vein half of fantasy, half of satire, and through it moves the figure of Mr. Harold Drake, the little postmaster with the soul of an explorer, to whom Upper Shrimpton came to turn in the time of its extremity.

The Son of The Gods.—By Rex Beach. He was a prince and a millionaire—and so he met white people. But he found that the beautiful girl he loved wanted only the success his money could buy. And for that success, it seemed that the only price she was unwilling to pay was marriage to a Chinese. Mr. Beach, great teller of tales, here tells an amazing story of race prejudice, a story filled with surprises.

Wholly set up and printed in Australia at the Victorian Railways Printing Works, Launceston, North Melbourne, for the Publishers—The Victorian Railways Commissioners.

Winning the Success it's Quality Deserves—



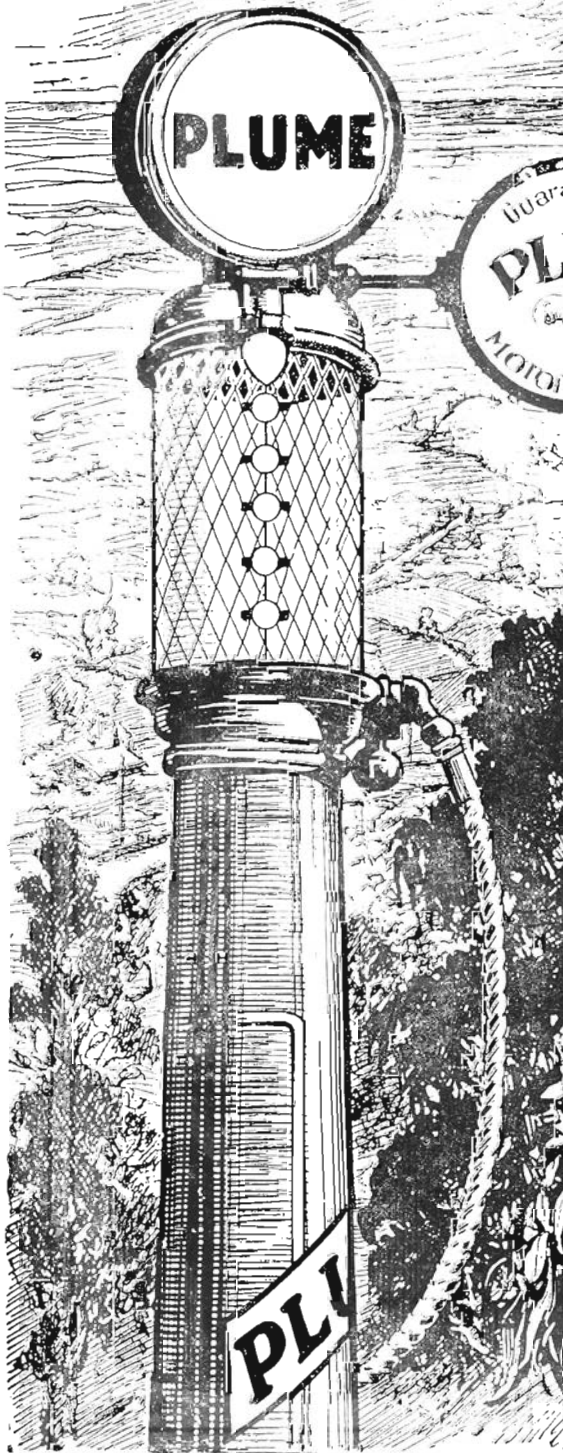
The unique flavor of Crystal Court Dry Gin is due to distillation methods which have been applied after world-wide research. Its crystal clear quality and its absolute purity are due to the fact that it is produced by a quadruple distillation process.

When next you ask for *Crystal Court Dry Gin*, ask also for the little free Booklet—"Here's How"—which contains a large variety of pleasing cocktail recipes.

At All Hotels and Bottle Departments
 Bottles 9/6; ¼ Bottles 2/9
 ½ Bottles 5/-; Nobbles 9d.

CRYSTAL COURT DRY GIN

Wherever you may go



*Plume Adds to the
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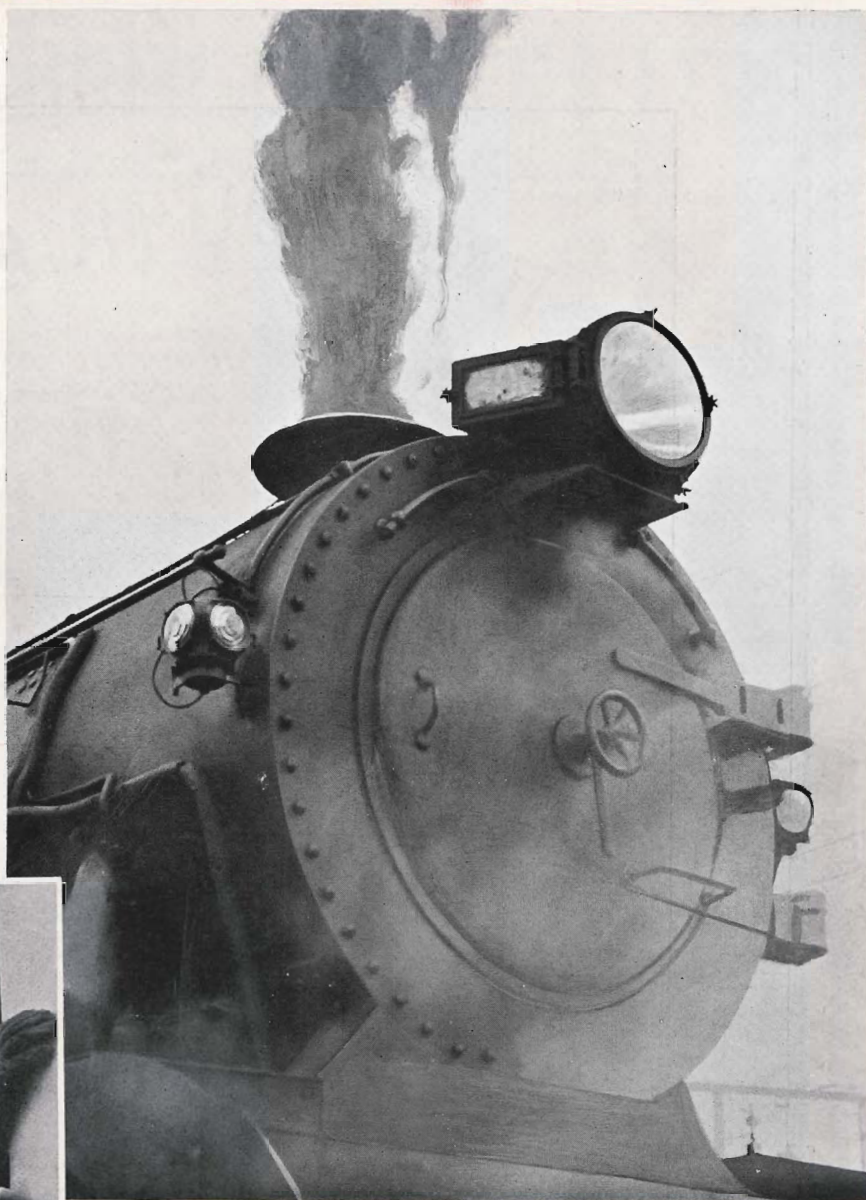
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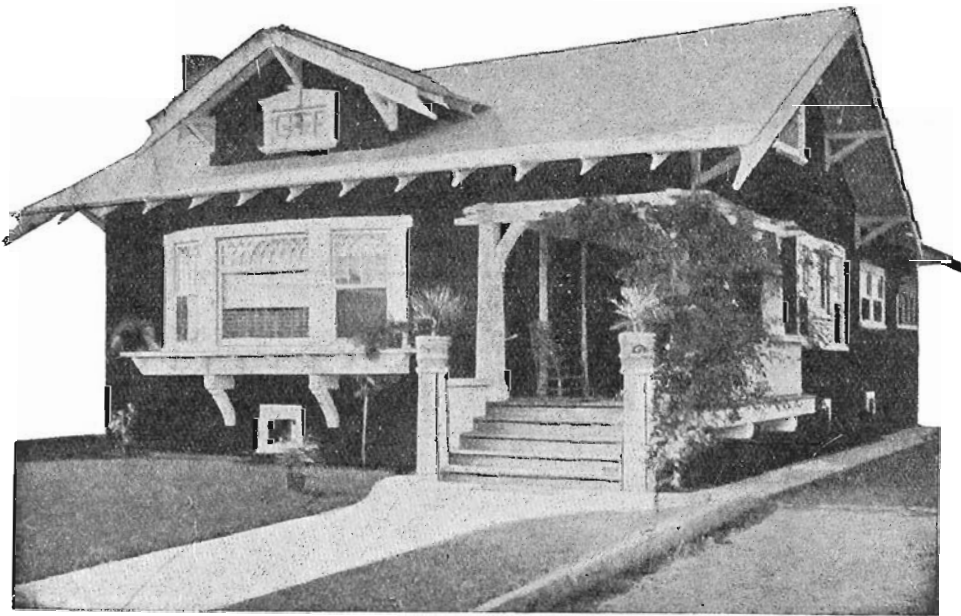
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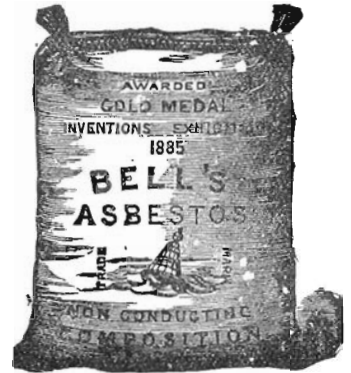
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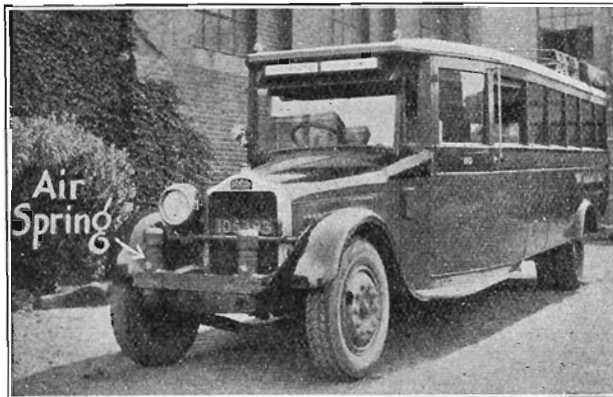
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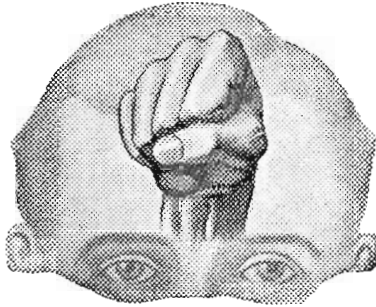
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25. Have you a good memory for faces?
26. Can you work hard without suffering from brain fag?
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SAFETY-HEALTH-BETTERMENT

FEBRUARY SUGGESTIONS DRIVE

THE subject chosen for the 26th Suggestions Drive, which will be held during February, is:—

Economical Use of Stores and Materials.

Suggestions should be submitted to the Betterment and Publicity Board in the usual way. Suggestions on any other subject, will, of course, also be accepted.

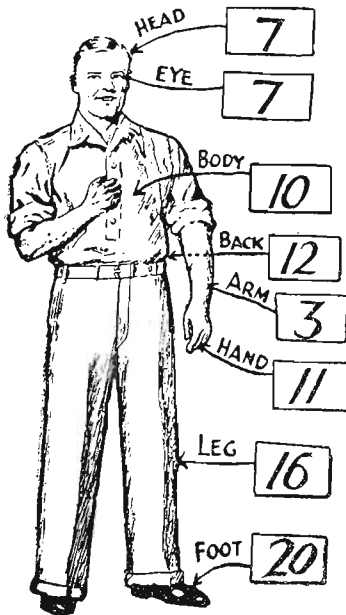


Diagram showing personal injuries sustained by employees during December. These accounted for 86 "lost time" accidents compared with 144 in the previous month.

BENEFIT BY YOUR IDEAS

THE following awards were made during December for adopted suggestions:—

Total Amount ... £185.

Highest Award ... £40.

The number of suggestions received during December was 137.

Arrangements still exist for the placing of adopted suggestions of particular merit before the railways of the various States; also the Commonwealth and New Zealand Railways.

Taking the 1928 British railway accident figures, the risk of any given passenger being killed is in fact a 36,000,000 to 1 chance. In other words, an ordinary passenger making two journeys a day, six days a week, would have to travel for 50,000 years before meeting his chance of being killed.—*Sir Herbert Walker, General Manager, Southern Railway.*

Education and Safety

By JOHN H. FINLEY

Associate Editor, *New York Times*

THIS article is an abstract of Dr. Finley's radio address in the *Universal Safety Series* presented by the *National Broadcasting Company* in conjunction with the *National Safety Council of America*.

EDUCATION should contribute towards universal safety in several ways:—

First, in turning the minds of youth towards those things which the race, out of its experience and longing, has defined as "noble." This put first what might be called "salvation," another word for "safety," but it is spiritual safety for this world and not alone for another, and something beyond the salvation which, as Carlyle said, men seek "for purse and skin."

Second, in scientific research, contending with those forces in men's environment which would do him injury and even take his life; the disease-bearing germs, flood, fire and famine and the like.

The Social Aspect

Third, in the training of those who minister as teachers, doctors, nurses, social workers and all such in teaching health habits, in healing the sick or saving them from worse ills, and in fighting those special conditions and influences which tend to physical as well as moral degradation.

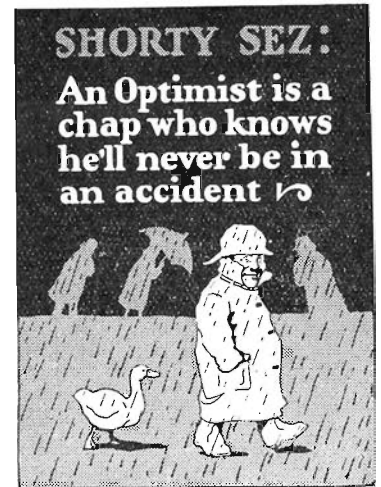
Fourth, in the cultivation in society at large of greater respect for the individual as a fellow human being—the cultivation of humaneness. This is especially necessary since so much power has been put into the hands and at the elbow of those who drive millions of cars, trucks and buses today. The possession of this power in the hands of many of these millions tends to develop a contemptuous attitude toward the pedestrians in their way, and even a tense feeling towards one another in the competition of the road.

Fifth, in the development in the children themselves of habits which will lead them to conform as by instinct to the rules of convenience and safety for the street and the road, and to the inexorable laws to which even the earth itself is subject. This is the work of the schools as well as the homes, and is the most immediately practical safety service.

But I would emphasize, in reciting these objectives, that the whole pro-

gram is one of safety for higher adventure—for taking the noble chance which comes each day. A high authority has defined education as the process of adapting ourselves to our environment. But I do not find myself wholly satisfied with this. It is rather, in part at least, the process of conquering our environment and making it serve our higher being and doing.

I should say that preparedness for every emergency is after all the finest



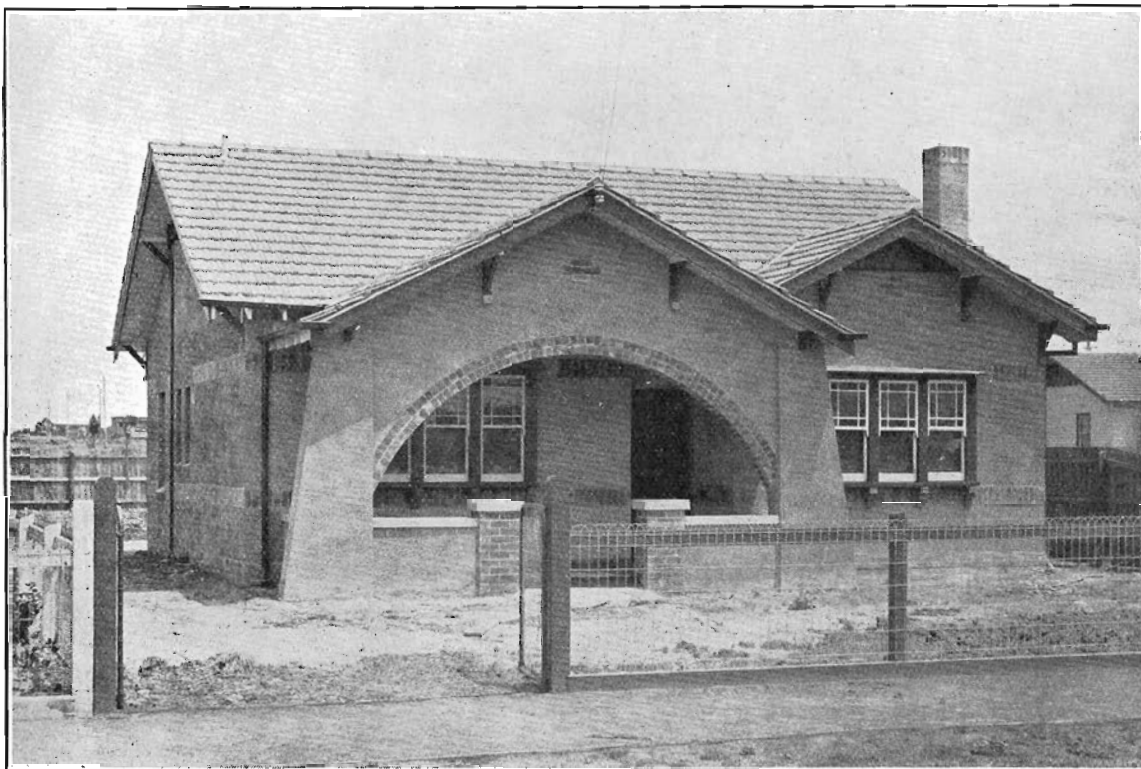
program for safety. Burke said that "early and provident fear is the mother of safety," but fear that is provident becomes a positive virtue, a valor, if it drives one to take the chance after looking ahead and counting the cost.

Preparedness does not diminish the adventure. It heightens it intellectually and morally; it still leaves room for the chivalry of the knight to take the noble chance.

It is the safety of children, however, in which safety education is most concerned. I have often quoted that slogan of England's Minister of Education, when in the blackest days of the war he proclaimed the children's character: "Education is the eternal debt of maturity to childhood and youth."

All our education must make its first and foremost concern the safety of the child—its physical, moral and spiritual safety. My slogan would be "Safety First for the Children."

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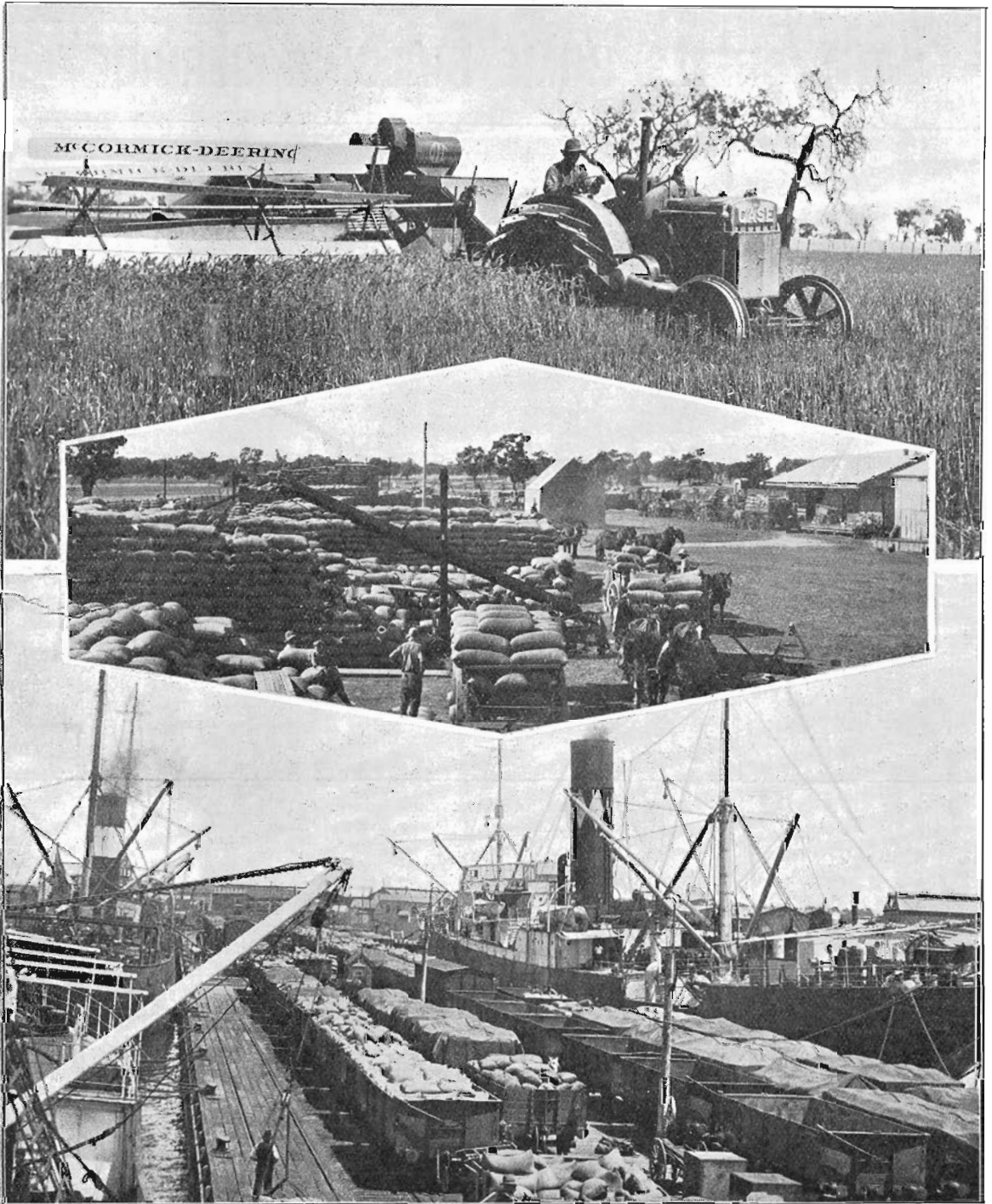
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Wheat Time

TOP—Gathering the golden grain on an Australian farm.
CENTRE—Arrival of the first of the season's wheat at a railhead.
BOTTOM—Loading the wheat at Williamstown for shipment to England and the continent.

WHEAT for the WORLD

By S. C. WEETMAN

UNQUESTIONABLY, the continued prosperity of Australia depends, at the present time, upon its primary industries and, of these, the most important are sheep-raising and wheat-growing.

Of the Australian wheat production, Victoria regularly contributes almost one-third. The 1928-29 Victorian wheat harvest yielded 46,818,833 bushels of a value of some twelve million pounds. The fluctuations of this industry consequently exert an appreciable influence upon the welfare of the whole community, besides affecting, directly and indirectly, the buoyancy of railway revenue.

The following article reviews briefly the various stages in the production of the State's golden harvest and outlines the part played by the railwayman in the huge movement of the grain from wheat-field to shipside.

IN Victoria, the principal wheat belt is reached as soon as the Dividing Range is crossed. It extends inland in a series of gentle undulations, interspersed with long stretches of perfectly flat country, for an average distance of about 150 miles. About three million acres are planted with wheat each year in Victoria. The boundaries of cultivation are determined by the rainfall which is heaviest on the coast and diminishes further inland.

Consequently, the practice of wheat farming in Australia differs fundamentally from the system adopted in other countries. Much of the grain produced is grown in districts receiving only a 20-inch rainfall or less each year, while a considerable proportion of it comes from localities with an annual rainfall averaging between 15 and 11 inches. To overcome this deficiency, bare fallowing is now almost invariably practised in the wheat areas when preparing the land for seeding.

Influence of Fallowing

The land is first ploughed to a depth sufficient to disarrange the pores of the soil which then, with harrowing, are sealed. This fallow is then kept in a good state of cultivation by constant tillage all through the summer and until the following seeding time. This may involve up to ten or twelve workings of the fallow, but the results have proved this method to be worth while. The evaporation of moisture from the soil is prevented and, in effect, fallowing enables from twelve to fifteen months' rainfall to be applied to the growth of the one crop. At the same time, the growth of weeds is prevented.

At the proper time, the seed and the superphosphate—the only fertiliser necessary—are sown simultaneously

through the seed drill. Incidentally, the regular practice is to work the land on a rotation system, such as one section of fallow, one of crop and one of pasture each year. Besides having been proved a sound method, this rotation practice enables a flock of sheep to be maintained on the property and thus adds to the financial return of the progressive farmer.

First Spring Rains

In due course, the seed germinates and the bare fallow is transformed into a pleasant vista of verdant green. Even during the winter months, considerable growth takes place and, with the advent of the first spring rains, the development is greatly accelerated. Spring passes with the wheat steadily growing and the heads beginning to form. From then on, the crops slowly mature, the heads fill out, and the farmer waits patiently until the wheat is ready to be garnered. This growing period is a time of anxiety for the farmer. If the necessary rain does not fall, he is faced with the prospect of a dead loss on his year's work. A good fall of rain at a critical time will often be worth thousands of pounds to the country.

With the sun's heat increasing, the fields of wheat gradually lose their freshness and the crops begin to mature. Almost imperceptibly, the pleasant greens change to yellow, deepening in color until, in the ripened state, the fields have been transformed into shimmering expanses of golden grain. Paddocks of fifty, one hundred, two hundred acres or even more are regularly planted with wheat and, in their ripened state, form a really beautiful sight.

In the harvesting operations, Australia differs considerably from some of the other wheat-growing countries. The combined harvester is an economic

necessity to the Australian industry. This machine is an Australian invention which cuts down the cost of harvesting to a minimum and, by so doing, has made it possible for areas to be worked which, with more expensive harvesting methods, could not be profitably cultivated. The combined harvester or reaper-thresher is drawn through the standing crop and, in one continuous operation, completes the work of gathering, cutting, threshing, winnowing and cleaning the grain, finally storing it in a grain reservoir ready for bagging and marketing.

Climate and Harvesting

Moist climatic conditions in many other countries operate against the efficiency of the harvester, as difficulty is experienced in the threshing portion of the combined operation. For instance, even in some areas south of the Divide in Victoria, it is possible to use the harvesters only for about three hours at a stretch in the hottest part of the day. It is the general practice in moist countries to cut and stook the wheat, similar to the practice when haymaking and then, when it has dried out, to cart it to a threshing machine to extract the grain. The introduction, wherever it can be operated effectively, of the combined harvester, with its saving in time and labor and its reduction in the quantity of grain lost in handling, has revolutionised harvesting operations.

The crop must be allowed to become "dead ripe" in the paddock, otherwise the combined harvester could not effectively operate. It is therefore essential, when the grain is ready for stripping, that it be harvested as quickly as possible. As soon as the hot sun is well on to the crop, the work in the fields commences. And work it is with a will. Under the clear blue sky, the brilliant sun beats down un-

mercifully day after day, but the wheat must be gathered.

The huge machine is drawn into position by its team of half-a-dozen or more horses—on many farms by a tractor. Quickly the horses get into their stride and, over a six or an eight-foot or even greater strip, the heads are taken cleanly from the wheat stalks. Accompanied by the whirring of the knives as they cut the heads off the crop and followed by a trail of dust and straw as the refuse is automatically ejected from the rear, the machine rapidly gathers the grain.

240 Bags a Day

At intervals, according to the condition of the crop, halts are called, and bags rapidly filled with clean grain are sewn up and placed on one side ready for despatch. And so the work continues until the paddock has been cleared. As many as 26 acres per day have frequently been covered by machines cutting an 8 ft. swathe and as many as 240 bags, each containing from 3 to 3½ bushels of wheat, have

endless belt arrangement, the bags are raised with ease to heights up to about 30 feet, where they are delivered on to the shoulders of the stack builders and placed in their required positions. At practically every station in the more important wheat areas, stacks containing thousands of bags of wheat are built up awaiting transport. Much of this wheat is held in the station yards for weeks on end, and is only drawn on as required in accordance with the market conditions.

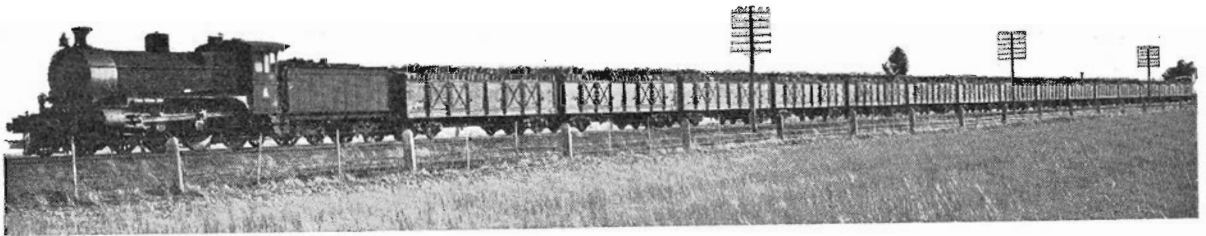
And, all the time, huge trains, carrying wheat for the markets of the world, travel from the wheat areas to the seaboard. During the 1928-29 season, no fewer than 13,242,079 bags of wheat were loaded at country stations into railway trucks. This represented 1,153,538 tons or 15.2 per cent. of the total goods tonnage hauled during the year. The average haul per ton of the wheat was 173.7 miles, which, at an average rate of only 0.8d. per ton per mile, amounted to £750,102 or 13.3 per cent. of the total goods revenue.

18 million bushels are sent overseas from Victoria each year, while a further 13½ million bushels of wheat are now required for local consumption and seeding purposes. Considerable quantities of flour are milled from local wheat, flour mills being established at various points throughout the country as well as in the suburban area.

There are more than 20,000 farmers growing wheat in Victoria. With their dependants and hired laborers, the wheat industry probably supports more than 100,000 people. It is clear from this that wheat-growing is of vital importance to the welfare of the State. This is also reflected in the revenue returns of the railways.

Rail Reserve Fund Wanted

During 1928-29, with a normal harvest, £750,102 was secured from the transport of wheat while, during the previous year, with a poor harvest, the wheat revenue was only £338,122. That the effect which the wheat traffic has upon the financial stability of the Victorian Railways is recognised by the Commissioners is shown by their annual report for 1927-28, when after a



A familiar sight in the State's wheat districts after the harvesting operations. A string of 15 40-ton trucks laden with wheat en route for the seaboard

been obtained in the same time.

No time is lost in transporting the wheat to the railway. All roads lead to the railway station when the harvesting operations are in full swing. Massive motor trucks, farm wagons and drays join forces in the task of carrying the wheat, and into the station yard passes a constant stream of vehicles, which stop for a while to discharge their cargoes of wheat and then pass on their way to pick up a further load. Almost overnight, it seems, huge stacks of wheat make their appearance, and day by day they grow in size until the deliveries slacken off towards the end of the season.

The building of the stacks is an eye-opener for the city dweller. A wheat stack is no place for a weakling. Day in and day out, with the thermometer recording 100 degrees and over in the shade, these men, without protection from the broiling sun, spend their days juggling the 200-lb. bags. With the loaded vehicles arriving in a steady stream, the stacks quickly rise until it is necessary to use a portable elevator to raise the bags to the necessary height. With the assistance of a small petrol engine driving a suitably-designed

Perhaps the only unsatisfactory feature in the handling of the wheat is the necessity for rushing large numbers of trucks to comparatively remote areas of the State to be loaded and returned to the seaboard. This involves extensive empty haulage as the loading in the down direction is insufficient to fill all these trucks. In an endeavor to reduce this wasteful haulage to a minimum, appeals have been made to farmers to assist by ordering their fertilisers in sufficient time to enable them to be available at the station when the wheat is brought in for despatch. This also saves the farmer the expense and inconvenience of making special journeys to cart the manures later on in the year.

Australian Wheat Popular

Arrived at the wharf, some of the wheat is loaded direct from the trucks into the ships' holds, but the greater part is placed into stacks from which ships' cargoes are drawn as required. Australian wheat is noted for its hard, white and dry qualities and, on account of the whiteness of the flour made, it is much sought after by overseas millers for mixing with other wheats. Consequently, on an average, about

poor harvest, they wrote as follows:—

"... The seriously adverse effect which a failure, or even a partial failure, in the wheat harvest exercises upon the finances of the department draws marked attention to the need for the establishment of a sound reserve fund to meet the position which then arises and which, as in the case of the year now under notice, cannot be met by a reduction in the expenditure if the services are continued and the property is adequately maintained. . . . The experience through which the State has just passed indicates that such a reserve should be built up to at least £500,000 and perhaps £1,000,000 would not be more than sufficient, but the need for it is plain and we suggest that we be given authority for its initiation."

In view of this, it is encouraging to learn that, with the stripping of this season's wheat, many of the crops have yielded considerably more grain than was anticipated early in the season. In fact, in some districts, the harvest has proved to be considerably above the average. Which, in the face of adverse weather conditions, is a tribute both to the fertility of the soil, to the effective results secured in the breeding of drought-resisting wheat, and to the development to a high state of efficiency of the most suitable practices to be followed in Victoria in growing this, the most important grain food the world has known.

A Day's Bridge- Testing

By C. H. Cheong

WINTER and summer alike, fair weather or foul, the bridge engineer and his little gang of picked men move round their section of railway track, thoroughly testing all bridges and culverts, carefully probing and sounding each separate crosspiece, beam and pile.

The story of one day's work in the never-ending round of a typical engineer and gang is told in this article.

miles and disappeared through the trees. Leafy gums and eucalypts shaded the fine road, whilst a glorious golden wattle here and there relieved the many greens.

At the bridge, the engineer's gang was already at work. Scaffolding had been suspended from the bridge top by means of ropes fastened to the rails with iron hooks. These hooks were passed underneath the rail and secured to its inner flange, thus leaving the track available for the uninterrupted passage of trains.

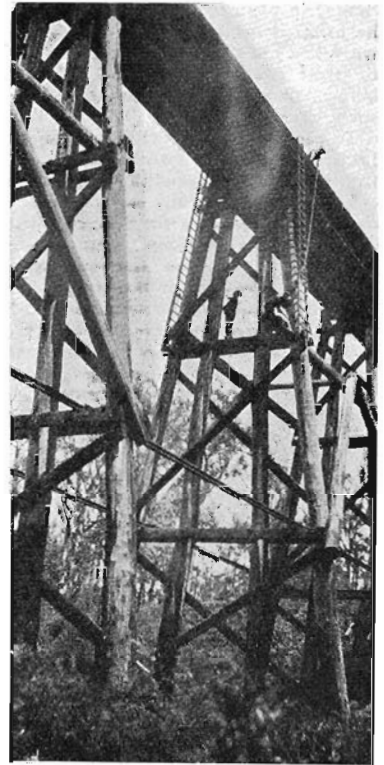
Testing Begins

The gang, armed with tomahawks, swung over the edge of the bridge. The engineer disappeared too. Cautiously I grasped the rope and let myself down after them. Squatted on a splintery crosspiece high above the little creek, I was initiated into the methods of bridge testing.

Balancing himself on the narrow plank, the engineer stepped from pile to pile and directed operations as the gang carefully sounded the various bridge members. He listened intently. Every beam, crosspiece and pile was sounded in the test, every bolt and nut smacked smartly that they might deny a weakness.

The practised ear detected signs of a hollow pile. A succession of re-sounding whacks strengthened the suspicion. A couple of auger holes prompted the application of the inevitable X—a silent statement that the pile was hollow and was to be removed. The engineer picked his way along the spider web structure and I followed gingerly in his wake.

White ants met death almost as



The bridge gang gets down to work. Every square inch of timber in the bridge must be carefully tested

instantaneously as an occupant of the electric chair. A special preparation was poured in the nest, the outer shell of the pile was chipped away and the destructive ants turned on their backs and stilled waving legs.

Cracks in the beams gave forth "tinny" sounds and were subjected to rigorous inspection. The deterioration dating from the last visit was determined . . . would each crosspiece endure efficiently until next inspection . . . so the post mortem of any doubtful beams proceeded. An inquisitive axe was prised into a cavity, splinters were broken off and the scientific mind decided the verdict.

On this bridge an experiment was being conducted with different varieties of timber in beams. They proclaimed their suitability with solid booming echoes as the back of the tomahawk swung sharply against their sides.

The span completed, I followed the engineer hand over hand up to the top, and the trusty gang dismantled the scaffolding and reassembled it on the adjoining section. Down we went to continue the same procedure. This time I found a comfortable beam end, but nearly fell off when a pair of greeny lizards shot from a crack and charged startlingly close to my grey trousers.

Down in the valley a charcoal burner fed his smoke-belching black furnace



Testing a 70-foot bridge pile. Balanced on a crosspiece, the engineer is searching for possible flaws in the timber

DOWN in far Gippsland the bridge engineer was testing his section — Orbost to Bairnsdale. Halted at the Tostaree siding, his flange-wheeled caravan proved an attractive and comfortable dwelling. Workmanlike appointments — neat bunk, tidy tables, dustless shelves, ashless fireplace, and clean washbasin—reflected admirably the pride of the engineer in his job.

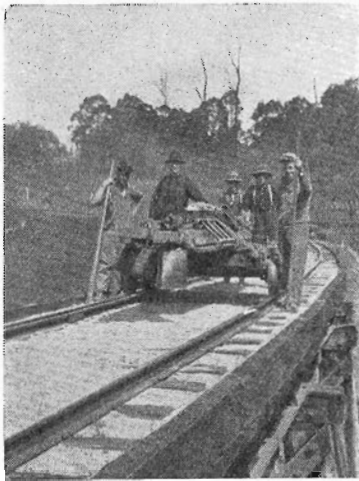
He woke in the morning with a warm sun streaming through his window and he made his toilet to the strains of a kookaburra's mirth from high eucalypts. At the early hour of 6.15 his billy went on the fire and by 8 a.m. he had breakfasted and was astride his two-seater motor tricycle on the way to one of his bridges. This tricycle, by the way, was not nearly so easy to master as the good old-fashioned rocking horse. He started it up by pushing behind until the engine ticked over. Of course now and again it ticked over too soon, and I, his tenderfoot passenger, was left behind.

A short run to the bridge in the keen morning air was particularly invigorating. The adjacent hilly country was practically uncultivated and, save for a few maize plots, consisted of alternate forest and bracken fern belts. The Prince's Highway wound its way across the line, followed it for a few

Staggering under the weight of a log, he tottered up an inclined staging and with his remaining strength threw it to the flames. He carried 27 logs before the engineer finished another span.

It took half-a-day to complete the first inspection from the scaffolding as far down as was possible to reach.

Lunches cut in the early hours of the morning stayed the hunger pangs so mysteriously allied with bridge testing and, after a deserved spell, the gang, without anything up their sleeves, produced two extension ladders and the engineer mounted to continue the test. He worked from the scaffold-tested boundary down to the ground and, step by step, he sounded the structure. He decided to have one pile removed—the white ants had gone



The gang arrives at the next job on its round

too far—and he marked the pile and entered the note in his report.

One pile, hollow beneath but quite solid above ground level, was noted down to have the butt only renewed. Later the pile would be sawn through above ground level and a new base fitted. This decision made a simple repair possible—to renew the whole pile would involve much more labor and material, to say nothing of the expense which would necessarily be incurred.

Throughout the examination the gang was most careful to remove all splintery shreds from the wooden members of the bridge. These drappings would quite easily foster sparks of a passing bush fire with disastrous results.

Finishing the ladder inspection, the gang shovelled furiously at the foot of each pile where in some instances they dug for two or three feet. Then, grabbing an auger, they bored to the centre of the pile. They decided unhesitatingly the size of any hollow. Laconically they reported to the engineer: "six inches of wood with

a three inch pipe," the pipe meaning, of course, the hollow in the centre. Holes bored at frequent intervals removed all doubt as to the existence of too large a hollow, and every precautionary test was made that the strength of the pile might be estimated.

The bridge finished, the gang loaded their trolley and we inspected the wooden beams previously treated with different mixtures to check the advance of the white ants pest. Four mixtures had been tried and they all seemed to have been most effective.

Adventure with Bees

On the way back to the caravan, my companion left the track to examine a small culvert. While he was thus engaged, my enquiring mind led me through the railway fence to encounter a large swarm of bees which suddenly settled around me on the acres of pollen laden capeweed. Goosestepping from their midst was rather trying.

After the bridge engineer had entered the culvert details in his notebook and I had been left behind twice, we straddled his motor tricycle and overtook the gang working their trolley. They propelled it from the top of a cargo of ladders, lengths of scaffolding, shovels, axes, tomahawks, lengths of rope, four augers and a useful-looking jemmy. A huge water bag suspended on an overhanging plank bobbed and jiggled about the back with an air of outraged dignity.

Small foot culverts in the station yard received the same careful consideration as the bridges, and their examination concluded the day's bridge testing, with a kerosene tin of water doing much to remove the traces.

Down at the hotel a beautiful Buchan-river trout sacrificed itself for the occasion. Remembering my experience with the bees, however, rich honey brought reminiscently a pang of trepidation.

The Dark Mysterious Forest

As the engineer wrote his detailed report at a late hour, I stood in the doorway of our wheeled home and gazed into the night. Near the line lay great box logs—huge trunks won from the dark mysterious forest. Within a stone's throw, magnificent trees reared stately heads above the skyline for a hundred to a hundred and fifty feet. Periodically the silence was punctuated by a series of countless "flops" as a lone kangaroo thudded his supporting tail along the beaten track. Occasionally a mopoke echoed his mournful note through the shadows, or frogs croaked their chorus from a far creek.

So far away as to be lilliputian, twinkling fires proclaimed the settlers' advance. Tiny showers of sparks spelt the fall of majestic trees. White smoke, dwarfed by distance, curled lazily skywards

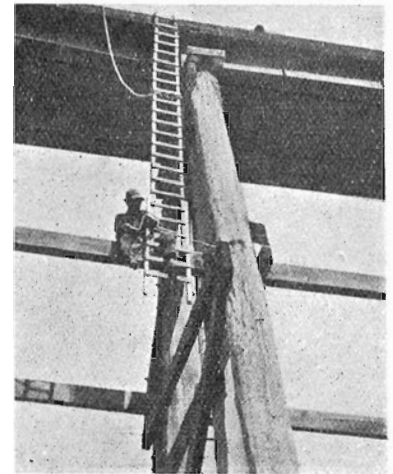
As we lay in our bunks that night I

remembered to ask a question that had been on the tip of my tongue since early morning.

"How often," I raised my voice, "do you examine the same bridge?"

Dead silence followed. After a tactful interval I tried again. This time my voice reached him through the partition.

"I was just dozing," he explained. "Once in three years the bridge engineer makes a thorough overhaul. Seems a long time, but you've got to remember that the trackman patrols the length daily and keeps a general watch on the track and bridges. And the structures are closely examined by a works foreman every quarter and by a district engineer or workmaster twice a year."



Trial by auger. A closer inspection of a suspected pile

Another silence. Then, breaking the spell, came "So our bridges can't very well let us down." It was too subtle. I went to sleep.

HANDICAPPED RAILWAY BACHELOR

AMERICAN railwaymen have been interested in the recent award by a New York court of £4,500 damages to a former freight conductor whose right arm was permanently injured in an accident.

The man was a bachelor and the court held that "he will never be able fittingly to embrace a beloved sweetheart" and was therefore entitled to a little less than one-third of the £15,000 that the conductor's attorneys held he should be paid for loss of his ability to hug according to 1929 specifications.

Our idea of a difficult position would be that of a conductor on the Manchuria railroad listening to contradictory orders from a Chinese and a Bolshevik boss.—*Macon Telegraph.*

TRANS- PORT

—Some Economic Aspects

By

D. B. COPLAND

*Professor of Commerce,
University of Melbourne*



“TO the extent to which these railway losses are due to competition or other forms of transport, there is duplication of services for which the community must pay. We may employ other methods of transport, but we cannot escape our obligations to pay interest on the capital invested in the railways.”

With these words, Professor Copland, in this arresting article which he has specially written for the Victorian Railways Magazine, approaches the vexed subject of road-rail competition. His impartial and authoritative discussion of the problem is of more than ordinary topical interest, as also is his general survey of some of the economic aspects of transport.

Professor Copland is Dean of the Faculty of Commerce at Melbourne University, co-editor of the Economic Record and the author of several books on economics.

IN the early stages of the development of economic science, a school of French economists—the Physiocrats—attempted to make a distinction between productive and unproductive labor. They placed undue emphasis upon the labor devoted to agriculture and the products of the soil and regarded most other labor as non-productive. Adam Smith, the great British economist, was influenced by the Physiocrats, and though not following their error, he introduced into his work a somewhat barren discussion on productive labor.

This has had an important influence upon popular thought and is in part responsible for the view held in some quarters that, “the man on the land” is the only real producer. That view comes out very strongly in controversies concerning marketing and the

tariff, but it has also colored discussion of the economic value of other important services, such as transport or professional work. The economist today classifies as productive any labor devoted to supplying a commodity or service for which there is a demand.

With the increasing complexity of economic organisation, the consumer is far removed from the original producer, and commodities pass through several stages in this process of marketing. There is thus a growing number of persons engaged in rendering the intermediate services connected with commercial, transportation and processing operations.

These services are not less productive than are those devoted to the raising of food and raw materials on the land or the manufacturing of these into finished commodities. Transport

is one of the most conspicuous of these intermediate services and, with increasing specialisation of production both within countries and among nations, it tends to become more important. A glance at the statistics of occupations of the Australian working population at the last two censuses confirms this view:—

	1911	1921	Increase 1911-1921
Total occupied persons	1,148,485	1,322,254	173,769
Commercial	286,687	355,009	68,322
Transport and Communication	157,391	207,737	50,346

While the total working population increased by 15 per cent., the numbers

engaged in commercial operations rose by nearly 25 per cent., and those engaged in transport and communication by over 30 per cent.

The most important division of transport in Australia, as in most countries with extensive land area and few waterways, is the railway. The importance of railway enterprise in Australia can be gauged from the fact that approximately £325,000,000 has been spent in construction and equipment.

This sum does not, of course, represent the total present value of railway equipment and track, but making an allowance of, say, £50,000,000 for depreciation, the value would then represent from eight per cent. to ten per cent. of the estimated wealth of Australia. Such estimates must be regarded as rough approximations only, and they are given merely for the purpose of demonstrating the economic significance of railways to Australia. The capital involved represents a valuable asset through which a vital service is rendered.

Transport Competition

In recent years, the competition of other forms of transport has become formidable, and has considerably reduced the earning capacity of this capital.

Apart from the vicissitudes in earning capacity due to variations in the harvest and general economic prosperity, the railways of the State find it increasingly difficult with existing fares and freights to meet their interest payments. The position is much more serious in other states where the percentage of net earnings on capital cost has been consistently lower than in Victoria.

Upon the position thus disclosed, two main comments may be made. In the first place, freights and fares that do not yield interest on capital cost must be regarded as involving a concession to the customer of the railways, and chiefly to primary producers. Most people who have carefully examined the efficiency of public and private enterprise in a large undertaking like the railways, discount the suggestion that the mere transfer of railways to private enterprise would produce a revolutionary change in efficiency. It would probably result in the closing of some lines, the writing down of capital values and an increase in freights and fares. In this way, the railways could be made to meet interest payments and even to show a surplus. Perhaps such changes would be welcomed by the present management if only political circumstances would permit.

It is not suggested that the efficiency of railway management is not capable of improvement. No business, least of all one of such magnitude as a railway enterprise, has reached the ideal of 100 per cent. efficiency. But critics

of railway management must realise that the present authorities are capable of exploiting most avenues through which improvements in efficiency can be made, and they are continuously pressing forward for better results and greater co-operation of all concerned. If losses are incurred, they must in part be attributed to the rendering of service at less than cost price, and those who use the service thus receive a concession.

This matter was considered by a committee appointed by the former Prime Minister (the Rt. Hon. S. M. Bruce) to review the economic effects of the tariff in Australia. The writer was a member of this committee and its conclusions may be stated.

Bounties and Subsidies

In tracing the net effects of the tariff and other forms of "assistance" to industry, it was necessary to consider what each industry received in the form of bounties or subsidies, and how much each paid to assist other industries. Taking the year 1926-27, it was found that the losses on State railways in that year amounted to £4,282,000. The committee commented on this as follows: "The suburban traffic and through passenger traffic are assumed to incur no loss, if not to make a profit. Consequently the whole loss is counted as an aid to primary production. This assumption no doubt requires some qualification. The loss on the Trans-continental railway is not included." (See *The Australian Tariff*, Melbourne University Press, Appendix O, page 195).

It is quite possible that the experienced railway manager may regard this conclusion as not wholly sound in that it ignores the principles upon which freights are fixed according to "what the traffic will bear." But, in view of the special rates on certain goods and the construction and maintenance of non-paying lines, there is much substance in the claim that primary producers obtain some concessions from present railway policy.

Grave Problem

The second comment touches a rather acute controversy. The competition of road transport with railways involves problems of first-rate importance to the community as a whole. Australia has incurred heavy indebtedness on account of railways and, when the earnings are not sufficient to meet interest on the debt, the balance must be met from taxation. In every State railway finance imposes a burden upon the budget, and deficits have to be met by taxation. The position is rather less acute in Victoria, but even here railway losses have been a source of difficulty to the Treasurer in recent years. If we had no railway deficit,

there would be less need for increased taxation.

To the extent to which these railway losses are due to competition of other forms of transport, there is a duplication of services for which the community must pay. We may employ other methods of transport, but we cannot escape our obligation to pay interest on the capital invested in the railways.

Of course, the other forms of transport may be more economical for certain services and may actually increase our productive efficiency. For the community as a whole, the increased efficiency may add to our national income more than the additional taxation required to meet the consequent losses to the railways. If so, the competition has resulted in a net economic gain. It would be profitable under these conditions to allow extensive road competition with the railways. If the increase in income is less than the additional taxation, there is a net economic loss to the community. The problem is one familiar to students of economics. The cost must be set off against the benefits.

Sectional Interests Prevail

Unfortunately, the costs and benefits are rarely considered from a national point of view. Sectional interests press for the new services because they yield a private profit in a limited sphere of transport. But such a private profit may not be coincident with a net national gain. The real benefits must be measured in terms of the national income. To what extent does road transport add to our productive capacity? The costs are the additional burdens imposed upon the national income to defray losses on existing methods of transport.

These costs and benefits are very difficult to measure, but the community must determine the issue upon these grounds if it is to make a wise decision. The national asset embodied in the railways can best be protected by considering the net effects of the new form of transport upon national income and not merely upon railway finance.

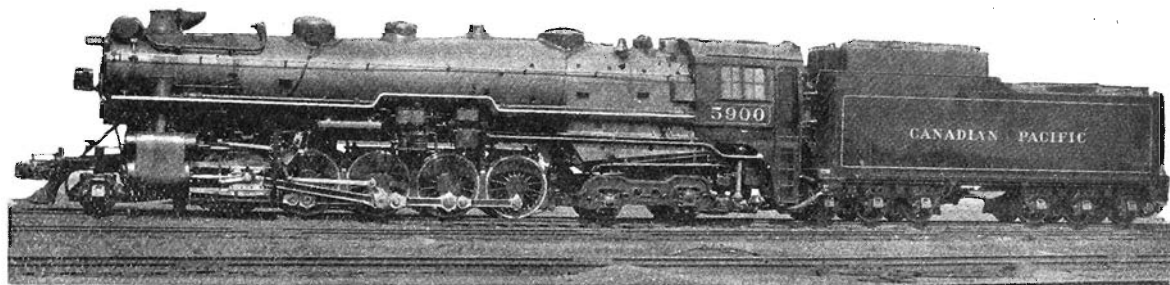
It may be more economic to forego the somewhat limited advantages provided by road transport and thus to reduce the burden of railway finance on the budget. If, however, it can be proved that road transport will increase efficiency sufficiently to meet railway losses and thus involve no reduction in income, the competition will be economic.

But this is a very doubtful claim.

D. B. Copland

Huge Oil-Burning Loco. for Traffic Over Canadian Rockies

By M. E. BEVINGTON



CLAIMED to be the greatest locomotive ever constructed in the British Empire and one of a fleet of twenty monsters that will revolutionize freight and passenger traffic in Western Canada, Canadian Pacific Railway Locomotive 5900, oil-burning giant designed for use over the heavy grades of the Canadian Rockies, has recently been released from the Montreal Locomotive Works where it was built to the specifications of the company.

THIS engine will do the work of two or more of the lighter locomotives in use on the railway, and when in operation will release for services elsewhere on the company's lines considerable motive power equipment. It is technically known as 2-10-4 type—that is, two wheels on the leading truck, ten 63-inch drivers and four wheels on the trailing truck. Each engine and tender, over all, measure 98 ft. and weigh 750,000 lb., eighty times heavier than Stephenson's historical "Rocket."

The locomotive possesses a tractive effort of 78,000 lb., and will be able to develop over 4,200 horse power, or about 85 times as much as the "Rocket," at a capital cost 45 times as great. The cylinders are 26½ inches in diameter and the stroke is 32 inches.

This fleet of 20 engines was conceived, experimented with and designed by the motive power department of the Canadian Pacific Railway, and was built to specification in the plant of the Montreal Locomotive Works for service on C.P.R. lines in the Canadian Pacific Rockies.

One of the unusual features about the 5900 is the fact that the cylinders and underframe were cast in one solid piece weighing in the neighborhood of 67,000 lb. This great casting, which is normally made up of a number of massive sections bolted together, takes in the cylinders, main frames, cradle frames and all crossties, thereby achieving far greater rigidity than is otherwise obtained.

The casting for each engine was made by a firm of specialists and brought to Montreal on two flat cars.

The tenders were also constructed of a similar casting embracing the bottom of the tank and underframe in one solid piece. Each tank has a capacity of 12,000 imperial gallons of water and 4,500 gallons of oil.

"Boosters" will supplement the tractive power of those of the new type engines intended for passenger service. These boosters furnish auxiliary aid in getting a heavy load into motion up to 12 miles an hour, after which speed they cease to function.

Boiler's Two Miles of Piping

The oil-fired boiler, containing over two miles of piping, is constructed wholly of nickel steel and designed to withstand 280 lb. boiler pressure. In addition to the nickel steel boiler and firebox plate and staybolts, all forging is of a new composition, low carbon nickel steel, which has been experimented with during the past year with good results.

The following technical description of the 5,900 type of locomotive, also known as T-1 class, has been furnished by Mr. Brown, chief of motive power and rolling stock department, Canadian Pacific Railway:—

"There are 20 T-1 class locomotives now under construction. The tender is carried by two 6-wheel trucks fitted with clasp brakes. These locomotives are being constructed for service on the mountain sub-division of British Columbia district for handling both passenger and freight traffic. Their design is based upon K-1 class 3,100 series locomotives introduced into passenger service in September, 1928. The new T-1 class used almost

identically the same boiler and the same tender and, in general, the standards of the two locomotives are interchangeable.

"The T-1 locomotives, like other engines in service on the Mountain sub-division, will operate as oil burners, and the tender carries a specially designed oil tank mounted in the customary coal space of the tender. The locomotives will operate at 275 lb. boiler pressure which, with the 63 inch diameter driving wheels used and cylinders 25½ inch diameter by 32 inch stroke, will give a rated tractive effort of 77,200 lb. at the rail. This is based upon a conservative rating of a mean effective pressure developed in the cylinders at low speeds of 85 per cent. of boiler pressure. It is expected, however, that the engines will develop considerably in excess of this rating.

"The first two locomotives will also be equipped with locomotive boosters driving the second pair of wheels on the four wheel trailing truck. The booster consists of a small two cylinder engine geared to the rear trailing truck wheels which can be used up to speeds of 12 miles per hour to augment the tractive effort developed by the locomotive. The maximum additional tractive effort obtained by the booster is 12,000 lb.

"It will be noted that the combined weight of engine and tender is 750,000 lb. These are the heaviest and most powerful locomotives of this type constructed in Canada as far as known. They are also the heaviest and most powerful two-cylinder engines that have been constructed in the British Empire."

Things We Are Talking About

AFTER 10 days on "the roof of Victoria," the party of Melbourne business-men who made the recent trail ride over the Bogong high plains returned to the world of streets, buildings, traffic problems, shaving mirrors and daily newspapers, delighted with their holiday on horseback. One says "shaving mirrors" advisedly, as the majority of the riders grew light beards while away. The party was in the charge of Manager W. T. McConnell of the Government Tourist Bureau, and among the riders were Mr. P. Luxton, a nephew of the Lord Mayor, who demonstrated the correct method of sliding down a snowdrift on a tin plate; Dr. L. J. Clendinnen, one of Melbourne's best known bridge players; Mr. O. R. de Gunten, a Swiss architect, who awoke the Bogong echoes for the first time with some genuine Alpine yodelling songs; and Colonel J. E. Down, G.O.C., of the Dental Corps, who displayed exceptional merit as a mess orderly at the Feathertop bungalow. During their wanderings, the riders discovered a natural bathing pool in Rocky Valley, climbed Mt. Hotham and crossed the Razorback, enjoyed a couple of thunderstorms, explored a 30 ft. snowdrift coated queerly with red dust, sighted kangaroos, emus, wildflowers and a male lyre bird and, altogether, had the time of their lives.

ON THE ROOF OF VICTORIA

OVER in the Refreshment Services branch, they've been assessing the extent of Melbourne's appetite as manifested towards, and satisfied by, railway eats and drinks last year. During the 12 months, the best part of 150,000 gallons of fruit juice was poured into 1,500,000 glasses, 800,000 of which were emptied at the drink-stall on the main concourse at Flinders-street. That was in addition to the milk, coffee, chocolate and cocoa drinks which were absorbed. The railway fruit bill was £38,000, and 60,000 cases of fruit were retailed over railway counters. On the dining cars, 117,000 meals were served, besides 37,000 light snacks. Lindsay McClelland's bakery browned 576,000 meat, fruit and raisin pies, crisped 252,000 scones and pastry and baked approximately 10½ tons of fruit-cake. In September the bakery added wholemeal raisin-bread to its wide range of comestibles and in four months 13,000 loaves were sold, in addition, that is, to the normal 12 months' output of 178,000 loaves of ordinary raisin-bread. At the dining car laundry, some 161,000 dozen tablecloths, serviettes, towels and the like were handled. A good year's work.

A YEAR'S EATING AND DRINKING

TO 66 different American markets, 955,150 carloads of apples, cabbages, cantaloupes, celery, grape-fruit, grapes, lemons, lettuce, onions, oranges, peaches, pears, plums, prunes, white potatoes, sweet potatoes, strawberries, tomatoes and watermelons were carried by Uncle Sam's railways last year. Catalogued in severely correct alphabetical order, this range of edible flora is itemised in a bulletin recently issued by the American Bureau of Railway Economics. A study of the supply section of the bulletin is really a very effective object lesson in the economic geography of the United States. California, for instance, is revealed as the principal source of supply of the gigantic mixed vegetarian diet. The sunny State supplied practically all of the lemons marketed, 91 per cent. of the grapes, 70 per cent. of the oranges, 67 per cent. of the cantaloupes,

64 per cent. of the lettuce, 51 per cent. of the pears and 49 per cent. of the plums and prunes. It took second place with celery, onions and tomatoes and third place with peaches, grape-fruit and watermelons. Florida poured most grape-fruit, celery and tomatoes into railway vehicles, and Georgia most peaches and watermelons.

NEW YORK City opened the widest mouth for these fresh fruits and vegetables. Its markets emptied 125,531 cars, compared with Chicago's 64,410 cars, Boston's 36,839 and Philadelphia's 34,121. At no one of the 66 markets were the unloads less than one thousand cars. For the railwayman, perhaps the most interesting section of the bulletin is that dealing with the length of rail haul of the commodities. Products from the far Western and Gulf States moved the longest distances. Of California's 184,225 car loads, 41.9 per cent. travelled distances of more than 3,000 miles, 35.2 per cent. between 2,000 and 3,000 miles and 8.3 per cent. between 1,000 and 2,000 miles. Of other producing States, 82.5 per cent. of Washington's loading, 82.7 per cent. of Florida's, 84.7 per cent. of Idaho's and 71 per cent. of Colorado's produce were railed to markets more than 1,000 miles distant. The transport of such huge quantities of foodstuffs over such long distances is an indication of the tremendous home market available to the American primary producer, besides being one explanation of the financial stability of the American railroads.

WHERE THE RAILWAY SCORES

THERE was a bright beginning for the New Year with a record traffic by Sunday trains on January 6, when a total of 12,251 passengers were carried. The previous highest number by the special excursion trains on any one Sunday was below 9,000. The traffic was distributed as follows:—Passengers between Melbourne and Geelong, 2,306; between Melbourne and Ballarat, 3,109; Melbourne and Bendigo, 2,855; Melbourne and Daylesford, 1,739; Melbourne and Stony Point, 1,012; and Ballarat, Geelong and Queenscliff, 1,230. So popular did the Queenscliff train from Ballarat prove that the decision was made to schedule it an hour earlier, to provide an additional train, and to run the Melbourne train, which previously connected with the Ballarat special at Geelong, right through to Queenscliff on the forward journey.

SUNDAY TRAFFIC RECORD

WITH the voluntary and enthusiastic assistance of country railway station staffs, the Tasmanian State Fruit Advisory Board was enabled last month to sell cheaply some hundreds of 12 lb. cases of fresh Tasmanian black currants in the fruit-starved districts of the far north and elsewhere. A berry glut was threatening the Tasmanian growers, whose normal yield of black currants is some 1,500 tons compared with Victoria's total annual crop of 15 tons, and Victoria's helping hand was extended when it was most needed. The berries were sold from railway trucks in transit, and orders for suburban delivery were taken at the fruit stalls at Metropolitan stations. Prices for the berries were 6s. per 12 lb. case in Melbourne, 6s. 6d. when delivered at suburban stations, and 7s., when sold from trucks in the country.

UNCLE SAM, VEGETARIAN

EATING MORE BLACK CURRANTS

EATING MORE BLACK CURRANTS

On The Roof of Victoria

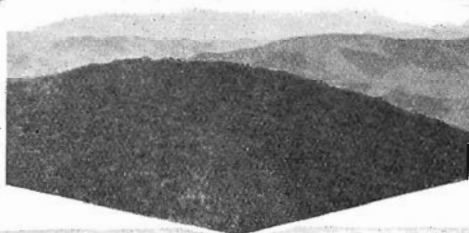
Pictures of the Recent Bogong High Plains Trail Ride



ABOVE (left): Riders leaving Shannon Vale

ABOVE (right): The party lines up on Mt. Hotham

CENTRE (upper): Mt. Buffalo National Park from the Feathertop Bungalow



CENTRE (lower): Silhouetted against the skyline on the Summit of Mt. Feathertop



BELOW (left): A snow-drift lingers on the naked slopes of Mt. Nelson

BELOW (right): Breakfast at Shannon Vale



Perfumes per fumes

By
Clifford Herbert

VICTORIAN railwaymen handle no freight more fragrant than the consignments of perfume which reach them from Simpson's factory at Burnley, where lovely scents are created amidst most prosaic surroundings.

The activities of this growing Victorian industry are here entertainingly described.



On a railway carriage late one night the gentlest of breezes wafted a permeating fragrance from the window seat. It suggested some ultra delicate, ultra subtle, ultra exquisite perfume. To even the masculine sense, here, indeed, was the perfume *de luxe*.

Some months later at a theatre the same perfume faintly tinged the atmosphere

Last week I crossed the Yarra in the medieval Twickenham ferry. Grass-grown quarries long disused, the brown sluggish stream, dusty roads, carriers' vans, the abattoirs, a lone steam-roller crunching metal . . . an uninspiring quarter. Yet there was an oasis. Simpsons supplied it.

A wisp of fragrance met me at the door, a wisp of quaint old English gardens . . . stocks, lavender, jasmine, roses, violets and apple blossoms . . . choice blooms breathing odors of romance. Just inside stood a showcase of clear-cut decanters, wonderful examples of the glass moulder's art, glinting in a ray of sunshine. A hundred bottles of different designs and sizes stood meticulously at attention, each outvieing the other that it might be the sample chosen by the retailer's traveller.

Over here the tinge of boronia lingered. No English garden now.

Eucalypt clad hills flanking plots of sweet smelling brown bushes bearing a profuse riot of flowers. Here was the spirit of the Dandenongs. Here too was the secret of the train and the theatre.

In the workroom, battalions of amber filled bottles waited to be issued with caps—gelatine covering clapped over the cork wet and allowed to dry. When drawn taut, it fitted perfectly. The army was marshalled again complete with service uniform ready to take the field.

Glass Stoppers and French Kid

Golden brown lavender and musk gleamed in large decanters waiting for the final touch. A girl advanced on them, she produced a large bobbin of thread, a square yard of white French kid, a roll of blue ribbon and several glass stoppers. Her shingled head hovered over the decanter, which emerged inside two minutes with a piece of the kid stretched wet over the cork and tied with thread, masked in turn with a symmetrically tied blue bow whose folds secured the stopper.

In the laboratory a dozen labelled barrels lay on their sides, representing the variety of perfumes bottled. In the strong room were the perfume oils, necessarily imported from overseas. The air was sweetly heavy with their concentrated odor. Flasks, bottles, flacons, decanters, drums, barrels, tubs, vats, troughs and tanks all imprisoned precious oils. There is nothing

delicate about some of the names with which science has burdened the constituent parts of the most delicate oils. Bergamot oil, for instance, comprises linalol, linalyl acetate, dlimonene and bergaptenone. Bay oil is composed of eugenol, methyl eugenol, chavicol, estragole, myrcene and phellandreuil. Eau de cologne is a blend of such oils dissolved in alcohol.

A giant facsimile of an egg-beater churned through a sticky white mass. The mass was transferred to what might have been a sausage machine, an apprentice placed an empty zinc cylinder over a nozzle, turned the tap, closed it off, folded the end and presented me with a tube of lanoline. A vat of shaving cream bubbled merrily. Two small barrels of face cream waited longingly to retain school girl complexions. Tubs of bath salts stood off anticipating their influence on bath water. Pure yellow fat extracted from Australian wool stood in rotund barrels alongside petroleum jelly in like containers. Overhead, the machinery belts sent electric beaters and pestles sloshing through mixtures of cream and pastes.

Outside the door, two girls fed the contents of huge wooden vats through rubber tubes into trays of bottles. Quickly and skilfully they filled bottle after bottle, row after row, tray after tray with lavender and musk and eau de cologne. Other girls corked the bottles or dressed them in small bright labels.

In the basement, a dull liquid ran

from a tap, filled 500 bottles and solidified into rich, golden concrete brilliantine. Here petroleum jelly was also bottled in the same manner. Hair fixatives, too, drained into containers—white liquid shortly to play an important part in the immaculate brushing of masculine hair.

Dainty Fingers Make Dainty Boxes

The box-making department turned out dainty cardboard containers at an astonishing rate. Huge sheets of the board were mercilessly sliced to size under the blade of the guillotine, passed to the next machine, held in position, folded and slotted and carried to a girl at a big sewing machine stitching steel staples in lieu of cotton. Unerringly she stitched the sides and stacked the finished boxes high on her right. Ten paces away, three girls made fancy boxes by hand for face washers, cakes of soap or bottles of bath salts. Nimble fingers folded the card and secured it with gummed slips. Fancy paper in fantastic designs of many hues was stacked on the table waiting for quick, deft touches to help it transform an ordinary box into a beautiful casket.

Through a double-door, glimpses of a white-capped flourmiller surprised me. I enquired regarding the mill, and stood open-mouthed at the explanation that it was really the talcum



Filling tins of talcum powder

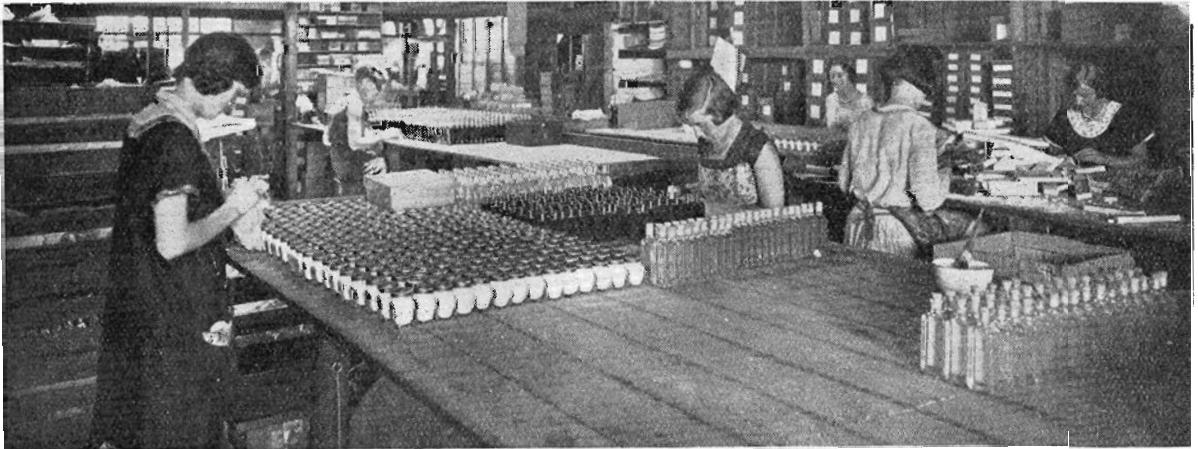
powder room. Inside there was no mistaking the fragrant lavender perfume. Bags of the raw material from

South Australia lay waiting treatment. South Australia, incidentally, mines rich deposits of the mineral which compares more than favorably with the best imported.

Sacks of the dull white powder were spilled in a huge wooden box and then scooped into the mixing machine. Strained through successive wire gauze compartments, the prospective talc eventually found its way into a compartment where the lavender perfume was added. Sieved again, the "hopper" took charge and from the outlet flowed pure white powder of the finest texture and perfume. Stacks of oval tins were rendered airtight when the tops were gummed on. Boxes of them awaited a rail journey to other States. Simpsons, at the present time, are treating eight tons of the powder per month. They supply it in 23,892 tall pink tins.

Thirty Years' Experience

In common with one or two others Simpsons have struggled through the lean years, biding their chance to prove the quality of their Australian made goods. Their thirty years of practical experience has gained for them more than the possession of complicated formulae—it has granted them that master touch to the blend of their perfumes, which are claimed to rank with the world's best.



In this section of the workroom, bottles of ace cream, bay rum, lavender, musk and hair brilliantine are being sealed

First Alpine Railway is 75 Years Old

JUST seventy-five years ago Europe's first Alpine railroad was opened to traffic. This was the Semmering road, constructed by the Austrian government as part of the important through trunk route between Vienna and the seaport of Trieste.

The Semmering railway was one of the most ambitious engineering tasks attempted in the early days of railroads. It was built by Karl Ghega,

a Venetian engineer who included in his early studies much railroad constructional work in the Alleghanies.

Twenty-six miles in length, the Semmering road has a maximum grade of 2.5 per cent. There are 15 tunnels on the route, innumerable viaducts and 118 arched bridges.

This pioneer Alpine road (writes Arthur L. Stead in the *Santa Fe Magazine*) was constructed at the

outset as a double-track route, with a service of four passenger trains a day running thereover. Today 19 regular passenger trains traverse this mountain route daily, included among which are several trains-de-luxe and international limiteds.

The Semmering railway, as the first Alpine road, laid the foundations of the wonderful system of mountain railroads today serving Austria and Switzerland.

Lines from Other Lines

IT SATISFIED EVERYBODY

THE present members of the American Congress and the state legislatures are not the first to be perplexed by the so-called railroad problem. One day, fifty years ago, after several hours of debate, the Georgia House of Representatives adopted, amid enthusiastic applause, as the Atlanta Constitution expressed it, this resolution:

"Resolved: That this railroad question stumps this House a little the worse. The more members think and talk over it, the more they can't tell. As near as they now remember, they are of the opinion that they don't know. Much has been, and much more may be, said, and neither prove correct. Upon the whole they are inclined to think that they should, or that they should not, just as every member thinks least or otherwise.

Some think through freights are through freights, and some think local freights are local freights; and the object of this resolution is that each may think himself right in this matter just as he pleases."

EUROPE LEADS AMERICA IN ELECTRIFICATION

THERE is less railroad electrification in the United States than in Europe, according to a recent report of the National Electric Light Association. While railroad electrification began in America as early as 1895, the United States had only 1,753 route miles electrified at the close of 1928. Europe, on the other hand, had practically no electrified mileage prior to 1915 and now has 4,996 route miles electrified. This is exclusive of Soviet Russia and the British Isles. Great Britain has 1,019 route miles electrified, Canada 92 miles, while the whole of Central and South America combined has only 566 miles.

FAMILY TRADITIONS

THOMAS NELSON PERKINS, chairman of the executive committee of the Boston and Maine Railroad, was elected acting president to succeed the late George A. Hannauer at a recent meeting of the committee.

Perkins is related to the first railroad president in the United States. This was Colonel Thomas S. Perkins of Boston, a brother of his great grandfather, who was chief executive of the Granite railway, a crude tramway built in 1826 at Quincy, Mass., to carry granite for the Bunker Hill monument.



THE Latest News from
the Four Corners of
the Railway World.

THE Royal York hotel, which has just been built at Toronto for the Canadian Pacific Railways. It involved an expenditure of £3,200,000, is a 28-storey structure, and contains more than 1,000 guest rooms. The normal staff is approximately 1,000.

CALL YOUR STATION

THE Canadian National Railroad, already the holder of many records, claims to hold the world's championship for the largest number of hard-to-pronounce names of towns

SPECIAL CARS FOR GIVING "TALKIE" SHOWS

A "SHOWBOAT" on rails is planned by a New York company which, under the name of the Cine-Car Corporation, has acquired rights to the use of specially built railroad coaches designed for entertainment purposes.

The company plans to show "talkies" in cars while trains are en route and in towns where there are no theatres equipped with facilities to handle the "gossiping films."

along any 278-mile stretch of railroad on the North American continent.

Between Halifax and St. John's, N.S., there are 11 stations that are a constant menace to the vocal organs of passenger guards. Here are some of the tongue-twisters:

Shubenacadie, Stewiacke, Memramcook, Anagance, Penobsquis, Petiscodiac, Plumweseep, Apohaqui, Paskeag, Nauwigewauk, Quispamsis.

The largest order for rails in railroad history, was announced by the Pennsylvania Railroad last month, when it purchased 310,000 tons of rails for use in 1930.

TENDER EELS

WHILE it is unusual for dead fish to be found in locomotive tenders undergoing repairs in the tank shop at the Altoona car shops, the *Railway Age* points out that it was left for Boilermaker R. L. Lyle, of the Pennsylvania Railroad, to put the business of repairing tenders on a sporting basis. He had a lively time catching squirming eels that got in the way of his air hammer. He has on display in a bottle one of the eels that he caught. It is believed that the eels were scooped up out of the tank troughs between the rails by the engine when taking a drink on the run.

THESE DOGS REAL RAIL- ROADERS

TWO dogs who earn their board and keep as railroaders are Saul and Rex. Saul is a collie, owned by a section foreman on the Minneapolis and St. Louis at Rawleigh (says *Railway Age*). Each evening for four years he has met train 21 to get a newspaper (which the conductor throws off to him), and take it home. He knows the train's time and never misses it.

Rex is a pointer, owned by the agent of the Virginian at Salem. For the last year, he has been in railway service, delivering the daily interchange reports between the agent's office of the Norfolk and Western. If for any reason the report is delayed, he expresses his disapproval of such dilatory methods by loud and continued barking.

TRAINS A MILE LONG

FOUR of the American railroads, the Southern Pacific, the Great Northern, the Santa Fe, and the Northern Pacific, now regularly make up goods trains of well over a mile in length. Such trains are usually composed of a hundred, or even a hundred and twenty, steel bogie vehicles, each sixty feet long, and they make a trip of several days from the Pacific Coast to the Atlantic.

Los Angeles, Riverside and the Imperial Valley are the principal centres of departure, while "breaking up" may commence in Chicago and end in New York City.

The crew consists of two men to each engine, a conductor, and probably three brakemen, twenty-five to thirty such relays being required to work the train during its 3,000-mile journey from ocean to ocean. Where gradients are steep, as in crossing the Rocky Mountains, extra engines are added both in front and behind, but it is astonishing what tonnage a single powerful engine can now pull.

A few years ago brakemen might be seen running over the tops of the freight cars, applying brake after brake as the train came to each descent. This was risky work. At steep descents brakes must be applied quickly to keep the train from running away; yet the roof-runners had to be ever on the alert to lie flat at each bridge or tunnel. Nowadays all brakes are controlled from the engine, and the so-called brakemen are mainly responsible for attending to the automatic "Janny" couplings or pulling switches at sidings where other trains have to pass.

Some of the trains are composed exclusively of refrigerator cars, conveying fish or fruit across to the eastern states, and it is not unknown for a whole mile-long train to have a load of nothing but oranges.

Remarkable RAIL-LAYING Performance —Back in '69

NEARLY every American rail-roader has heard of the record made, on April 28, 1869, in rail-laying on the old Central Pacific, but the details are not so well-known in Australia and will bear repetition:

Small flat-cars carried the rails to the end of the line, where each rail was seized by four men who ran forward with it and dropped it into place. Behind these men came a gang which spiked the rail in place with eight spikes and inserted the bolts. Behind these came another gang to drive home the spikes which had been started and to tighten the bolts. Finally came the surfacing gang to throw in the ballast, surface the track, and tamp the ties in place.

All of these men were carefully selected for their strength, skill and

NEW Mountain RAILWAY for BAVARIA

WORK began last year on the construction of the new Zugspitze mountain railway which, it is hoped, will be completed by May, 1930. The Zugspitze, (9,720 ft.) is the highest peak in Germany, and the Austro-Bavarian border line runs across its summit. A mountain railway from Ehrwald, in Tirol, has been in existence since 1926, but the new railway is the first attempt to conquer the Zugspitze from the Bavarian side. The Austrian ascent is by means of a rope railway, the new Bavarian line is a "Standbahn," where the problem of a steep ascent is solved by racks and tunnels.

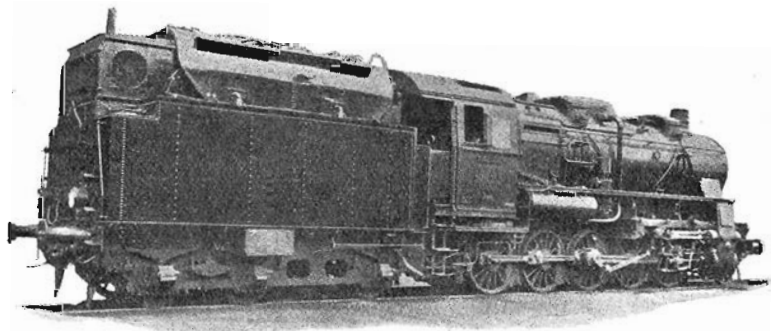
The railway has been planned and is being constructed by Herr Weber, one of Germany's most experienced engineers, whose name is already well known in connection with the construction of the Jungfrau mountain railway.

The railway begins at Garmisch-Partenkirchen, and runs up the Loisach valley, the four and a-half mile stretch to the first station of Grainau being

almost level. At Grainau the incline begins and the line becomes a rack railway. The run from Grainau to the second station of Eibsee, near the lake of the same name at the foot of the mountain, involves an ascent of 825 ft. This portion of the railway will be opened very shortly.

At Eibsee the real difficulties begin. The next section of rack line will run from here to Riffelriss at a height of 5,300 ft., and from Riffelriss a tunnel three miles long, is being bored through a solid mass of dolomite rock. The tunnel will conduct a rack railway at a gradient of 25 deg. to a plateau at a height of 8,600 ft., where an hotel for tourists is to be built. This will be the terminus of the railway proper, but an additional half-mile of line will run to the actual summit (9,720 ft.)

The distance from Garmisch-Partenkirchen to the peak is more than 11 miles. The total cost of the railway is estimated at £625,000.



This peculiar-looking locomotive, a Henschel type, has been adapted for coal dust firing in the Halle district by the administration of the German State Railways. Photo—South African Railways and Harbors Magazine

FRANCE STANDARDISES COLOR LIGHT SIGNALS.

THE railways of France have never standardised their signal indicators or lights to the degree which applies, for instance, on the British Railways, or as is now the case in Germany. With the coming of the color light signal, it was realised that the situation is liable to become chaotic, even to the extent of introducing an element of danger.

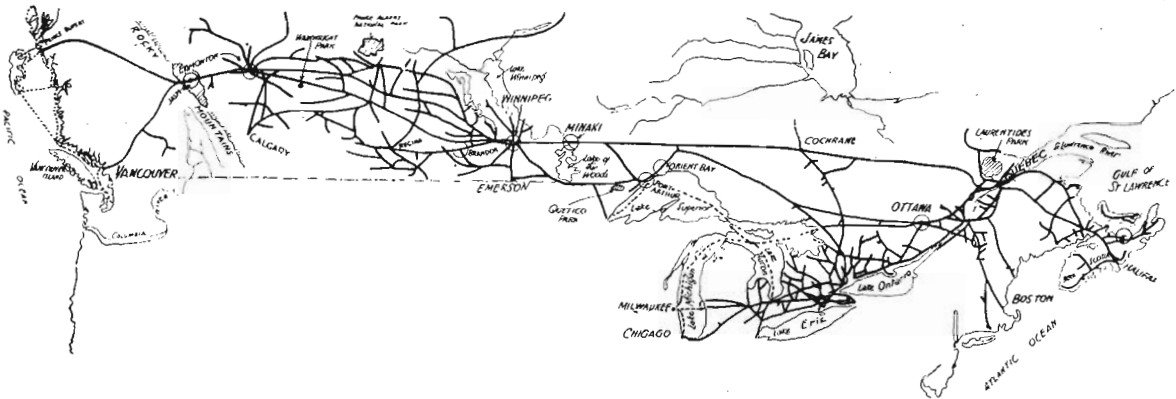
The present enquiry would seem to point to the standardisation of Green as the "Line Clear" signal, Yellow-Orange as the "Caution" signal, and Red as the "Stop" signal. It is hoped that the study will bring about a reform which is long overdue, but any complete standardisation will naturally take several years to achieve, and it has been estimated that the total cost will not be much less than £400,000.

Canadian and Victorian Rail Finances Compared

By T. F. BRENNAN, Chief Accountant, Victorian Railways

DESCRIBING the remarkable progress of the Canadian National Railways in recent years, the contributor of a special article, which appeared in a Melbourne daily a week or so ago, passed some misinformed criticism on the Victorian Railways. He emphasised "the striking contrast in the results achieved by our own railways and those owned by the people of our sister dominion."

Mr. Brennan, while in no way attempting to detract from the wonderful achievement of the Canadian railway management, here rebuts this criticism with a lucid comparison of the latest operating results of the Victorian and Canadian National systems.



This map shows the huge area served by the Canadian National Railways

THE achievements of the Canadian National Railways during the past few years have been such that Canada as a nation and the management of the railways can be justly proud of them. This we fully recognise and freely admit; and, in doing so, we cannot give too generous credit to the management for the magnificent improvement which has been made in what was, but a few years ago, little better than a derelict system. While doing so, however, we have no need to feel abased should the operating results of the Victorian Railways for the last completed accounting year—June 30, 1929—be contrasted with those of the Canadian National Railways for the year ended December 31, 1928.

Canada has the huge area, according to the year book, of 3,684,723 square miles; Victoria comprises 87,844 square miles, or less than one-fortieth of Canada. Canada's population in 1928 was 9,658,000, ours 1,770,000. The total route mileage operated by the National system was 22,276 miles (the total in the Dominion being 40,875 miles); ours was 4,699 miles. Their wheat harvest was 534,000,000 bushels; ours 47,000,000 bushels.

Last year, the National Railways hauled 72,000,000 tons of paying goods,

the average haul being well above 300 miles, and the total ton mileage more than 22,500,000,000. Our total tonnage of paying goods (including live stock) was 8,187,000 tons, our average haul 102 miles and the total ton mileage 834,600,000.

They, in fact, hauled more wheat (8½ millions of tons) than we did of all goods and live stock. Their ton mileage per average mile of road was more than 1,000,000; ours 178,000. Their total operating revenue for 1928 was 304,000,000 dollars, of which freight provided 228,000,000 dollars—75 per cent. of the total.

Influence of Freight Traffic

This heavy freight traffic had a material bearing on the improvement in the position and it enabled the railways to make a low average charge for the freight service. The average charge last year for all freight was 5 pence per ton mile; ours was 1·8 pence per ton mile. As is indicated hereinafter, however, their rate was not a paying rate because (in conjunction with the passenger services) it did not produce a sufficient revenue to meet all the interest charges after paying operating and maintenance costs.

The comparison with respect to the passenger traffic is, taking all circum-

stances into consideration, a very favorable one. On the Canadian National Railways the average charge per passenger mile is approximately 1·24 pence for an average haul of 76 miles, while in Victoria the average charge per passenger mile (country services) was 1·24 pence for the lower average haul of 58 miles.

After allowing for the interest charges on the whole of the capital debt of the Canadian System and for all other charges against revenue, the deficit for the year was £5,830,000. This, however, includes no allowance for interest on the capital of £55,000,000 provided by the stockholders. Approximating this interest at £2,200,000, the actual deficit is revealed as something more than £8,000,000.

The deficit on our own railways last year was, it will be remembered, £62,800 and the comparison with the Canadian National Railways is thus substantially in our favor. Per average mile of railway worked the respective deficits were:

Victoria	... £13.
Canadian National	£359.

In the light of the difficulties which we are facing, we may regard our

Concluded on page 35

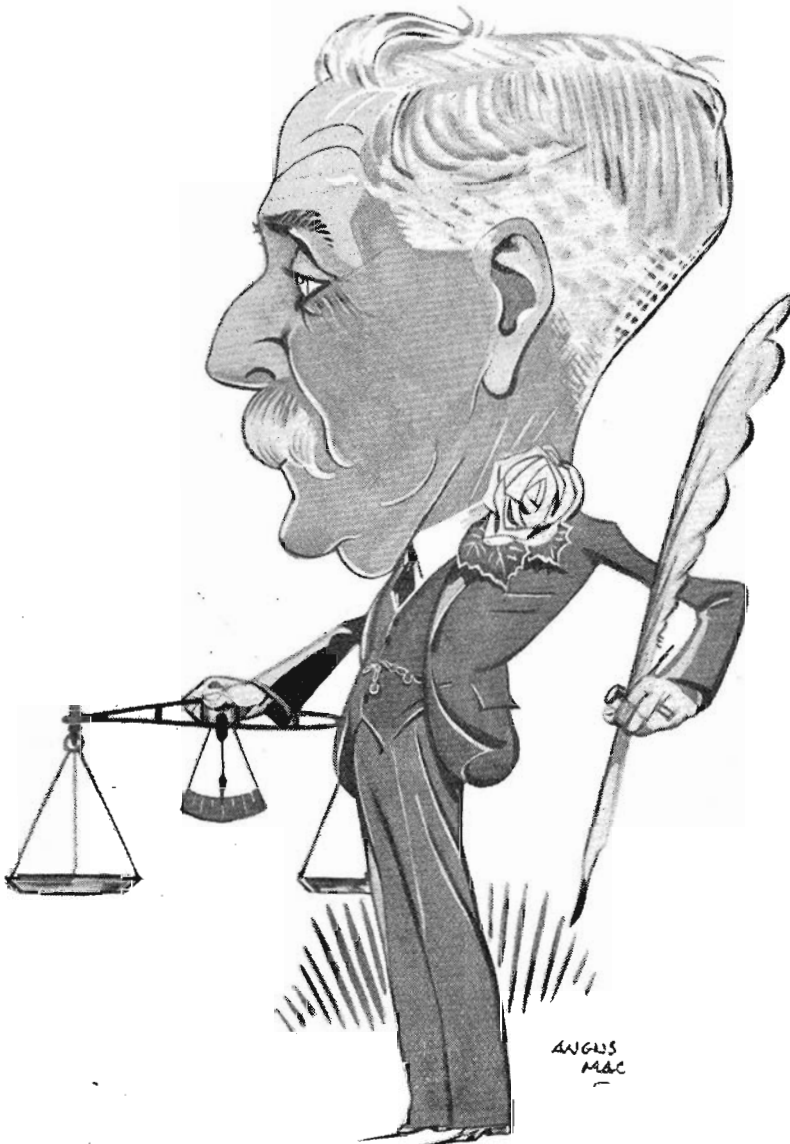
Representative Railroaders

No. 29

Claims Agent J. SOUTHAM

Caricature by ANGUS MAC

By R. H. JUNIOR



NO other railwayman in Australia—probably no other railwayman anywhere—has had as long an association with claims work as James Southam has had. Of his 44 years of service in the Victorian Railways, he has spared no more than four for other varieties of railway work.

Two of those four were spent among the waybills and invoices of the book-keeping office at the Melbourne goods. The other two were spent at the elbows of Commissioners R. H. Francis and W. H. Kibble as confidential secretary. His two temporary lapses from the straight and narrow path of claims handling, however, serve but to emphasise the fixity of purpose with which he has unhesitatingly trodden that path during two score years.

Yet, remarkable though it may appear, Chance had a great deal to do with his introduction to the path—almost as much, indeed, as it originally had with his selection of a railway career. If, in fact, Goods Agent John McKeen had not been absent on annual leave at a certain period in 1888, it is more than probable that so many obstacles would have been placed in the way of young Southam's transfer from the goods sheds that the transfer would never have taken place. For the week which the Assistant Traffic Manager chose to cast a roving eye around him for a bright young man in the goods shed, who could act as juvenile right hand to Claims Clerk H. W. Hawkeswood, was the same week which the Goods Agent chose to go on holiday. The latter was a displeased man when he returned to find that the promising junior in his book-keeping division had become a promising junior in the claims division.

Chance had pulled the strings with stronger fingers still when the Claims Agent-to-be was looking for a job in 1886. He sat for examination for appointment to both the public service and the railway service. He duly secured his appointment to both services, but the railway appointments

being announced earlier than the public service appointments, he elected to follow a career behind the Iron Horse. On such small things do careers sometimes hang.

The transplanted junior celebrated his arrival in the claims division—located at that time in an ancient weatherboard building on the site of the Spencer-street island platform—by operating the very first typewriter purchased by the Victorian Railways department. It was a massive creation which registered capital letters only, and its keys worked with the silent sprightliness of a knock-kneed elephant on roller-skates. It was followed by a little, ebonite-type machine, selected by James Southam at the Centennial Exhibition, and a third contrivance built on sturdy chaffcutter lines. That historic trio were the rude forefathers of the family of gleaming-noiseless, impeccable and sophisticated machines now throbbing incessantly at head office.

It was at this stage of his career, incidentally, that James Southam was concerned in the Mystery of the Unclaimed Leather Trunk or the Case of the Absent-Minded Cabman. The trunk, a very handsome and very expensive one, fitted with a patent lock, had lain unclaimed in the lost property store for 12 months—an aristocratic enigma in leather. The lock had defied all attempts to open it with skeleton keys, and young Southam, who had

charge of the half-yearly lost property sales, had been reluctant to administer violence.

There proved to be no other alternative, however, and the forced lock eventually revealed a silken array of beautiful gowns, robes and draperies and a smaller locked case, which, in turn, spilled a glittering stream of jewellery, necklaces and precious stones on to the dusty floor of the store. There was a card—a titled name—in the jewel box, and an "urgent" wire brought the owner posthaste to Melbourne from his country mansion in western Victoria.

Claiming his property, he explained that he and his wife, 12 months before, had made a trip to England and had entrusted the leather trunk, which was but one article of their travelling impedimenta, to a cabman for delivery from their city hotel to the steamer at Port Melbourne.

Apparently deciding that the railway was the best way, the cabbie had left the trunk at the Spencer-street station, and the travellers did not discover their loss until they left the steamer at Brindisi. Naturally they were then inclined to blame Continental thieves for the disappearance of the trunk. And so the jewellery lay unclaimed in a galvanised iron shed at Spencer-street among second-hand mangles and bundles of dirty umbrellas, while bewildered European detectives sought to solve the baffling mystery of the steam-

ship robbery that had never occurred.

Whether the European detectives were ever informed of the recovery of the trunk and of the true circumstances of its disappearance, James Southam is unable to say

In 1916, two years after his appointment as V.R. Claims Agent, the Tasmanian Government requested the loan of James Southam's services to handle the claims arising out of a bad railway smash in the Apple Island. So high even then stood his reputation as a scrupulously impartial assessor of fair and reasonable compensation in railway claims.

Not once has his hand wavered while he has held the scales of railway justice. He has never bluffed and no claimant has ever bluffed him. And in this—his 16th year as Claims Agent—he remains as retiring and as acutely limelight-shy as when he first settled down to railroading 44 years ago. A pleasant, affable man, with flaxen moustache, silvering hair and twinkling blue eyes, and with a rose always in his coat and a pipe always in his hand, he somehow suggests the conventional English landed squire. He has ever been an open-air man—cricket, cycling and now fishing—and he is today the only life member of the League of Victorian Wheelmen.

And he is, of course, the only executive chief in the Department who is happiest when the work of his staff is slackening.

IDEAS ABOUT IDEAS

By J. FOWLER

Member, Betterment and Publicity Board

MANY a good idea has been lost through diffidence, lack of faith or fear of opposition and ridicule. A man with a brainwave is perhaps afraid that it might not work under test, that other and perhaps cleverer men must surely have thought of it before and discarded it, that it might be laughed at as impossible or opposed as detrimental to somebody's interests.

But nowadays the world is looking continually for new ideas. Men have wider vision than they had when they dubbed printing an invention of the devil and forced it into underground secrecy, when they stoned men who carried umbrellas in London streets, when they denounced the introduction of stoves, when they bitterly fought the railroad, the telephone and the typewriter.

Bogey like that don't exist now. There is no suppression of ideas—only encouragement.

IF there's a better way of doing a job, surely it's the man on the job who can reasonably be expected to suggest an improvement. That was the thought which the Victorian Railways Commissioners had in mind when, in April, 1921, they instituted the Suggestions and Inventions Board. This inaugural body received suggestions from those employees whose interest in their work prompted them to submit ideas for the betterment of the service.

The growth of that Board to the present Betterment and Publicity Board

has been assisted by the recognition accorded it by railwaymen. Their response to the Commissioners' invitation has taken the shape of 22,483 suggestions and, of these, 4,047 successful ideas for economy and betterment have been rewarded with £17,306.

There is every reason to anticipate that this interest in the general improvement of the service will be continued. At the present time the need for concerted efficiency must appeal to every railwayman. There is still a vast field over which the suggestor can operate.

Although the number of suggestions already submitted has soared beyond expectations, the fact remains that for the keen-minded there yet remains ample scope for the submission of improved methods and ideas. For instance, the changing outlook resulting from such things as harvests being below the average and the advent of road competition, with its effect on passenger and freight traffic, are two items which each open up a field for further thought on economical operation.

"Hide not your light, etc.," is most

applicable in this particular regard. The "light" might not be discernible under the "rays" of investigation, but on the other hand it may prove to be a high-powered flood-light. But hiding it will not even give it a chance to flicker. Therefore, write up the idea and submit it to the Board. Adopted ideas not only mean profit for the suggestor, but satisfaction and pride in the knowledge that the Department, whose welfare is also his welfare, is profiting too.

For instance, take the suggestion for an improved condenser tube cleaner. Experience of the difficulties which developed with this vulnerable part of power house equipment put one of the men on the job on his mettle. After some thought and experimental work, a solution was evolved, the value



The retention and subsequent sale of smoke from engine funnels.

of which resulted in a substantial award crowning his efforts.

Then there was the railwayman with his ingenious self-designed "bending and upsetting machine," which is now used for bending rails and heavy section mild steel. This also was a valuable idea, introducing improved methods to the Department and reward in the form of a big award to the suggestor.

Again, there's the suggestor whose idea for an improved method of trimming this Magazine was adopted. Another observant railwayman came to the conclusion that two steps on old type QR trucks were unnecessary. He passed on his opinion and it was agreed with.

But not all the suggestions are mechanical ones. Far from it. Space will only permit of a very limited indication of their great variety—the registration cards show them as being listed under many hundreds of headings.

Other adopted ideas that seemed obvious ones once they had been suggested, included the fitting of battens

to the interior roofs of insulated "T" wagons to prevent the iron from loosening, the use of local sand at the different loco. depots, the supply of an improved type of green holland blind for departmental residences, and a more economical distribution of oil at the Jolimont workshops.

New methods of manufacturing cow-catchers, ventilator handles, main bearings for tricycles, spanners, and reflector brackets for lamps are also numbered among the suggestions which have been received from inventive minds. Much thought, too, has been devoted to correspondence forms and other stationery, resulting in standardisation and simplification.

For practically all of these ideas, monetary awards—the biggest individual one being £420—have been granted by the Commissioners at the recommendation of the Betterment and Publicity Board.

Ideas are sometimes lost because they have been considered too simple to be worth submitting. Diffidence or lack of faith sometimes stifles a thought with the same result. In the office, the workshop, and the yard, along the track, on the overhead, at loco. depots and stations, there are ideas waiting to be discovered, but doomed to wait if the man who discovers them is disinclined to submit them to the Betterment and Publicity Board.

A Habit Worth Cultivating

Sending suggestions to the Board is a habit worth cultivating. Even if the suggestion is not adopted, the railwayman realises that his keen appetite for improvement is being whetted in the mutual interests of employer and employee.

Sometimes, of course, schemes which are quite impracticable are suggested. Such a suggestion as the harnessing of the tides to generate electricity from powerful turbines is beyond the pale of departmental activities, yet who is bold enough, in these days of photographs, winged waterboats and talking pictures, to say that the idea will never find favor with organisations other than the railways?

The suggestor who advised the adoption of chalked advertisements on blackboards on the central station didn't find the Board ready to jump at the idea. There were many reasons why it wouldn't have been successful, but, nevertheless, the spirit of discovery had made an earnest bid for recognition.

The retention and subsequent sale of smoke from engine funnels was quite a singular thought. The suggestor naively confessed that he "didn't know exactly how the smoke could be used, but thought there might be a market for it somewhere," and so "passed the idea along for what it was worth."

Another novel suggestion was a

recommendation that a Punch and Judy show be installed at the Tourist Bureau. "Crowds would be attracted by the novelty at lunch times," the suggestor thought, "and some of them would possibly buy a ticket or something."

Further apart than the poles from these impracticable suggestions are those of the admirably conceived fuel conservation movement, whose committee of representative railmen meet regularly at various centres. Certain of the suggestions made by the committeemen are referred to the Betterment and Publicity Board with whom the organisation is affiliated.

The Safety Council, too, considers suggestions relative to safety measures for operations throughout the various phases of railway activity which have



. a recommendation that a Punch and Judy show be installed at the Tourist Bureau

been submitted by Safety committeemen. Of 241 safety suggestions received during the year 1928-29, no fewer than 156 were adopted. The safety organisation leads all bodies of railwaymen with its high percentage of approved ideas, and its members are naturally very proud of their achievement.

Summing up, it appears that one reason why many railwaymen do not submit suggestions is the existence of a vague impression that only the technical ranks of the service—those who can *invent*—have scope for suggesting. Emphatically, this impression is wholly wrong. Every railwayman has the same opportunity to consider ways and means of improving his methods of work.

The Betterment and Publicity Board is desirous of receiving at least two suggestions a year from each member of the big railway family. There can be no doubt that such a display of interest would be the means of further stimulating the faith of the railroader in his organisation.

The MONTH



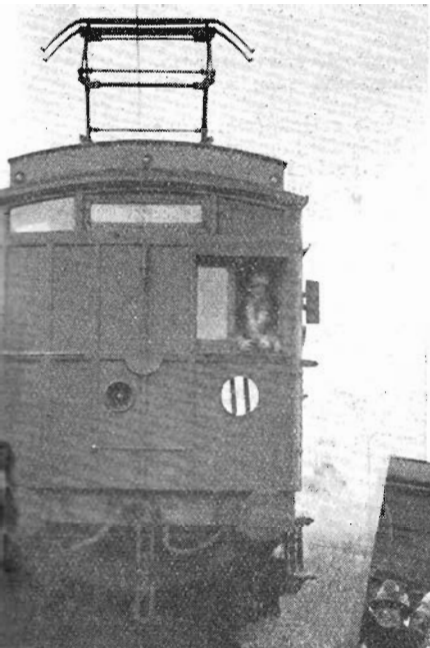
Under the aegis of the Tourist Bureau, a party of walkers recently made an enjoyable holiday tour of the Mt. Wellington district. The top picture shows three walkers surveying the hidden lake, Tali Karng; the right-hand picture, a view of the type of country traversed; and the bottom picture, members of the party about to set off.



RIGHT TOP: The first electric train to run to Thomastown, completing another stage in the extension of the Melbourne electrified area.



in PICTURES



TOP: A recent distinguished traveller on the Overland was the new Archbishop of Melbourne, Dr. Head. He is on the left in this picture with Dean Aikin beside him.

LEFT: A group of old residents of Warrnambool and their children who travelled from Spencer-street by special train last month for the "back to" celebrations at their old hometown.

Educational day tours to Yallourn by special train are becoming increasingly popular. The two bottom pictures depict groups of travellers who joined recent tours arranged for the Victorian Teachers Union and the Workers Educational Association of Victoria.



Lively Travel in Burma

By George Cecil

BEFORE the existing railway line was built right through from Chittagong to Akyab in Burma, travel in that wild corner of India was an experience which most Europeans were anxious to avoid.

Some of the trials of the road which beset travellers are described in this article (which we reproduce by courtesy of the Locomotive Engineers' Journal). The writer's 200-mile journey along the Burmese seafront was assisted—or hindered—by river boat, native pony, primitive railway train, coastal steamer and a toy steam tramway, and his progress was enlivened by adventures with alligators, murderous robbers and train bandits, a railway breakdown and a cholera menace.

BURMA was not always the orderly land that it is today. Not so very long ago, the *boh* (highwayman) made himself obnoxious to all who travelled by rail, boat and highway, while the European who rode from one point to another might be deprived both of his pony and his life, there being no limit to the *boh's* rascally enterprise. When brought to book, the *boh* certainly was hanged, with a few accomplices to keep him company, a proceeding which for a short time caused a lull in evil doing. But lawless Burmans recovering from the shock caused by the fate which overtook their colleagues, soon returned to bad courses, waylaying the unwary and making things generally unpleasant for travellers. Trains were held up and the passengers robbed and murdered, their bodies, despoiled of rings and ornaments, being left to the prowling jackals.

Finding myself at Chittagong, a northern port of Burma, and wishing to reach Akyab, some two hundred miles down the heated coast, I once undertook a journey which, as will be seen, was adventurous to say the least. Nothing could have been more so.

No "Safety First" Guarantees

In those days Chittagong possessed no railroad, though Akyab was connected with an inland line. So, to avoid discomfort for the whole distance, which usually was covered alternately by pony and boat, I became friendly with a Burmese hotel-keeper, who made arrangements for my conveyance by river to the railway terminus.

"We cannot guarantee that you will reach the place alive," chorused the boatmen, accompanying their dismal words with a cheerful grin. "Our boats sometimes knock against submerged rocks and, filling, send the occupants to the bottom where the mud is thick. Or alligators, of which there are many, swallow those who are shipwrecked."

I boarded the frail roofed-in craft, spread the coarse mattress which in Burma is used by every traveller, and—imagining danger to be near at hand—refrained from sleeping. As things happened, it was well that I kept

awake, for, owing no doubt to defective steering, the boat's nose violently charged the river bank. In a few seconds I was on dry land—and it was in the very nick of time, for a hungry alligator, who had been rudely disturbed, viciously snapped at my boot heel as I leapt from the boat to the bank.

Except for two somewhat disconcerting collisions with passing barges and running ashore on a mud bank, which looked as though alligators might collect on it, the rest of the journey was uneventful.

"You are lucky," remarked the steersman, fingering a nasty-looking knife. "The last white man who made this journey arrived with his throat cut. He and a boatman had disagreed."

Stationmaster Murdered by Bandits

Upon reaching the railway station, I found that no train could run for twenty-four hours. Robbers, coming in the night, had knocked out the stationmaster's brains, rifled the safe and, perhaps in a spirit of mischief, damaged a locomotive. Consequently, there was nothing for it but to wait, and to hope that the chief *boh* and his band would not repeat their activities.

Waiting, however, was rendered difficult by hunger, the only available provision being stringy, tasteless bananas, uneatable native bread, and oranges which, if obligingly growing wild, bore absolutely no resemblance to the succulent Western variety. So I dozed by fits and starts, awaking to find hunger gnawing at my vitals, and owing to the abominable heat, to discover myself in a filthy state of perspiration.

Finally, a relief engine made its appearance, and the belated train left the wooden shanty which took the place of the solidly constructed station building of Western civilisation.

Not for long, however, did the locomotive proceed on its way; scarcely had fifty miles been covered when a dark object was seen blocking the line. The engine, slowing down, came to a halt before two buffalo carcasses—one piled above the other—which formed a very effective obstruction. The passengers, with Burmese curiosity,

crowded around the defunct buffaloes, to be, in turn, surrounded by a score of desperadoes, armed with spears and intent on robbery with violence. Fortunately I had brought with me two repeating rifles, which put the rascals to flight. Five minutes later, the obstructions were removed, and we went on our way.

Within ten miles of our destination, engine trouble set in, with the result that the half-caste conductor advised those who did not wish to remain several hours in a stationary train to get out and walk. The native passengers raised no objection, some even appearing to welcome the idea of tramping under a burning sun. But that was too much for me, so I hired a rough cart drawn by a shaggy, ill-kept pony, loaded it with my luggage and, keeping a look-out for robbers, sat by the driver's rather odoriferous side. Except for the most abominable bumping over the cart track which served as a road, nothing unusual occurred. No excitement beyond an occasional drop into a deep rut.

Steamer, Tram and Pony

As the railroad ended at Elephant Point, a hundred miles from Akyab, which was the end of my adventurous journey, another means of transit had to be devised. An Elephant Point trader came to the rescue, and I secured a passage on a coasting steamer for half the distance. Then came twenty miles by a steam tramway, the rate of progress equalling six miles an hour—and sometimes less. The last thirty necessitated a pony, the distance being covered in almost as many hours, as the awful heat made it impossible to ride for long at a stretch. Much resting under shady trees was necessary, with a night spent in a stuffy "rest house" where a horrible dinner was served by a native cook. Indeed, so much did the garbage disagree with me, that when morning dawned, I feared cholera. Mercifully, it was a false alarm.

Nowadays the railroad has made the journey from Chittagong to Akyab an easy matter, and robbers no longer dare to hold up trains. But some years ago things were slightly different.

Railway Outposts

No. 21— Dookie

DOTTED round and sometimes farflung from the larger centres of railway activity in Victoria, are the seventh, eighth and ninth class stations that feed in revenue as the watchful outposts of an army feed in intelligence to the main bodies they protect. This series of articles will attempt to summarise the work of a few of these essential railway outposts.

ROAD metal and wheat, with a sprinkling of wool, livestock and a comparatively small number of passengers, comprise the outwards traffic from the seventh-class station of Dookie. Situated at a distance of 130 miles from Melbourne, this prosperous township is located in the eastern portion of the fertile wheat belt which extends across the northern part of the State.

In consequence, wheat-growing is the principal district activity. During the last season, no fewer than 46,896 bags of wheat were despatched from Dookie, and so favorable have been the conditions this season that, contrary to the greatly reduced yields in most other parts of Victoria, it is confidently anticipated that loadings will considerably exceed 50,000 bags. As a positive indication of the suitability of the soil to wheat-growing, it is only necessary to consider that one district crop this season yielded between 59 and 60 bushels per acre, which is



Dookie station and yard

regarded as a record yield for Australia.

A further link with the wheat industry is the Dookie Agricultural

and South Australia. A regular business is also done with the transport of stud pigs to stations in these three States.

The combination of sheep-raising with wheat-growing was responsible last season for the loading of 50 tons or 429 bales of wool at Dookie. This traffic yielded a revenue of £148.

During the slacker portions of the year, road metal forms the bulk of the outwards loading. A quarry, adjacent to the railway station, is operated by the councils of the Shepparton Borough and Shire and the Rodney Shire. Up to 16 trucks of metal, with an average of about 7 trucks, are despatched daily throughout the year.

For the past twelve months, 1251 tickets were sold at Dookie for a revenue of £679. Inwards goods, totalling 2,160 tons and comprising principally general merchandise and fertilisers, contributed £2,640. Outwards goods, with 26,291 tons, added £8,063. Parcels, with £273, and livestock, with £825, were also important factors in the station's business.

Supervises Two Stations

Yabba South, which incidentally despatched 23,856 bags of wheat last season, is supervised by Dookie, and the latter station also attends to the way-billing for the caretaker station of Yabba North, which numbered 37,944 bags of wheat among its outwards loading last season.

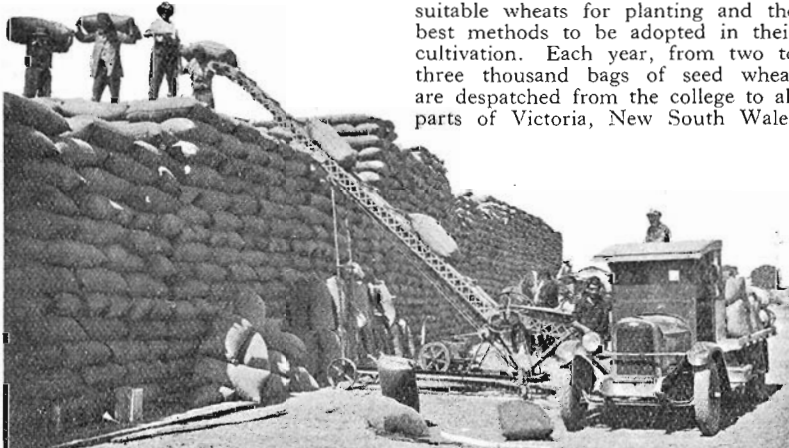
Since July last, the station has been in the charge of Stationmaster J. Boyd, who migrated there from Longwood, where he had established a gardening reputation by consistently winning the departmental first prize. On the job he is equally keen and efficient. With the assistance only of Porter J. Morganti, the varied operations at the station are carried out to the entire satisfaction of the district residents, so much so, in fact, that motor competition for both the passenger and goods traffic is non-existent.

—S.C.W.



Stationmaster J. Boyd & Porter J. Morganti

College. At the college, experiments are conducted to determine the most suitable wheats for planting and the best methods to be adopted in their cultivation. Each year, from two to three thousand bags of seed wheat are despatched from the college to all parts of Victoria, New South Wales



Stacking some of the district's wheat yield in the station yard



Recovery of Pennsylvania Railway Makes History

THE reconstruction of the Pennsylvania Railroad Company, in the face of abnormal difficulties and following on several lean years of operation, has been one of the most remarkable achievements in recent American railway history.

Phases of the big company's steady progress are reviewed in this article, which appeared in a recent issue of the *Christian Science Monitor*.

IT cost the Pennsylvania Railroad Company 1.06 dollars to earn one dollar in 1920, and that 1.06 did not include fixed charges or other obligations. Last year, the railroad spent only 73 cents to earn a dollar.

For four years this big company stood the brunt of a voluminous traffic converging on its several ports—New York, Philadelphia, Baltimore—and it was over the Pennsylvania that the bulk of the munitions traffic moved eastward for local delivery, for export or to shipyards. Emerging from this period with its physical property deteriorated, its employee morale lowered and its normal flow of traffic changed by reason of business necessarily diverted to other lines, the Pennsylvania had more to overcome than any other line.

To rebuild a railroad when it has fallen from its once high estate is exceedingly more difficult than to do likewise with a manufacturing concern. In the case of the Pennsylvania Railroad, activities are spread out over at least 12,000 miles of line in a dozen states, with almost 200,000 employees, either on the railroad or in agencies from the Atlantic to the Pacific, from the Gulf to Canada, and even overseas.

A Railway is Never Finished

The task of upbuilding the Pennsylvania was commenced by Samuel Rea and completed by Brig.-Gen. W. W. Atterbury, its present president. The word "completed" is used advisedly, for while a railroad is never in a completed state, constant observation and contact with the Pennsylvania Railroad during the past decade indicate that its present status is infinitely improved over that existing in the days following federal control.

"Four principal factors have contributed to this achievement," General Atterbury said, when asked as to the reasons for this progress. "Improved co-operative relations between officers and employees; immediate and direct control over current expenses in relation to current business in order to adjust the production of transportation needs; large capital expenditures for new cars and locomotives, new rails, labor-saving devices and other modern facilities,

and better methods of operation, such as longer trains, longer runs, heavier loading of cars and trains, faster movement over the road, and less switching are among the reasons.

"In the years 1921-1928 capital expenditures of the Pennsylvania Railroad have averaged £8,560,000 annually," Gen. Atterbury continued.

The railroad is looking forward to the year 1930 with full expectations of handling an increasing volume of freight and long-haul passenger traffic, with its plan for electrifying its entire train service between New York and Wilmington, Del., 118 miles.

Vast improvements, present or projected, are being financed to an increasing extent through sale of stock rather than bonds, a policy which will be continued in so far as conditions warrant at the time when funds are needed.

Interested in New England

That the Pennsylvania is keenly interested in the New England railroad situation and regards the New Haven as a logical extension of its own line to Boston is evident, not necessarily in the sense of a unification but rather through close working agreements which long have existed and are constantly being expanded. The Hell Gate Bridge furnishes a connecting link not enjoyed by any other New York terminal road for both passenger and freight service.

"Railroad" is no longer a correct designation for the activities of companies such as Pennsylvania, Gen. Atterbury believes, the term "transportation company" appealing to him as being more wholly descriptive of the new scope.

This refers to the substantial interest which Pennsylvania has in transcontinental air transport, in various motorbus lines and in container cars for freight service.

"The business of the Pennsylvania is transportation," Gen. Atterbury said, "and the aim of the company is to make it convenient for its patrons to buy any kind of transportation from the Pennsylvania Railroad. The country's future needs for mass transportation at reasonable cost can be supplied only by a thorough co-ordination in

which rail, motorcar and airplane, each functioning with efficiency in its most useful field, support and supplement one another."

That the Pennsylvania Railroad will enter the transatlantic steamship field, as formerly reported in this newspaper, was confirmed by the Pennsylvania's president, who said, "There is no reason why we should not supplement our rail service with transatlantic steamships in the same way we are doing in air and on highways."

Whether the Pennroad Corporation, formed recently by Pennsylvania stockholders, will finance such expansions, is a matter of opinion. On this subject, the General would only say that it is an independent agency, administered in the interest of those who have invested in it.

With the Pennsylvania's employee relations harmoniously adjusted; with a consistently high type of man seeking to enter its service, with rail, air, highway and water services approaching a state of unusual co-ordination, and with more passenger and freight trains now on fast schedules than ever before, the Company may be said to have reached that peak of operating efficiency which makes it a valuable partner in America's industrial progress and prosperity.

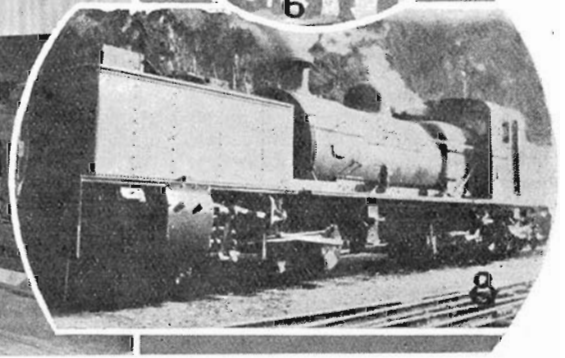
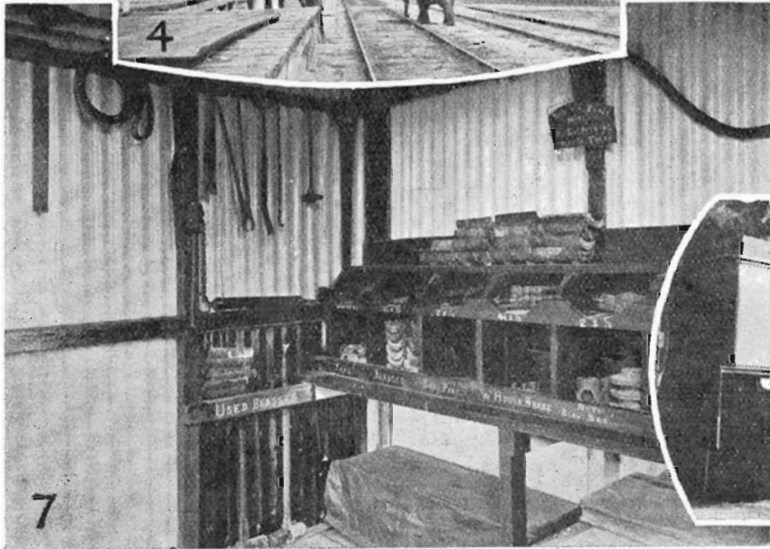
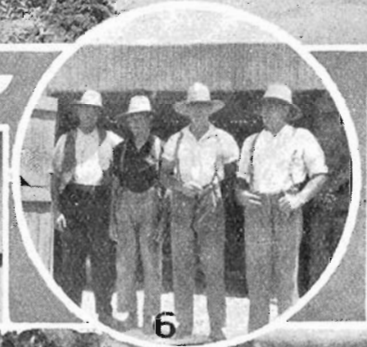
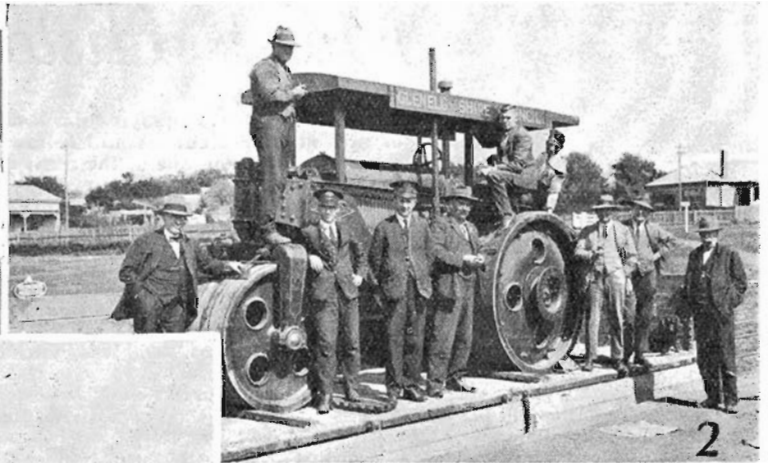
GREAT NORTHERN BUYS 14 GIANT LOCOMOTIVES

ANOTHER demonstration of the growth of modern locomotive power has been given in the order of the Great Northern for 14 new high-speed locomotives from the Baldwin works.

These giant engines will be more than 100 feet long, with seven-foot drivers and will develop 3,400 horsepower and weigh 360 tons. They will be oil-burning with tenders holding 5,000 gallons of oil and 15,000 gallons of water.

They are designed for the "race courses" on the long prairie levels of the Montana division and will be used principally on the Oriental Limited, the Empire Builder and the Trans-Pacific mail trains of the G.N., claimed to be the fastest long distance trains in the world.

Snaps Round The System Sent in by Contributors



1—S.M. Kelly and Optg. Porter Ware of Moulamem. 2—A large railway parcel at Casterton. 3—Road Transport at Wakool. 4—Two of Wirth's elephants on the line at Mathoura. 5—Section of Driver R. G. Dugan's prize garden at Donald. 6—No. 34 gang at Springhurst, winners of third track prize, main North-Eastern line. 7—A corner of the Woomelang train examiner's cabin. 8—Garratt locomotive at Walhalla.

Railwaymen of the Month

Gets Front Door Key

ATTAINING his majority in railway work, Mr. G. P. Mulcahy has been presented with the front door key of railway advertising. In his 21st year of service he has moved up to the position of Advertising Sales officer. Like many another good railroader, he started in the Melbourne goods sheds and, after four years war service, helped to lay the foundations of the Refreshment Services branch as a supervising book-keeper in charge of Ararat, Ballarat and Bacchus Marsh refreshment rooms. He was audit clerk in head office for a few years, and later, when the Advertising division was formed, his departmental knowledge was combined with Manager A. W. Keown's outside experience in the preliminary organisation of the division. Since then the advertising revenue has advanced with minimum yearly leaps of £2,000 from £27,000 to as high as £57,770.

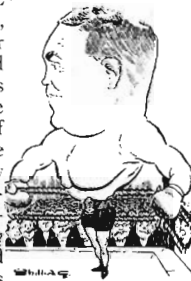


Jung's Loss

JUNG loses a good S.M. with the retirement of Sam Eyers, who has been a railwayman since 1889, and who will take an interest in his superannuation payments from the beginning of this month. As a head office man who knows him puts it, "S.M. Eyers earned the reputation of being a man who did not want his responsibility defined. He knew his job and did it."

Green Flag and Gloves

GENIAL gloveman, popular guard and good fellow, Charles O'Loughlan is one of the identities of the Melbourne Yard. He now coaches young railway boxers as successfully as he slung his own fists around the ring a few years back. He won the Australian middleweight championship for the Victorian Railways against all States in 1918 and mopped up the opposition for the welterweight Interstate Championship in the same year. Champion young boxers who have passed through his hands include



Billy McAlister, Australian bantam champion, Jack Suter, amateur heavyweight champion, "Red" McKay, Tom Cummings and Al. White. Charley is also a Union councillor and a past-president of the Metropolitan guards' section. And he is one of the two-score-and-nine railwaymen who are accredited with having informed the probationary examiner, on joining the permanent ranks, that "the railwayman's first and most important duty" was to "boil the billy for the shunters, sir."

February Birthdays

THE Way and Works branch has more than a fair share of our collection of representative railway birthdays for February. Road Foreman W. Cashen of Seymour celebrates on the 11th. Engineer W. Bromby on the 15th. Estate Officer R. A. C. Rankin on the 16th, Engineer J. J. Gilchrist on the 18th, Metropolitan Roadmaster A. Abbott on the 24th and Chief Clerk R. W. Easterby on the 25th. Birthdays recorded in other branches include:

Driver G. Padgett of Benalla, on the fourth; Clerk J. Salvana of Melbourne Goods, on the fifth; Clerk H. V. Hardy of Geelong District Superintendent's office, on the seventh; Rolling Stock Engineer George Curtis, on the 11th; Dave Little, secretary to the medical officer, and Alf. Gilmore, secretary to the Chief Mechanical Engineer, on the 12th; Rates Clerk J. Adams, on the 13th; Ambulance Officer F. W. Kaiser, and Leading Hand Upholsterer E. L. Stainer of Dudley-street, on the 16th; Dr. John Gordon, V.R. medical officer, on the 18th; Commissioners' Driver Bert Rachinger, on the 19th; Assistant General Passenger and Freight Agent James McClelland, on the 20th; District Rolling Stock Superintendent John McLeod of Bendigo, and Leading Hand W. H. Fewster of Newport Signal Shops, on the 23rd; Clerk W. Enderby of the Betterment and Publicity Board, on the 26th; Chief Train Despatcher W. R. Price, on the 27th; and Chief Electrical Engineer H. P. Colwell on the 28th.

Since '88

WELL known throughout the State, Relieving Stationmaster A. Kemmis is about to retire. He has had 42 years' service, having joined the Department in September, 1888, and has worked at almost every important station in Victoria. In his own quiet unassuming way, he has rendered solid service, and he will take with him the good wishes of a wide circle of friends.

After Many Years

ANOTHER link with the past was severed when Tom Lennon, bluff and hearty train register checker of the Flinders - street block office, went into retirement a week or so ago. Tom's career fell short of two score years by only one month, and in that time he saw many changes in the V.R. world. Commencing at South Yarra on January 3, 1889, under the late Andy Phillips, he was transferred a couple of years later to the old fishmarket signal box as assistant signalman. Subsequent experience was gained as a fully-fledged signalman at Dandenong, Stawell and Geelong, but, owing to his failure at a medical examination about 1908, he joined the staff at the block office, where he has remained ever since. Prior to his retirement, his colleagues gave him a travelling rug for himself and a small memento for Mrs. Lennon. Tom hopes to put in another two score years in his garden.



Mr. R. W. Easterby

46 Years

ILL-HEALTH having done what all the worries of station inspection and office supervision could never do, Special Officer W. H. Johnston of the Transportation Branch has reluctantly gone into retirement. Popularly known as "Little Billie," he was a familiar figure on suburban stations, his duties taking him along all suburban lines. His term of railway service was only four years short of half-a-century, and his many friends will wish him a speedy restoration to health with the prospect of a happy and complete half-century of leisure off the job.

Water Wanted

STATION-MASTER James Boyd, now of Dookie, was for many years in charge of Longwood and other stations on the Albury line, and during that time he was a consistent first prize winner in the departmental gardening competitions. His transfer to Dookie failed not only to dampen his enthusiasm for the cultivation of flowers but also to furnish the necessary water



to dampen those same flowers to his satisfaction. But he is too keen to let little things like that beat him. So, each night after he goes off duty, he sets to work again and carries about 100 gallons of water from a windmill some 100 yards distant from his garden and does it out lovingly amongst his prize chrysanthemums. It's a labor of love with him.

Hawthorn Veteran Retires

IT falls to the lot of few members of the Transportation branch staff to be located at the one station for the greater part of their railway life. But Frank Matthews, popular signalman at Hawthorn, who retired a few weeks ago, had spent 34 of his 44 years' connection with the railways at that one station. It was therefore only natural that he should be given a hearty send-off when his term of service was completed, and that he should be presented with a suitably inscribed gold watch to remind him of the many friends he had made during his long term at Hawthorn.

Last Train

AN historic picture this, for it shows Guard Jack Jordan bringing his last train into Essendon before retirement. When he handed in his guard's kit and green flag he closed a career that extended over more than 40 years. From this picture he smiles a last farewell to his hosts of railway friends around the State.



Maryborough's Good-bye

MARYBOROUGH said good-bye last month to Traffic Inspector C. W. Neumann, who has retired after eight years continuous service at the heart of Victoria. Relieving District Superintendent A. J. Morris presented the popular officer with a smoker's stand, a gold-mounted fountain pen, a Barling pipe, pouch and tobacco, together with a crystal salad bowl and servers for Mrs. Neumann. Rolling Stock Superintendent, J. Noonan, spoke on behalf of the district locomen, Mr. Dick Rowlands for the outside staff, Mr. J. Pascoe for the goods shed men and Mr. W. J. B. Goad for the clerical staff. And Chief Clerk J. A. Roberts read several notes from railwaymen who were determined to send a word of farewell to their old friend even although they were unable to see him.

Assistant Stationmaster M. Brophy, who was recently transferred from Ringwood to Surrey Hills, has received a presentation from the residents of Ringwood.

The Last Milepost

CLOAK ROOM ATTENDANT E. K. WINSTON


CLOAK room attendant at Flinders - st. for many years, Mr. E. K. Winston died recently at the age of 63. He had had 43 years service in the Railways Department and was particularly well known in the Western district. He was stationed for some years at Portland as guard.



Sincere condolences are extended to Stationmaster M. McKenna of Nhill, whose daughter, Una Vera, died recently at the age of 18. Institute members will remember her as a competitor at the musical competitions of a few years ago.

INSTITUTE INSTRUCTOR MARRIED

Two presentations were made to Stationmaster Norman MacDonald, instructor of the station accounts and management class at the Institute, on the occasion of his recent marriage. His docile pupils gave him a case of cutlery, and the Institute staff supported their good wishes with a silver bowl and crystal vase.



READ WHAT ONE
"Malvern Star"
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Leamington
23. 6. 1929

The Sales Manager
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Melbourne

Dear Sir,

I have just had my Malvern Star returned to me by your local dealer all A.S. Hull. The machine was forwarded to you a few days ago for repairs to the result of an accident in which it was badly damaged, but thanks to your wonderful accident and theft insurance it is now in perfect condition once more without having cost me one penny.

In my opinion your free insurance scheme is a real boon to the cyclist.

Thanking you
yours faithfully
Douglas Davis

THE letter here reproduced tells its own story.

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By AERIO

“AUTOMATIC” GRID BIAS

THE precision and proper adjustment of Grid Bias represents the difference between bad and good quality loud speaker reception and considerably lengthens the life of the “B” Battery.

THE idea of using negative grid bias on low-frequency amplifiers in order to obtain greater volume and to render the set distortionless is now generally known, but I am somewhat startled to find that many people do not quite appreciate what they are doing when applying the grid bias, with the result that the inevitable distortion crops up again, and what should be a restraint on “B” battery consumption becomes rather the reverse.

A large number of amateurs use a super-power valve in the last stage of their receiver. Many of them fit such a valve because they want loud signals without distortion, the argument being that most distortion can usually be traced to the last valve. This is quite true, of course.

When loud signals are required, it is desirable to employ a super-power valve in the output stage of your re-

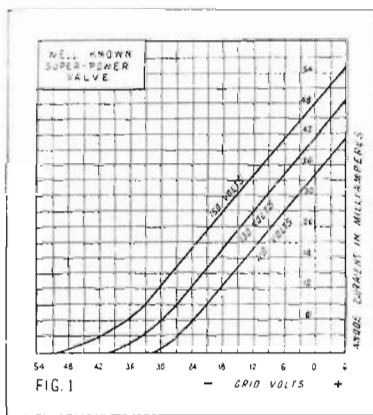


FIG. 1

ceiver, but it is of equal importance to provide whatever valve is used in that stage with appropriate anode and grid voltages. Particularly is it necessary to attend to the question of correct negative grid bias, for it is this seemingly trivial thing that determines not only whether the quality is going to be worth while, but whether the “B” battery itself will have a reasonable life.

Let us take a look at the curve of a typical super-power valve such as that provided by the makers with every specimen. Such a curve is shown at Fig. 1. We see that when the anode voltage is 130—a normal value, although rather lower than some of us use—the anode current is 40 milliamperes when the grid bias is zero. The current falls to 27 milliamperes when the grid is biased negative 12 volts, and to 15 milliamperes when the bias is negative 21 volts.

Ignoring for the moment the effect of these adjustments on the quality of

ceiver, but it is of equal importance to provide whatever valve is used in that stage with appropriate anode and grid

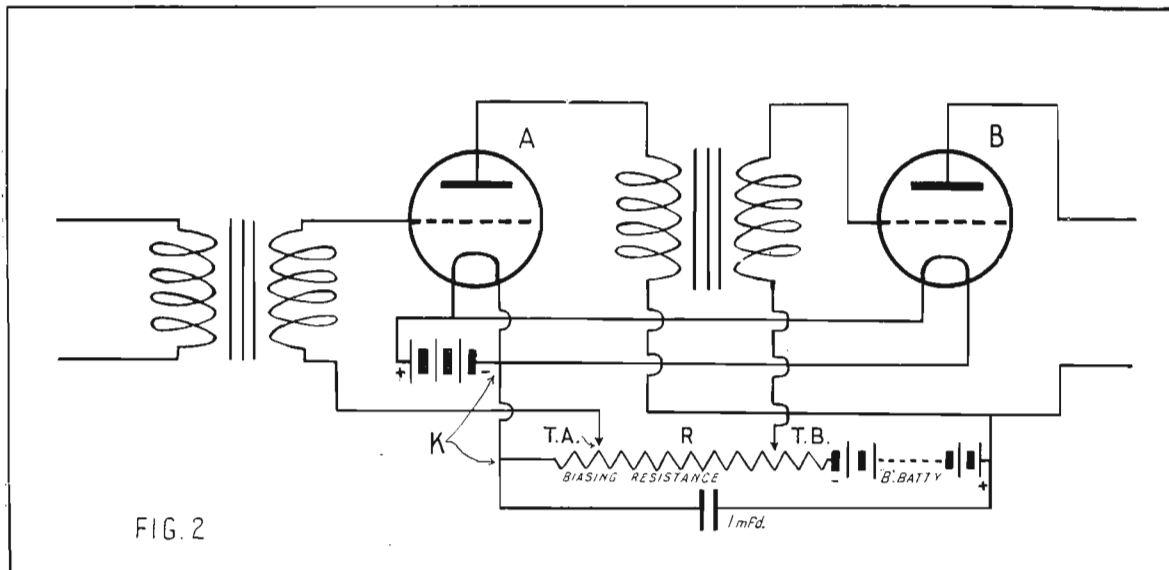


FIG. 2

the signals received, we see then that the effect of grid bias is most important.

A dry-cell battery of normal capacity will not stand a discharge current of 40 milliamperes for long. At that rate of discharge its voltage will soon fall off. It will quickly develop a high internal resistance and probably give rise to crackling noises which will spoil reception; in fact, no dry battery of reasonable price will stand the strain of such a heavy current for more than a very short time.

Even with a grid bias of negative 12 volts, with the valve under consideration, the current is 27 milliamperes, and, while this is considerably less than when no bias was used, it is still more than the average battery is likely to stand for any length of time. It is only by using a grid bias of negative 21 volts that the anode current is reduced to the more reasonable value of 12 milliamperes.

We, therefore, see that the life of the anode battery is greatly affected by the grid bias applied to the valve, and, in fact, we may say that the value of grid bias determines how long this battery will last.

Make Sure of Your Grid Bias Value First

Now a dry battery of large capacity is a costly item, and is, many people will agree, liable to be the most expensive part of a wireless installation. It is apparent, then, that it will not pay us to try different grid bias values haphazardly. Rather should we decide on a suitable grid bias value and not alter it without first of all determining from the curve the new value of anode current which will flow. The curve supplied with the valve may not apply precisely to your particular valve, but it is at all events a curve of an average value, and, therefore, a tolerably accurate guide.

Be sure to switch off the anode battery or the filament current while changing the value of grid bias, and above all things, do not use too small a value. If you do, the life of the "B" battery will be very considerably reduced and, what is almost of equal importance, the power valve itself may have its life shortened.

We see from the curve that, when the anode voltage is 130, a grid bias of 21 volts brings the operating point a little to the left of the centre point of the straight part of the curve. This is normally just as it should be for good quality. Particularly is it true when resistance-capacity coupling is used in the receiver, for we have to endeavor so to bias the grid of the power valve that grid current does not flow.

Grid current is particularly apt to spoil the quality when resistance couplings are used in the amplifier, and because of this, it is usually preferable to apply rather more grid bias than one would for a transformer coupled

amplifier. This is because the distortion due to a momentary flow of grid current is not so pronounced when the amplifier is transformer coupled. In any case it is extraordinarily hard for the average listener to detect the slightest change in quality when the grid bias is varied from, say, negative 21 volts to negative 12 volts, when using this particular type of valve.

"B" Battery Lives Long

But there is this immense difference in the results, that whereas when the grid bias is negative 12, the anode (or "B" battery) current is 27 milliamperes, when the grid bias is negative 21 volts the anode current is only 12 milliamperes. Thus, with the greater amount of bias, the "B" battery will last for a very much longer time and will probably give complete satisfaction.

RAILWAYMEN'S RADIO EXHIBITION

ARRANGEMENTS are well in hand as we go to press, for an All Radio Exhibition to be held by the V.R.I. Wireless Club in conjunction with the radio trade, in the V.R. Institute main hall from March 24 to 29 inclusive.

Valuable prizes are being offered for amateur exhibits, and a special prize for apparatus constructed from descriptions in this Magazine. Competitions, including an announcers' competition, will be conducted.

Full details may be had on application to Mr. W. Richards, organising secretary, All Radio Exhibition, c/o V.R. Institute, Flinders-street station buildings, Melbourne.

"Aerio" desires to contrast some old time wireless gear with modern receivers and will be glad to hear from any reader who has an "old timer" dating back to 1924 or earlier, who would be prepared to loan it for exhibition. Any other exhibits not entered for competition can be arranged through "Aerio."

For economical working, therefore, obey the following rules:—

1. Use ample grid bias; often as much as 20 to 30 volts negative depending, of course, on the valve used and the voltage of the "B" battery.
2. Never remove the grid bias without first switching off the valves.

Obtaining Negative Grid Bias without a "C" Battery

A convenient and reliable method of providing an "automatic" grid bias is illustrated at Fig. 2, and depends upon the use of a high-resistance winding R inserted in the plate circuit between the negative terminal of the "B" battery and the negative pole of the "A" battery.

The point of common potential between the plate and filament circuits is marked K in the diagram. Tracing the potential fall through the first valve circuit, we start from B+ and pass through the valve A to the point K, which represents the most negative point on the filament. This point is,

however, clearly at a higher voltage than the negative pole of the B battery where the plate circuit ends.

Consequently the tapping point, TA, taken to the grid of the first valve, must be at a negative potential relatively to the filament (point K), whilst the second tapping, TB, to the grid of the second valve, is at a still lower level to the common filament potential.

The steady value of plate current in a loud speaker set ranges from seven to 25 milliamps, according to the number and type of valves in use. Taking a typical value of 10 milliamps, the voltage drop over a resistance R of 500 ohms would be five volts, or, with a 1,000 ohm resistance 10 volts, and so on.

The resistance R and B battery should be shunted by a condenser of between 1 and 2 microfarads, to provide a shunt path of low impedance for the L.F. currents flowing in the plate circuit.

Radio News and Notes

Theatre Party

THE V.R.I. Wireless Club's theatre party at the Princess theatre on January 15, was such a success that the club has decided to make a regular monthly feature of these social fixtures.

The next theatre party will be held at the State theatre on Wednesday, February 12, when "The Saturday Night Kid" and "The Doctor Lies" will be the main features. Reservations (Dress Circle) may be made through "Aerio."

Reports on Transmissions

EXTENSIVE alterations are under way at VK3RI, the experimental broadcast station of Victorian Railways Institute, and reports on transmissions received by country listeners during the month of February will be appreciated and acknowledged by Q.S.L. card if accompanied by postcard size stamped and addressed envelope. Postal address VK3RI, Victorian Railways Institute, Flinders-street Station Buildings, Melbourne.

The Delaware and Hudson Railroad requests that all other railroads claiming the world's longest waybill be advised that the championship belongs to it, as the result of a waybill issued recently covering a shipment originating in St. John's Park, N.Y. This waybill was 50 ft. long, and covered no less than 1,364 items.

Four oil-electric locomotives have been ordered from the American Locomotive Company by the Michigan Central for use in Chicago. They will be equipped with 300 horsepower Ingersoll-Rand engines and 200 kilowatt generators made by the General Electric Company.

Canadian Finances

Continued from page 20

results for the last year as reasonably satisfactory and, aware as we are of the handicaps under which the Canadian National has struggled, we can offer to the railwaymen of our sister dominion sincere congratulations on the wonderful achievement on their part.

Less than 10 years ago the present National system was represented by a number of separate companies which in the aggregate were failing by substantial margins to pay their operating and necessary maintenance expenses and which consequently were a heavy drag on the State. Since the consolidation and organisation of the National system, the railways have steadily progressed until they have reached the point when they can claim to be solvent. How was this stupendous improvement effected?

Sir Henry Thornton, the president of the Canadian National Railways, in an article in the *Saturday Evening Post* some months ago said: "A railroad or a set of railroads can make or break a country. There is no true development without them." And, when referring to the transition of the Canadian system from a position of practical insolvency to that which it now occupies, viz., that of a successful and highly important national asset,

he further said: "It was the accomplishment of a people who had decided to have faith, to pull and tug and fight themselves out of a hole to save their own possessions."

These statements have a message and a lesson for us. There can be no true development without the railways. Any other form of land transportation can only be built upon the foundation of the railways, which are one of the necessary factors in the production of the community wealth.

If the community can afford a road system of transportation in addition to, and superimposed upon, its necessary rail system, then from every right thinking point of view it is entitled to have it. But it has not yet been demonstrated that Victoria can afford a second or luxury system to the extent to which it is indulging its desires in that respect, and there is more than a doubt on the point.

FEMININE FIGURING

"It is hard for a woman to understand statistics," said a government official to a friend.

"I guess that is so," said the other. "I told my wife the other day that, for every passenger, the railways of this country transported two tons of freight, and she wanted to know why the passengers were allowed to carry so much baggage."

THE TURNER

I WATCHED a turner at his work
Upon a rough cast wheel,
And round his lathe the cuttings fell,
Like cork screw curls in steel.

"There seems a lot of waste," I said.
He spoke as one who knew:
"Why, not at all; that must come off
To make the wheel run true.

"But gathered up and melted down,
It gets another deal;
What now seems waste, next time may
form
The centre of a wheel."

And to the wheel of life, I think,
His words provide a clue;
And folk we thought no earthly use,
Help make the wheel run true.

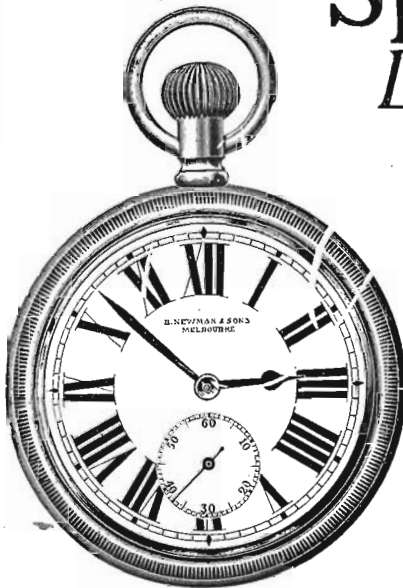
For what is waste? How can we judge
Who do not see the plan?
Until we do, show Charity,
Condemn not any man.

For he who laid them low may lift,
And, like the scraps of steel,
When cast again their lives may form
The centre of the wheel.

—H. W. Prince

The dignity of labor depends not
on what you do, but on how you do it.
—Edwin Osgood Grover.

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RAILWAYMEN in SPORT

By REG. HUNT

COBHAM BROTHERS RETAIN TENNIS DOUBLES CHAMPIONSHIP TITLE

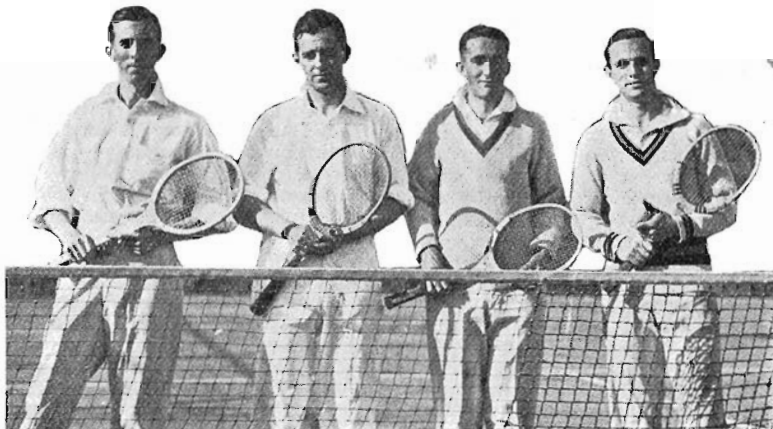
FOR the third year in succession, the brothers A. W. and G. A. Cobham have won the Head Office doubles championship without loss of a set—this year at the expense of R. J. Ryan and F. Habgood whom they defeated in the final round 6-4, 6-5.

Ryan and Habgood commenced well by taking G. Cobham's service, but the brothers equalised on the next game. There was little between them to 4 all, save that the Cobhams were a shade more consistent all round. Ryan and Habgood were erratic in volleying and overhead. Good driving duels between Habgood and G. Cobham were a feature of the next two games, with the latter player generally winning the rally. A series of remarkable recoveries by G. Cobham, supported by consistent play by his partner, gave them a lead, 5-4, which was converted into a 6-4 win in the first set when Habgood outed an easy smash.

Advantages of "Tandem" Formation

The fine cross-court driving from his forehand by G. Cobham had been the winning factor in the first set, but it was not till 3-4 against them in the second that Ryan and Habgood adopted the obvious counter—the "Tandem" formation. The results of the change of tactics became apparent when they came from behind to lead 5-4 with Ryan's service to follow. A golden opportunity to clinch the set was lost when Ryan dropped it, and Cobham and Cobham ran out winners of a good match on the next game, 6-4, 6-5.

Gordon Cobham was the outstanding



Contenders for the doubles championship: A. W. Cobham, G. A. Cobham, R. J. Ryan and F. Habgood

player of the four. His driving was consistently good, and despite a fair share of luck, he tossed and volleyed well. Alex. Cobham was a tower of strength in support, his steady placements and accurate tosses exercising a definite influence on the result. The losers were erratic and brilliant by turns, being sound on their ground strokes but inconsistent in volleying and smashing. Results:

SINGLES CHAMPIONSHIP

Semi-finals—A. W. Cobham d. K. J. McIver (5-6, 6-1, 6-3); R. J. Ryan d. F. Habgood (6-3, 3-6, 6-3).

Final—R. J. Ryan d. A. W. Cobham (6-0, 3-6, 6-3).

DOUBLES CHAMPIONSHIP

Semi-finals—Cobham-Cobham d. Barrow-Howard (6-2, 6-2); Ryan-Habgood d. Delaney-Barker (6-5, 6-1).

Final—Cobham-Cobham d. Ryan-Habgood (6-4, 6-5).

INTERSTATE RAILWAY CRICKET

THE annual Interstate cricket competition for the "Mick Simmons" Challenge Cup will be held this month, and considerable interest is being created amongst railway cricketers. The N.S.W. team will arrive on February 15, and the Queensland team on the 17th. All players will be guests of the V.R.C.A. whilst in Melbourne.

The program of matches is as follows:—Monday and Tuesday, 17th and 18th, N.S.W. v. Victoria; Thursday and Friday, 20th and 21st, N.S.W. v. Queensland; Monday and Tuesday, 24th and 25th, Queensland v. Victoria.

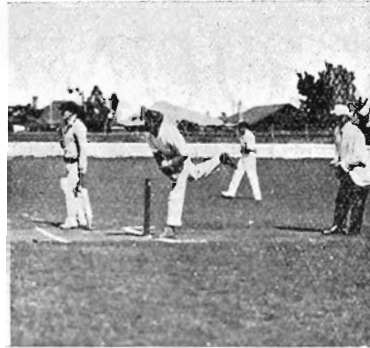
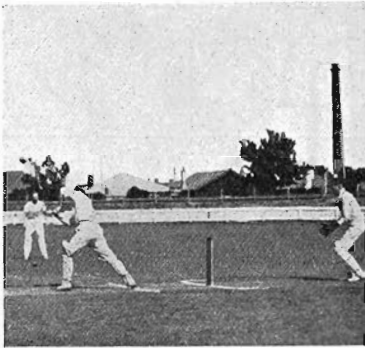
The two first games will be played on the Albert cricket ground, and the last on the Richmond ground. Games commence at 10.30 a.m. and finish at 6 p.m. daily.

Victoria are at present the holders of the cup, having won it in Brisbane last March, and although they will be without several of last year's team, it is expected an equally strong combination will be fielded.

Apart from the cricket the visitors will be entertained at a theatre party, motor trip, smoke social and week-end in Ballarat as guests of the Ballarat Institute. Regarding the motor trip, the Association will be pleased to hear from any car owners willing to make the trip and able to accommodate three or four visitors on Sunday, the 16th, leaving Melbourne at 11 a.m. and returning 5 p.m. after visiting Ferntree Gully and Belgrave. The Association will pay running costs of the trip. Volunteers can get further information from the secretary (R. M. Kydd, Telegraph Office (Room 217), Head offices).



Railway members of the V.R.I. Swimming Club keeping cool in the Batman-avenue baths



Incidents in the recent match between Telegraph and Loco. on the Brunswick Ground

TWO TEAMS STILL UNDEFEATED IN CRICKET ASSOCIATION COMPETITION

MATCHES for the Commissioners' Cup are proceeding steadily, and still two teams remain undefeated: Elec. Engineers and Way and Works. A keen struggle is taking place for the fourth position, and at least three teams appear to be in the running for the position.

Outstanding performances registered since last issue are:—

Blake (Elec. Engineers) 141 n.o., Willmott (Coburg) 74 n.o., Millen (Loco. North) 65, Anthony (Telegraph) 66 n.o., Morrissey (W. and W.) 59 n.o.; Robertson (Telegraph) 7 for 12, Hutchinson (Elec. Engineers) 5 for 10, Ellis (Coburg) 6 for 29, Welsh (Melb. Yard) 4 for 12, Hugo (Jolimont Yard) 3 for 0, Gordon (Telegraph) 3 for 7.

Scores—Way and Works 154 (Morrissey 59 n.o. and 2 for 5, Vance 46 and 2 for 14) defeated Essendon Line 39.

Jolimont Yard 146 (Hindson 31, Wheelahan 29 n.o., Henderson 2 for 26) defeated Melb. Yard 140 (Buttons 29 n.o., Wilson 24, Hogan 2 for 17).

Elec. Engineers 213 (Blake 141 n.o., Wannacott 25, Hutchinson 5 for 10) defeated Essendon Line 65 (Graham 27, Freitag 19).

Telegraph 141 (Pike 37, Anthony 31, Powell 30 n.o., Robertson 7 for 12, Gordon 3 for 7) defeated Signalmen 29 (Mitchell 9, Baird 2 for 7, Templeton 4 for 19).

Jolimont Yard 223 (Hartigan 51, O'Brien 49, Hindson 45, Hugo 3 for 0) defeated Williamstown 12.

Coburg 135 (Willmott 74 n.o., Flynn 23 n.o., Ellis 6 for 29) defeated Melb. Yard 65 (Fletcher 18, Welsh 4 for 12).

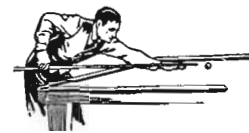
Loco. North 157 (Millen 65, Orchard 31, McInnes 31, Millen 2 for 44) defeated Telegraph 133 (Anthony 66 n.o., and 5 for 68, Powell 49).

SWIMMING CLUB

WHEN a dozen enthusiasts got together in September last and formed the V.R.I. Swimming club, little did they realise that the

Concluded on page 46

ALCOCK'S HOME BILLIARD TABLES PAY AS YOU PLAY



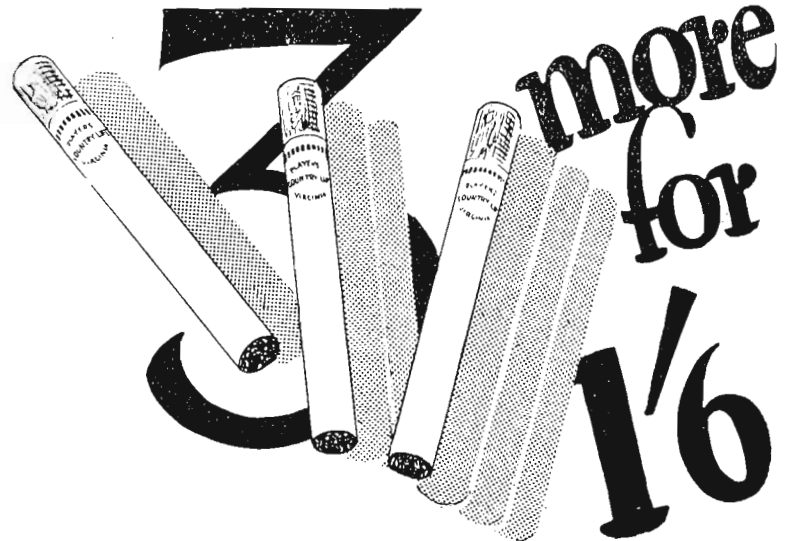
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COUNTRY LIFE CIGARETTES



UP COUNTRY



Yarrowonga railwaymen and yard carriers eat more watermelon. From left: Operating Porter G. Cooper, Lad Porter W. McKay, Operating Porter A. Bruce, Carrier T. Boag, Clerk F. Dunn, and Carrier S. Seller

Sewering Horsham

It is anticipated that, within a little over 12 months, Horsham will be sewered. The works will be located about two miles south of the Wimmera-river. The engineering work is being supervised by Mr. J. S. Sharland, Geelong, and the latest methods will be adopted. Little difficulty should be experienced in the work of excavation, as it is unlikely that rock or broken country will be met.

Popular Riviera

The sea-side resorts adjacent to Geelong (Anglesea, Barwon Heads, Lorne, Queenscliff, Torquay, etc.) are becoming increasingly popular as is evidenced by the number of visitors at present holidaying there.

Wheat Prospects

Good reports have been received from Dookie and Tungamah districts, where crops of wheat and oats exceeded expectations. In the former district, many crops yielded from eight to 12 bags per acre, the quality of the grain being excellent. The conditions of the past year are said to have suited the lighter soils adjoining that of Dookie.

Fruit Crop Retarded

Owing to the cool weather which has prevailed in the past, the fruit crop has been somewhat retarded, but, with the warmer conditions now being experienced, it is anticipated greater quantities will be loaded in the near future. A first class pack of all varieties of the staple fruits of the district is confidently anticipated.

Vegetables for the North

The weekly truck of vegetables from Narre Warren to stations on the Robinvale, Kulwin and Swan Hill lines continues to run with satisfaction to the residents of the northern townships who appreciate the opportunity of obtaining good fresh vegetables at reasonable rates.

Harvest Fluctuations

Harvesting operations are generally completed in the north-east and show that the wheat season in some areas was not as good as it might have been. The number of bags railed shows a considerable retrogression. Last year up to 14.1.29, 1,277,000 bags of wheat had been railed, as against only 560,000 for the same period this year; but, to counteract this, 833,000 bags are on hand at stations as compared with 472,000 on hand during last year. Large quantities of wheat are still coming in, and it is considered that the yield will not be very much less than that of the previous year.

Increasing Sunday Traffic

The warm weather has induced many more people to travel on Sundays, and two trains are now necessary from Bendigo to Melbourne to meet this traffic.

Fruit Canning

The Shepparton Fruit Preserving Co. began work for the season on December 30, when 220 female and 100 male operatives were engaged. As there were about 50 can makers and other employes, the staff already numbers nearly 400. It is expected that another 100 will be required shortly. "Moor Park" apricots will be handled until the early peaches come in. They are of excellent quality and the crop is heavy.

Stawell's Bright Prospects

Reports regarding crop prospects in the Stawell district are very gratifying. Owners have been very dubious as to returns owing to dry season. Around Campbell's Bridge, Green's Creek, Navarre and Joel Joel, between 4000 and 5000 acres under crop is expected to yield eight bags to the acre. One crop of 40 acres has yielded 12 bags to the acre. The hay return will average two tons to the acre.

Harvesting in Full Swing

Between Nhill and the border, harvesting prospect are good, but Minyip and adjacent area is exceptionally dull, average being about two bags to acre. Up to Saturday, January 4, only 1258 bags had been carted to Minyip station, compared with 54,556 during corresponding period 1928. Harvesting operations are now in full swing in the Nhill district. From 3000 to 5000 bags per day are being brought to the Nhill station on motor lorries. The big 8-horse teams are disappearing and bullock teams have gone forever.

Falling off at Warracknabeal

The wheat deliveries at Warracknabeal this year reflect the disappointing result of this year's harvest. At present the deliveries to Thomas & Sons' flour mill do not exceed 400 bags per day, as compared with 4000 bags per day in former years.

Improving Geelong Beach

Work on the comprehensive Geelong beach improvement scheme is steadily advancing towards completion, and the reformation of the eastern foreshore is attracting an ever increasing number of visitors who express pleasure at the considerable improvements effected.

New Sunday Train

Although the opening day brought forth inclement weather, over 100 passengers travelled from Ballarat by the special Sunday excursion train to Queenscliff. The traffic on the subsequent Sundays has been heavy, and considerable additional revenue can be expected from this source.

Wheat Estimate Exceeded

A review of the conditions prevailing throughout the Bendigo district indicates that the wheat harvest estimate will be exceeded in many places. The recent rains have had an excellent effect upon the crops that survived the dry spell, and the grain is distinctly heavy and of good sample.



If Disraeli had worked for us

Business men succeed not by chance, but by a study of basic principles and the application of these to their financial betterment.

—DISRAELI

HAD the illustrious Disraeli—statesman, author, orator, and man of letters—actually occupied a position on the staff of Australia's University of Business, he could not have propounded a truth more forcefully in line with its teachings. For the past thirty-three years, Hemingway & Robertson have consistently encouraged young Australians to gain a sound knowledge of the basic principles of business—and to apply them in such a way that both the individual and the State are infinitely better off from every point of view. If you are on the threshold of life—if you have a son or daughter desirous of adopting a business calling—lose no time in writing for a complimentary copy of the big 96-page illustrated book—

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RAIL USERS SAY—

Tributes from Special Train Users

AS head teacher of the school which has recently organised a trip per special train to the Zoological Gardens, I desire to tender you our best thanks for the fine type of carriage supplied, the punctual and speedy conveyance both ways, and the courtesy received from the railway officials. I would also specially mention our local S.M. and staff, who helped considerably in making the trip so successful.

—Mr. F. H. Brown, Sunday School, Bannockburn, writing to the Superintendent Passenger Train Service.

YOUR communication of 17th inst. to hand with attached statement of bookings. I wish to thank your Department, on behalf of the Hartwell Picnic Committee and the whole of the picnic attendants, for the able manner in which you catered for the travelling arrangements of the school picnic held at Williamstown. It has been a pleasure to work in co-ordination with your Department, from which we received the utmost attention and courtesy, and I trust at some future date to be ab'e to work with you for another school picnic for the Hartwell children.

—Mr. J. Baker, hon. sec. Hartwell picnic committee, Burwood, writing to the Superintendent of Passenger Train Service.

I TAKE this opportunity of expressing my appreciation of the manner in which your Department arranged the details for running the special excursion train to convey the scholars, parents and others interested to the city and the Zoo recently. Both the officials at Spencer-street and the staff at the Wonthaggi station showed every courtesy and consideration, and the heartiest co-operation in the effort to make the function a success.

I cannot speak too highly of the assistance rendered by Mr. Quirk, stationmaster at Wonthaggi; he left no stone unturned to lighten my work, and earned the gratitude of all the passengers by his endeavors to have them all comfortably seated. The train consisted of 11 large cars and two A2 engines, and the timetable was adhered to in such a manner that the greatest credit is reflected on the organization of your Department. 1,150 passengers were comfortably accommodated on the train, which, I think, constituted a record for a passenger train in Victoria. Despite this large number, I did not hear of a single complaint from any of the passengers.

I appreciate very much the action of Mr.

SERVICE THAT IS REMEMBERED

I DESIRE to acknowledge the courtesy and kindness recently shown to my cousin and myself by the Stationmaster in charge at Carlsruhe. On missing the Bendigo train at Spencer-street, we decided to take the Daylesford train as far as Carlsruhe and continue our journey to Kyneton on foot, as it was imperative that we should reach Kyneton on that day. Arriving at Carlsruhe, we asked the S.M. in charge if we could get a conveyance to take us the rest of the journey. After attending to his duties, he very kindly drove us to Kyneton in his own car and at his own cost. I wish to thank this gentleman, through the *Railway Magazine*, for his kindly aid in assisting us out of our predicament.

—Mrs. M. Etheridge, St. Kilda, writing to the Railways Commissioners.

TRIBUTE FROM WOOL GROWER

THE Lightwood Park wool clip was moved from Haddon last week by rail, consigned to Messrs. Dalgety and Company, Geelong. I want to thank you and your staff for the excellent manner in which the wool was handled. A perfectly clean truck was supplied with nice clean covers and lashings, and very willing and helpful assistance was given by the Haddon Stationmaster in loading. After the service I have had this season, I do not think road transport will be considered again. I would like to specially thank Mr. Jenner, clerk in the District Superintendent's office, for the keen interest

Superintendent Lee in meeting the train at Flinders-street in order to see that we were all perfectly satisfied with the arrangements, which were in my opinion perfect.

—Mr. Howard R. Heath, Head Teacher, State School, Wonthaggi, writing to the Secretary for Railways.

ON behalf of the California Gully and Eaglehawk East Methodist Sunday Schools, I wish to express appreciation of the courtesy and assistance of all the staff concerned, with our recent picnic to Ravenswood, thereby making our trip all the more enjoyable. Being a railwayman myself, it gives me all the more pleasure to be able to write this to you and to hear others speak in appreciation of the railways.

—Mr. Norman Henderson, secretary, writing to the Superintendent of Passenger Train Service.

ON behalf of the Bendigo Sunday Schools picnicking at Ravenswood yesterday, for which I acted as secretary, I wish to thank, through you, the staffs at the Bendigo and Ravenswood stations for their courtesy and efficiency throughout the day. In particular, I must commend the action of Messrs. C. Phillips of the train running staff and L. Hosking, of the Loco., in the despatch of trains during the afternoon when heavy rain set in, and made conditions on the picnic ground most unpleasant. The result of their arrangements was that within a couple of hours the whole of the crowd had been entrained and the greater part of it returned to Bendigo long before the scheduled time for the first departure.

—Mr. D. M. Campbell, Forest-street Methodist Sunday School, Bendigo, writing to the Superintendent of Passenger Train Service.

I DESIRE to acknowledge the receipt of your cheque for £10 6s. 7d., being rebate on earnings in connection with the recent Catholic Schools' picnic. On behalf of my committee, I desire to express highest appreciation of the service given by the Railways Department. The inclement weather unfortunately marred, to a great extent, our efforts on this occasion, but thanks to the prompt and efficient service of the railway officials, we were able to meet the position in a manner which gave the greatest satisfaction to all concerned.

—Mr. Owen Duffy, Baxter-street, Bendigo, writing to the Superintendent of Passenger Train Service.

he took in getting the wool away.

Mr. Charles Walker, 21 Lydiard-street South, Ballarat, writing to the District Superintendent, Ballarat.

"UNFAILING COURTESY"

WE are enclosing with this letter a pocket diary for 1930 with our compliments. We also desire to place on record our appreciation of the unflinching courtesy we have received from every member of the staff.

—Managing Director of the Richardson Gears, Pty., Ltd., 17 Whitehall-street, Footscray, W.I.I., writing to the Stationmaster, Footscray.

SPECIAL ARRANGEMENTS APPRECIATED

ON behalf of the sisters of St. Joseph's Home, Broadmeadows, and the committee, I thank you for the great facilities accorded to the visit last Sunday afternoon by the addition of a special train from Flinders-street and the running of a four-car service instead of two specially for the occasion. The special was packed both ways. I believe approximately 2,000 booked to Broadmeadows. The courtesy and tact of S.M. McDonald in meeting the wishes of visitors and the committee, was much appreciated. We are indebted to the officers in charge of Special Train room 72, for kindness in broadcasting the function.

—Mr. W. Durbar, hon. organiser, Annual Visit to St. Joseph's Home, writing to the Chairman of Railways Commissioners.

SERVICE THAT WAS APPRECIATED

AT the close of a very strenuous year, we feel that we should express to you our appreciation of the able manner in which the business of our subsidiary company—The Concrete Specialities Co., Pty., Ltd., Springvale—with the Railway Department has been handled throughout the year. The traffic passing to and from our siding in the course of the year has amounted to over 15,000 tons, and it is gratifying to know that this freight has been handled expeditiously and without any trouble of consequence that we can recollect. We have personally expressed to the Stationmaster at Springvale our appreciation of the efforts of himself and his staff, whose handling of our business has been exemplary. As large users of railway transport facilities, we have noted with appreciation the gradual elimination of troubles once experienced, particularly in such directions as breakages in transit, which have now been reduced to a minimum, and in speedy handling of trucks from consignor's end to destination, in connection with which we recall no single incident of delay throughout the entire year.

—Mr. M. C. Coates, Managing Director, Coates and Co., Pty., Ltd., 99 Queen-street, City, writing to the Secretary for Railways.

EFFICIENT FURNITURE HANDLING

I THINK it my duty to write and inform you of the praiseworthy manner in which your staff at Cheltenham, and places between there and Fish Creek, handled my property. There were nine packages of furniture, etc., all shapes and sizes, and everything arrived at Fish Creek in absolutely perfect order.

—Mrs. R. McFarlane, Higham-street, Cheltenham, writing to the Chairman of Railways Commissioners.

DELIGHTED BUFFALO PARTY

WE feel that we cannot leave The Chalet at Mt. Buffalo National Park without expressing to the Tourist Bureau through you our high appreciation of Mr. Gordon Peart, who has so capably and efficiently looked after us throughout the tour. Many of us who have travelled extensively can appreciate his worth. He is undoubtedly an acquisition to your Bureau, and combined with his many sterling good qualities as an efficient conductor, he has a beautiful and well-trained voice, is a good, all-round sport, and is a gentleman with whom it is a delight to be associated. Mr. Peart has seen that we have all thoroughly enjoyed our trip to The Chalet. We would also like to express our great appreciation of the very efficient management of The Chalet. There is no doubt about it, it is the very height of efficiency; everything humanly possible is done for the happiness and comfort of the guests. We would like you to offer this tribute to Mr. and Mrs. Brown.

—Members of a special escorted tour to Mt. Buffalo National Park, writing to the manager of the Government Tourist Bureau.

LONG-DISTANCE FURNITURE HANDLING

RE the furniture consigned to me from Gunnedah (New South Wales). This has arrived in excellent order and the handling over such a long journey reflects great credit on the railways.

—Mr. J. L. Woodburn, 17 Roslyn-street Brighton Beach, writing to the Stationmaster North Brighton.

(This consignment of furniture travelled nearly 900 miles and was transferred at Albury. —Ed.)

SHOW SECRETARY'S THANKS

I HAVE pleasure in conveying to you the best thanks of the committee of the Warrambool Agricultural Society for the valuable assistance rendered in connection with the Grand National Show held at Warrambool. It was, I can assure you, much appreciated.

—Mr. Albert J. Worland, secretary, Warrambool Agricultural Society, writing to the stationmaster, Warrambool.



TO HOTEL AND BOARDINGHOUSE KEEPERS, PROGRESS ASSOCIATIONS, HOUSE AGENTS, ETC.

The V.R. Magazine is sent each month to 30,000 railway homes. Of this number there are 1,200 railwaymen on leave for an average of a fortnight at any time of the year with free passes over the whole State railways systems. It therefore offers an unparalleled medium for making known holiday resorts, accommodation, etc. For rates and fuller particulars write the Advertising Manager, Victorian Railways, 623 Collins-st., Melb., C1, or 'phone C6414.

<p>TOLMIE, ^{Via} MANSFIELD 2,500 feet above Sea Magnificent Mountain Scenery Shooting — Fishing — Tennis TARIFF, 30/- Write W. V. WALDRON (Late Vict. Railways)</p>	<p>THE SPA CENTRE of AUSTRALIA</p>
<p>A Home Away From Home Nowa Nowa Guest House (Close to Railway Station) Central to Buchan Caves, Mario & Lakes Entrance Public Tennis Court - Swimming - Nice Walks Tariff, £2/2/- J. S. ILTON, Proprietress</p>	<p>The Premier Health Resort of the Southern Hemisphere</p>
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ENJOY the SCENIC BEAUTIES

Inserted by the Daylesford District
Publicity Committee. 'Phone 232
J. C. Proudfoot
Hon. Sec.



A picturesque curve of the Taggerty River at Marysville



Conducted by EILEEN to whom all communications for this feature should be sent

Dressing for the Season

THIS season has been perhaps the hardest of all for keeping well-dressed looking. Usually we put our winter clothes away well before Christmas and from then on buy all the pretty flimsy frocks we can afford. We had plenty of variety. Up to the present, however, we have been unable to put aside all our winter clothes because of the changeable weather, and I have noticed many young girls buying up tweed overcoats and ensembles instead of a lot of light frocks.

With the Easter holidays drawing near and the promise of a late summer with us, however, one must necessarily be equipped with a few light sports frocks. One very seldom sees a girl walking round the country roads during vacation in a heavy frock or coat. Sports frocks are *the* dress for the country, and if the air is chilly a woollen cardigan or jumper is donned.

Sports Frocks for Winter Tennis

As it is so late in the season, it would not be advisable to buy expensive sports frocks unless, of course, you feel you can wear them at tennis during the winter. Spun silk crepe de chenes and even tobralco are suitable materials, and at present many of the larger shops are putting their summer stocks out at exceptionally low prices. For the girl who is keen and watches these sales, there is unlimited scope for good dressing at small cost.

The three-piece suit illustrated is a very serviceable model. The coat and skirt may be made of repp, tweed or other similar cloths, and the jumper-blouse of georgette or satin. When the coat is removed, the hip skirt and blouse look quite smart and dressy. Another good idea is the ensemble with full-length coat, which may be worn also over light frocks.

Hats and shoes for the holidays have improved considerably this year. For instance, there are cotton pique hats made with round crowns and floppy brims. Stitched crepe-de-chenes, colored silk and shantung are all in vogue for the holiday hat. A comparatively new idea is the floral shantung or linene coat with hat to match. White kid shoes are increasing in favor and many of them are trimmed with colored bands to match the frock. Personally,



I prefer plain white kid, which is certainly more serviceable and matches any light frock.

The large linen handbags now on show are a boon for the holidays, as they are not only smart but a blessing because they hold so much.

Hints for the Housewife

When stewing fruit, if a pinch of salt is added to the water, the flavor will be greatly improved.

Always stand your cakes on a scone slide and they will not burn.

Vinegar mixed with salt and rubbed on with soft flannel will clean the most hopelessly dirty copper utensils and give a brilliant finish.

English rosewater is an excellent lotion for tired and weak eyes. Procure it from a reliable chemist and use it as an eye-wash.

Black Currant Recipes

THE following Black Currant Recipes have been recommended by the Cookery Experts attached to the Domestic Arts section of the Education Department:—

Black Currant Jam

To every 3 lb. of black currants allow 1 pint of water or rhubarb juice and 4 lb. of sugar.

Strip currants from stalks and wash, if necessary. Put them into a preserving pan, cover with water or rhubarb juice and bring to the boil. Simmer 15 minutes. Meantime warm the sugar, add it to the fruit and boil from 20 to 30 minutes or until the jam will set. It must be stirred frequently while cooking.

Black Currant Jelly

To 1 pint of black currant juice allow 1 lb. of sugar. Pick the currants from the stalks and wash them if necessary. Put them into a double saucepan or into a jar placed in a saucepan of boiling water, with 1 gill of water to every lb. of fruit.

Cook slowly for 2 hours or until all the juice is drawn out.

Strain them through a jelly cloth allowing them to drip all night. Next day measure the juice and put it into a preserving pan with the above proportion of sugar. Stir carefully until the sugar is dissolved, and then boil for half an hour or until the jelly will set.

Black Currant Marmalade

Black currants—sugar.

Choose fresh ripe currants, pick them from the stalks and wash if necessary. Put them into a double boiler and let them cook until soft and broken (failing a double boiler a jug or jar placed in a saucepan of boiling water may be used). When the currants are soft rub them through a sieve fine enough to keep back the seeds. Measure the pulp into a preserving pan, bring to the boil and boil about 15 minutes. Add 1 lb. of sugar to each pint of pulp, warm it in the oven; add to the pulp and boil together until the marmalade will set.

Loganberry and Red Currant Jam Recipe

2 lbs. loganberries, 1 lb. red currants, 2½ lb. of sugar. Soak sugar and fruit overnight, and boil from ½ to ¾ hr.

I KNOW SOMETHING GOOD ABOUT YOU

Wouldn't this old world be better
If the folks we meet would say:
"I know something good about you!"
And then treat us just that way?

Wouldn't it be fine and dandy,
If each handclasp warm and true
Carried with it this assurance:
"I know something good of you!"

Wouldn't life be lots more happy,
If the good that's in us all
Were the only thing about us
That folks bothered to recall

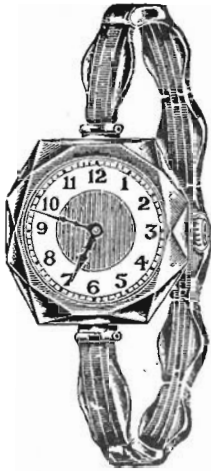
Wouldn't life be lots more happy,
If we praised the good we see?
For there's such a lot of goodness
In the worst of you and me.

Wouldn't it be nice to practise
That fine way of thinking, too:
You know something good about ME,
I know something good of YOU!

—SELECTED.

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By the D. S. J. Company because the goods are imported direct, or manufactured on the premises and sold direct from "upstair" showrooms—away from the high rent area. Therefore, the prices are at least 20 per cent. below those quoted by any other firm. We pay postage, and guarantee safe delivery. The money refunded if a customer is not satisfied or can buy cheaper elsewhere



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A dainty 9ct. Gold Wristlet Watch on a moire ribbon, with a gold clasp. The high grade 15 jewelled lever movement is guaranteed for five years. (As sold at £3/10/- elsewhere). Others £2/2/-, **£2/10/-** £3 upwards

Write for our New 116 page Catalog or ring Brochure



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RAILWAYMEN SUCCEED at INSTITUTE EXAMINATIONS

THE following railwaymen were successful in passing the Institute examinations, held in November, in the subjects indicated. The percentage of marks obtained is given in each case.

Owing to pressure on our space this month, the names of the successful candidates in Safeworking (Train Running and Signalling divisions), Station Accounts and Management, Typewriting and Shorthand, have been held over until next issue.

Bookkeeping (Grade 1).—J. Galbraith and J. P. Morrissey, Clnr., c/o V.R.I. Accounts Branch, 78 and 93.

Bookkeeping (Grade 2).—J. G. Sexton, Clnr., Account Branch, 88; R. Jennings, Jr. Clnr., Melb. Goods, 78; T. G. Aldridge, Clnr., Way and Works, Spencer-street, 60.

English Course (Grade 1).—L. W. Hunt, S.M., Highett, 232; J. F. Elliott, Lad. Lab., Signal Shops, Newport, 226; J. E. Tregoning, Mess., S.S. Bk., Spencer-street, 222; J. N. Winter, Lad. Porter., Upper Gully, 220; J. Wake, Elect. Shop, Newport, 188; J. F. Taylor, Mess., V.R.I., 171; R. Hoare, Lad. Lab., Newport Shops, 164; J. Williamson, Lad. Lab., Truck Shops, Newport, 164.

English Course (Grade 2).—J. P. Hernan, Lad. Lab., Newport, 250; J. E. Einsiedel, Jr. Clnr., Flinders-street Audit, 236; V. Richie, Jr. Clnr., Spencer-street, 232; W. McGemmisen, Mess., Vic. Rys. Inst., 231; K. J. Culhane, Lad. Lab., Spotswood Shops, 214; W. J. Rawnsley, Lad. Lab., Spotswood Shops, 213; C. J. Sturrock, Mess., Spencer-street, 200; R. Stanford, Lad. Lab., Newport, 194; L. W. Reynolds, Lad. Lab., Spotswood Shops, 193; W. Rowson, Mess., Flinders-street, 185; W. B. Wedgwood, Lad. Lab., Newport, 185; L. F. Coles, Lad. Prtr., Spencer-street, 184; D. A. Hawkins, Mess., Spencer-street, 182; H. O. Warne, Mess., Spencer-street, 180; L. Wedgwood, Lad. Lab., Newport, 179; H. J. Hewitt, Lad. Lab., Newport, 179; C. Hynes, Lad. Lab., Spotswood, 170; C. Hanley, Mess., Spencer-street, 169; J. H. Holland, Lad. Lab., North Melbourne, 168; C. A. Kelly, Jr. Clnr., Flinders-street, 166; J. Keane, Lab., Newport, 153.

Engine Working (Junior Grade).—J. Hynes, Clnr., Balranald, 100; V. Matthews, Clnr., Korong Vale, 97; T. Smee, F'man, Wodonga, 93; R. O'Donnell, Clnr., Benalla, 91; F. Twycross, Clnr., Bendigo, 90; J. J. Hardie, Clnr., State Mine, 89; J. Gladstone, Clnr., Korumburra, 89; L. Ricardi, Clnr., Bendigo, 89; J. Penhall, Clnr., Ballarat, 87; C. G. Shiels, Act. F'man, Dimboola, 84; A. McLeary, Clnr., Ouyen, 84; R. B. Gabbe, Clnr., Bendigo, 83; L. Bettles, Lad. Lab., Ballarat, 83; A. McMillan, Clnr., Benalla, 83; J. Rosengren, Lad. Lab., Newport, 80; G. A. Downie, Clnr., Traralgon, 79; G. F. Bayles, Act. F'man, Donald, 76; N. S. Dempsey, Clnr., Ouyen, 76; W. N. Asling, Clnr., Ouyen, 74; R. Whitehouse, Lad. Lab., Newport, 74; A. Hurst, Clnr., Bendigo, 71; P. C. Walker, Lad. Lab., Newport, 71; W. Beech, Act. F'man, Mildura, 69; J. J. Sexton,

Clnr., Ararat, 68.

Engine Working (Senior Grade).—G. Heffernan, Clnr., North Melbourne, 97; B. Sadtler, F'man, Dimboola, 96; G. Mitchell, F'man, Bendigo, 93; J. E. Chapman, F'man, Geelong, 91; S. Greenwood, F'man, North Melbourne, 90; J. Pilkington, F'man, Traralgon, 86; R. L. Hare, Clnr., Traralgon, 86; C. Day, Clnr., Ararat, 86; H. Hallawell, F'man, Wodonga, 85; G. T. Fary, Ftr., Ararat, 84; J. Foley, F'man, Bendigo, 80; P. Schulz, F'man, North Melbourne, 78; Everett, A. M. F'man, Traralgon, 78; W. F. Booth, Clnr.,

J. J. Hardie, Clnr., State Mine, 72; G. F. Bayles, F'man, Donald, 71; T. S. Smee, F'man, Wodonga, 68; C. G. Shiels, Clnr., Dimboola, 68; J. J. Sexton, Clnr., Ararat, 65.

Westinghouse Brake (Senior Grade).—S. Greenwood, F'man, North Melbourne, 94; B. Sadtler, F'man, Dimboola, 93; H. J. Hallawell, F'man, Wodonga, 92; A. Hinchcliffe, F'man, Seymour, 91; J. F. Perry, F'man, Dandenong, 90; J. Foley, F'man, Bendigo, 90; F. Russell, Ftr., North Melbourne, 89; H. L. Hare, Clnr., Traralgon, 87; G. T. Fary, Ftr., Ararat, 86; C. Day, Clnr., Ararat, 85; G. A. Heffernan, Clnr., North Melbourne, 84; F. R. Hamilton, F'man, Korong Vale, 84; J. Pilkington, F'man, Traralgon, 84; G. Stell, Clnr., Geelong, 82; H. F. Praetz, F'man, Maryborough, 82; J. E. Chapman, F'man, Geelong, 80; G. Mitchell, F'man, Bendigo, 79; W. F. Booth, Clnr., State Mine, 76; A. M. Everitt, F'man, Traralgon, 74; P. Schulz, F'man, North Melbourne, 73.

Permanent Way (Grade 2).—W. Appleyard, Rep., Cope Cope, 170; W. J. Tayles, Rep., Dalyston, 164; F. J. Longstaff, Rep., North Melbourne, 162; M. McGarigle, Rep., Nhill, 160; J. A. Gouty, Rep., Armrytage, 150; P. J. McCann, Rep., Gredgwin, 148; J. W. Eaves, Rep., Broomfield, 146; K. Whiteley, Rep., Glenthompson, 142; D. Murray, Rep., North Melbourne, 136; R. J. Negri, Rep., Spencer-street, 136; J. Buckwalter, Rep., Chillingollah, 132; T. E. Perry, Rep., Pira, 130; E. P. Lancaster, Rep., Mirboo North, 126; F. C. Bone, Rep., Ballan, 124; J. A. Florence, Rep., Merrigum, 124; C. N. Martin, Rep., Cope Cope, 122; C. G. Stewart, Rep., Koroit, 122; D. N. Porter, Rep., Tinamba, 114; C. Coghlan, Rep., Cranbourne, 112; F. W. Harvey, Rep., Redcliffs, 112; A. T. Birks, Rep., Bolga, 110; H. J. Schroeder, Rep., Flinders-street, 108; A. V. Praed, Rep., Mangalore, 108; J. J. Found, Rep., Dunolly, 104; A. C. Radford, Rep., St. Kilda, 100; W. J. Chestnut, Rep., Rowsley, 96; F. T. Malone, Rep., Diapur, 94; G. T. Baker, Gang., Gould, 92; A. N. Vizar, Rep., North Carlton, 90; N. Walker, Rep., Glenrowan, 90.

Permanent Way (Grade 1).—R. Cardell, Gang., Benalla, 162; W. Stewart, Clnr., Castlemaine, 154; W. T. White, Gang., Baddaginnie, 146; A. O'Leary, Gang., Warrnambool, 126; G. J. Bailey, Gang., Ultima, 126; N. I. Gettings, Gang., Cohuna, 108; W. Mountford, Spl. Gang., Ballarat, 104; A. C. Price, Gang., Wallan, 100.



Adopted badge of the Institute Swimming Club

State Mine, 77; F. Russell, Ftr., North Melbourne, 77; P. Confeggi, Clnr., Seymour, 75; W. C. Hughes, Clnr., Wodonga, 75; R. B. Kraemer, F'man, Ararat, 70; G. A. Tweddle, Clnr., State Mine, 70; F. R. Hamilton, F'man, Korong Vale, 70.

Westinghouse Brake (Junior Grade).—P. Confeggi, Clnr., Seymour, 93; N. Crapper, Clnr., Seymour, 91; A. S. McLeary, Clnr., Ouyen, 83; D. McGregor, Clnr., Ballarat, 82; V. Matthews, Clnr., Korong Vale, 81; R. B. Gabbe, Clnr., Bendigo, 81; F. Twycross, Clnr., Bendigo, 80; G. Gladstone, Clnr., Korumburra, 78; R. Whitehouse, Lad. Lab., Newport, 77; R. O'Donnell, Clnr., Benalla, 75; G. A. Downie, Clnr., Traralgon, 74; L. R. Bettles, Lad. Lab., Ballarat North, 72;

Institute Social Classes Reopen

THE V.R.I. social classes reopen on Monday, February 3. Tuition in pianoforte, stringed instruments, singing and voice culture, dramatic art, elocution and public speaking, is available to financial members of the Institute and their dependents at reduced rates.

Appointment of Instructors

The following appointments have been made for the year 1930:—
Pianoforte Instructress ... Miss S. W. Ridoult
Stringed Instruments ... Mrs. A. Smythe
Singing and Voice Culture ... Mr. and Madame Gregor Wood

Dramatic Art, Elocution — Miss A. Strain
and Public Speaking — Mrs. M. McLeod
(Assistant)

Banjo, Banjo-Mandoline Miss S. W. Ridoult

Those desirous of taking tuition in any of the above classes should enrol without delay so that suitable times may be allotted to them for tuition when arranging the schedule for the year.

V.R. ADVERTISING DIVISION MOVES

DURING the month, the headquarters of the Victorian Railways advertising division were transferred from the top floor of the State Savings Bank buildings to new offices beside the Chief Ticket Inspector's office at Spencer-street (beside the concourse leading to the new country platform).

V.R. ART UNION FOR WOMEN'S HOSPITAL

HON. ORGANISER W. J. Coffey announces the numbers of the prize-winning tickets in the art union organised in the railway service to assist the Queen of Railways (drawn December 18):

First prize, 15,087; second, 15,968; third, 64,253; fourth, 66,933; fifth, 38,477; sixth, 13,253; seventh, 31,925; eighth, 4,396; ninth, 57,354; 10th, 38,088; 11th, 1,741; 12th, 87,175; 13th, 24,672; 14th, 44,642; 15th, 179; 16th, 21,192; 17th, 93,186; 18th, 93,581; 19th, 59,062; 20th, 55,075; 21st, 37,792; 22nd, 11,548; 23rd, 85,572; 24th, 56,437; 25th, 19,101; 26th, 21,043; 27th, 90,486; 28th, 91,972; 29th, 48,318; 30th, 23,902; 31st, 15,171; 32nd, 24,869; 33rd, 25,423; 34th, 47,288; 35th, 11,940; 36th, 64,441; 37th, 70,078; 38th, 98,032; 39th, 4,538; 40th, 48,431; 41st, 75,246; 42nd, 81,919; 43rd, 36,795; 44th, 1,755; 45th, 52,050.

A National Bulwark

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OF VICTORIA

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Broad based upon Prudence and Integrity of Purpose, and buttressed by the State Government, a State Savings Bank is a "Rock of Gibraltar" in the sea of Finance. The People's money in the People's Bank is SAFE.

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200 Branches and 400 Agencies are spread all over Victoria.
Accounts opened for Individuals, Children, Friendly Societies, Clubs, and Associations.
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Interest at 4 per cent. on Current Account; 4½ per cent on Fixed Deposit.
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Loans on Broad Acres, or City, Town, and Suburban Properties.
Credit Foncier Loans on Farms or Dwelling Houses.
Home Building on Terms not surpassed anywhere in the world.

3. PROGRESS AND PROSPERITY

Like a broad life-giving stream, The State Savings Bank has contributed to the Progress and Prosperity of the State.
Deposits exceed £66,000,000.
Interest paid to Depositors exceeds £2,000,000 annually.
Depositors number 1,230,000. Reserve Fund, £2,500,000.
72,000 persons have secured Homes or Farms through the Credit Foncier.
Over 12,000 Homes have been built for the people under the Bank's supervision.
Altogether £43,000,000 has been advanced for these purposes to date.

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General Manager : ALEX. COOCH, J.P.

Assistant General Manager : GEO. W. PAXTON, J.P.

What Does Spending Cost?

HOW much does it cost you to spend £100? The answer is £100 down and at least £4 per annum for the rest of your life.

Yet what man would knowingly spend £100 that put him under obligation to pay £4 per year for life.

None, perhaps, but many do it unconsciously when they spend money that might otherwise have earned interest at 4% indefinitely.

Every pound you spend has attached to it an invisible string of pennies which you spend with it.

Keep your money in a Savings Account and earn, not spend, 4% interest per annum.

Commonwealth Savings Bank of Australia

(Guaranteed by the Commonwealth Government)

Sport

Continued from page 37

club would grow to such an extent that the clubroom built by the City Council at the Batman-avenue baths would be barely sufficient for their members. Yet such is the case. The club's membership is already nearing the hundred mark, and this number not only includes employees who desire to compete in swimming, diving and water polo events, but also railwaymen who are learning to swim under ideal conditions.

The headquarters of the club are the Batman-avenue baths (near the Jolimont garage), and this excellent open-air pool with crystal clear, chlorinated water is ranked amongst the best swimming pools in Victoria. The V.R.I. Swimming Club's room is fitted with every convenience, including punching ball and developers.

Two teams have been formed and entered in the V.A.S.A. water polo competitions. The "D" team met Albert Park on January 6, the scores being 5 all. On Thursday, January 9, they played Kew and this game also resulted in a draw—3 all. Both games were very exciting and well contested, but with a little more coaching and teamwork, the Railway "D" team will be hard to beat.

T. Shatwell is the club's swimmer of note. During the Christmas carnivals he won two championships at a South Gippsland meeting.

DISTRICT ENGINEER AND YACHTMAN

At the last meeting of the Geelong Yacht Club, congratulations were extended to District Engineer E. B. Slater on the recent performance of his yacht *Shamrock* in the gruelling Bass Strait race.

JUNIOR ENGINEERING SOCIETY'S HOLIDAY CAMP

The Victorian Railways Junior Engineering Society, which was formed about six months ago, held a successful 14 days camp at Lakes Entrance during the holidays. Seventeen members, who brought their own tents and cooking utensils, journeyed to the Lakes by train to Bairnsdale, thence by car or boat. The cost per head for the fortnight's holiday was less than £2.

All apprentices or journeymen who have attended the V.R. technical college are invited to join the Society.

INSTITUTE GYMNASIUM RE-OPENS

The Victorian Railways Institute gymnasium reopened for the 1930 class year on Monday, January 13. Tuition in boxing, wrestling and physical culture is available to financial members of the Institute and the de-

pendents of financial members at special reduced rates, while the use of the gymnasium for exercise purposes is available to members at a low charge, when classes are not in operation.

Classes in boxing are conducted by Mr. Frank Perry, assisted by Mr. G. Sullivan, on Tuesdays and Thursdays at 5.0 p.m. and 7.30 p.m. Wrestling classes are held on Mondays and Wednesdays at 7.30 p.m., under Mr. T. Donnet, assisted by Mr. A. Donnet (champion middle-weight wrestler of Victoria).

The physical culture class, under Mr. Geo. Corkhill, is held on Friday evening at 7.30 p.m.

An electric vibrator (massage machine) is installed in the gymnasium for the use of members. The charge for the use of the vibrator is 1/- for 15 minutes' use, or 5/- for six periods of 15 minutes each.

ANSWER TO CORRESPONDENTS

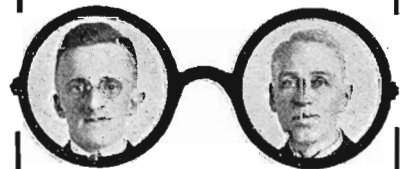
G.E.T. (Irymple): Always glad to receive a par. of that sort, but closing date is 12th of each month. Too late for January issue, those figures are of course now stale. M.H. (Warragamba), D.T. (Mathoura), A.W.M. (Lang Lang): Thanks, will use snaps as opportunity offers.

J.T.H. (Melbourne Goods): Thanks, will make an interesting view in a future issue.

J.A.F. (St. Kilda): Preliminary designs of that type of locomotive are in course of preparation, but it is impossible to say when construction will be commenced. Certainly not during this year.

LET Us Test YOUR Eyes

To ascertain whether or not YOU need Glasses



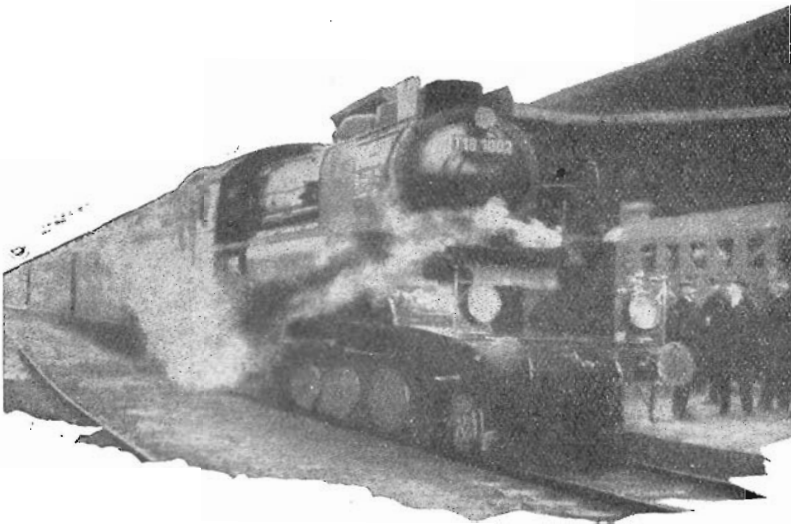
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Messrs. Colés & Garrard have arranged that all Railway Employees and their families are to be included in their Special Benefit Plan. Have your eyes tested by these well-known opticians, who will allow you 20% discount

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NEW TURBINE LOCOMOTIVE

The picture shows the first turbine locomotive placed in service by the German State Railways between Munich and Nuremberg, after long time tests with this type of locomotive. A steam turbine of 2500 h.p., mounted in front of the boiler, furnishes the motive power. A turbine locomotive of this type is three tons lighter than the ordinary locomotive on this line and uses about one-half the quantity of fuel.



The "Nugget" tin opens with a twist!

Men and women who realize that appearance counts always have well-polished shoes.

Did YOU "Nugget" your shoes this morning?

"NUGGET" Shoe Polish

"THREE POWER" LOCOMOTIVES for the LACKAWANNA

TWO "three power" Diesel electric locomotives—the first of their kind built to operate on 3,000 volt direct current, taking power from an overhead trolley instead of through third-rail contact—have been ordered by the Lackawanna Railroad (U.S.A.).

The electric trolley, the oil-electric engine and the storage battery combine to furnish power to operate this new type of terminal locomotive. In main line work, they will operate as straight electric locomotives, taking power from an overhead wire. When working off electrified trackage, they will operate as combination oil-electric storage-battery locomotives.

This flexibility obviates the necessity for electrifying the switching yards and industrial sidings in the zone in which they will be used. Another efficiency element which their introduction will represent is a distinct saving of time in fueling, in comparison with steam locomotives.

Each locomotive will be 47 feet long, weigh 248,000 pounds—all loaded on two four-wheel trucks—develop 1,640 brake horse power, capable of hauling 45 loaded cars at a speed of 20 miles an hour, operated by trolley, and eight miles per hour when operated by the oil-electric engine and storage battery.

Designed especially for main line transfer and classification yard switching service, these "three power" locomotives will be employed in and calculated to speed up the "Tunnel Run" service of the Lackawanna between its Hoboken-Jersey City terminal and its New York Transfer at Secaucus, N.J.

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Books and New Books

Thumbnail Reviews by J. D. MICHIE

Another Day.—By Jeffery Farnol. This author is always dependable, for he writes clean, fresh romance with universal appeal. Usually he writes of a period which is known as the "Farnol period" and which is most like the Georgian period. In *Another Day*, unexpectedly he has brought the setting of his story to modern times, and with no less of effect. No one, whatever his taste, will reject Farnol; he is always accepted, and the present volume is well suited for a gift-book (6/-). (Our copy through Robertson and Mullens).

The Australian Fishing Manual.—By "Taggerty." Although it has a matter of fact title, this is a brightly written book which must have a wide appeal both to people who take their angling seriously and to others who regard it as a contemplated pastime. The author, "Taggerty," tells us much about practically every fish that inhabits our waters—both salt and fresh—and, better still, he tells us how to catch them. The instructions are expressed in a simple and explicit fashion—it is hard to see how any disciple could make a mistake—while there is a plentiful besprinkling of

reminiscences through the book to make it really interesting. Campers, too, should like the publication, for there are many valuable hints here for the increasing army of people who like to spend their holidays under canvas. (Our copy from the publishers—Reviews Pty. Ltd., Melbourne).

Up the Country.—By Brent of Bin Bin. Very accurately portrays life in the back-blocks of Australia. The realistic delineation of "the bush" and of the flood and drought accompaniments of productive life makes the work above the average. Nor is the social life neglected. Here, indeed, the sketch is illuminating, especially of those who, having nothing to lose but all to gain, seek obscurity.

Armour Wherein he Trusted.—By Mary Webb. This is an unfinished novel, designed to be the story of Lord Gilbert of Polrebac. As far as the story takes us, it is a beautiful apotheosis of love in the Anglo-Saxon way. The Crusades come along with their call after Nesta has been wooed and won. The novel is powerful in its depiction of the conflict within a man for woman

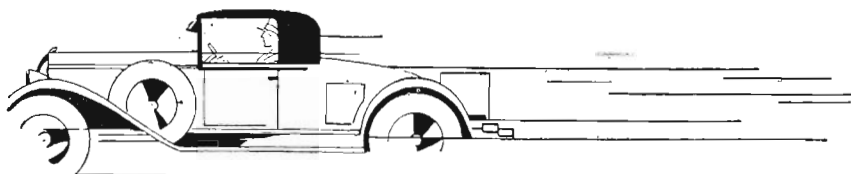
or monastery. Ten short—very short—stories in the book are remarkably arresting and show Mary Webb in vivid strength on themes out of the ordinary.

E. Barrington's historical story *The Thunderer* (of course "The Thunderer" is Napoleon) is now reprinted, and is sold for 3/6. It contains the love story of Napoleon and Josephine, of the little corporal whose deeds shook Europe, and of the woman whose nod shook him. (Our copy through Robertson and Mullens).

The Happy Patriot.—By R. W. Chambers. This is a thrilling tale of pirate ships and slave-runners, of cruising off Carolina, and mad, fierce raids on sun-baked villages along the flaming coasts of Africa. A delightful love story twines its way through these high adventures—intriguing, exasperating, yet from first to last fascinating, for Cintra, the lovely stowaway, is one of the most charming girls that ever sailed the seas.

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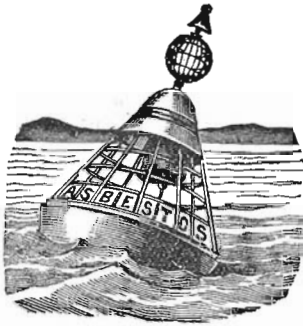
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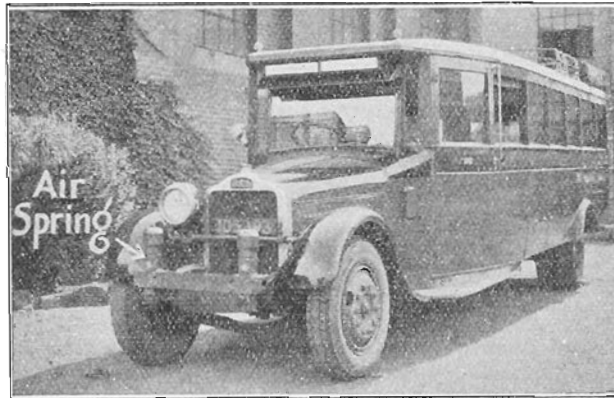
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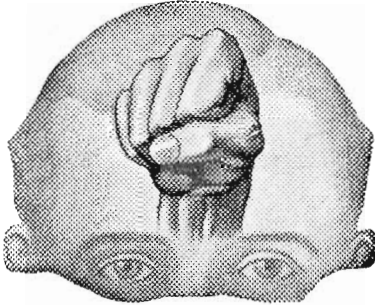
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SAFETY-HEALTH-BETTERMENT

BENEFIT BY YOUR IDEAS

THE following awards were made during January for adopted suggestions:—

Total Amount ... £80
Highest Award ... £40

The number of suggestions received during January was 196. Arrangements still exist for the placing of adopted suggestions of particular merit before the railways of the various States; also the Commonwealth and New Zealand Railways.



Diagram showing personal injuries sustained by employees during January. These accounted for 123 "lost time" accidents

MARCH SUGGESTIONS DRIVE

THE subject chosen for the 27th Suggestions Drive, which will be held during March, is:

Ballast and Work Trains

Suggestions should be submitted to the Betterment and Publicity Board in the usual way. Suggestions on any other subject will, of course, also be accepted.

WARN ANY MAN
WHEN DANGER
IS NEAR.
IF HE KNOWS,
ALL RIGHT; IF HE
DOES NOT KNOW,
YOUR WARNING
MAY SAVE HIS LIFE.

New Values In Industry

By Chas. M. Schwab, Chairman of the Board,
Bethlehem Steel Corporation

THIS article is an abridgement of a recent wireless address of Mr. Schwab from the New York Studio of the American National Broadcasting Company. It indicates the attitude of a prominent industrial magnate towards the "safety first" movement.

IN my career of nearly fifty years in business and industry I have participated with real personal satisfaction in the unfolding of a great human relationship between those who manage and those who labor. Whatever else I may have achieved, my part in this endeavor will remain my most cherished possession.

With fair wages, steady employment, a financial interest in the business, and a means of contact and co-operation with the management through representatives of his own choosing, the worker has secured the fulfilment of the most important and vital of his desires.

But there are other factors which should not be overlooked. One of these concerns the safety of work, for indeed, accidents affect both wages and stability of employment.

Essentially Co-operative

Noteworthy advances have been made in industrial safety since the beginning of the century. They reflect credit alike upon management and men, for essentially it has been a co-operative movement. Accident prevention is a joint responsibility upon employees as well as employers. It requires activity on the part of both and the enthusiastic interest of all.

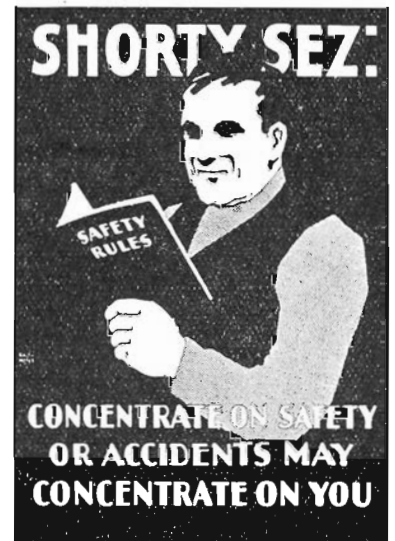
The problem of safety is not new. As a matter of fact, it is as old as civilization. The first law of nature is self-preservation, but, like all of the wonderful advances in human endeavor, it requires the vision and faith of far-seeing men to make the safety of workers an essential feature of good management in our industries.

What is safety work? The best definition I have heard was given by the Rev. John McDowell. He stood before the steel men in convention assembled, with an empty sleeve that bore mute evidence of his early years as a Pennsylvania miner. He talked with authority, but best of all he talked from his heart. Let me quote him:

To save human life is the noblest of all purposes. It embodies the highest ideal of humanity. It conserves the best asset of the

nation; provides its best protection, and creates its real glory. It incarnates the spirit of democracy and brotherhood.

That this spirit has taken hold of industry is evidenced by the wonderful achievements that have been accomplished with the co-operation of employees in eliminating needless acci-



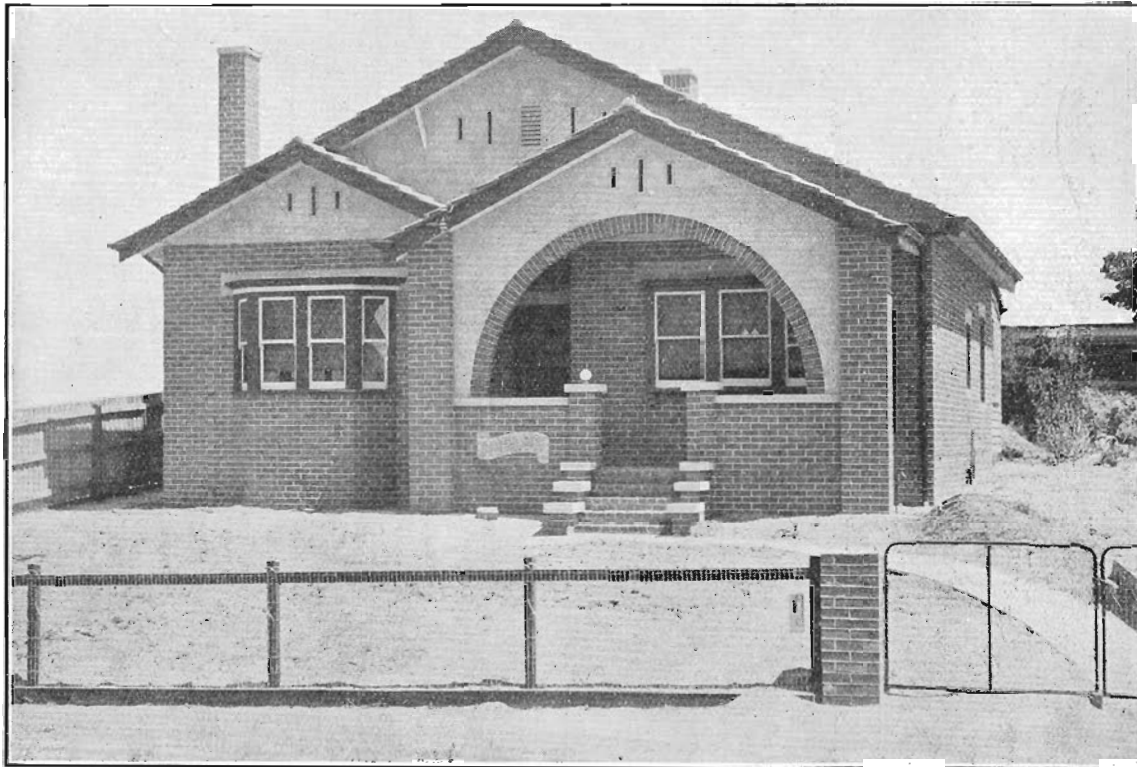
dents and thus adding to the happiness of homes throughout the land.

I dare say that the safety movement as an essential feature of good relations has so embedded itself in industry today that no backward step can ever be taken. Workers collectively and individually are more cognizant of safety in their daily occupations.

In my own company, the Bethlehem Steel Corporation (and this is typical of most companies) progress in accident prevention during the past few years has resulted not only in a greater saving of life and limb but also in a saving to employees in wages alone of millions of dollars. For this accomplishment I give credit to that fine, stalwart body of co-workers who have helped build our company.

It is my sincere wish—and hope—that the day will come in the not far distant future—when the protecting arms of Universal Safety will spread out over all industry and reach directly the millions of workers who make industry possible.

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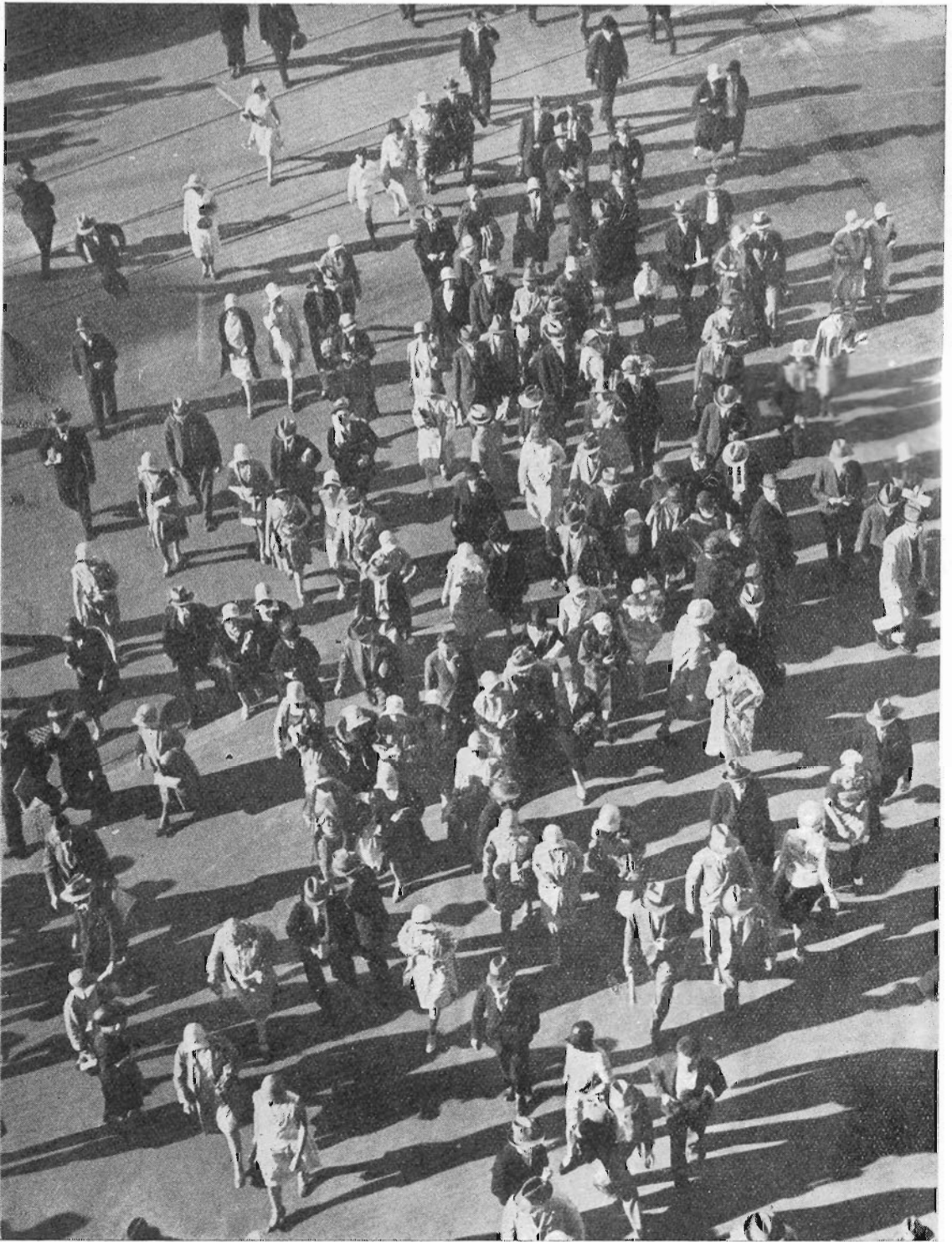


Photo.—W. Howieson

An unusual view taken from the Flinders-street station clocks, of the beginning of the five o'clock rush of Melbourne workers and shoppers to the suburbs.

UNTYING AUSTRALIA'S

By EDWARD SIMMS *ARM and LEG*

Secretary, Commonwealth Railways

TALK of Australian gauge unification is in the air again. A conference of Railways Commissioners has recently revised and brought up to date the cost of "untying Australia's arm and leg" by converting all differing gauges to the standard 4 ft. 8½ in. width.

Mr. Simms, an acknowledged authority on the complicated question, here surveys various aspects of the problem, and discusses the major difficulty of finance. His comments on Victoria's position are of particular interest.

IT has been said, and said very often, that the day of the railway is over and that the motor car is now taking its place as the main arm of transportation. Even admitting that certain short lines of railway in Australia may have to give way to the more mobile type of transportation, more than ever am I satisfied that the day of the railway is still ahead.

For the one who speaks of the motor car superseding the railway, I will quote a few figures, unpopular though figures are. New South Wales is the busiest Australian State and its railway system in a recent year carried 147,000,000 passengers, 11,000,000 sheep, and 16,000,000 tons of merchandise, some of the hauls being as long as 700 miles. No motor car service could carry 11,000,000 sheep over an average haul of probably 200 miles; no motor service could carry 16,000,000 tons of wool and wheat and coal; no motor service could carry the 147,000,000 passengers in any one year.

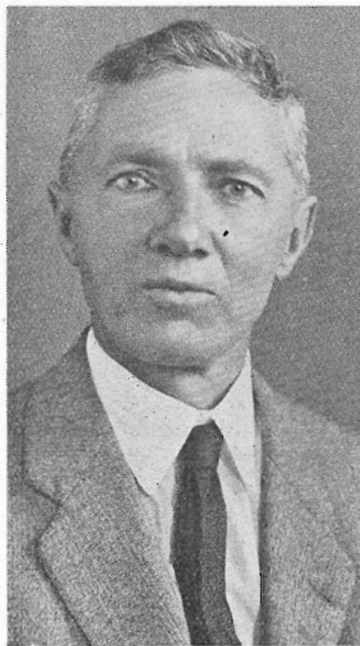
Railway Supreme

To those people who lightly speak of relegating the railways to the background I would quote an extract from a *Canadian Pacific Railway Magazine* issued recently:

A Record Grain Train.—Another record was established recently when what is believed to be the longest and heaviest train load of grain ever moved ran from Stoughton to Arcola, Sask. This train consisted of 136 loaded grain cars—202,000 bushels—and its total weight was 8,725 tons, it was well over a mile long. A writer said—"Alexander the Great mourned because there were no more conquests for him to make." He thought he had conquered everything, yet it never occurred to him to invade the simple battlefield of transportation. In Alexander's day to move 202,000 bushels of wheat required at least 30,000 camels. To move it would probably have "stumped" Alexander.

Yes, we need the railway, and we will need it more and more.

Unfortunately, in Australia, although railway management is good, and Railways Commissioners are earnestly trying to serve the community, our



Edward Simms

railways are not 100 per cent. efficient. We are hampered by many disabilities, the greatest stumbling block being the broken gauges which meet us at so many points in our railway travel around Australia.

82 Years Ago

The trouble goes back to 1848-1853, when the 4 ft. 8½ in. gauge was agreed upon between New South Wales and Victoria, afterwards changed by agreement to 5 ft. 3 in., and once again changed by New South Wales to 4 ft. 8½ in., Victoria holding doggedly to the 5 ft. 3 in.

Our fathers builded badly and today we reap the reward. When we travel across the continent from Brisbane to Perth, we use no fewer than nine trains. In Australia there are no fewer than five breaks of gauge, and these so hamper the tabling of trains that additional breaks at each of the capital cities form part of the programme. On a similar journey across Canada we would use the one train only.

The hampering of passenger travel is bad enough. Great as this inconvenience is, however, it is not comparable with the difficulty in transhipment of the merchandise and livestock.

Take fruit alone. In a recent week, over 1,700 tons of Queensland fruits passed over the border at Wallangarra—probably over 75,000 cases. The fruit consisted of bananas, pineapples, custard apples, tomatoes, etc. People who know Queensland know these fruits and how they deteriorate by handling. This tropical fruit comes to Wallangarra in the one train, it is there off-loaded and transferred to another train.

America's Example

The fruit for Melbourne comes to Albury in the second train, and is again off-loaded and transferred to a third train.

In America, huge trains of sealed vans loaded with fruit and vegetables cross the continent, without the contents being touched in any way. From California, it is stated, an average of 600 bogie wagons of fruit and vegetables are transported by the railways each day, and 43 per cent. of this traffic is hauled distances of over 3,000 miles. The business could never be done under railway conditions existing in Australia.

The United States of America in 1886 had seven different gauges but, in that year, 13,000 miles of railway were converted to a standard 4 ft. 8½ in. This gave unhampered transport through the country. It has enabled the railway companies to quote cheap freight rates, resulting in the

establishment of industries inland and the building up of very large cities far removed from the coast. St. Louis, over 760 miles from the coast, has a population of over 770,000. Buffalo, over 400 miles from the coast, has more than 500,000 residents, and there are many other American cities similarly situated.

It is in the country that Australia can be truly developed and become rich, and the accomplishment rests largely on adequate and efficient transport.

Now, what attempt has been made by Australia to provide a uniform gauge? Had the railways been placed under Federal control when the Commonwealth was proclaimed in 1901, we would probably have had a uniform railway today, but the position today is that, although conferences have been held year after year and resolutions passed, we still have the broken gauges while the cost of righting them grows larger and larger.

When Experts Conferred

Probably the first definite move towards conversion was made when the Commonwealth and the States in 1920 engaged eminent engineers from Great Britain and America to advise, and bound themselves to accept the decision of these experts. The Commonwealth and the States agreed that the work should be financed on the basis of one-fifth being paid by the Commonwealth and four-fifths by the States on a per capita basis.

As a result of their advice, the Commonwealth definitely adopted 4 ft. 8½ in. as the standard for the Australian railways. The engineering experts submitted a scheme for the linking of our capitals with the standard 4 ft. 8½ in. gauge and converting the whole of the Victorian and South Australian broad gauge lines to that standard at a cost of £21,600,000.

When the experts submitted their scheme, the Prime Minister and the Premiers agreed "that the adoption of the uniform gauge is, in the opinion of this conference, essential to the development and safety of the Commonwealth," but neither South Australia nor Victoria would come to agreement in regard to commencing the work.

Later the Commonwealth, failing to come to agreement with each of the States, made an agreement with New South Wales and Queensland for carrying through a section of the uniform gauge work recommended by the royal commission, viz.: that between Grafton, Kyogle and South Brisbane.

This will shorten the journey between Sydney and Brisbane by over 100 miles and save many hours on the journey. It will give direct transit for fruit, etc., from Brisbane to Sydney, the principal market in Australia. It will greatly aid travel between New South Wales

and Queensland. The work is estimated to cost £4,350,000 and is now drawing to completion.

Agreement has also been arrived at by the Commonwealth with the State of South Australia, which will provide for the Trans-Australian railway built to the standard gauge of 4 ft. 8½ in. being extended to Red Hill which will fit in with the Uniform Railway Gauge programme. A bill providing for this work was before the Federal Parliament in a recent session, but owing to the pressure of business, was not passed. At a recent session of the Western Australian Parliament, both Houses passed a resolution urging the Commonwealth Government to take in hand the consummation of uniform gauge between Kalgoorlie and Perth.

Apart from the three sections referred to, there would still be the conversion works in Victoria and South Australia.

The Royal Commission estimated the work of linking the capitals and converting the 5 ft. 3 in. gauges of Victoria and South Australia to cost £21,600,000. This figure has now been brought up to date and it is estimated the cost will be £25,000,000. From this, however, can be deducted a sum of £4,350,000, the cost of the work between Grafton, Kyogle and South Brisbane, leaving the balance for work still to be done of over £20,000,000.

A Way Out?

It is estimated that the preparatory work will occupy a period of three years, and the actual conversion four years, so that for seven years there would be an annual expenditure of approximately £2,850,000. This is a large sum, but readers will probably be surprised to learn that the expenditure on actual railways capital works throughout Australia for the past seven years has averaged just about £12,000,000 a year. Thoughtful people are beginning to ask whether we should not make a halt in our railway building programme and now make efficient the railway system we have by giving a uniform gauge.

In 1897, the Railways Commissioners of Victoria, South Australia and New South Wales estimated the cost of altering the permanent way—i.e., practically everything but rolling stock—in Victoria at £350,000. In 1913, the cost had risen tenfold, to £3,500,000. In 1929, to alter the permanent way was estimated to cost £6,620,000, nineteen times greater. Each year the cost increases.

For a contribution of £5,800,000, Victoria is going to have about £11,000,000-worth of work within the State, and this work is going to be highly beneficial to Victorian business activities, enabling the trade of the State, which as square miles go is only

small compared with other States, to extend far beyond its geographical boundaries. If the work is not proceeded with, however, it is easy to picture a 4 ft. 8½ in. uniform gauge Pacific-Indian Ocean system extending north of the Murray between Queensland, New South Wales and Western Australia, linking what are the largest, and eventually will be probably the richest States in the Commonwealth.

As Australia develops, there will be an insistent demand for a direct connection between Perth and Sydney and Canberra, and people will ask why they should have to travel about 350 miles extra journeying round through Melbourne each time they wish to cross the Continent.

A railway north of the Murray linking Sydney with Port Augusta and Western Australia via Hay, would shorten the distance between Perth and Sydney by about 350 miles. Delay in converting the 5 ft. 3 in. railways of Victoria and South Australia would be the stepping-stone to requests for this East-West railway north of the Murray.

Uncountable Benefits

From a railway standpoint Australia is divided into compartments, each system works independently, and trade and commerce are seriously hampered. Whether business is brisk in one State and slack in another, whether one State is pressed to its utmost while another has rolling stock lying idle, there can be no interchange of rolling stock, apart from the broad gauge lines of Victoria and South Australia. Australia, unfortunately, suffers from periodical droughts, and in times of drought a system which would give free transport of wagons from one end of Australia to the other would be of the greatest value.

In considering this question the following items are very apparent:—

1. The broken gauges cause us to hold far more rolling stock throughout Australia than a common gauge system would need;
2. The broken gauges prevent the common use of rolling stock and the standardising in classes and types of locomotives, carriages and wagons;
3. The broken gauges hamper fast transport of merchandise and cause depreciation of commodities, particularly fruits and the like;
4. Broken gauges add greatly to costs through transhipment charges, agents' fees, and delays and losses;
5. In times of drought, the transport of starving stock from State to State is impracticable, and the cost of fodder tremendously increased;
6. Broken gauges tend to render inefficient our great railway outfit, taking away its mobility, and weakening its service.

But, after all, these points only touch the fringe.

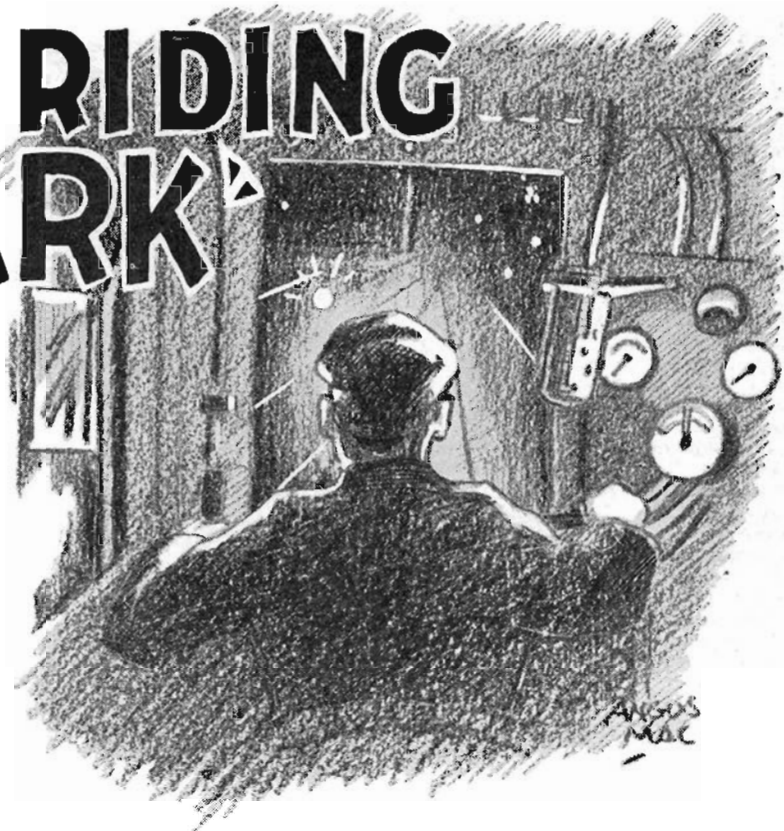
It is difficult—in fact, it is impossible—to tabulate the economic advantages of a Uniform Railway Gauge. Its

NIGHT-RIDING A "SPARK"

By C. H. Cheong

WITH something akin to awe, I approached the sleek electric locomotive standing in the Jolimont yard. The night was black as pitch, but the light from a shunter's hand lamp played on the rivet heads and the gleam traced the square plates which strengthened the sides. A sand box on either side introduced the idea of a sinister gun barrel. Outwardly, it was the armored car of military patrols. It required no flight of fancy to imagine this steel-sheathed monster spurting a hail of bullets at combatants.

I climbed the steps to the railed platform and went through the door where the driver and his mate, the observer, sat one each side of the compartment. There was no perceptible embarrassment at the prospect of an unexpected passenger, and they greeted me with welcoming hands.



I recoiled hastily . . .

The driver was most anxious to correct my frequent allusion to his "electric locomotive." "Say 'Spark'" he admonished gravely, "that's what we call it."

"Parts of it bite, you know," he proceeded grimly.

I recoiled hastily from an elongated

metal box, whose perforated front appeared wicked enough to hide any quantity of death-dealing electricity.

"No, that's all right, it's only my locker" he reassured me. "What I meant was fiddling. If you fiddle with this apparatus, you're apt to get bitten, and those teeth will sink to the extent of 1500."

I didn't quite know how drastically "1500" would perform with me, but it sounded so impressively dangerous that I dived my hands deep into the pockets of my overcoat.

THE driver explained the controls. Carefully and intelligently I followed his verbose description of the equipment, his eloquent interpretation of series running and his lecturette on the advantages of electric locomotion. Wisely I nodded my head at opportune moments, and when he finished I asked him what made the thing go. The observer delivered himself of a hollow cough and looked significantly at the driver, who hastened to turn the conversation to cricket, and the iniquity of Ryder's exclusion.

I looked at my watch. It showed 11.45. Theatre trains rushed patrons homeward. Gaily frocked ladies and white shirt-fronted cavaliers were in the majority. The breeze whisked the ends of dainty gowns in the open doorways as the carriages passed.

From Princes-bridge the voice of the city was wafted down—a voice finding expression in newsboys' cries, in the traffic rumble, in the raucous invitation of the plemman to sample his wares . . . the uneasy utterance of a civilized city settling down to sleep.

"All clear, George," said the observer, and 1105 glided almost imperceptibly through the yard past No. 1 platform, rumbled on, was switched to another road and came back down No. 8 track in readiness for its train.

The last trains drew in at the platform. Late passengers made last minute dashes down the ramp, flopped into seats and sighed with evident relief at their escape from the mercy of the taxi-driver.

The trains gathered way. Lights in the yard shone steadily. Green, red and yellow pin points in the distance changed rapidly as trains sped past.

Then there was silence. The voice was stilled. The great city slept. . . .

FOR us the spell was immediately broken. Out of the night a rake of trucks appeared, drawn by a steam engine. The enginemenn bade a cheery goodnight and their locomotive panted off for the next item on the night's roster. We backed on to the trucks and coupled up. The signal-box inhabitants set the road and the observer passed the message from the

colored lights. The driver tugged his whistle cord, slewed a handle, pulled a lever, pushed a knob and we threaded our way through the maze of steel ribbons stretching into obscurity. The lights from 1105 flashed in fantastic shooting gleams along the rails.

I stood behind the driver and peered through his window. Dimly the M.C.C. brick buildings rose out of the blackness and were swallowed up again. Farther along, the headlights of a car lit the driver's face for an instant. Seen in that flash, his eyes were set on the track, his chin stuck forward and he sat in an easy position, his two hands firmly moving the controls. Then oblivion, and as my eyes grew accustomed to the dark again his silhouetted form took shape and outline in the frame of the window.

Outside the darkened Richmond station, a big-eyed advertisement negro grinned his approval and raised his cap to our health. I suppressed a wave, and walked through the passage flanked on either side by electrical equipment—grim forbidding apparatus, enamelled appropriately jet black.

I stood on the rear platform and looked back. A low truck of metal moved immediately in our wake, an "H" truck followed, dimly a louvre's top showed and, seemingly miles away, the side light of the guard's van kept its distance.

We crossed the river. Through the steel lattice work a dark facsimile of 1105 entered the water and shot to the other bank. We slipped through South Yarra where a few isolated houses showed out with streaming light from doors and windows. Strains of music floated down the wind—revelry.

A WAVING hand lamp stayed us at Windsor, and we dropped two trucks of wood and one of berry fruit. We shunted the trucks to the siding and, picking up 15 empties, went our way. A yard porter joined us and Windsor was left behind. At Elsternwick another waving lamp swung to and fro. We dropped off a truck of sand, a truck of grain foods and yet another of wood.



He . . . swarmed up the front of the "spark"

The yard porters rode on 1105 with us and at each station operated the signals, set the roads, worked the crossing gates and with the guard accomplished the shunting. Economical working this—no signalmen required to be brought on night shift.

More empties were coupled on and we sailed to Middle Brighton, staying outside the yard whilst the acting signalmen went ahead to reconnoitre. A truck of potatoes, two of metal screenings and two more of wood ran down the siding with our able assist-

ance. The driver, as at each of the other "pick-ups," examined the brakes, door fastenings and couplings of the empties and we moved on.

It was nearly 4 a.m. when we had dinner, maybe it was early breakfast, or even lunch. It seemed like a very late supper to me and I was sleepy.

"We're finished the work," the driver said, "but we've got to run down to Brighton Beach to cross to the up."

Dozing, I acquiesced. The desire to sleep was overpowering. I wrongly answered "yes" to two comments and said "no" when a positive reply would have been tactful. I wasn't used to a double shift. My head nodded several times and then dropped violently, but I aroused myself and took a firm grasp of the situation. Streaks of daylight dispelled weariness and I took more interest in the proceedings.

TANG of the salt drifted in from the roaring sea as we crossed at Brighton Beach—platforms strangely silent—deserted. We waited whilst the yard porter returned from the signal-box. He strode along the platform and swarmed up the front of the "spark." The driver leaned across confidentially. "He's a fine footballer, great mark. Plays League football."

We left Brighton Beach to run in ahead of the first train. Milkmen rattled down side streets, jumped from moving carts and ran round the backs of houses to fill waiting jugs.

At Elsternwick we parted with the yard porter—who-was-an-athlete, and at Windsor his companion stepped off. The day shift signalmen were taking possession. Back in the Jolimont yard the empty trucks were uncoupled and the cheery guard disappeared.

Freed from her task, 1105 went up through Flinders-street station, on to the viaduct, and ran back to No. 1 platform. First trains were leaving. Early workers walked briskly along the streets. Traffic stirred on the roads.

The city was clearing its throat. Shortly its voice would raise.

Company Compelled to Build Unwanted Railway

THE American Interstate Commerce Commission has ordered the Union Pacific system to construct 185 miles of new line across the State of Oregon, to connect U. P. tracks at Crane with the Southern Pacific at Crescent Lake, both in that State.

The order was made against the protest of the Union Pacific, and is the first time in its history that the Commission has taken steps to compel a road to extend its lines against the company's wishes.

The case was brought by the public service commission of Oregon, which

charged that the railroads of that State had failed to provide proper rail facilities for a large part of the commonwealth.

The Union Pacific, Southern Pacific and Great Northern Companies all joined in opposing the extension. The I. C. C. ruled in favor of Oregon, saying, in part:

"After careful consideration, we are firm in the belief that the extension would be a valuable asset to the Union Pacific system, and would be an effective feeder for that system after a

reasonable development period. At the same time, the construction would bring about development in a vast territory."

The cost of the extension is estimated by the Commission at £1,800,000 or £9,800 per mile, and by the roads at £2,343,400, or more than £12,600 per mile.

The majority held that the Commission's authority for the order was to be found in paragraph 21 of the Interstate Commerce Act, and that it expressly authorised the Commission to order extensions.

Paying 25,000 Men

By

S. C. Weetman



Asst. Paymaster Du Bourg at one of the safes in the pay office strongroom

IT is impressed upon every railwayman early in his career that his first duty is "the safety of the travelling public." But there is one section of the Victorian Railways service where "the safety of the pay cash" is a close rival to this first principle of railroading. The paymaster who, with his assistants, has the responsible task of regularly providing the money required to meet the fortnightly payroll has more cares upon his shoulders than is generally realised. This the following article reveals :—

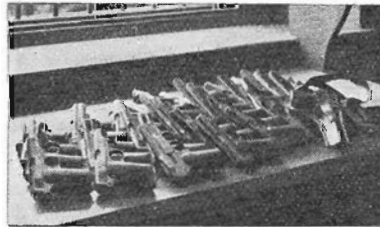
WITH a staff totalling some 25,000 scattered throughout the length and breadth of the State, and with a regular fortnightly pay day throughout the service, it is necessary to provide for more than 650,000 separate payments each year and for the distribution of approximately seven million pounds as salaries and wages. And yet, so efficient is the organisation which has been established by years of experience, that this huge job is now looked upon as an everyday affair, and its smooth carrying out is taken for granted, although there is no slackening in the care taken to ensure that the money is handled safely.

The first point in the handling of the pay cash is, of course, to determine the amount of money which will be needed for the particular pay period. Each section of the service has to advise the paymaster the total money required in ample time to enable him to obtain the cash for payments in the Melbourne and suburban areas, and arrange for cheques to be forwarded to other districts. Sections such as the head offices advise the paymaster direct what their requirements will be and how the respective amounts should be made up. This cannot, of course, be done so effectively by remote country districts.

Stationmasters at the smaller stations handle the pay cash for the men of the different branches located at their respective stations. The banking stationmaster likewise handles the pay

for all stations whose revenue cash he banks. The loco. depots and works depots handle the pay rolls of their respective district staffs.

When the payrolls for staffs at out-stations have been compiled, the banking stationmaster is notified of the amounts required for the payment of



Automatic pistols with which the paying staff are equipped

the men at these stations, and he combines these with the total for his station before requisitioning the paymaster for the full amount. Separate advice is received from the loco. depots, works depots and so on as to the money required for the payment of the men at these centres.

Payment in Cash

In the metropolitan and suburban areas, all payments are made in cash. This practice necessitates the handling of almost incredible amounts of money. It will, no doubt, astonish most people to learn that £165,000 is handled each

fortnight for the paying of employees in the metropolitan and suburban areas. Cheques drawn for the payment of country members of the staff bring the total to £280,000 for the fortnightly pay.

For a recent pay period, the cash for the metropolitan and suburban payments as received from the bank was made up of 22,000 £5-notes, 46,000 £1-notes, 9,000 10/- notes, some 50,000 silver coins of the value of 2/6d., 2/-, or 1/-, 8,000 sixpenny and 8,000 threepenny bits, and some 15,000 pennies and half-pennies, making a total of 81,000 coins and 77,000 notes. The work involved merely in the checking of this money can readily be imagined.

For each payment to the head office staff, approximately £33,000 is required. This money is made up overnight according to the various denominations of notes and coins required, is placed in separate boxes, and is handed over, on the pay morning, to the paying officers of the different branches. These officers check up the money and give the paymaster a suitable receipt for it.

A further payment of £11,000 is disbursed over the pay office counter each pay day, particularly to the Melbourne Yard staff and the Spencer-street station staff. The clerical and other employees of the Melbourne goods sheds are paid £9,000 a fortnight.

The Newport workshops, with a pay bill of £32,000, also absorb a con-

siderable portion of the pay cash. This money, together with £6,000 for the Spotswood store and workshops, and £3,250 for the Newport signal shops, is despatched by special parcels coach from Spencer-street station. No less than £18,000 is required for the station and yard staffs at Flinders-street, the Jolimont workshops men, and the men at the motormen's depot. A similar amount is needed for the men at the car and wagon shops, the shelter sheds and the North Melbourne loco. depot. This last money, by the way, is despatched direct from Spencer-street by light engine.

Motor cars are used for the transport of paying officers and cash for the payment of the Newport power house staff's £3,250 share of the wages bill, and for the distribution of the £4,000 required for the extra gangs and others working in the suburban area yet at locations some distance from any railway station.

The salaries and wages of the staff at suburban stations are distributed by the respective stationmasters. The money for each station is made up in accordance with telegrams received a day or two beforehand and is placed in leather pay bags, one of which is allotted to each station and is plainly branded with that station's name. These bags are then placed in steel safes which are chained to hand trollies in the pay office, wheeled to the Spencer-street station and there placed in parcels vans and chained up.

Three Parcels Coaches

Three parcels coaches are in use for distributing this section of the pay cash, each coach being allotted to a definite run. The three paying officers selected for this work handle between them £27,000 each fortnight. The practice is for the parcels van to draw up directly opposite the door of the stationmaster's office where the bag is handed over and a receipt obtained. As a safeguard, the armed escort accompanying the pay coach covers the stationmaster's retreat until he has re-entered his office.

Throughout the head office and at all large workshops and depots, payments are made on the "tick" system. Where this system is in operation, signatures are not obtained for the pay as it is handed over, but payments are made only to men known personally to the paying officer, his assistant or an identifying officer. An interesting application of this system is the method employed at the Newport workshops and various other depots. This is known as the "tin" system.

Each man has a number allotted to him and his pay is placed in a tin with a corresponding number on it. A slip showing the pay due and any deductions such as superannuation or life insurance payments, and so on, is previously handed to the employee. When the paying commences, the foreman calls

out the men's names in the order they appear on the payroll. Each man, in turn, steps up to the pay window as his name is called, is identified by his foreman, announces his number, and is handed his tin by the paying officer. The assistant to the paying officer then ticks the payroll to show that the amount has been handed out.

By this means, the whole of the staff at Newport workshops is paid in less than 15 minutes, paying taking place at 17 windows simultaneously. Incidentally, it is a fundamental principle of paying that money shall not be paid unless the man claiming it is known personally

and the completed sheet is forwarded to the paymaster.

With all these ramifications in the distribution of the pay cash it is only natural that the precautions taken for its safety shall also be very comprehensive. The strongroom with its effective mechanical and electrical safeguards may in itself be considered impregnable. Then there is the additional precautions of visits by the armed watchman at regular intervals throughout the hours when the pay office staff is not on duty.

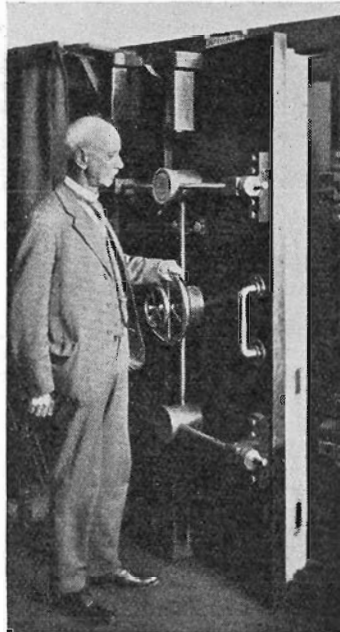
Within the strongroom, there is an imposing array of massive safes. In respect of this type of safe, it is claimed that the makers undertake to place £10,000 in a safe and any person who can open it within two hours can retain the money. Be this as it may—and it certainly indicates faith in their product—to the uninitiated, it is a clear case of "seeing is believing" for the mere appearance of the safes is enough to banish all hopes of obtaining easy money by this means.

Another impressive section of the strongroom is the small cabinet with rows of wicked-looking automatic pistols which are available for the use of paying officers when in charge of cash. And these paying officers know how to use the weapons. Regular practice ensures this and has, in fact, made them proficient gunmen. The same can be said of the escorts supplied by the special inquiry office whose men may be classified as experts in the use of firearms.

When They Go Shooting

Consequently, the bare announcement that "so and so has gone shooting" on a fine spring afternoon does not mean that he is spending his afternoon roaming around the country with a dog and a gun. A strict rule of the pay office is that no money shall leave the office unless under armed escort, the number of escorts, of course, varying with the amount of cash being handled. Nor is there any hard and fast rule in this connection. The question of escorts is constantly under review according to the number of hold-ups occurring from time to time, and to other circumstances which may make it desirable to increase the protection provided for men handling cash.

After the payrolls are brought back to the pay office, they are checked by the officer-in-charge to see that money is returned for all amounts that have not been paid out. With payments spread from one end of the State to the other, and with such large amounts being handled, it is only to be expected that occasional shortages will arise. As a result, the fact that it is very rarely that the amount to be written off for shortages exceeds £20 for the year, is a tribute to the efficiency of the system which has been developed and to the care exercised in the handling of the cash.



Paymaster Walter Jones photographed beside the tremendous door of the pay office strongroom

to the paying officer or is identified by a man known to the paying officer.

The payment of the country railwaymen is on a somewhat different basis. In each case, a cheque for the full amount requisitioned for is sent in a special value envelope to the stationmaster, depot foreman or works foreman, who pays it into his official disbursements account. A cheque is then drawn by him against this account and the money required is withdrawn, the total being divided into the various denominations of notes, silver and copper, to enable the payments to be made to each man without the difficulty and inconvenience of obtaining change.

The cash for out-stations is also despatched from the banking stations in cash bags, and a signature is obtained from every employee handling the money while it is in transit. In due course, each man obtains his pay and signs the payroll for its receipt,

Things We Are Talking About

FEBRUARY was a peak month in special school excursion traffic on the Victorian Railways. The number of special trains run from country districts to beach resorts and the Zoo during the 28-day month was a record. No fewer than 39 special trains were chartered, some being run from centres as far afield as Wedderburn, Ballan, Redesdale, Neerim, Tatura, Daylesford, Warragul and Traralgon. St. Kilda was the most popular picnicking spot, attracting nine fully-loaded specials, Royal Park, with eight, being a close second, and Mordialloc third with six. The 28th proved the busiest day, seven of the special excursions being conducted on that date alone. All told, the month's record represented an increase of nine specials over the figure for February last year and crowned some active salesmanship by enterprising station staffs, combined with patient canvassing work by a special officer (Mr. E. A. Rains) who went out to seek the traffic.

PICNICS AND SPECIAL TRAINS GALORE

TYPICAL of the tributes paid to the railway service which was provided for these special excursions are the following extract from a letter to the Chairman of Commissioners from Mr. E. A. Coyle, M.L.A. and secretary of the big Rushworth schools' excursion to St. Kilda: "Now that our annual excursion has been held, I desire to say how pleased we were with all the arrangements made for carrying out the trip, which was of a most successful nature. Everything possible was done for our pleasure and comfort . . ."

THANK YOU

IN this issue's double-spread of pictures will be found some pictures of the official opening of the Spencer-street bridge, another very substantial feather in the bridge-building cap of Mr. C. H. Perrin, Chief Engineer for Railway Construction. The work was carried through successfully under the supervision of railway engineers, and the cost totalled only £168,700, compared with the estimate of £200,000. Already 6,000 pedestrians are crossing the bridge daily, and the anticipated use by vehicular traffic is approximately 10,000 vehicles a day. The Minister for Public Works (Mr. Jones) assessed the economic saving to the community from the construction of the bridge at £200 a week. The bill authorising the work was passed late in 1927, but the agitation for the bridge goes right back to 1860.

AT LONG LAST

GROWING fast, Melbourne certainly needs additional facilities of the Spencer-street bridge description to help disentangle its traffic problems. The latest estimate by the Victorian Government Statist puts Greater Melbourne's population at approximately 1,018,200. The 1921 census was 782,979. A significant and welcome feature of the comparative sub-district figures is that the only suburbs to show a decrease are the cramped inner suburbs like Collingwood, Fitzroy and Richmond. On the other hand, outer suburbs have gone ahead with leaps and bounds. In eight years, Camberwell's population has jumped from 23,835 to 49,130, Caulfield's from 40,693 to 73,790 Oakleigh's from 6,076 to 11,200, Preston's from 9,670 to 29,150 and Sandringham's from 11,316 to 23,800.

MELBOURNE GROWS FAST

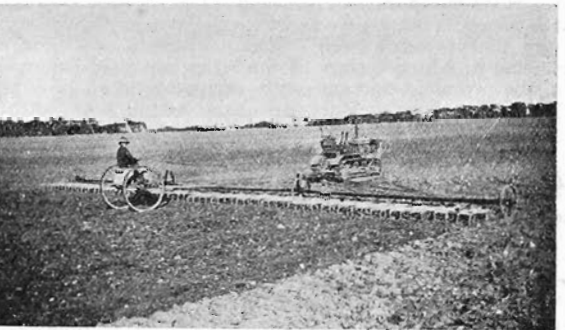
THERE is real interest for Victorians in the news which continues to come to hand from America, indicating that it is now becoming the settled policy in that country to protect the railways from undue competition when efficient service is already being given by the railways on their own lines or by means of road motor services controlled by them. Thus, the Board of Public Utility Commissioners recently refused an application from a private operator for authority to run motor coaches between Camden and Atlantic City in New Jersey. The proposed service would have competed with the two railway companies whose lines run between the places named, and between which run the fastest trains in the United States. The railways concerned had already suffered heavy losses of traffic owing to road competition between Philadelphia and the New Jersey coast. Lately, too, a far-reaching

THE LOGICAL WAY

decision relating to preference to existing carriers, which was pronounced by the courts in West Virginia, has been allowed to stand by the United States Supreme Court. The case arose as a consequence of subsidiary companies of two railways being given permission to operate motor coach service in preference to other private applicants. The judgment included the following declaration:—

"The public policy of this State as expressed in legislative enactments, requires that public utilities be given reasonable protection from detrimental competition. Wherefore, when an existing carrier is one of several applicants for a permit to operate motor buses over a highway between points served by the railroad of the carrier, and it is fully qualified to render the additional service proposed, the State Road Commission should ordinarily give the preference to the carrier."

TALKING of road competition, the Chairman of Railways Commissioners has recently put the railway case simply and clearly in a direct letter to shire councils and rural agricultural societies in different parts of Victoria. He points out that the railway opposition to road motor transport is directed only against competitive services which are serving no purpose that could not equally well be served by the railways, which are just as indispensable today as ever they were. It was difficult to see how this competitive road transport—which placed an added burden for road maintenance on taxpayers who were also required to meet rail deficits—could be described in any way as a developmental service. The road motors were carrying selected general merchandise at a rate which frequently



With this remarkable set of harrows (60 feet long), Mr. W. A. Heinrich, of South Kilkerran, Yorke Peninsula (S.A.) recently harrowed 335 acres in 15 hours.

THE CASE FOR THE RAILROAD

purpose that could not equally well be served by the railways, which are just as indispensable today as ever they were. It was difficult to see how this competitive road transport—which placed an added burden for road maintenance on taxpayers who were also required to meet rail deficits—could be described in any way as a developmental service. The road motors were carrying selected general merchandise at a rate which frequently

was somewhat lower than the rail rate for that freight, but they had no rates comparable with the rail charges for produce like fertilisers, wheat, flour, bran, pollard and the like, on which the prosperity of country districts and of the State is largely dependent.

CONTINUING, Mr. Clapp says succinctly: "On the contrary, competitive road transport is destructive to the business of local carriers, it tends to reduce the status of the railway station and to bring about a reduction of the staff employed there. This means fewer households and less business in the town. One outstanding fact remains. If the railways lose the higher rated goods, the charges must be adjusted over those commodities which are now carried at the lowest rates, or the deficiency must be made good by increased taxation. I trust you will agree with me that it is not commonsense, that economically it is without justification to encourage the depreciation of the railways—which are still the community's greatest asset—and with it the depreciation of your town and the State in order that a small percentage of the community should benefit by the operations of the competitive services. My colleagues and I feel strongly that a serious position is developing from which, unless wise action is taken very shortly, the State will have difficulty in extricating itself." One country producer at a meeting at which a copy of the letter was read summed up the prevalent opinion pretty accurately when he said, "Mr. Clapp's arguments are unanswerable."

A WORKSHOPS railwayman raises an interesting point in a recent letter. "We were yarning as usual at lunch-time," he says, "and talk drifted round to the Buy-Australian-Made campaign. Then someone switched the subject on to what he called 'the logical extension of the Buy-Australian-Made idea for railwaymen.' 'If Australians generally ought to buy Australian goods,' was his line of argument, 'railwaymen as railwaymen ought to buy railway goods.' A few of us didn't get what he was driving at at first, but he rammed his point home by a couple of questions: 'Do we all always travel by rail when off the job, shift our furniture by rail when moving, eat at railway refreshment rooms when away from home, and buy our newspapers, magazines, smokes, raisin bread and fruit from railway stalls? If we don't, are we as railwaymen playing the game by not patronising our own business?' I'd never heard the subject ventilated in as many direct words before, and I thought other railwaymen might be interested if I passed it on."

MR. J. C. M. ROLLAND, the tall, quiet and unassuming railway enthusiast who lives at Willaura and regularly donates a prize to the Institute Council for the annual educational examinations, must surely have the widest knowledge of world railway practice of any non-railwayman in Australia—and of plenty of railwaymen too. Railways are his hobby and he has correspondents in every corner of the globe with whom he exchanges topical notes and photographs of happenings—important and not so important—in the big world of railways. Every three months or so, he issues a sheaf of railway notes which he circulates among some 25 Australian friends. The ground which he covers in this railway reviewette and the variety of information which he packs into the crisply written bulletin are little short of amazing. In his latest issue, he discusses *inter alia*, such varied Australian railway subjects as a recent record run by 9.48 A2 on the "up" Overland, the log of the first run of the N.S.W. Newcastle Commercial Limited, the expected appearance of two or three new MS Garratts in Westralia, the names of South Australia's christened Mountain type locos. and the location of numbers on Tasmanian engines.

RAILWAY travel must have been a hazardous proceeding in the early days in England, judging by this interesting if indignant letter, signed "M.A.," which appeared in the *Times* of December 29, 1852. A copy of the letter came into our hands the other day:

78-YEAR-OLD RAILWAY COMPLAINT

I arrived at the Euston Square station at 10 minutes before 12 on the day before Christmas Day for the purpose of proceeding to Birkenhead by the midday train. We started shortly after half-past 12. There were no symptoms of hurry on the part of the officials of any description. We went leisurely on our way to Birmingham, from which place we ought to have made a fresh start at 5 p.m., our train being due there at half-past 4. We not only arrived there more than an hour after that time, but were quietly detained in our carriages for another half-hour whilst "waiting for an engine." We finally started from Birmingham at 20 minutes to 7 by a train which stopped at every station. Doubtless we should have arrived at our destination in time for dinner on Christmas Day, and no sooner, but when within three miles of Stafford the proceedings were altogether suspended by the trifling, but I hardly think unexpected, circumstance of our being run into by the express train. I suppose passengers, like eels, are getting used to it, for no lives were lost, but the disfigurement of faces was lamentable to behold. For my own part, I received a *quid pro quo* in being safely deposited at Birkenhead at the early hour of one in the morning, only 13 hours after leaving Euston Square. A sullen silence was maintained by all the officials connected with the train, and not until our arrival at our journey's end could we find out even the nature of the accident.

Certainly an eventful Christmas Eve for "M.A." and his luckless fellow-travellers.

Getting the Business—1.

A LITTLE station in South-Western Victoria, with regular traffic not very considerable and district prospects hardly suggestive of any possible increase in railway business

A stationmaster with a well-developed bump of resource and more than his fair share of enterprise

This is a story of the difference which that resource and enterprise made to railway business at that little station.

The S.M. sowed the idea of a district schools' excursion to the seaside. The idea bore fruit immediately. A special train was chartered and 635 passengers helped the Railways Department to £176 revenue. Incidentally, they enjoyed their outing so much that they decided to have a similar one this year when two Special trains will probably be required.

Then, at the conclusion of the football season, the S.M. suggested to the club committee that the local team deserved a trip to the city to see the league finals. "Good idea," said the committee and 25 railway tickets were duly purchased for the players, representing another £16 revenue

Fifty of those stationmasters mean £10,000-worth of new business a year.

—R.H.J.

NORMAN W. DE POMEROY
5 DEER ST.



By CLIFFORD HERBERT



IT'S a pretty safe bet that should you visit him, the manager of the Fairfield mills will quietly but insistently relieve you of your hat and openly scrutinize the inside leather band. He's your friend if a local trademark catches his eye, but

he'll whistle softly at any imported stamp. Thirty-seven years in the trade have made him connoisseur of head coverings; but when local rabbit fur is sent overseas to be returned as hats, his judgment concerns the policy more than the article. He'll lack no ardor though, in his comparison between Australian and imported felts.

Fur-Shaving Machine

When you're fully convinced, and you can't fail to be, he'll take you into the fur room where apprentices sort the skins of many thousand rabbits, count them and spread them in rows across benches. You'll see those same skins pushed into a machine whose knife shaves the fur from the skin in much the same manner as a keen razor eases down a lathered face. You'll be interested in heaps of long dry grass issuing from this whirling machinery, and you will be astounded when told that it's the shaved rabbit skin sliced into fine shreds. This by-product, they'll explain, is purchased by the manufacturers of gelatine and jelly foods.

Rabbit tails, tufts of white fluff flecked with black and grey, eventually

CAN a man raise his own hat?

It seems logical to suppose that he can, but the United Felt Hat Co., Ltd., without inferring a lack of ability, point out that their mills are responsible for raising the bulk of Australian headgear, including, incidentally, uniform hats for 1,000 Victorian railwaymen yearly.

This article describes how they do it.

bedeck human heads. Seemingly this is a ludicrous decoration, but then they say they have an arrangement with Mr. Bunny whereby his tail is merged with the body fur to make your hat. These tails are treated in the Sydney factory where a special device removes the bone and offers the pure fur to the operator.

Most likely you won't know that there's a fair proportion of hair in rabbit fur; or, if you do know it, you couldn't be expected to know that it is of no use to the hat mills. There is a ready market, however, for hair at the paper mills where it is absorbed with other constituents in the manufacture of paper.

Blowing the Fur

You'll follow the long boxes of fur to the blowers where currents of air swirl the light fur through elongated compartments. The heavy hair, by virtue of its weight, drops and is blown through an outlet pipe. The pure fur, freed from foreign matter, is shot into the containers and carted to the forming machine.

Literally lighter than the proverbial feather, handfuls of fur are stuffed into the receiver. Blown through to a huge copper device, calling to mind a gigantic handlamp with its gleaming glass face, the fur is next drawn by suction and falls in a miniature snow-storm.

Through the glass door you'll see a revolving copper cone on which the fur settles. Gradually a fairly thick layer coats the cone, and when a shower of boiling water spurts over the fur, the resultant steam binds the particles into a rough felt. Removing the cone, the operator will peel the "hood" or fur cone sopping wet and lay it folded on the table.

"That," he tells you, "is one hat." The size of the hood at this initial stage is roughly two feet high and two feet across the base—rather a large hat.

Getting More Like Hats

Hardening advances the hood to felt. Swirled through water troughs and bundled between rollers, squeezing and champing them, the hats are still more consolidated and reduced in size.

It will surprise you when you see a man with a long pole slowly turning the hoods in a great vat of dye. With an oarsman's stroke, he keeps the hoods turning as he moves around. This hand method is said to be productive of better results than machinery. The dyeing shrinks the hood still further and, in more baths of cold water, they are pulled, twisted, wrung, rolled, bumped and screwed until they emerge reduced to approximately their final sizes.

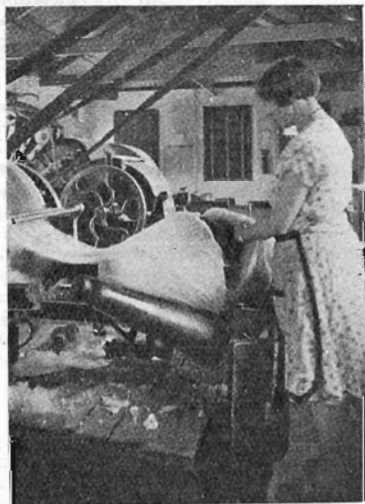
Smoothing the dried hood with sandpaper may seem peculiar until

you realise that it's about the only satisfactory thing that can be used. Hoods revolving on blocks are lightly brushed with coarse sandpaper which removes the rough surface.

You'll see these same hats pulled tightly over wooden blocks and stretched down. Strong, steely wrists exert pressure, veins stand out blue on bronzed muscular arms, biceps ripple, the chest relaxes slightly then expands and before your very eyes the crown of the hat is formed. Machinery blocks other types of hats.

There'll be a fascination in watching the brimming. Brass clamps encircle the hat, catch the roughly formed brim and, when the pedal is released, clutch it tightly and draw the brim firmly outwards to shape. You will see the hat pressed and then polished. A man armed with flint paper—similar to sandpaper but with flint particles so fine as to be almost invisible—sits before a revolving hat. To run his practised hand over the fur felt and render it velvet soft is the work of a moment.

Naturally you will expect to see rather a complicated plant curling and framing the brim, and you can't be blamed for experiencing a twinge of disappointment when a man with a small flat iron—smaller again than the



Making a wool felt hat. The wool is peeled off the bobbin to be shrunk and dyed

standard household article—does the whole job with consummate ease. He merely runs his iron over a piece of waxed cord laid around the edge of the brim, which then curls to shape. The man is an expert, but you don't appreciate the artistic dexterity of his touch until you see that iron running around the hat, leaving fashion's latest curl in its wake.

The mills will explain the trimming of the edges by calling it "rounding," and the "trimmings" as they know it,



At the outset each hat is the size of one of these cones, around which the fur settles. The shapeless mass on the bench represents four strippings of the cone which will eventually become four fur felt hats.

means the addition of the bindings, bands and linings. In a small room a printing staff stamp the "Fayrefield" trademark on the silk linings. They stamp, too, the quality of the hat and the agent's name on the leather bands in neat gold letters.

Rolls of silk line the passage temporarily, blue silk, red silk, pink silk, white silk and green silk, first quality material, its surface shimmering in the light.

You'll step into a well-lit room where the trimming adds detail to the headgear. Deft feminine hands neatly stitch the leather bands, daintily fit the linings and sew them in, skilfully secure the outside silk band, and exactly bind the edges of the brim. Those fingers weave fantastic designs around their work. They seem never to pause. This finishing momentarily takes the gloss from the hat, but this is quickly revived with a Turkish bath, which, of course, means running it through a succession of steams.

Glossing It Over

Velouring, or brushing lightly, brings out that smooth glossy surface which is so prominent a feature of Fayrefield hats. Above the storeroom, where the equivalent of £16,000 lies in small brown-paper parcels of first quality fur, the packing staff will extol the quality of their headgear. Gently they manoeuvre tissue paper cones over the crowns and fit a half-dozen, one inside the other, in oval boxes. Stacked to the ceiling, boxes labelled with the names of leading Melbourne and interstate firms will give you some idea of the increasing demand for locally made hats.

Possibly you will see portion of the yearly contract to supply the Victorian Railways Commissioners with 1,000 for various employees . . . , navy-blue hats with high crowns and broad

brims and the grade of the wearer worked in white cotton on the front of the band.

Quite as interesting a procedure is adopted at the Abbotsford mills, where the cheaper wool felt is manufactured. Bales of wool are scoured and carbonised, graded, blended, washed, bathed and neutralised before being teased and so made ready for the carding machine.

You will see the girl feed the machine with fleecy white wool which emerges as a sheet of finely drawn wool, and is wound on a huge bobbin. About six ounces of wool is sufficient, and when wound about the bobbin, is cut in halves with a pair of shears. Each cone so formed is a hood to be subjected to the same treatment almost as that accorded fur felt hats.

Ladies' hats predominate at Abbotsford. The manager will quote his weekly output—an average of 1,500 dozen in which he supplies blues in 14 shapes, greens in eight, browns in 10, fawns in 17 and lemons in five different shapes. Smart berets, turbans, broad brimmed hats and toques take shape under keen razor-edged blades. These new models endeavor to appease the feminine desire—an eternal longing for something different. Hats in all colors, piled in high columns, await the milliner's artistic licence when a triangle is snipped from their brims and clapped on the crown, or a half-moon is sliced from one to be stitched rakishly on another.

Fayrefield and Denton models in men's hats stock the showcases. Models of style . . . elegant headcoverings . . . Australian hats.

When you leave the precincts of the United Felt Hats, Pty., Ltd., you will carry with you the knowledge that it takes 600 fellow Australians to raise your hat.

LINES from Other LINES

AMERICAN JURY ESTABLISHES PRECEDENT IN REMARKABLE RAIL SMASH CLAIM

A MOST remarkable thing has happened in a Georgia court. A jury in the city court of Decatur, that state, has given a verdict for £2,700 damages to the widow of a railway engine-driver who was killed in a grade crossing accident, assessing the damages against the owner of an oil truck which collided with the train.

Suits and verdicts against railroad companies growing out of grade crossing accidents have been numerous; but no other case can be recalled in which a railroad or a railroad employee has been given damages against the driver or owner of a vehicle participating in the accident.

In the Georgia case, Driver McLeskey was operating a seaboard passenger train, which collided with an oil truck on a crossing. The locomotive and several of the cars were derailed and McLeskey was killed.

The Turning of the Worm

His widow instituted suit against the owner of the truck, alleging that the negligence of the truck driver caused the wreck and death of her husband, with the successful result mentioned. The railroad company is also suing the truck owner, but this suit has not been heard.

This is a case of the worm turning—if a railroad may be referred to as a worm. Investigation of grade crossing accidents will disclose that, in most cases, they are the fault of the vehicle driver, who does not exercise due caution in approaching a railroad track. In this State, the law requires that all vehicles come to a full stop at all railroad crossings; but this, like many other laws, is ignored in most instances.

The Georgia jury has established what might prove to be a precedent, in holding that the car owner and driver must be held to as full accountability for such accidents as the railroad company or the locomotive driver.

Cuban railroad employees' contribution to their retirement fund has been increased from three per cent. of their wages to five per cent., and that of the railroad companies from one per cent. of their pay rolls to two per cent.



A typical Canadian Pacific freight train passing around Mt. Stephen (B.C.). On the left is the Kicking Horse river.

HE'S STILL SCARED

AT Burlington, on the Pennsylvania railroad, the tracks of the railroad run parallel with Broadstreet, the main thoroughfare. On a

down the tracks, trying to keep ahead of the imaginary train. Saturday night shoppers rubbed their eyes and stared at the machine, bumping and rumbling first over the sleepers, then on the rails.

Somebody called the Trenton division train despatchers. They replied that the motorist had a "clear block," but thought it might be a good idea to get him on a more even keel. Two tyres were punctured and bystanders helped the perspiring car owner lift his machine from the railroad's right-of-way.

"Some night!" he said huskily, limping off into the gloom, after inquiring the way to the nearest repair station.

PAINTING OUT THE HEAT

LIKE water off a duck's back! That's the way the sun's rays will roll from the latest type of railroad lounge cars, officials of the Southern Pacific declared in placing the first of the new coaches in operation recently.

Aluminium paint and anti-actinic window glass have been used in the construction of the cars to keep their interiors cool during the hottest stretches of summer travel over the desert.

F. S. McGinnis, passenger traffic manager for Southern Pacific, says that recent tests have proved that aluminium paint keeps out from 20 to 25 per cent. of the sun's heat.

"Our new lounge cars," he says, "have three coats of this paint, one inside and another outside the inner metal sheet, and one coat for an exterior finish. Anti-actinic glass has not been used by American railways, but has been employed successfully on trains in tropical India and Africa. It cuts off about 80 per cent. of the sun's heat, but transmits about 65 per cent. of the light."

THIS PASSENGER WAS AN UNUSUAL ONE!

THE following remarkable railway incident, which is solemnly declared to be "the absolute, unadulterated truth," is described at first-hand by a correspondent in a recent issue of the English "T.O.T. Staff Magazine."

He was impressed by the exceedingly polite manner in which a passenger holding a third-class ticket in a first-class carriage at Victoria station paid excess fare to a bewildered-looking ticket inspector. The spectator was sufficiently interested to follow the inspector when he left the carriage at St. James's Park and to seek further information regarding the incident.

"Most remarkable thing that ever happened to me," said the inspector. "As I was standing on the platform at Victoria station with my back to the waiting train, that passenger thrust his head out of the window and called me over, politely inviting me to charge him excess fare as he was riding first-class on a third-class ticket."

"Needless to say," added the inspector, "I hastened to oblige him."

recent Saturday night, Russell B. Evans, Trenton motorist, made a wrong turn at Broad and High-streets, landing, car and all, on the tracks. Evans thought he heard the screech of a train whistle, and jamming his foot on the accelerator, he started the auto

Curiosities of Dining Car Liquor Licensing

CURIOSITIES of the law concerning the sale of intoxicating liquor on English restaurant cars were referred to by C. E. Fitzroy, solicitor to the Board of Customs and Excise, in his evidence before the Royal Commission on Licensing recently. Mr. Fitzroy explained that the only part of a train licensed for the sale of liquor was the restaurant car.

Mr. Sherwell (a member of the Commission): Suppose liquor is supplied in a carriage instead of in the restaurant car. Would that be an offence? Yes; liquor must be supplied only in the restaurant cars.

What about permitted hours?—I think permitted hours apply.

But not in practice?—No; but I think it would be so in law.

RAILWAY TO THE RED SEA

A NEW broad-gauge railway from Luxor to the Red Sea, via Kift and Kosseir, which will link Upper Egypt conveniently with the Red Sea, is being constructed by the Egyptian State Railways. As a result of this year's abnormal Nile floods, whole tracts of country in the vicinity of the new track are flooded and operations are suspended, the engineers being temporarily transferred to the new Cairo-Suez Railway in Lower Egypt.

It is estimated that the construction of the Red Sea line, a stretch of some 125 miles, across barren desert and mountains will require a further two years before completion.

"IN THE MIDST OF LIFE"

A RAILROADER seldom leaves the service for any other profession. He may retire when his days of usefulness are over, but he remains a railroader until the end. And even in death he hates to sever connections with railroading. W. C. Barnhardt, manager of a cemetery in Little Rock, Ark., can attest to that. Some time ago, he noticed that when railroaders bought lots in the cemetery, they almost invariably chose sites on the eastern slope. None of them explained this choice, but it was easy to deduce the reason. The eastern slope overlooks the tracks of the Missouri Pacific and the Chicago, Rock Island and Pacific Railroads. The eastern slope has now been set aside for exclusive sale to railroaders, and a monument has been erected, bearing this inscription:

"To those sturdy artisans who have given of their brawn and brain to bring to our civilization the blessings of modern transportation—the railway men—this memorial is affectionately dedicated."

Has there been any prosecution for selling liquor in a carriage outside the restaurant car, which is, of course, a universal practice?—I do not think so.

Mr. Fitzroy said that, when an offence against the licensing laws occurred on a train during its journey, the company concerned would be charged with having committed the offence at the terminus, although it might have occurred actually while the train was travelling through some small parish miles away from the terminus.

The Chairman: Would you be required to prove that the offence occurred at any particular place?—No; only that an offence took place while the train was on its journey, and that the train is "now found" at its London terminus.



Flood-lit at night, the new St. James's Park Station which is the headquarters of the London Underground Railway, is now one of the sights of the metropolis.

FINDING A NAME FOR A TRAIN

RECENTLY the New York, New Haven and Hartford Railroad announced that it intended running a new limited day train in each direction between Boston and New York. The administration invited employees to submit proposed names for the train.

The following is a selection of some of the suggested titles:

The Paradise Special, Dusky Flier, Evening Star, Black Hawk, Nutmeg State, Humming Bird, Aristocrat, Golden Eagle, Rainbow, Rocket, Spitfire, Lone Star, Peacock De Luxe, Catapult, Dragon, Spirit of '76, Headliner, Yankee Flyer and the Silver Shaft.

World's Largest Transformers

STRENGTHENING of bridges and the lowering of railroad tracks eighteen inches at one point to permit clearance, were necessary to transport the four largest electric power transformers ever built from the Westinghouse Electric and Manufacturing plant at Sharon, Pa., to Roseland, N.J., near Newark.

The world's largest transformers are to be used to transfer power to the Pennsylvania Power and Light Company's plant at Bushkill, Pa., to the Public Service and Gas Company's system in New Jersey. Fifty-six freight cars were necessary to carry the transformers and parts over the Erie railroad.

An army of men almost equal to that required to move a three-ring circus was required to load and prepare the huge transformers for shipment. Each transformer is 35 feet high, weighs approximately 300 tons, and requires a floor space 22 by 23 feet. More than three tank cars of oil, or 32,000 gallons, will be required to fill each transformer.

570,000 Volt Test!

The transformers are rated at 220,000 volts, but were tested at 570,000 volts, the highest test voltage ever applied to a power transformer. The core and coils in each transformer contain sixty-three tons of laminations and 15 tons of copper windings. There are more than 32 miles of wire in the copper windings in each transformer.

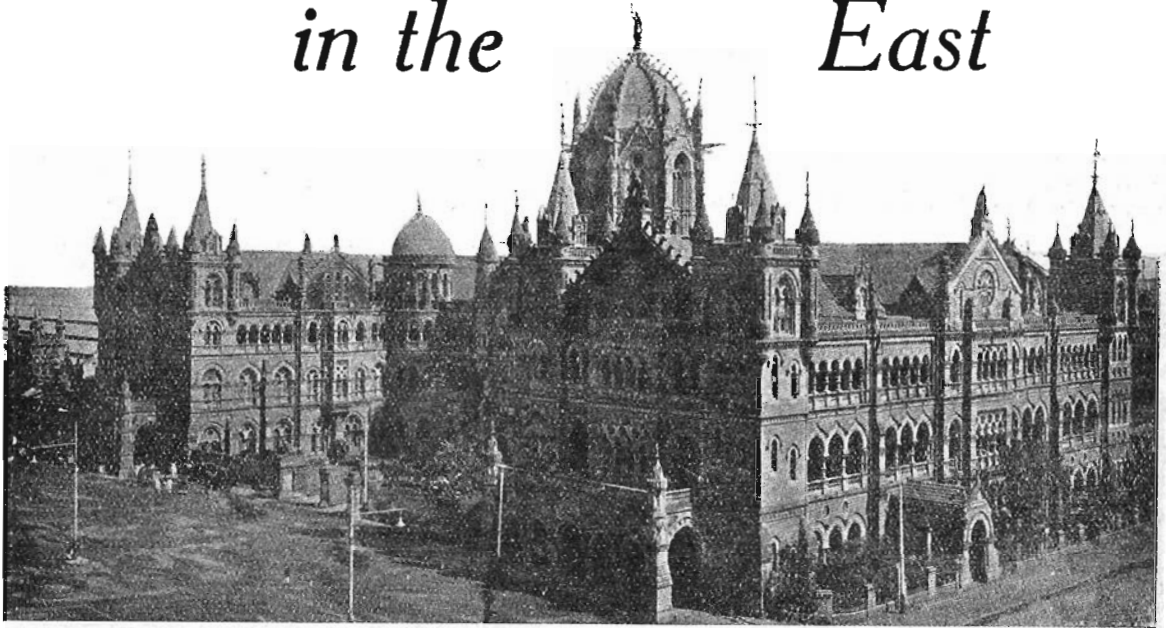
The weight of each transformer, as prepared for shipment, was 270,000 pounds, one of the heaviest individual units ever shipped on single railroad cars. It was necessary to utilize a special depressed type of equipment to permit clearance under vehicular and cross line bridges along the right of way.

In addition to the four special depressed cars, 18 well type cars, 14 gondolas, six ordinary flats and 14 oil tank cars were required to handle the consignment, the hauling of which was done by one of the Erie's new heavy traffic locomotives.

Each transformer was packed in a specially designed shipping tank. In order to meet the loading requirements of the Erie railroad, the oil was drained from the transformers and the shipping tanks were filled with dry nitrogen gas to preserve the insulating qualities of the coils in transit.

The huge transformers will be located at the north-eastern end of the 220,000 volt system which joins the systems of the Pennsylvania Power and Light, the Philadelphia Electric and the Public Service Electric and Gas Companies.

Pen Pictures of Railway Travel in the East



The palatial headquarters of the Great Indian Peninsula Railway at Victoria Terminus, Bombay. The administrative offices are in the foreground and the station buildings on the left.

A SPECIAL Commissioner of the "Railway Gazette" recently made an extensive tour of the railway systems of the Far East, and in this article he outlines interestingly some of his general impressions of rail travel in the Orient.

The two striking pictures which accompany this article are reproduced from the same famous English railway magazine.

SURPRISES naturally fall to the lot of any traveller who, for the first time, makes an extended railway tour in the East, yet the prevailing impression one obtains is the general approximation to railway conditions in western lands. This is, however, not to suggest that there is no truth in the old saying "East is East and West is West," because, obviously, there are great differences in the general requirements, in the character of the demand for railway transport and in the methods of supply.

Problems of Caste and Religion

First and foremost, there are the difficulties arising out of caste prejudices and hoary superstitions. These lead to many curious arrangements. They compel the railway administrations, in pursuance of their obligations to the travelling public, to provide three classes of refreshment room facilities at the principal stations, different booking offices and separate accommodation in other ways; and impel them to model their track and terminal facilities, in defiance of economical planning, but with due respect to sacred places.

Many routes have been diverted from

their proper alignment owing to the need for avoiding offence to religious susceptibilities, and in all parts of India yards are to be seen curiously shaped to avoid interference with one or other type of temple. The Maradana goods station in Colombo, Ceylon, has actually a temple and a small town in the middle of the yard. And it is credibly stated that the early Chinese railways were laid with many curves to impede the passage of evil spirits which always travel in a straight line.

The railway stations in the East are unusual to Western eyes. In many cases, as at Bombay, Calcutta, Madras and Kuala Lumpur, the station buildings are magnificent architectural piles, while no railway company in England can boast of such imposing suites of headquarters offices as the majority of Indian rail administrations. These are all airy and spacious, designed with special reference to the climatic conditions, and equipped throughout with electric fans, which are also to be found on the platforms of many stations.

Another noticeable feature is the provision at a large number of stations of special accommodation for the various classes of third-class passengers,

while it is the general rule at large stations to provide separate booking offices and separate entrances and exits for upper class and other passengers.

The Indians love to travel, and time seems no object. They arrive at the stations in crowds and philosophically wait for hours, never seeming to mind what, to the European, would be acute discomfort. It is a problem how best to educate them in the duties of travellers. The railway administrations are doing all that is possible, but it is slow work.

Enigma of 3rd Class Passenger

Then there is the traffic problem of the third-class passenger. He truly is an enigma. His psychology, says a writer in the *Indian State Railways Magazine*, is full of peculiarities. Peasants or workmen, irrespective of caste or creed, are ordinarily staid and even lethargic people, and the women share this characteristic in full measure. They have well earned for the East the epithet of leisurely. They cannot be hurried. What other minor causes cannot achieve, however, is left for a railway journey to produce.

The vision of a train seems to

epitomise the clash of two conflicting world traditions—the progressiveness of the West and the somnolence of the East. Upon their minds it produces the effects of a miniature brain storm. Aged men and frail women, robust youths and demure maidens alike become the prey of the most panicky of emotions from the moment they enter the waiting hall at their starting point until they are well clear of the ticket-checker at their destination. The interim to them is like a dream. Where there is heavy traffic they are like individuals—or, worse still, obstinately

sleep thereon; the groups of squatting natives, of both sexes, clustered round small fires; the heterogeneous mass of baggage of all descriptions which the Indians persist in carrying with them; the cries of vendors of all kinds of toys, foodstuffs, and the like; and, at some places, the swarms of monkeys which cluster on the station roof and boundary walls and invade each train in quest of food.

Observations of the people of the country are especially interesting. See the workmen engaged on building construction, for example. They are all

arm. Women are very largely employed for portage work, as is more or less usual throughout the East.

Railway travel itself is generally comfortable, though the Englishman sighs for the corridor train, and well-equipped sleeping-berth compartment. These are obtainable in Ceylon, Siam and Malaya, but are only provided on a few *de luxe* trains in India, where the ordinary trains provide berths at no extra charge, but the passenger has to provide his own bedding.

Most of the long-distance trains now include dining cars, which are



A comfortably filled third class carriage on the Madras and South Mahratta railway. recumbent passengers is of particular interest.

The luggage-rack accommodation for

linked parties—caught in a human whirlwind.

They are capable of any folly when these tempests arise. Farmers who would disdain to pursue a wandering ox will, in a frenzy, hurl themselves at a half-open doorway in a suicidal effort to board a moving train. Large parties from villages which ordinarily harbor three or four distinct and even hostile groups will force their way into an already full carriage; neither threats nor cajolery will induce them to stir, on the plea that they must not be separated. It is all very strange and perplexing, even to the railway staff who have become inured to their ways.

Many and varied were the station scenes at which we were surprised, more especially the casual way in which the Indians will stretch out a thin mat on the platform, and promptly go to

over the job like a swarm of flies, and get themselves into most unusual positions, as we saw for ourselves when inspecting the progress of the new Ratmalana shops in Ceylon. See them in the works squatting like huge birds as they proceed with their appointed tasks. Note also the bare-footed joiners using feet as well as hands in their occupation. Take careful notice of the station porters—the baggage coolies who, in their own good time, will remove one's belongings by head carriage.

Using Their Heads

In India the head is used more than the hands—for transport—and it is quite a customary sight to see a line of women engaged on railway construction work, each bearing a heavy load of earth on the head, and usually carrying back the empty container under the

entered and left at convenient stations but, these apart, halts for meals are made at suitable intervals.

As India develops by progressive stages to still higher standards, it is unquestionable that she will fall more into line with the countries of the West in regard to travel amenities, and the education of the public for the common good of both those who provide and those who purchase railway transport in that vast and thickly populated country.

The Chinese Ministry of Railways has formulated regulations regarding the sending of students to work on various railways in America for periods of two years, so as to acquire practical experience in railway administration.

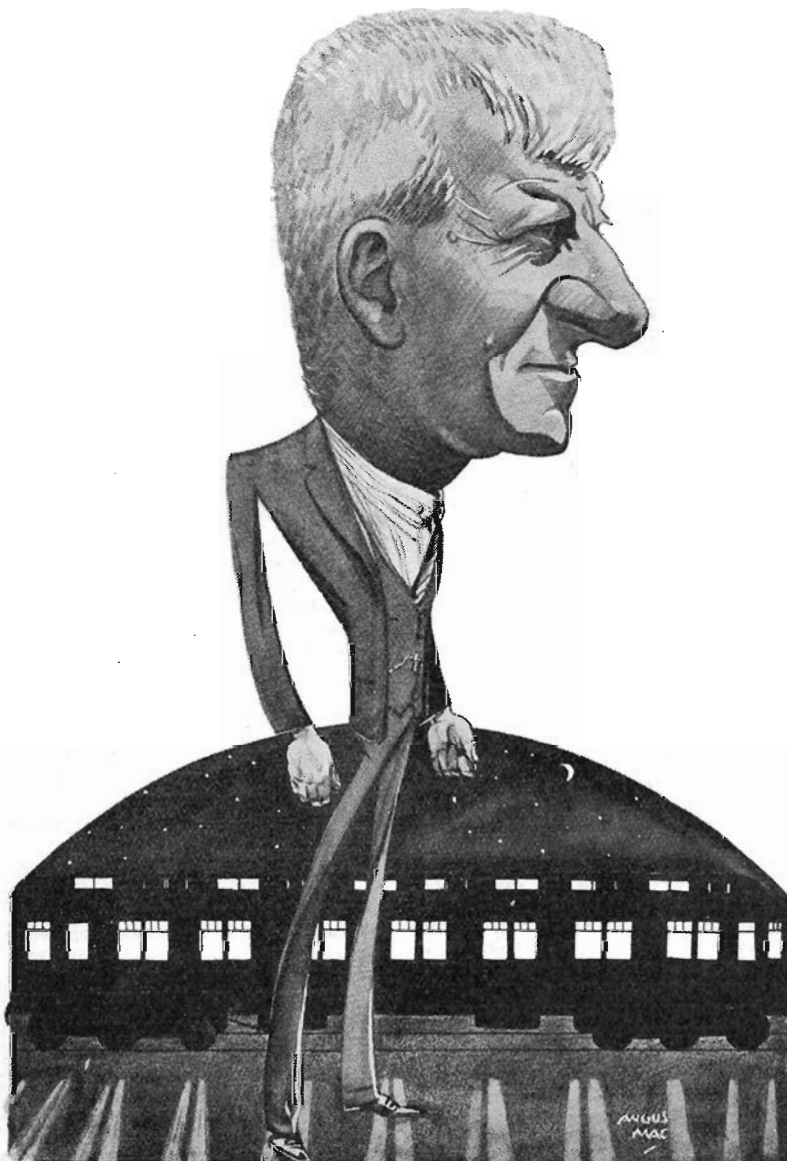
Representative Railroaders

No. 30

Train Lighting Inspector W. A. CHIPPER

Caricature by ANGUS MAC

By R. H. JUNIOR



ONE of these days some eminent bald-headed psychologist with sufficient leisure to pursue his speculations (the present writer has his hands full at the moment with an embryonic fowl-house and arrears of white-washing and hedge-clipping) will investigate the basis of the popular obsession that he-men are essentially a product of the West.

Why does the traveller have to follow the setting sun to leave the effeminate languor of the Orient behind him? Why do two-fisted, bull-necked, red-coruspled gunmen invariably emerge from the western corners of Uncle Sam Land, never from the east? Why do Australians in the eastern States always visualise Westralia as a background of sand, goldfields, pearly cutters and broad wheatlands set against a commanding figure in a sombrero, leggings, rolled-up sleeves and No. 12 hobnails?

Which does not mean that William A. Chipper—whose firm-footed entry is presaged by this scholarly introduction—has a sartorial taste which runs to eccentric hats, leather covering for the lower limbs or an outside in footwear. But certainly here is a Westerner who typifies the spirit of the West. A big man, vigorous and active, with aggressively bristling hair, a hearty voice and a genial smile. A handy man to quell a riot, to subdue Malays running amok, to halt bolting horses or to chop a year's supply of firewood before breakfast with a blunt axe.

He was born at Perth, 45 years ago next month. (*Apropos*, be careful not to skip this article's concluding paragraph). His family was one of Westralia's pioneering groups: his grandfather was the capital's first constable, his uncle the trail-blazer of mail coach communication between Perth and Albany. He was educated in South Australia and returned to the West to enter his home-State's railway service as a Traffic-branch cadet in 1901.

Breaking loose into the workshop,

he swept through the trials and tribulations of apprenticeship and shouldered his way into an electrical fitter's duties. It was at Midland Junction, incidentally, that he had his first experience with the installation of brighter lights in railway carriages.

There was a three-month interlude to his railway service in 1907. He tried his luck as second refrigerator engineer or something in a coastal steamer. The interlude was precisely three months too long.

The roaring billows' loss was the South Australian railways' gain, for Bill Chipper immediately crossed the border of his home-State to become an electrical fitter at Terowie. South Australia was then beginning (1908) to equip its railway stock with globes, switches, dynamos, accumulators and the other paraphernalia of electrical illumination, and Bill Chipper was in

the thick of the work from the jump-off.

He was the Department's foreman of car lighting in 1915, he established a train lighting plant at Peterborough and a maintenance plant in Adelaide and came to Victoria as Train Lighting Inspector in 1922.

Actually, Engineer Jim O'Connell switched on the first electric light in a Victorian railway carriage. Bill Chipper had made his original contact with Victorian train lighting when maintaining in South Australia, for the forerunner of electrically lighted trains in Victoria was the interstate express between Melbourne and Adelaide. Then Chipper came east to exchange his South Australian responsibilities for Victorian responsibilities.

He had a staff of one when he started. Today there are 63 railwaymen with headquarters at his Dudley-street train

lighting depot. He has electrically equipped all main line and branch line stock, with the exception of a handful of APL and BPL cars, and so far his programme has embraced 548 cars and vans and 69 locomotives.

Altogether, during his association with railway electric lighting in three States, he must have equipped easily 1,500 cars. . . .

On reflection, it would appear that the Perth municipal authorities were certainly gifted with a surprising measure of intelligent anticipation when they were preparing for the electric lighting of the western capital, two score years ago. For, with an eye for the appropriate, they erected the first municipal power house and electric lighting plant on a plot of land slap up against the very building in which young Chipper was born.

The Better Farming Train

— As I Saw It

By Cecile Greil, M.D.

THESE impressions of the work of the Better Farming Train have been written for the Victorian Railways Magazine by Dr. Cecile Greil, a well-known New York woman doctor and neurologist, who studied aspects of psycho-analysis under Freud himself. She is attached to the American Federal Department of Mental Hygiene and is a regular contributor to educational journals throughout the United States.

Dr. Greil pays a remarkable tribute to the efficacy of the national work which is being performed by the Victorian Better Farming Train.

WHEN I was offered facilities to see the work of The Victorian Better Farming Train in South Australia, I was much pleased and appreciative, and put that pleasure into words. On my return to Melbourne I was not eloquent. I was stunned and awed into silence. Words failed me to express my wonder and enthusiasm at all I had seen, heard and learned. I thought I knew travelling educational train limits, for I had seen that work in the U.S.A. and knew that it filled an important niche in extension educational and medical work for rural people who live too far from cities to get this education in their own vicinity. I am also thoroughly acquainted with the chatauqua lecture platform.

I inadvertently made a comparison of the Better Farming train and its exhibitors and exhibits, its lectures and lecturers, its value for the communities it served, and the reaction of the people it served, from the angle of one who knows just what it serves constructively and where it fails in similar efforts in the States. Of course, there is nothing exactly like

it in the States to make an analogy perfect.

This stupendous train in Victoria has 18 cars, each one practically a university of its special subject in itself. The demonstrators are not only experts in their own field but are expert psychologists in knowing exactly the best medium of approach to interest their audiences.

Cow Science

Mr. Yuille, dairy expert, has an approach which approximates to genius in his ability to talk to the boy on the land, to interest him in organising "calf clubs" both for profit and experience, and in choosing and caring for cows. I learned much from him even though I'm not a lad on the farm, nor even an agriculturist of any kind. But he set my brain a-working on the laws of balanced rations, intake, and the like in relation to butterfat and so on. I wondered much as I listened to him whether the physician of the human machine knew as much about sane feeding, housing and proper in-breeding as did this expert on cattle raising.

Many deep, unanswerable questions arose in my consciousness as to the theory and application of the Mendelian Law in the human family as I listened to Mr. Kerr's clean-cut exact deductions in his lectures on the breeding of dairy cows. How well he proved to me that two and two make four! Given combinations produce given results in breeding. It's all mathematical. No accidents except an occasional atavistic throwback.

When we accept all these laws in human inbreeding, and understand and make use of them as well as the cattle and sheep-breeder does, we will have a human family to be proud of. What I learned on this tour made me very proud of well-bred cows, sheep and pigs—but I became very thoughtful about some of our "higher" friends in the human family. Oh! I learned much. I managed my day in such a way as to spend at least one whole session with each of the speakers and heard all they had to say as their specialty for at least one whole lecture.

I repeat, I learned much at each



Dr. Greil, photographed on the deck of the *Orsova*, on the day of her departure from Australia.

session. It was all interesting, fascinating. I feel as though I myself had had a course in an agricultural college, and while my poor lay mind still contains a slightly "pied" bolus of undigested matter caused by too rapid digestion of hitherto untried foods, I find in retrospect that much that is immediately assimilable remains with me and I now know much more about the great commonwealth of the farm than I could have extracted from many books.

All the lecturers with the train had that most important equipment—bringing their subjects down to the intelligence of their hearers. The lectures were intimate, practical and thorough. Questions that arose were given satisfactory time and explanation. Exhibits in the cars elucidated every difficulty—not a thing was left out that needed to be in, and *vice versa*. So that if any one left the train for home after the day's work was over with any of his special problems of the

farm unanswered it was his own fault. For never, anywhere, have I seen men or women who loved their jobs more and did them more thoroughly than did the men and women connected with the Better Farming Train.

The women's section was still more wonderful. It was worth the trip, and any discomfort there might have been in the long motor journey, which many of the visitors had to make to reach the town where the train was stationed, to note the women's section and the women's work on the train. Apparently many had but the vaguest notion of what this travelling university really meant. It was interesting to watch them file diffidently into the child welfare car where Sister Peck gave plain, straightforward, practical talks on child welfare, baby care and home nursing—more interesting to see their diffidence widen into deep interest and develop into note-taking—most interesting to note the final reaction of subjectivity demonstrated after the conclusion of the formal lecture by myriad questions relating to their individual problems.

Interest and Questions Aplenty

How they hovered about the problem, asking advice, having their children weighed, examining and scrutinising the model exhibits of practical baby's clothes, baby's crib, baby's every possible need! Fascinating to watch the young girls after their course in hygiene and health was over. They clamored round Sister Peck and besieged her with personal questions. At one town, they hung about all day right up to the time the train was to pull out.

The cooking class of Miss Jaguers held a similar fascination for the visitors and myself. Recipes were in great demand, and I hope and trust their cakes and pies will be half as good as those I pilfered while on the train.

Miss McAllister, a dear, modest little lady of many useful attainments, demonstrated the needlecraft and handwork for women and girls. She taught us fancy embroidery stitches, how to cut patterns, and actually cut them out



Miss Muriel Greil, who played the part of Julie in "The Showboat," returned to America with her mother.

for us. One for me also, for the very article of humble but excellent utility which she was cutting the day I happened in to her car was a pattern I needed very badly, and here was my chance to have it cut—and cut gratis, just for me—and a lovely smile went with the doing of it. This clever little lady—this Miss McAllister—has a fine gift of clarifying and simplifying the intricacies of the home dressmaker's problems. I learned much from her, and the besiegement from interested listeners for elucidation of their personal difficulties demonstrated clearly the wisdom of putting her curriculum in the many useful lectures of the train.

The interest and attention given by all the audiences to the lecturers' and exhibits was a constant source of delight to me. They left no doubt as to the value of the train and its message. Their reaction to everything was perfect.

First American Oil-Electric Locomotive

AN experimental trip was recently made on the New York Central Railroad with a new oil-electric passenger locomotive, the first to be built in the United States. This type of locomotive is believed to have possibilities which may solve some of the present transportation problems now confronting the railways of America.

The new engine is 59 ft. 4 in. long, and in running order weighs approximately 160 75 tons. It developed a maximum tractive effort at 25 per cent. coefficient of 45 000 lb. The eight

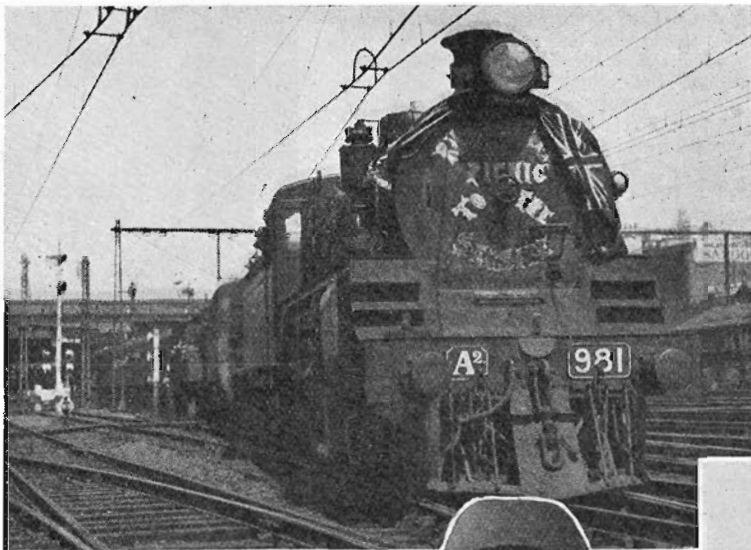
driving wheels are propelled by direct-drive electric motors supplied with energy from generators driven in turn by a 12-cylinder "V"-type oil engine rated at 900 H.P. This engine has cylinders 14 in. in diameter by 18 in. stroke, and a 600-volt traction motor is mounted on each driving axle.

In the course of the inaugural trip the locomotive ran a distance of 54 miles with five passenger cars attached, stopping at all stations *en route*. At the end of this run the engine was refuelled with oil and the train returned

to its starting point. It is stated that the performance on the hilly division was satisfactory, equalling the performances of the steam locomotives used on the division.

The view is taken that Diesel oil-electric locomotives will show some definite advantages in active service, and particularly under the conditions applying to such classes of service as that of the New York Central lines, Putnam Division, which incorporates a hilly section and involves numerous stops and restarts.

The Mon

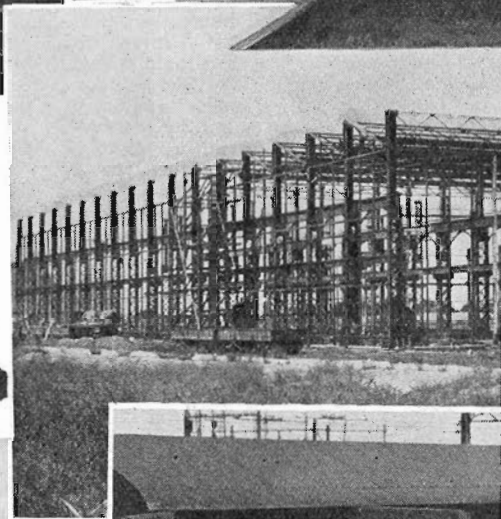


One of the biggest school excursions run from the country to the seaside is the annual excursion from Rushworth, of which Mr. E. A. Coyle, M.L.A. (inset) is the generous organiser. Views of this year's special train are here depicted (above and below).

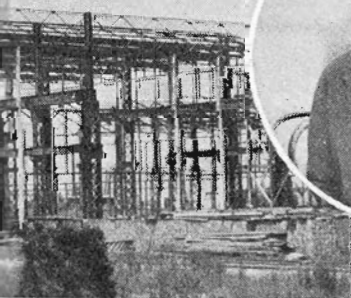


TOP (right): The rail sedan was chartered by a private party recently for a week-end trip to Gippsland.

RIGHT CENTRE: The new erecting shop at Newport is fast taking shape.



h in Pictures



The Spencer-street bridge was officially opened last month, and a big crowd assembled to see Miss Jones (inset), daughter of the Minister for Public Works, perform the ceremony of cutting the ribbon. These pictures show scenes at the opening.

LEFT (lower centre): Victorian railways officers with Mr. Shea, C.M.E., Sth. Australian Railways, inspected a new type of truck for motor bodies which recently ran a test trip from Adelaide to Melbourne.

Railway Outposts

No. 22— Talbot

DOTTED round, and sometimes farflung from, the larger centres of railway activity in Victoria are the seventh, eighth and ninth class stations that feed in revenue as the watchful outposts of an army feed in intelligence to the main bodies they protect. This series of articles will attempt to summarise the work of a few of these essential railway outposts.

TALBOT is a town with a past—a golden past. Its history dates back to the good old days of the gold-fields which did so much to make Victoria famous about the middle of last century. As early as October, 1865, Talbot was proclaimed a shire and, 10 years later, it was granted rail facilities by the completion of the line through from Clunes to Maryborough. Today, Talbot has a population of 800, most of whom are engaged in agricultural pursuits.

With the decline in gold mining, increasing attention was given farming. Dairying is now carried on very successfully in the district and poultry farming has become a well-established industry. Eggs form a valuable item in the railway goods traffic. Approximately 700 bags of wheat were despatched from the station last season. The railing of 463 bales of wool, yielding a revenue of £137 to the Department, also testifies to the variety of the district's farming activities.

The principal item in the railway goods traffic from Talbot, however, is the firewood which moves in considerable volume to Ballarat, Geelong and



Talbot Station.

other centres. On an average, throughout the year, there are about five trucks of firewood despatched daily from this station.



S.M. McLeod and Opg. Porter Hartley

Another industry, commenced in September last, is the manufacture of concrete pipes. Owing to the excellent

quality of the sand, regarded as the finest in the State, the business which now provides about 14 tons of loading weekly for the railways is expected to expand considerably.

Among the other commodities which are despatched by rail from Talbot are an average of 33 tons of clay weekly to the Ballarat pottery, a considerable volume of chaff each year, and a couple of trucks each month of infusorial earth. Incidentally, this fine earth, which is valuable for polishing purposes, was exported before the war to Germany where it was used in the manufacture of explosives.

The passenger traffic from the station is fairly steady, 3,423 passengers travelling during the last twelve months and paying £1,357, in fares. Outwards goods, totalling 6,580 tons, gave a revenue of £2,339, while 951 tons of inwards goods, principally general merchandise, added £1,035. Parcels traffic for the twelve months yielded £161, while livestock brought in £534 during the same period. Motor competition is non-existent for both passenger and goods traffic.

Stationmaster W. H. McLeod is in charge of the station, which has been his care for the past seven years. He has as his right-hand man and only assistant, Operating Porter W. Hartley, who has been at Talbot six months longer than his S.M. The station itself presents an air of neatness and system, and the good-fellowship which exists between the railway staff and the Talbot residents shows clearly that the railway business will certainly not suffer through unsatisfactory service. —S.C.W.

WORLD'S FASTEST JOURNEY?

What is claimed to be the world's fastest train journey was recently accomplished by the Great Western Railway (England). The journey was between Swindon and Paddington, a distance of 77½ miles, the time occupied being 68 minutes. A speed of over 61 miles an hour was recorded two miles out of Swindon, whilst at Challow, 13 miles from the starting point, a speed of 80·7 miles per hour was reached.



Firewood is Talbot's principal source of goods revenue.

English Railways' Slowest Traveller

By "Transport Officer"

IN a recent article in the Newcastle North "Mail" (Eng.), King Coal was declared to be the slowest traveller on the English railways. "The railway companies," the newspaper contributor asserted, "have a good case for strong action against this persistent loiterer on their lines."

KING COAL may have his faults, but speeding is not one of them. He is the English railway's slowest traveller. Once he becomes ensconced in a comfortable wagon, he is loth to leave it.

This desire to stand still is embarrassing the railway companies. So, at the risk of being shot at dawn for the crime of *lese majeste*, they have decided to bustle him.

A whole pile of incriminating evidence against him has been compiled. One fact which it has brought to light convicts him. When the old slow-coach travels in his own private wagons, he averages only two round trips each month.

Taking His Time

That is, his wagons travel from pit to pit twice in 26 days. But when travelling in wagons belonging to factories or wholesale merchants, even this shocking record is broken. Only one and a half trips are made.

It has been ascertained that each time King Coal sets off, it takes him between six and seven days to reach his destination, and return his wagon to the pit.

Much, of course, depends upon where he is going. For instance, from pit to port and back to pit, usually takes about six days. Should the journey be to an industrial area, then

the time is seven days. In the case of household coal, it occupies ten days. These times are for the round journey from pit to destination, and back to pit again.

It appears that King Coal is a tardy guest when he goes visiting. For it has been whispered his hosts have difficulty in getting rid of him. In the case of the seven day trips, half this time is spent as a guest in consignee's hands. The remainder is occupied by taking a day and a half to get there, and two days to return.

Generally a Six-day Stay

The duration of these visits varies considerably. Usually it appears that he stays over a week, for wagons of coal which remained at consignee's disposal for periods exceeding six days on the L.N.E.R., equal 90 per cent. of the total forwarding.

His black Majesty has his likes and dislikes. It is obvious he prefers houses, tolerates industries, and hates docks. This may explain the reason why 18 per cent. of the wagons loaded with household coal remain loaded six days or longer, the figures for industrial and shipment coal being 10 per cent., and 5½ per cent. respectively, after arrival at destination.

Certainly the old gentleman does not get all hot and bothered about setting off, nor does he overwork his

wagons. Out of 26 days each month a colliery wagon spends 10 days at the pit either loaded or empty. This merely proves that monarchs hate to be rushed.

It is distressing to find our respected friend in the guise of a gate crasher. But the evidence is conclusive. At ports, he arrives uninvited to the extent of three days' normal shipments daily. And 10 per cent. of the supply of household coal stood for 14 days because there was an excess ordered over requirements.

But the greatest disillusionment is still unsaid. The inveterate traveller goes on his journey in what can be described as old boneshakers. Nearly 32 per cent. of his equipages break down when loaded, and 35 when empty. One day out of 26 is necessary for repairs.

Something Must Be Done

It has taken two years to find all this out. But something has to be done about it. There are other things on the railways besides himself, and it is time he was told to push along a little faster.

This ultimatum is his own fault really. It adds insult to injury, when, after blocking up sidings and so on, the old fraud complains that he is not able to take his customary trips because—there are not enough wagons!

After all, there is a limit to what railways will stand.

To Men Who are "Tied Down"

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To help these men is the work of the International Accountants Society Inc.

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Railwaymen and their Families at Play

1.—Asst. C.E.E. McDonald pulls his weight at the recent Electrical branch picnic at Aspendale. 3.—Overhead Supt. Scott was a prominent figure. 4.—“Snowy” acts as M.C. 2 and 5.—The children enjoyed themselves. 6.—The Committee which organised the Melbourne Yard Shunters’ picnic, also held at Aspendale. 7.—“Old Shan” had the time of his life. 8.—A comfortable win. 9.—There’s nothing like sand and water. 10.—The jumbled shoe race.



Wonderful!

Now I Can Dress Well

On One Shilling a Day

THE ONE-SHILLING-A-DAY BUDGET BUYING PLAN puts the Finest Clothing within the reach of men who ordinarily find it inconvenient to make a single payment of, say, £8 or £9 at one time. Men accustomed to purchasing homes or furniture on Deferred Payment will find this plan of utmost convenience in purchasing Fine Clothing.

This Newly Established Charge Service permits railwaymen to purchase clothing on the following basis :

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You pay £1/12/- at time of purchase and 1/- a day | For £8/8/- Suits or Overcoats—
You pay £2/2/- at time of purchase and 1/- a day |
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You pay £2/7/- at time of purchase and 1/- a day |
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Railwaymen of the Month

Ship Ahoy!

TOURIST OFFICER

A.E. Williams of the Government Tourist Bureau is now a familiar figure at Prince's-pier where he waits for and boards incoming overseas and interstate vessels in an endeavor to interest tourists in Victorian scenery and generally to advise and help them on their arrival in a strange city. The idea caught on immediately and parties of sightseers are being booked on every ship met. For years, of course, Mr. Williams has been one of the Bureau's most popular and successful escorting officers.



£7,000,000 in 17½ Years

DURING his 17½ years regime as Superintendent of railway construction, Mr. C. S. Rees, who has just retired, directly supervised the building of £7,000,000-worth of railways. His association with the Victorian service goes back to 1880, with a four-year break from 1903 to 1907, when he resigned to take an engineering appointment in the Federated Malay States. From 1912 until his retirement, he had control, under the direction of his branch chiefs, of all staff engaged in railway construction work in the State. One of his most notable field engineering feats was the rush construction of the Woolamai-Powlett coal field railway, which was built in record time during the serious coal shortage of 1910.

Dots and Dashes

JOE HOUSTON

now in his fourth year as Institute telegraphy instructor, is the man who prepared the first correspondence course in the dot-and-dash science for Victorian railwaymen. Some two score of up-country railmen are now studying on paper for first, second and third-class certificates. A thorough-going hustler, Joe has got striking results with his embryonic Morsemen right from the first day of his appearance at the Institute black-



board. His classes averaged as many as 200 certificates a year for the first two years, and in one quarter no fewer than 60 of his students were certified as able-fingered telegraphists. He has been a railwayman since 1910 and put the polish on his rail telegraphy experience as a wireless operator in the transport service during the war. Away from the clack of the Morse instrument, Joe pins his interest in wrestling. He was Ad. Santel's manager last year, and has been one of his seconds in all his matches at the Stadium. He also refereed the Santel-Weber grapple a couple of years back.

18 Years Printing

HE would be a rash man who would attempt to calculate the number of timetables, rosters and sheets of railway information which have been printed from the type set up by Compositor Alf. Richardson during his 18 years service in the V.R. printing division. Alf joined the service in March, 1912, and retired last month, leaving a million unborn timetables to mourn his passing. Printing Officer Milton Gray presented him with the staff's farewell gift of a gold watch, pipe and pouch.



To Gippsland

STATIONMASTER and railway staff farewell Operating Porter H. L. T. Baird of Warburton last month and presented him with a fountain pen and travelling bag. The popular operator had been stationed at the hill town for three years and was going on transfer to Nowa Nowa. S.M. Maroney presided over the farewell scene.

Old Portlander

ONE of the most popular figures at the recent Back to Portland celebrations was Guard Charlie Lear, a native of the town, who had charge of the special train which made the long trek of 251 miles in record time. At the final rally in the local town hall, Charlie was presented with a huge mechanical engine and a box of cigarettes as a mark of appreciation from the 300-odd travellers on his 'bus. Charlie had the honor of handling the first wheat train at Portland and the first Back to Portland special, run in 1922.

Fired for Dad

GONE into retirement in his 50th year of service, District Rolling Stock Superintendent J. W. Carter of Dandenong leaves a big gap in the ranks of the notabilities of the Rolling Stock branch. He started at Stawell and when fireman on the Adelaide Express had the distinction of stoking for his father who was a first-class driver. Son Carter himself later drove the express for 15 years and passed through the grades of depot foreman, examining officer, officer-in-charge of the Spencer-street train running room and finally D.R.S.S. He drove the delegates to the historic Federal Convention at Adelaide, and one of his most vivid recollections is of a tremendous prize bull attempting to stop a mixed train which he was driving down the Green Hill cutting outside Ararat at 40 m.p.h. The bull lost.



Supervising Now

BALLARAT last month lost Train Examiner Len. Welch, who has come to the city as a supervising examiner. He was a secretary of the Ballarat branch of the A.R.U. for 13 years and earned golden opinions from all who knew him. He was farewelled at a meeting in the Institute and presented with a gold watch and chain for himself and a beaten bronze vase for his wife.

March Birthdays

THE transportation side of the Victorian railway world is well represented in this month's birthday list. Commissioner Molomby is due for congratulations on the 17th; General Superintendent M. J. Canny, Traffic Inspector Alex. McLean of Bendigo, and Clerk M. Stanistreet of Room 2, on the third; Assistant Goods Superintendent Simon Cuddigan, and Frank Lilley of the Spencer-street wires 'counter, on the fourth; Superintendent of Goods Train Service T. W. J. Cox, and Block and



Dave Ryan of Jolimont

Signal Inspector J. T. Nolan, on the sixth; Guard A. White of Geelong, on the 10th; Signalman J. Price of Bendigo on the 12th; Assistant Transportation Staff Officer Paddy Meares, on the 16th; Metropolitan Superintendent J. G. Lee, on the 18th; Clerk Les. Phelan of Room 41, on the 22nd; Senior Clerk Jack Roberts of Maryborough, on the 24th; "Bull" Carmody of the Melbourne Goods, on the 28th; Conductor Bill Lynch, on the 30th; and Jack Cordwell of the General Superintendent's office, on the 31st. Others who will celebrate anniversaries during the month are:—

Poultry Farm Manager Tom Harding, on the first; Staff Board Member T. F. Brennan, on the third; Chief Foreman W. T. Cornish of North Melbourne Loco., on the fourth; Driver G. E. Nelson of North Melbourne, on the fifth; Driver S. Parker of Colac, and Accountancy Chief Clerk Norman Lester, on the seventh; R. S. Clerk A. J. Paul of Bendigo, on the eighth; Assistant Electrical Engineer-in-Charge John Lang, on the ninth; Clerk Bill Conroy of Room 4, on the 10th; District Engineer Tom Bye of Seymour, and Provodore L. C. Brown, on the 13th; Electric Train Driver D. P. Ryan of Jolimont, on the 14th; R.S. Clerk J. C. Symons of Maryborough, on the 15th; Fitter W. J. Lonsdale of Ballarat, on the 16th; Travelling Audit Inspector F. W. Collier, on the 17th; Engineer J. A. Malan of the Signal and Telegraph branch, on the 20th; Boilermaker R. Hill of Ballarat, on the 23rd; Staff Clerk Dave Way of Way and Works branch, on the 24th; Train Examiner J. W. Humphreys of Maryborough, on the 25th; Acting Chief Clerk H. L. Dickinson of the Rolling Stock branch, and Comptroller of Stores C. W. J. Coleman, on the 26th; Foreman W. Turner, who looks after railway scales, on the 27th; Superintendent of Loco. Supplies E. Dillon, on the 28th; Driver C. Crick of Ararat, on the 30th; and Advertising Artist Angus Mac, on the 31st.

Chalet's Chalwell

HERE pictured, Ernie Chalwell, popular guide at the Buffalo Chalet, is taking things easy while an escorted tour party is marvelling at the wonderful view obtained from the Monolith. The presence of large numbers of visitors at the Chalet during recent months has



kept Ernie busy demonstrating the echoes at the Gorge, identifying the hundreds of mountains to be seen in all directions, braving the dark caverns of the Underground-river and taking snapshots for all and sundry.

Close Shaves

WITH the abolition of the position of train running officer at Maryborough, Mr. J. R. Roscholler has gone out as R.S.M. In the absence of District Superintendent Russell last month, Chief Clerk J. A. Roberts presented the popular deparTEE with Maryborough's farewell gift of a shaving outfit. Mr. Ros-

choller cheerfully pointed out that he had had many close shaves during his 40 years service, and evidently the staff intended him to have a few more.

Back on the Job

RETIREd Stationmaster Tom Kitson was in his element when he acted as ticket issuer at Wonthaggi recently for the St. George's Church annual train excursion. The rector was not only loud in his appreciation of the services which the official S.M. and his staff rendered, but also of the voluntary work of ex-S.M. Kitson. Tom's chief business nowadays is fishing and shooting, but he puts in some of his spare time as an insurance agent.

Topicalities

Having passed in Public Administration and Finance (with first-class honors and second place) and in Modern Political Institutions, the two subjects necessary to complete the course, Clerk H. M. Williams of the Accountancy branch was awarded the Diploma of Commerce at the recent conferring of degrees at the University.

At the age of 65, Guard Bernard Geraghty, has retired. He had 40 years service.

Stationmaster J. O'Connor, who has been stationed at Moe for four years, has been transferred to Sunbury.

Stationmaster W. McCallum of North Melbourne, has retired after having been in the service since 1884.

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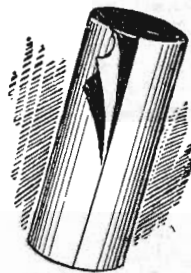


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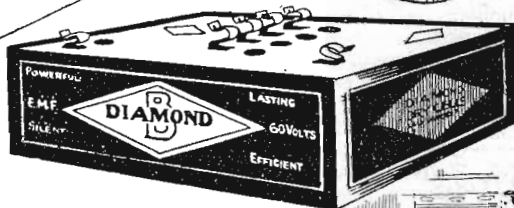
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By AERIO

The Marvels of the Ether

IN this article "Aerio" introduces some interesting sidelights on wireless and suggests some fascinating research into the possibility of seeing through fog, making rain and listening-in to electro-magnetic (wireless) waves from other planets.

THE Ether, known to most of us as the medium through which wireless waves are propagated, is the name given by scientists to a mysterious, whirling "something," as yet beyond the conception of man, that can only be envisaged by the powers of great scientific minds; but which, according to the scientists, permeates and entirely fills up the cavities or spaces between the tiniest atoms, of which all solids, liquids or gases are composed. The farther apart these atoms or particles are separated in any substance, the more ether therefore permeates or saturates it.

The ether is in some way, not yet understood, connected with cohesion, and plays a large part in the holding of these parts together in a solid mass, although the ether itself is in constant whirling motion and freely flowing around and between all particles of matter.

The small particles forming the various components of the atmosphere are saturated with this ether. Moreover, as higher altitudes are reached, the air is more and more rarefied and consequently the proportion

of ether is greater, while beyond the earth it extends to the farthest star.

REMEMBER The Railway Radio Exhibition this Month

The ether is itself a good conductor of very high frequency electrical impulses and is the medium through which light and heat reaches us from the sun. Its value as a conductor of these impulses is proportionate to their

frequency, and consequently a comparatively much lower frequency electrical impulse would not travel through it so far, although its speed would remain the same.

If the ether does conform to the specifications of the great scientists, we may suppose it to be everywhere, but in a large or small proportion according to the density of the material with which it is associated.

Science has presented us with the means of detecting impulses in the ether through which they travel at the speed of light, in every direction and through all matter, to a greater or lesser extent according to its structure and the frequency at which the impulses follow one another.

A number of these impulses, following so closely upon one another as to appear continuous, form what is known as a wave. This wave travels through the ether in very much the

ETHER WAVES & VIBRATIONS

Compiled by W.I. May
(V.R.I. Wireless Club)

UNKNOWN	COSMIC RAYS	GAMMA RAYS OF RADIUM	X RAYS		UNKNOWN	ULTRA VIOLET RAYS	ACTINIC CHEMICAL RAYS	VISIBLE LIGHT RAYS						INFRARED RAYS	UNKNOWN 3 OCTAVES	WIRELESS WAVES	
			HARD	SOFT				VIOLET	INDIGO	BLUE	GREEN	YELLOW	ORANGE				RED
?	Mystery rays invading the Earth from interstellar space. NOT from the Sun	Extremely short waves emitted by radioactive substances	Will penetrate walls & inflame burns	Have power of strength - ening tissue & promoting growth. liable to promote cancer or serious burns	?	Invisible but can be directed in a beam which makes the surrounding air conductive to high-frequency electricity	Have the power to induce or bring about chemical action	Will not penetrate smoke or mist									
			Employed as a remedy for cancer. Will not destroy the roots of the growth			Invisible to the eye	Judicious exposures are beneficial & the skin is given that healthy tan we all desire when on holidays by the sea. Too much exposure can be very harmful						Fog penetrating properties sixteen times more of blue light	Fog penetrating properties 300 to 300 times more of red light rays	Can be detected with photo-electric cell	PROBABLY SOME FORM OF CONCENTRATED HEAT ENERGY	
FREQUENCY Vibrations per Second		FROM 288,000 BILLION TO 18 1/2 MILLION BILLION		36,000 BILLION TO 288,000 BILLION	36,000 BILLION TO 844 BILLION	36,000 BILLION TO 844 BILLION	563 BILLION						650,000 MILLION TO 281 BILLION	11,785 MILLION TO 550,000 MILLION	8,000 TO 11,785 MILLION		
WAVE LENGTH		1/25,600,000 th inch TO 1/1,664,000,000 th inch		1/70,000 th inch TO 1/25,600,000 th inch	1/50,000 th inch						1/50 th in. TO 1/25,000 th in.	Say 1 in TO 1/50 th in.	23 MILES TO Say. lin.				
VELOCITY		186,000 MILES PER SECOND															

same way that a vibration would travel through water in the centre of which an explosion has taken place. This wave has a whirling motion, however, just as the ether has, and consequently has peaks and troughs which may be likened to sea waves. The distance between these peaks can be measured to the tiniest fraction of an inch and is what is known as wave-length.

This wave-length is definitely controlled by the frequency at which the impulses follow one another. Therefore, eighteen million billion impulses to the second would form a number of tiny short waves which would manifest themselves as X-rays, and, on the other hand, a hundred thousand impulses to the second would form the much larger electromagnetic waves familiar to most of us as wireless waves, the peaks of which would be much further apart, and the wave length consequently longer. The penetrating power of these waves may be compared to that of an ordinary drill, i.e., with the same power behind them; the tiny short waves have much greater penetrating power than the larger, longer waves.

Finding The Heaviside Layer

Each band of frequencies can be divided up into numerous wave-lengths by comparatively small variations of the number of impulses to the second, and this phenomenon is used in wireless to keep the various broadcast transmissions distinct from one another by allotting each station a particular frequency, generally expressed in wave-length, measured in metres.

Supposing we were in possession of apparatus capable of detecting in sequence all wave-lengths. Then, commencing at one end of the spectrum, we should at first not consciously experience any effect. But as the wave-length decreased and the frequency increased, we should come into resonance with that highly conductive strata entirely enveloping the earth, and known as the Heaviside layer. This might happen at 40,942,972 metres, which is its circumference, or it may be about four-and-a-half times this figure as in an ordinary aerial.

Something might be expected to happen here and the first person to get in resonance with this immense "aerial" will probably have a story to tell of mysterious sounds and manifestations from sources beyond the earth that will be the forerunner of stupendous electro-magnetic discoveries, and perhaps interplanetary communication, for it would be but a short step then to set the Heaviside layer into oscillation and send messages out into the universe.

Further down the scale of wave-lengths, still using the Great Aerial, we might investigate the natural wave-length of the layer surrounding our nearest planetary neighbor—the supposedly inhabited Mars—that brilliant

orange-red planet which appears brightly in our heavens for a few months every two years.

Messages From Mars ?

Lower down the scale, and using an ordinary aerial system, we would be in a more familiar field, but would first come on the mysterious "messages from Mars" waveband of 120,000 metres to 80,000 metres, where at certain times three distinct dots somewhat resembling the letter "S" of the Morse code can be heard. These caused a sensation when first heard by Marconi some years ago, and were classified by scientists as originating in another world. It is significant that harmonics of the supposed natural wave-lengths of the Heaviside layer of both the earth and Mars occur in this waveband.

Science and - The Radio

THE several variations of the wonderful electric-eye used in research work such as is described in this article and in talks, television and the like will be demonstrated at the forthcoming All Radio Exhibition at the Victorian Railways Institute this month.

Those of our readers who find interest in this article or who are otherwise scientifically inclined will find a great deal of appeal in the various demonstrations to be made during the course of this Exhibition.

Then, as the wave-length again decreased, we would come upon the very long wave broadcast stations, followed by shorter and shorter wave transmissions until our wireless receivers would fail to respond to ultra-short waves.

We would now enter an unknown region through which we would need to pass with great caution, as there is reason to suppose that in this region lurks some deadly heat-ray similar, perhaps, to the famous "heat ray" utilized with such fatal effect by the Martian invaders in Mr. H. G. Wells's well-known romance, "The War of the World." Then, still very carefully, we might pause awhile in the narrow band of frequencies monopolized by insects, we are told, for wireless communication between male and female, each species having a distinct wave-length.

Seeing Through Fog

Again on familiar ground, we find, at a wave-length of between 1-50th and 1-25,000th of an inch, a ray which should be of particular interest to railway men. The infra-red ray is generated by a powerful arc lamp or searchlight and is filtered from the visible light rays by passing through a pyrex glass and then through a sheet

of *ebonite* or hard rubber. The resulting ray, although invisible to the human eye, can be easily detected by the new photo-electric cell. *Its fog-penetrating properties are 200 to 300 times more effective than visible light rays.*

This ray, falling upon a photo-electric cell, causes a current to flow which can be used to operate a relay, and might perhaps be adapted to fog-signalling. There is an interesting field for research here. At present the ray has its most practical use as an "illuminant" in television and as a secret burglar alarm, enabling the photo-electric cell to "see" an intruder in pitch darkness and operate a relay.

We next find the most familiar rays of all, the visible light rays, approximately 1-50,000th of an inch in wave-length. These are the only rays to which the unaided human senses are capable of responding.

Upon again increasing the frequency and reducing the wave-length of the ether vibrations, photographic plates would indicate actinic chemical rays, closely allied to the invisible ultra-violet rays, which, like the infra-red rays at the opposite end of the visible spectrum, are generated with a powerful arc, being afterwards filtered through a condensing lens made of "Uviolglas" which is filled with a blue liquid that allows only the ultra rays to pass, these being quite invisible and only detected by a photo-electric cell.

Ultra-Violet Rays as Aerial

Unlike the infra-red rays, however, the ultra-violet rays, although invisible, are extremely harmful to the eyes.

Air associated with ultra-violet rays becomes ionized and more or less capable of carrying an electric current, and efforts have already been made to utilize a beam of these rays in place of an ordinary aerial, with some success. Here, then, would appear to be the means of linking up with the Heaviside layer as already suggested. Another field of research lies in rain-making by means of powerful high-frequency currents superimposed on beams of ultra-violet rays directed into the atmosphere.

Still proceeding down the scale of wave-lengths, we would be unconscious of whatever effects are produced by vibrations numbering billions to the second, but as these reached thousands of billions we would come upon the X-ray group, with which we are not altogether unfamiliar. At first we would find a soft, tissue-strengthening, growth-promoting ray, and would be inclined to look kindly on it until we began to develop severe burns and discovered that cancer-growing is a long suit with this ray.

Hastily increasing the frequency to a million billions or so, we then come

Concluded on page 46

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(W-MCF)

RAILWAYMEN in SPORT

By REG. HUNT

BLANCH CUP TENNIS

THE following tennis team has been selected to represent this Department against the New South Wales Railway Department in the contest for the Blanch Cup:—

A. W. Cobham, Traffic branch (captain).
G. Lynch, Transportation branch.
F. Darcy, Transportation branch.
W. Ahern, Rolling Stock branch.
R. Ryan, Transportation branch.
L. O'Brien, Transportation branch.

Emergencies

K. McIver, Accountancy branch.
A. V. Stenning, Secretary's branch.

The matches this year will be held in Melbourne, and the South Yarra Tennis Club, Williams Road, South Yarra, have kindly placed their courts at our disposal.

The matches will be played on Tuesday and Wednesday, March 11 and 12, and it is hoped that all tennis enthusiasts in the Department will endeavor to attend.

TRANSPORTATION BRANCH NO. 1 TEAM WINS 1929-30 TENNIS PREMIERSHIP

THE finishing matches in the "A" Grade Interbranch Competition left the competing teams in the following positions:—

	W	L	D	Pts	
Trans. ...	7	-	1	15	
Roll. Stk. ...	6	2	0	12	
Way & Wks. ...	5	3	0	10	Rubbers 60 per cent.
Electrical ...	5	3	0	10	Rubbers 30 per cent. Sets 39.1 per cent.
Accountancy ...	5	3	0	10	Rubbers 30 per cent. Sets 37.5 per cent.
Secretary's ...	4	4	0	8	
Trans. No. 2 ...	1	6	1	3	
Stores ...	1	7	0	2	
Sig. & Tel. ...	0	8	0	0	

It will be seen that Electrical just squeezed in by a narrow margin of sets over Accountancy Branch and that Transportation No. 1 won the right of challenge.

Semi-Finals

Trans., No. 1—1-3-27 d. Way & Works, 1-2-24; Roll. Stock 2-4-24 d. Electrical 0-1-16.

Finals

Trans., No. 1, 2 Rubbers, 4 Sets, 24 Games d. Roll. Stock, 10 Games.

Thus Transportation branch have won their first interbranch premiership, carrying with it the right to hold the "A" Grade challenge cup for the ensuing year. Their win was well deserved, as they were runners-up last year to Signal and Telegraph branch, and have held first position on the list this season from the start.

The "B" Grade semi-finals resulted as follows:—

Secretary's, 2-4-29 d. Accountancy 0-1-19; Refreshment Services 2-4-24 d. Traffic 0-0-17.

SOME SHOT

JIM BUTTLE, senior clerk to the Inspector of Ironwork, has long been a tower of strength to the Victorian Railways Institute rifle club, both as a reliable shot and also as an enthusiastic and energetic secretary. He has held that position for the past 20 years and is good for many more years of service.



He developed a love for rifle shooting and established a reputation as a good shot while in the navy. Consequently, the railway rifle club, formed in 1900, lost no time in getting in touch with him. Nor has he disappointed the club.

In the Trigg shield contest, for which teams from New South Wales, Victoria and South Australia compete each year, he has been a consistent performer. Teams of ten men aside are picked, and of the six occasions that he has shot in the competition, Jim has been twice first, twice second, once fourth, and once fifth.

Again, back about 1914, when shooting in Sydney one morning, Jim scored a double possible with ten shots each at 500 and 600 yards. He followed this up in the afternoon by scoring 103 out of 105 with seven shots each at 300, 500 and 600 yards, the last shots, which marred his record, being fired in a failing light. This was claimed by the Sydney papers as a world's record at that time. A double possible again, a day or so later when shooting at Liverpool, proved that his earlier performance was not a lucky patch.

Questioned regarding his interest in prize matches, Jim modestly pointed out that, although he has entered such contests from time to time and has always emerged paying a little more than his expenses, the lasting welfare of the club has a greater appeal to him than the temporary glamor of a big contest. His greatest ambition lies with the progress of his club, and he assures any prospective rifle shots in the service of a hearty welcome and a thorough training if they will get in touch with him.

NEWS FROM RAILWAY CRICKET WORLD

MATCHES in the first round for the Commissioners' Cup are almost over and the position of the "four" is more definite. Electrical Engineers suffered their first defeat of the season at the hands of Newport, and the latter thus gained the fourth position.

One match remains to be played between Coburg and Loco. North, and a win by Loco. would make them level on points with Newport. However, Newport appear to be better on percentage and should hold their place in the four.

Anthony (Telegraph) knocked up a century in fast time against Jolimont Yard, and with Powell, who scored 80, put on 180 runs in less than an hour.

The competition will be suspended for two weeks during the Interstate matches, and the finals will be played first week in March. The team to represent Victoria in the Interstate matches is:—Anthony (capt.), J. O'Brien (vice-capt.), R. O'Brien, A. Vance, T. Morrissey, S. Powell, W. Flynn, A. Willmott, J. Ellis, T. Lee, L. Blake and H. Carter (12th).

ROLLING STOCK CRICKET MATCH

ON Foundation Day at the invitation of the Ballarat workshops cricket club, the Rolling Stock head office team visited Ballarat and played a match on the Eastern oval. Prior to the commencement, both teams assembled at the wicket and stood in silence for one minute in memory of the late Mr. W. A. Ryan, who not only took part in these matches in the past, but gave them his whole-hearted support.

Head office batted first and, owing to the accurate bowling of McKay (five for 16), and Stevens (two for 7), were dismissed for 92, E. Cameron being top scorer with 27. The workshops team replied with a total of 72, the destroyers being Morcombe (six for 13) and Cameron (four for 21). Landrigan (20), Wallis (18) and Meikle (16) were Ballarat's main run-getters.

FOOTBALL'S COMING

THE great winter game will again be upon us, almost before we realize it, and most of the clubs are busy getting everything ready for what is hoped will be a successful season—notwithstanding the acute depression.

Most people are, of course, keenly interested in new proposals being

GYM. NOTES

THE Institute gymnasium season is now in full swing. Tuition in boxing, under Mr. Frank Perry, and assisted by Mr. G. Sullivan, is given on Tuesdays and Thursdays at 5 p.m. and 7.30 p.m. Wrestling classes, under Mr. T. Donnet, assisted by Mr. A. Donnet, are held on Mondays and Wednesdays at 7.30 p.m., and physical culture classes, under Mr. Geo. Corkhill, are held on Friday at 7.30 p.m.

The use of the gymnasium is also permitted to members when classes are not in operation, at a low fee.

considered by the League and the Association—between whom there will be a battle royal this year, for the latter body is quickly getting back its punch and promises to be a rival more formidable than ever.



This shield, in the possession of the Way and Works Branch, was presented by Mr. G. Deal, secretary of the V.R. Golf Association, for interbranch competition

Many railway enthusiasts are just as keen on local football, and what is to be done by our association is exercising their minds. Four clubs are not sufficient, as was proved last year, and there is more than a probability that there will be eight competing during the coming season. Coburg and North Loco. have held their annual meetings, and it is high time that the association delegates were called together to formulate schemes and to give new teams plenty of time to organize. For a football team cannot be got together in a day.



The Tintara Cup, which was recently won by a team of Victorian Railway golfers in competition with N. S. Wales and S. Australia.

COBURG LINE'S MEETING

THE third annual meeting was held at the V.R.I., Mr. R. Bowman (president) presiding over a large number of members. The balance sheet (shown hereunder) was received and adopted and the annual report

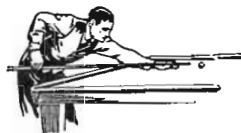
presented. It showed that the club, although not successful in winning the premiership, had a very good season. It was decided to recommend to the association that the positions of president and senior vice-president be occupied by officers of the Department not connected with any of the clubs.

In recognition of the fine work done for so many years by Social Sec. Bill Keppell, he was elected an hon. life member of the club. Much of the club's success is due to his efforts, especially in regard to the splendid financial results.

Election of officers resulted as follows:—President, R. Bowman; senr. vice-president, W. Banner; sec., L.

Concluded on page 46

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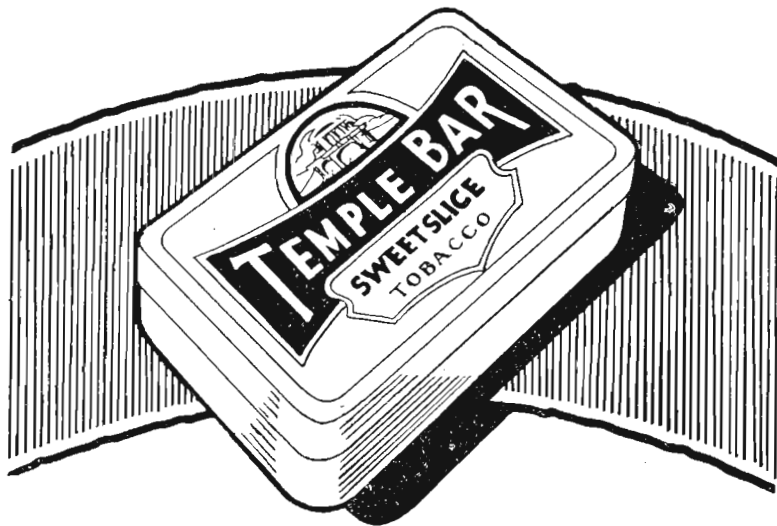
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UP COUNTRY



Bendigo's Electric Cranes

During the month two cranes on the goods platform at Bendigo were remodelled and provided with electric driving gear. This is not only a more economical method of handling the heavy goods requiring crane power, but has greatly expedited the transfer work which is naturally heavy at this depot in view of the number of lines radiating northward from it.

Meredith's Records

While farmers in many parts of the State have cause to complain of serious setbacks, the Meredith district is creating records. Some of the wheat will strip 15 bags to the acre, the quality of the grain being excellent. Grass is luxuriant, and stock generally is in splendid condition. There is a good demand for sheep, and the heavy yardings for the local January sales were all cleared at satisfactory prices.

Unusual

Farmers in the Minyip district have been unfortunately compelled, as a result of the drought, to adopt a most unusual course of business. Instead of delivering produce to the station, they have had to bring in empty waggons to be loaded at the truck side with hay and chaff.

Wheat Figures

As a result of the poor rainfall throughout wheat areas in the Wimmera and Northern districts, only 217,560 bags of wheat have reached Geelong this season as against 939,367 bags last year. The number of bags shipped this year is 42,543, compared with 1,324,580 during previous season.

Wheat Falling-off

Wheat carting to stations has now been completed in the north-east. Up to and including February 8, a total of 733,180 bags had been railed, with 906,708 on hand at stations—total 1,639,888 bags as against 1,907,000 bags railed last season, a decreased yield for the district of 267,112 bags.

75 Bushels to the Acre

Harvesting operations are now nearly completed at Burrumbeet, and some excellent returns have been obtained. Mr. George Ross's threshing plant is doing some splendid work, and has threshed a crop of Imbros Island oats for Mr. D. Ritchie which averaged 75 bushels per acre of splendid quality.

The Doctor's Stick

MORE than 60 years ago in the early digging days at Avoca, the then local physician, the late Dr. Morris, cut a walking stick from one of the poplar trees which grew in his garden. When visiting a patient at Percydale he left his stick behind, and the nurse placed the stick in her garden. Within a few weeks it began to sprout. The garden has since disappeared, but the tree which grew still stands, and to this day is known as "The Doctor's Stick."



Highest stationmaster in Victoria, Mr. O. A. W. A. Hobson and his wife. S.M. Hobson is in charge of Shelley, which is 2562 ft. above sea level and the highest railway station in the State. He gained first prize for maintenance in the Seymour district tree-planting and station decoration competition.

Mildura's Grapes

Fruit picking in Mildura is about to begin, and the number of people travelling to Redcliffs and Mildura is an indication of the growth of this industry. It is anticipated that the grape yield this year, although very good, will not reach the record obtained last year.

Tomato Prospects

The tomato crop is very heavy this year, but in many places in the northern district the fruit has become infested with a grub which has considerably reduced the marketable quantity. Consequently a somewhat less quantity has been forwarded by rail compared with last year, but the smaller quantity on the market has tended towards keeping prices up. At Moulamein a large area was planted this year with very satisfactory results, and there is now every prospect of a cannery being established in time to operate next season.

Popular Sunday Trains

Large numbers of passengers are being conveyed each Sunday by the Queenscliff excursion trains from Ballarat, and on one recent Sunday the passengers by the two trains numbered 1,100. One of the features of this traffic is the number of picnic parties booking to the seaside for the day. Several parties of up to 100 have travelled.

Selling Black Currants

During the month trucks of Tasmanian black currants were forwarded on the Yungera and Robinvale lines with very satisfactory results to the distributors, and to the purchasers. The currants were put up in 12 lb. boxes and retailed at 7s. each, delivered at stations. The representative of the fruit growers expressed pleasure at the results achieved in each instance and of the arrangements which were made by the Department to dispose of the fruit.

Five Trucks More

Statistics disclose that equal to 1,521 trucks of fresh fruit were railed from stations in the Goulburn Valley district during the months of December and January last as against 1,516 for corresponding period of previous season.

Wheat Moving

The wheat continues to be forwarded regularly from the Bendigo district to the seaboard, and it has been fairly practicable to move this traffic to date without scheduling special trains. The recent rains benefited the growers who had a crop in that the grain became better filled and weighed considerably heavier than was anticipated.

Wimmera Satisfied

Wheatgrowers in the Western Wimmera have experienced one of the best seasons in the history of wheat-growing, and a conservative estimate of the district wheat average from fallowed land would be 12 bags per acre. In one case (reported in the *Ballarat Courier*) it is believed that a record for this year for Victoria has been established. Mr. A. T. Lampard has harvested a 15 bag average of wheat, and as all the bags show considerable overweight, his yield can be set down at 48 bushels. The varieties were Federation and Gallipoli. It has been noticed that the returns from Gallipoli have slightly exceeded those from Federation.

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RAIL USERS SAY—

SUCCESSFUL PICNIC

NOW that matters have been finalised in connection with our picnic to Greensborough, I write to express satisfaction at the perfection of the arrangements and the courtesy of all the Department's officials without exception—factors which contributed largely to the great success and thorough enjoyment of the day's outing.

—Rev. Bro. J. H. Crowley, S.S. Peter and Paul's Christian Brothers' School, South Melbourne, writing to the Superintendent of Passenger Train Service.

TRIBUTE FROM TRAIL RIDERS

MIGHT I briefly express to you my appreciation of the fine way which Mr. McConnell and his very able staff cared for us during the recent Bogong High Plains tour. The organisation, comradeship and thoughtfulness of your officers brought out in the party a unity and sense of being cared for in every possible way that meant happiness to all from the very start. The whole tour embracing such magnificent scenery seen from the vantage point of a fine horse—as all our animals were—offers a most enjoyable holiday and leaves in one's mind a very warm appreciation of the executive of the Victorian Railways.

—Mr. J. E. Foubister, 7 Norwood-avenue, Brighton, writing to the Chairman of Commissioners.

"PROMPTNESS AND COURTESY"

I WISH to thank you and the officers of your department for the prompt and courteous attention which you recently gave my several inquiries concerning a truck of furniture consigned from Nhill to Bairnsdale. Such promptness and courtesy I have not been accustomed to receive from other Government Departments in Australia, and I wish to place on record my keen appreciation. I would like you to forward this note on to Mr. Clapp for his perusal.

—Mr. Duncan M. McLennan, Main-street, West End, Bairnsdale, writing to the Superintendent of Goods Train Service.

HAPPY PICNICKERS

I AM instructed by the meeting of this branch to thank you for your kindness in placing at our disposal a bus for special trip to Ferntree Gully. The picnic party had a very enjoyable day, I might state, mostly due to the excellent trip. I also wish to thank Guard M. Ryan who was instrumental in procuring same.

—Mr. E. Byrden, Secretary, Branch 41, H.A.C.B.S., writing to the Supervisor of Road Transport.

APPRECIATIVE STOCK CONSIGNOR

I RECENTLY got home by rail from Tongala 600 of our best ewes that were away there on agistment. These ewes were heavy in lamb. They trucked at Tongala at 11 a.m. and were due at Deniliquin at 7 o'clock next morning. However, the stationmaster at Echuca sent them right along, and we were able to unload them at Deniliquin at 10.15 that night. This consideration this company greatly appreciated, also the care taken in transit of the sheep by the train crew.

—Mr. H. S. Schollick, Austin Wanganella Co., Ltd., Deniliquin, writing to the District Superintendent, Bendigo.

SEEING VICTORIA BY ALL-LINES FORTNIGHTLY

AFTER having completed fourteen days' holiday in Victoria by rail by the medium of one of your "All-Lines" tickets, I now see fit to write to you, specially to voice my opinion of the grand idea of the all-lines ticket, as I maintain that it gives people a wonderful opportunity to vary their travel without any worry or trouble to not only themselves but also the railway people.

The purchase of this ticket (£5 12s. 0d. net, 2nd) has allowed me to visit parts of Victoria which perhaps ordinarily I would not have had an opportunity to see.

Before concluding my letter of appreciation, I wish to congratulate your staff who were most obliging and mannerly both on the lines and refreshment services during my travelling.

Thank you.
—Mr. George Quinsey, Post Office, Merbein, writing to the Chairman of Railways Commissioners.

RECOVERY OF LOST PROPERTY

RECENTLY whilst travelling by the St. Kilda train, my daughter had the misfortune to lose her tennis racket and did not notice her loss until some time after. With little hope of ever regaining same I made enquiries at the St. Kilda station, where with pleasure I learned that it had been handed in. I now wish to convey my thanks to the staff at St. Kilda for their courtesy and attention and to show that the honest action of the finder has been appreciated by me. From enquiries made I learned that the finder was Driver P. Prater, and I would be much obliged if you would convey to him, per medium of your paper, my sincerest thanks.

—Mr. M. Tyrrell, 60 York-street, St. Kilda, writing to the Editor.

TRIBUTE FROM "BACK TO" MOVEMENT COMMITTEE

AS chairman of the executive of the recent "Back to Bright" district celebrations, I desire to express my appreciation of the manner in which our local stationmaster and his staff, together with the engine crews, carried out their duties. Approximately 640 passengers came by rail, and myself and other executive officers were not only afforded every facility to welcome those guests, but were assisted in a most courteous and efficient manner throughout. The trains came well to schedule time, and this fact aided us considerably to carry out the programme as outlined, with pleasure to all concerned. I would be pleased if you would bring the facts I have mentioned under the notice of the authorities.

—Cr. W. H. Goldsworthy, J.P., Chairman Executive, "Back to Bright" District Celebrations, writing to the District Superintendent, Seymour.

THE BRAKES DID WORK

MR. A. ANGEHRN of the Swiss Federal Railways, as follows to the Editor of the *Railway Gazette*:

"In your issue of September 13 you quote the case of an American stopping an express train, by means of the communication cord, as he said that he liked the scenery. May I mention the case of an Englishman who stopped a train in the middle of the St. Gothard Tunnel, Switzerland, last year. Just before arriving at Airola, which is at the southern entrance to the tunnel, a first-class passenger asked the guard what the penalty would be for improper use of the alarm signal. '25 francs,' answered the man, who is used to being asked all sorts of questions by foreign travellers. When the train, a heavy fast train of some 450 tons, was in the middle of the tunnel it suddenly stopped, someone having used the alarm signal. The personnel of the train quickly went through the train to see the cause of the stoppage and came upon our friend the Englishman, who said 'I did it.' On being asked why, he said: 'I just wanted to know if the brakes were functioning properly. Here is the 25 francs, which you informed me about 15 minutes ago was the fine.'"

The Shah of Persia recently inaugurated a new railway from Bandarshah, on the Caspian Sea, to Sari, in the province of Mazanderan.

Snap Their Childhood While You CAN

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THE . . .
**VICTORIA PALACE
NEXT TOWN HALL
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This picture is just a reminder that booking for the approaching snow sports season at Mt. Buffalo National Park is now open at the Government Tourist Bureau

Milady's Page

BY
NANETTE

Has the Day of the Short Dress Passed?

GONE is the day when silken knees peeped roguishly from beneath the dainty frocking of the boyish figure. Slowly but surely, for fashion takes her time in changing and Milady cannot but follow Parisienne lead, the longer frocks are finding favor.

And there's no lamenting. Short gowns have lived their day. Mayhap they'll be revived. There's no saying.



—Models from Georges

(Above)—An evening ensemble. Sleeveless frock or gown. Suitable for day wear, though discarding the coat leaves a delightful evening model. This design is dahlia red chiffon embossed with ring velvet cut to the new Princess style with the waistline neatly defined with fine shirring.

AS fickle as her sister Fortune, Dame Fashion sways her multitudinous following with seasonal changes—some new creation or an old one reincarnated. Her subjects worship her suzerainty. They bow to her bidding. Just now she has ordained that dresses should assume the dignity of by-gone days. 'Tis true she expects not the tight waists, or yet the laughable bustle, the high collar, or the unreasonable fullness, nor does her ruling declare that skirts shall trail on the footpath. She has, however, decreed that day dresses shall reach four full inches below the knees and that evening dresses shall barely tip the ground at the back of the heels. That alone is her injunction. The rest she leaves to her courtiers—the designers. Models of exquisite gowns leave their hands exclusively designed to favor the new fashion.

* * * *

They come in dainty floral moire for afternoon wear, lovely gowns typically designed for the occasion. Then for the outdoor ensemble, among others, a hunting green madiana—every frock has a charming coat either three-quarter or seven-eighths length. And, for bridge or reception wear, there's the beautiful embossed chiffon velvets, fur trimmed on the cuffs and side flare.

In most of these frocks the long Princess silhouette is broken at the natural waistline by a tiny one inch belt.

* * * *

The new shades are quaintly pretty. Dahlia ranges from deep red to dark amethyst. Browns are portrayed as *cafe au lait*, cocoa, mocha brown and cognac brown. Reds to the fore are raisin red, mulberry, raspberry red, plum and claret. Rich blues of latest discovery are marine, royal and crow blues.



(Right)—A charming Diana Stuart gown designed for party wear. It is of flesh chiffon appliqued with green hydrangea taffeta, made with a semi fitting bodice and full circular ankle length skirt.



10/-

A PRIZE of 10/- is offered for the best labor-saving kitchen hint received for publication on this page.

Hints should be addressed to "Nanette," c/o Editor, V.R. Magazine, Betterment and Publicity Board, Head Office, Spencer-street, and forwarded to reach there not later than April 10.

The winning hint will be published in the May Magazine, together with a selection of the best of the other entries.



Married at St. James's Church, Richmond, last month, Mr. and Mrs. J. Timmons have now settled down in their new home in Box Hill. Mr. Timmons is a popular member of the staff of the Printing division, whose marriage gift was a smoker's stand and bronze fire screen.

Try These Apple Recipes—

Apple Roses

Wipe clean six nice red apples and core them. Chop nuts and raisins to fill the openings. Season with a little vanilla. Cut the skin in eighths, about an inch down, and turn each point down as you steam fruit slowly. Serve with roast pork or as a sweet.

Apple and Chocolate Sandwiches

White bread and butter. Apple. Grated chocolate.

Cut some thin bread and butter, sprinkle it with finely grated chocolate. Peel one or two good eating apples and cut them in thin slices free from core. Put a layer of these slices between two pieces of the prepared bread, and press well together. Trim and cut into neat sandwiches. Serve on lace-edged paper.

Dainty Apple Pie

Quarter and core four large apples. Grate, sweeten and chill. Beat the whites of three

eggs stiff. Now add the apples, flavor and beat well. Place in a partially baked pastry shell and finish baking in a slow oven. Cover with whipped cream and serve hot.

Apple Custard Pie

Yolks of three eggs, one cup sugar, one teaspoon corn starch or flour, one cup grated tart apple. Whip thoroughly. Add sweet cream to make enough to fill deep pie can lined with rich crust. Dust with nutmeg and bits of butter. Bake slowly.

Apple Punch

Eight cups of cold water, seven large apples, which have been cored, quartered, but not pared. Add to this a cup of raisins, a few bay leaves, stick of cinnamon, the grated rind and juice of three lemons. After this is boiled add eight cups more of cold water. Boil three-quarters of an hour and drain. Add two pounds of sugar and the juice of two lemons; stir until dissolved. Add a dozen crystallised

RAILWAY ENGAGEMENT

The engagement is announced of Miss Molly Richardson, formerly of the Secretary's branch and now of the Audit branch, to Mr. Jim Kinnaird of the Rolling Stock branch.

cherries, some chopped seeded raisins, and serve in punch cups.

Apple Gems

Two cups of flour, two teaspoons of baking powder, 1 egg, a teaspoon salt, two tablespoons of butter mixed in the dry ingredients. Make a very soft dough with sufficient milk to bind. Prepare gem irons half full of apple sauce, drop the batter on top of apple sauce and bake twenty-five minutes in moderate oven. Serve with sweet white sauce or cream.

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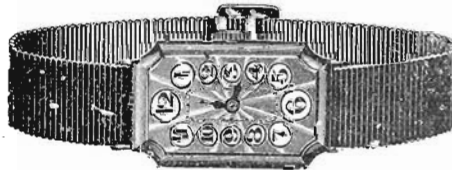
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More Institute Examination Results

SUPPLEMENTARY to last month's results is this further record of the names of railwaymen who were successful in passing the recent Institute examinations in Safeworking (Train Running and Signalling divisions), Station Accounts and Management, Typewriting and Short-hand.

Safeworking (Train Running Division)—McLeod, R. J., Prtr., Princes-bridge, 86 marks; Hughes, A. M., Asst. Engr., Head Office, 82; Goldman, L., Prtr., St. Arnaud, 79; Fitzpatrick, R., Shntr., Bendigo, 77; Hickey, J. A., Engrg. Asst., R.S. Head Office, 76; Smye, F. J., Prtr., Reservoir, 75; McQuillen, J. P., Prtr., Sunshine, 74; Bruce, J. R., Dr., Geelong, 68; Best, W. J., Prtr., Tiaralgon, 66; Larsen, L. T., Prtr., Spencer-street, 66; Hooley, L. G., Prtr., Bendigo, 65; Humphrey, W., Lab., Melbourne Goods, 65.

Safe Working (Signalling Division)—Nolan, T., Prtr., Woodend, 82; Tobin, W. J., Clk., Kyneton, 80; Cahill, J. D., Blk. Recrd., Spencer-street, 79; Thomson, I. J., Prtr., Glenferrie, 78; Ginnane, W. P., Prtr., Spencer-street, 76; Tierney, T. A., Blk. Recrd., Franklin-street, 76; Bower, J. A., Blk. Recrd., Viaduct, 72; Walsh, R., Clk., Bentleigh, 71; Davidson, H., Prtr., Bendigo, 71; Whitburn, H. J., Lab., Bendigo, 70; Brady, W. E., Prtr., Spencer-street, 69; Carroll, H. R., Prtr., Moonsee Ponds, 68; Tripp, C., Lab., Bendigo, 67; Lynch, C., Chr., Melb. Goods, 66; Coyne, M. F., Prtr., Mentone, 66; Flanagan, V., Prtr., Port Melb., 66; Crowe, T., Prtr., Sunshine, 65; Barger, R. C., Lab., Bendigo, 65; Moore, C. P., Asst.

Mech., Garage, Batman-avenue, 63;

Shorthand (Elementary Theory)—Harford, M., Clk., Newport, 99; Norris, G. V., Clk., Accountancy Branch, 98; Jose, R., Mess., Secretary's Branch, 94; Stanley, E. P., Mess., Bendigo, 84; Falla, R. J., Clk., Ballarat, 83; Saddler, H. T., Mess., Printing Div., 71; McLean, N. L., Mess., Spencer-street, 69.

Shorthand (Advanced Theory)—Roffe, Chas., S.M., Inverleigh, 88; Lambert, F. R., Clk., Melbourne Goods, 72; Tyson, H. A., Clk., Ballarat, 71; Leamon, S. C., Lad Lab., Jolimont, 67; Cairns, K. S., Lad Lab., Darebin, 66; Clack, W. S., Prtr., Ballarat, 66.

Shorthand (Speed)—Carter, R. O., Clk., Accountancy Branch, 150 w.p.m.; Ritchie, V., Clk., Construction, 130; Conlon, C. J., Clk., Head Office, 110; Jones, E. W. P., Clk., Dudley-street, 110; Dunn, D., Miss., Accountancy Branch, 110; Kingston, T. J., Clk., Ballarat, 110; Lowenthal, W., Clk., Head Office, 100; Mitchell, R. W., Sig., North Fitzroy, 90; Berry, F. H., Mess., Flinders-street, 90; Robertson, H., Mess., Flinders-street, 90; Doyle, E., Clk., Spencer-street, 80; Jennings, R., Clk., Melbourne Goods, 80; White, G. H., Clk., Audit, 70; Einsiedel, J. E.

Clk., Audit, 70; Hernan, J. P., Lab., Newport, 70; Dale, J., Clk., Head Office, 60; Humphreys, R. A., Mess., Head Office, 60; Hawkins, D., Mess., Head Office, 60.

Station Accounts and Management (Grade 1)—McGaffin, A. E., Goods Clk., Ararat, 82 marks; Thwaites, J. E., A.S.M., Dobie, 80; O'Donnell, J. W., A.S.M., Lethbridge, 80; McIntosh, D. T. F., Op. Prtr., Rainbow, 74; Leroy, A. L., A.S.M., Tabilk, 70; Barrington, A. E., Op. Prtr., Lilydale, 64; Gale, L. J., Clk., Hamilton, 62; Wilson, H. C., Act. Op. Prtr., Wangaratta, 62.

Station Accounts and Management (Grade 2)—McInnes, D., Prtr., Caulfield, 84 marks; Carroll, H. R., Prtr., Moonsee Ponds, 76; Dynes, D. G., Prtr., Ringwood, 70; Arthur, R. H., Lad Prtr., Yarragon, 62; Boreham, L. C., Signal Prtr., Sunshine, 62; Thomson, I. J., Prtr., Glenferrie, 60; Hammond, A., Prtr., Pakenham, 60.

Typewriting—Cairns, K. S., Lad Prtr., Darebin, 40 w.p.m.; Witney, W. H., Lad Lab., Newport, 30; Humphreys, R. A., Mess., Head Office, 30; Falla, R., Clk., Ballarat, 30; McLean, N. L., Mess., Head Office, 20; Warne, A. O., Mess., Spencer-street, 20; McGinnisken, W. C., Mess., V.R.I., 20.

NEW CLASS IN ENGINE MECHANICS

THE Council of the Institute has recently formed an oral class in Internal Combustion Engine Mechanics, under Mr. N. Hankin, driver-in-charge, rail motor service. The following is the syllabus of study:—

Principles of Internal Combustion Engine; Construction of Engine; Timing of Valves; Cooling System; Lubrication; Carburettor; Principles of Magneto; Construction of Magneto; Transmission; Gear Box; Rear Axle; Chassis Fittings.

Employees attached to the departmental rail or road motor services, as well as owners of private cars, should enroll in this class.

The class is open to financial members of the Institute on payment of 20/- per term of 20 lessons. The class is held on Monday evening at 7.30.

SOCIAL CLASSES RE-OPEN

THE Institute social classes reopened on February 3. Financial members of the Institute and the dependents of financial members who are desirous of taking tuition in pianoforte, stringed instruments, singing, elocution and dramatic art, should do so from the competent instructors appointed by the Institute, and have the benefit of the reduced rates available to members.

DEATH OF MRS. MICHIE

WITH tragic suddenness, Mrs. J. D. Michie, wife of the Institute librarian, died last month. She was privately interred in the Heidelberg cemetery.

Institute Blue-Ribbon Night

AT the annual Institute prize night last month, Mr. H. P. Colwell, honorary president, made the awards to successful students at the educational examinations.

Signal Porter D. McInnes of Sunshine (Div. A), Porter L. Coldman of Donald (B), Fireman J. Foley of Bendigo (C), and Repairer W. Appleyard of Cope Cope (D) won the respective divisions of the "Harold W. Clapp" prize, and Acting Fireman W. M. Booth of State Mine won the "J.C.M. Rolland" prize.

Bookkeeping (Jun.)—1st Council Prize: J. P. Morrissey; **Bookkeeping (Sen.)**—"W. D. Bracher" Prize: J. G. Sexton; 2nd Council Prize, R. Jennings; **Engine Working (Jun.)**—1st "T. H. Woodroffe Prize": J. Hynes; 2nd Council Prize: V. Matthews; **Engine Working (Sen.)**—1st "T. H. Woodroffe" Prize: G. Heffernan; 2nd Council Prize, also 2nd Council Prize, Westinghouse Brake: B. Sadler; **Westinghouse Brake (Jun.)**—"P. Alexander Memorial": P. Conzeggi; 2nd Council Prize: A. S. McLeary;

Westinghouse Brake (Sen.)—"P. Alexander Memorial": S. Greenwood; **English (Grade 1)**—1st "W. R. Brown" Memorial: L. M. Hunt; 2nd Council Prize: J. F. Elliott; **English (Grade 2)**—1st "W. R. Brown Memorial": E. Einsiedel; 2nd Council Prize, also 2nd Council Prize Shorthand (Speed), V. Ritchie; **Special Prize**—J. P. Hernan; **Permanent Way (Grade 2)**—1st "W. R. Brown Memorial": W. A. Appleyard; 2nd Council Prize: W. J. Tayles; **Permanent Way (Grade 1)**—1st "P. Alexander Memorial": R. Cardell; 2nd Council Prize: W. Stewart; **Safeworking ("A" Division)**—1st "P. Alexander Memorial": T. Nolan; 2nd Council Prize: W. J. Tobin; **Safeworking ("B" Division)**—1st "P. Alexander Memorial": R. J. McLeod; 2nd Council Prize: A. M. Hughes; **Shorthand (Elem. Theory)**—1st "P. Alexander Memorial": M. Harford; 2nd Council Prize: R. Jose; **Shorthand (Adv. Theory)**—1st "P. Alexander Memorial": C. Roffe; 2nd Council Prize: F. R. Lambert; **Shorthand (Speed)**—1st "A. E. Hyland" Prize: R. O. Carter; **Station Accounts (Grade 2)**—1st "P. Alexander Memorial": D. McInnes; 2nd Council Prize: H. R. Carroll; **Station Accounts (Grade 1)**—1st "P. Alexander Memorial": A. E. McGaffin; 2nd Council Prize: J. E. Thwaites; **Typewriting**—1st "A. E. Hyland" Prize: K. S. Cairns; 2nd Council Prize: W. H. Witney

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On March 3, 1871, Congress incorporated the line, with the following statement: "The Texas Pacific Railroad Company shall be and is hereby

declared to be a military and post road; and for the purpose of insuring the carrying of mails, troops, munitions of war, supplies, and stores of the United States, no act of the company, nor any law of any state or territory shall impede, delay or prevent the said company from performing its obligations to the United States in that regard."

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None, perhaps, but many do it unconsciously when they spend money that might otherwise have earned interest at 4% indefinitely.

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Keep your money in a Savings Account and earn, not spend, 4% interest per annum.

**Commonwealth
Savings Bank
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Sport

Continued from page 37

O'Toole; treas., F. Salvana. Mrf W. Keppell declined the position of social secretary and no appointment was made to this office. It is quite on the cards that two clubs will, later on, be formed from this one—the Heidelberg and Preston lines forming a new club.

Receipts and Expenditure Season 1929

Receipts—Donations, Members' Subs., £27 10s. 0d.; Social efforts, £141 17s. 6d.; Refund from cricket club, £3 14s. 0d.; Advertisements, &c., £12 19s. 0d.—£186 0s. 6d.
Expenditure—Materials, £17 12s. 5d.; Loss of time, injuries, &c., £40 8s. 0d.; Reg. fee V.R.A., £2 6s. 0d.; Presentations, £16 3s. 0d.; Umpires, Grounds, £20 9s. 6d.; Wreath, £1 7s. 6d.; Printing, £2 9s. 9d.; Annual Social, £76 18s. 0d.; Breakages, £0 19s. 0d.; Stationery, £1 17s. 10d.; Training necessities, £5 9s. 0d.—£186 0s. 6d.

NORTH LOCO.'S MEETING

AT the annual meeting the following office-bearers were elected:—

President and treasurer, W. Cornish; vice-presidents, A. R. Stamp, W. Deasey, J. Landrigan, W. Johnson, P. Lewis, D. McCormack, and J. Orchard; Hon. sec., C. J. Madigan; Committee, Messrs. Bassett, Farmer, Ludwig, McDonald, Broman, Sandlout, Gibbons, Birchall, Dargeval, Goss, Millen, Sinclair, Burgess, Fox, Brown, McMahon and Bersey.

A credit balance was shown on last year's working, and it is expected that a strong team will be available this season. The club has been in the association three years and has won the premiership in 1927 and 1929, being runners-up in 1928. They have an enthusiastic and hard working sec. in Chris Madigan, who is principally responsible for the club's success.

FORMATION OF ROWING CLUB

IT has been decided by the Council of the Institute to form a Victorian Railways Institute Rowing Club to be affiliated with the Richmond Rowing Club. Membership of the club will be open to all financial members of the Institute. Those interested in this form of sport should forward their names to the General Secretary of the Institute who will forward particulars.

Marvels of the Ether

Continued from page 34

upon the hard X-ray and, unless the previous lesson has been heeded, we would again be severely burned before we realized the danger. Some consolation might be had, however, from the fact that this ray is to some extent a remedy for cancer, although it does not destroy the roots of the growth.

The most practical use to which these rays are put is in the production of X-ray photographs.

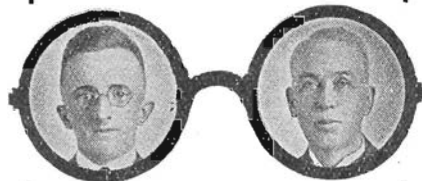
From past experience we would move very carefully now, and feeling our way down through the region of the Gamma rays given off by radium, of which comparatively little is known, down to a wave-length 50 times shorter than Gamma rays, the most modern rays, known as Cosmic X-rays, would be encountered. These rays are generally accepted by scientists as *invading the earth from interstellar space* and have 100 times the penetrating power of the vibrations used in taking X-ray photographs. As they are probably the result of atomic disintegration taking place in some far distant star or nebulae and have pronounced ionizing properties, these rays may shed some light on the vagaries of our seasons.

Origin of Life?

In the realm of psychic research, any intelligent explanation of thought transference, telepathy and incorporeal "materializations" would seem to demand some form of vibration such as the Cosmic ray, and, although the unexplored band of frequencies immediately below the wireless waves seems to merit some attention as a medium for telepathy and thought transference, I feel that in the unknown region far below the Cosmic rays will be found the origin of life and the controlling factors of the universe.

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Untying Australia's Arm and Leg

Continued from page 8

incidence extends to very wide boundaries, certainly away beyond the domain of transfers at junction stations, rolling stock, and other railway problems. The measure of a nation's greatness in these modern days is the facility with which its trade and commerce can be conducted. Transportation is the hand-maiden of commerce, and the railway is the main arm of transportation. In the years that lie ahead Australia, so favored a country with its great inland areas, is destined to play a leading part in the world's affairs, but between city and city and away inland there must be railroads along which our passengers and merchandise can travel without hindrance. If we fail to give free and uninterrupted transport, and continue to hug to ourselves a railway system already greatly hampering Australia, those who follow will surely not rise up and call us blessed.



Here she comes
Down the street
Looking smart
And very neat!

Yes, of course—she
did "Nugget" her shoes
this morning!

"NUGGET"

DARK TAN

THE "NUGGET" TIN OPENS
WITH A TWIST!

Sir Arthur Duckham, of the Big Four, when in Australia recently, aptly described the situation. He said:

"Australia is an island continent, the only island continent inhabited and controlled by one people, but we have spoilt it, that continent, we have broken it into sections, and as it were, tied up one arm and one leg."

It is time Australia began to untie that arm and that leg.

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Doctor—"I will give you a local anaesthetic if you think it necessary."

Railroad Man—"Well, Doc, if it's going to hurt, I reckon you had better cut out the local and run me through on a sleeper."

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Miss S.F.—Would like very much to use it, but altogether too blurred and indistinct to reproduce.

W.B. (Beaufort): Thanks, will use as opportunity offers. C.E.S. (South Africa): Will use later.

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Books and New Books

By J. D. MICHIE

The Reorganisation of Crewe Locomotive Works, L.M.S.R.—The complete reorganisation which has been carried out at the Crewe Locomotive Works of the L.M.S.R. has enabled widespread economies to be secured in the operation of locomotive building and repairing. It will be sufficient to state that, under the new arrangement, the time taken for a complete locomotive repair has been reduced to a maximum of twelve days. The successful manner in which this has been done is fully described in the volume under review. The author was afforded every opportunity of studying the reorganisation in all its aspects at first hand in the works at Crewe, and the book constitutes a very complete description of the locomotive building and repairing organisation of a British railway.

Another Day.—By Jeffery Farnol. The romance of Keith Dallas Chisholm—wanted for murder. Farnol tells us that the story should begin with the death-sob of Red Rory as the murderous bullet smote him from life—a boy staring into a hated face, seen as

A Kind Word From a Railway Cleric

IN response to my appeal for reading matter for the patients of Wonthaggi Miners' Hospital, I received a bundle (2 years) of your Railways Magazine. Before giving them to the patients, I glanced at a copy and found it so interesting that I was impelled to hurriedly read the lot. May I congratulate you and your staff upon a most excellent production. It is in the front rank of industrial magazines, and at the same time a most instructive and entertaining journal for any who appreciate a journalistic endeavor.

I have always been interested in railways and railway work, and for three years was on the South African Railway Mission, and for five years on the Railway Mission from Regina to Calgary on the then Canadian Northern, now a branch of the Canadian National Railways. I have travelled on pretty well everything in the railway line from the "jigger" to the pullman, from the roadmaster's caboose to the rotary snow plough.

More power to your elbow.

Yours for service too.

(Rev.) Frank H. King, The Rectory, Wonthaggi.

it were through a swirling mist, a ghastly face—grey, dead, blood-smearred Instead it opens with the song of a lark carolling joyously in the sunny air high over the Sussex Downs whereon lay—but to Farnol goes the honor of telling his own story.

Freckles Comes Home.—By Jeanette Stratton Porter. Nearly two million of "Freckles'" story have been sold, and the public loved the boy, and the bird woman, and the swampy reaches of the Limberlost so much that they clamored for a sequel. But Gene Stratton Porter was busy with other books, and did no more than plan the novel in rough outline. It has been left for her daughter, Jeanette, to take up the thread of Freckles' adventurous life, and bring him back from

the rich uncomfortable luxury of his new-found home in Ireland to his beloved Limberlost, and the life he knew, and best of all to the Angel.

The Millenium.—By Temple Thurston. Mr. Thurston's novel deals with a period just before and up to the beginning of the War. It touches deeply a subject that contains an ever-present truth in feminine psychology. The depths of despair and mental degradation to which Anne Pendred falls, to rise again at last, make a story of intense realism and great beauty.

Wholly set up and printed in Australia at the Victorian Railways Printing Office, Laurens-street, North Melbourne, for the Publishers—The Victorian Railways Commissioners.

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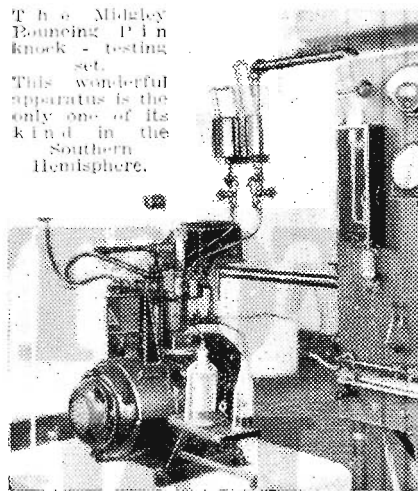


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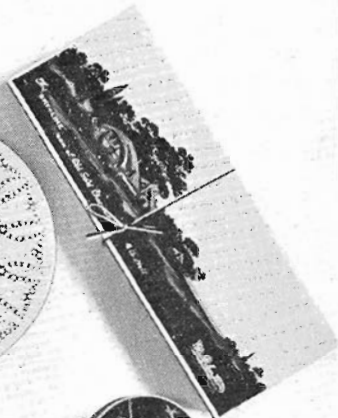
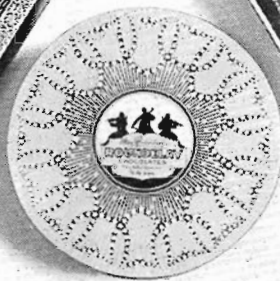
The Victorian
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APRIL 1930

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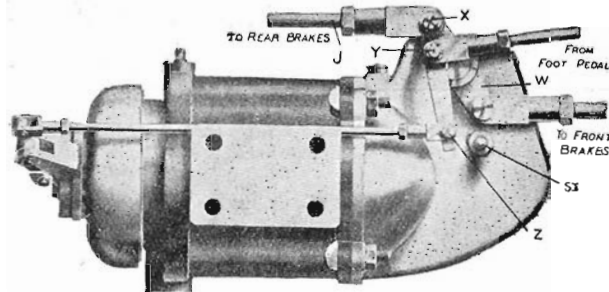
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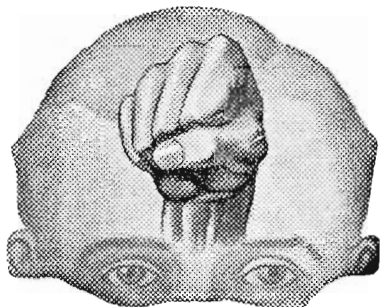
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SAFETY-HEALTH-BETTERMENT

BENEFIT BY YOUR IDEAS

THE following awards were made during February for adopted suggestions :—

Total Amount ... £223.

Highest Award ... £136.

The number of suggestions received during February was 201. Arrangements still exist for the placing of adopted suggestions of particular merit before the railways of the various States; also the Commonwealth and New Zealand Railways.



Diagram showing personal injuries sustained by employees during February, 1929. These accounted for 148 "lost time" accidents.

APRIL SUGGESTIONS DRIVE

THE subject chosen for the 28th Suggestions Drive, which will be held during April, is :—

Improvements in Luggage Delivery System.

Suggestions should be submitted to the Betterment and Publicity Board in the usual way. Suggestions on any other subject will, of course, also be accepted.

You have a shilling. I have a shilling. We swap. Now you have my shilling—I have your shilling. We are no better off.

You have an idea, I have an idea. We swap. Now you have two ideas and I have two ideas—both are richer.

What you gave you have; what I got you did not lose.

This is co-operation.

Thoughts Worth Pondering—

There is something in you that is bigger than everything outside you.

The jawbone of an ass is just as dangerous a weapon today as it was in Samson's time.

To get ahead: look ahead, think ahead, plan ahead, plot ahead.

Avoid stress in your early years and you invite distress in your later years.

There's nothing in a name—except what we make it.

The best place I know for a young man to succeed is where he is, by better using what he has.—Charles M. Schwab.

Nothing worth while is lost by taking time enough to do it right.

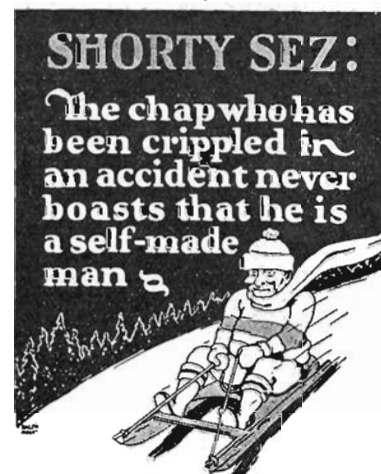
Some one has spoken ill of me. It matters not; I will endeavor so to live that nobody will believe it.—Plato.

He who would climb a tree must grasp at its branches, not its blossoms.

Discipline yourself to drudgery, for by that you gain a mastery over yourself and the world. Success depends on being able to do things you don't like far more than on being lucky in finding things you do like. The man who can do only what he likes has narrowed his path to achievement to the breadth of a rabbit run.—J. Ramsay MacDonald.

It's the little things that bother us. You can sit on a mountain, but not on a tack.

There is only one thing in business that is certain and that's change. I don't know what tomorrow is going to be like, but I do know this—it's



bound to be different from yesterday and today.—Henry Ford.

Nothing that is worth having ever comes to one except as a result of hard work.

Cheer Up, and "Don't Be An Idiot!"

DR. JOHN WATSON used to tell a story of a Liverpool merchant who, through no fault of his own, failed in business and came down with a crash from prosperity to poverty. When Dr. Watson called to offer sympathy and assistance, he found his friend in the depths of despair.

"Everything has gone!" he moaned. "I have lost everything."

"That's bad," said Dr. Watson, "so you've lost your reputation."

"No; thank God," said the man rather indignantly, "my name and reputation are unsullied."

"Then your wife has left you," suggested Dr. Watson.

"My wife," cried his friend, his eyes blazing with anger, "my wife is an angel—loyal and kind and true."

"I see," said Dr. Watson, "then your children have turned their backs on you."

"I never seemed to know my children," said the man, "until this happened. They have been so brave and tender and sympathetic."

"My dear old chap," said Dr. Watson, "you told me you had lost everything. Why, you've lost nothing except a paltry bag of gold. Love, loyalty, comradeship—all the really important things—are yours still. Cheer up, and don't be an idiot."

—Capper's Weekly.

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Photograph—Courtesy AUSTRALIAN INSTITUTE OF ANATOMY.

THIS is the first reproduction ever made of the only existing photograph of a platypus nest. The three young were discovered in the nest on the banks of the Goulburn River in North-Eastern Victoria.

In common with the Australian echidna, these remarkable mammals are hatched from eggs and milk-fed by the mother.

Moving a Museum by Rail

By C. H. Cheong

RAILWAY history was made when the Australian Institute of Anatomy was removed recently from Melbourne to Canberra.

Never before have such specimens from an Institute been transferred from one location to another by a railway, here or elsewhere; and seldom indeed has freight of such national value been carried by an Australian railway system.

FEDERAL policy required that this ultra valuable and distinguished Institute should be transferred to Canberra. And rightly so. With the centralisation of all national interests, the Federal Government is able to place a metaphorical finger on the pulse of any phase of Australia's research and judge of its beatings. That it is beating and beating healthily is emphasised by the value of the specimens on view and by the deductions which have been made possible through their agency.

The only possible objections to the removal of these exhibits from Melbourne would appear to be that the actual transfer would involve possible risk of damage. The decision that the State railways were to convey them was entirely in accordance with the wishes of the staff of the museum and pays a handsome tribute to the efficiency of railway service.

Without Precedent

Under the guidance of Major Vinnicombe, acting director of the Federal Capital Transportation Department, the railways of Victoria and New South Wales recently completed the transference of the whole of the specimens belonging to the Australian Institute of Anatomy. The feat is without precedent in the history of railway freightage and has involved the use of about 1,000 standard cases in which the myriads of glass-cased specimens have been safely and securely packed by a special staff. In turn, the cases have been stacked in the transport carriers belonging to the Federal Government, and entrained from Melbourne.

On two other occasions, it is true, medical collections, very much smaller in size, have been transferred from one city to another by means of furniture vans. One of these was conducted from London to Edinburgh on behalf of Sir Charles Bell, the renowned surgeon who discovered the principal functions of the nervous system. Among these medical ex-

hibits were those dealing with the battles of Waterloo and Corunna. Time and again, these specimens have been of the utmost value to practising surgeons in diagnosing and operating



Hand of an Australian Koala, showing the two thumbs specially adapted for climbing

A study of the manner of movement of the Koala's upper limbs led to the development of the special type of splint used for arm injuries during the Great War. It is research work of this description which is being steadily advanced along many divergent lines of medical and surgical science by the Australian Institute of Anatomy

on similar cases. This museum, too, is public property and may be seen by any visitor to the Royal College of Surgeons in the city of Edinburgh.

The other instance was the transferring for the eminent Scotch medical scientist, Dr. William Hunter, of the specimens from which the whole of the modern practice of midwifery has been constructed. The removal of his medical exhibits took place towards the end of the eighteenth century.

Thus, not only has Scotland given civilization the principles of antiseptic and aseptic surgery and surgical anaesthesia, without which no modern hospital could survive, but she has also provided the foundation to which gynecological hospitals owe their very existence.

A Railway Parallel

Near by these specimens in the Glasgow University, incidentally, is the simple engine of James Watt. This is the engine whose basic principles are in operation in every steam locomotive today. No engine-driver could hope to run the Pacific type without a thorough grounding in the functions of the simple Watt invention. By way of the simple he will proceed to the complex.

Similarly in the case of the human body—the most complex system known. Its complexities can be revealed only by a study of types of animals in which these can be demonstrated in a simple form.

It is that form of study which is the basis of the research work being conducted by the Australian Institute of Anatomy, and the specimens which have been transferred by rail from Melbourne to the Federal Capital are chiefly connected with that particular branch of scientific investigation. The Institute is, in fact, an invaluable adjunct of the Federal Department of Health, and, little known though it is, constitutes a new and potent asset in fighting disease.

The Institute's collection of specimens consists in the main of Australian monotremes (platypus and echidna), marsupials and reptiles. Each is important in the consideration of what

constitutes health and disease, and has a definite medical or surgical value. Like those of Bell and Hunter, the collection, which is now national, was originally a private one and was founded and sponsored by Sir Colin Mackenzie when engaged in private medical practice. It was accepted by the Federal Government as a gift to the Australian nation in 1923, and is without rival in the world today.

Simple Types Unique

Australia—alone of the whole world—houses those simple types of animals, a study of which is absolutely essential for the correct and perfect analysis of the human body as regards health and disease alike. It is to be regretted that these animals are fast disappearing, and it is only a matter of time when, in the absence of rigid protective measures, they will all be extinct. Thanks to gun and poison, they show active signs of rapidly following the fate of the Tasmanian aboriginal nation which was so completely destroyed in the short but devastating period of 40 years.

The study of the bandicoot, for instance, throws important light on the problems of child birth, but, although that animal existed in great numbers 25 years ago, it is almost unprocurable today.

Every teacher in a medical academy realises his or her need of an understanding of Australian fauna as a major part of teaching equipment. So important are Australian native animals regarded in the United States that the authorities of the New York Natural History Museum have formed an Australian Hall, and the authorities of British, French and German universities are obtaining all the material they can lay hands on. Within recent years large numbers of Australian fauna have been sent abroad, and indications now point to the demand exceeding the supply.

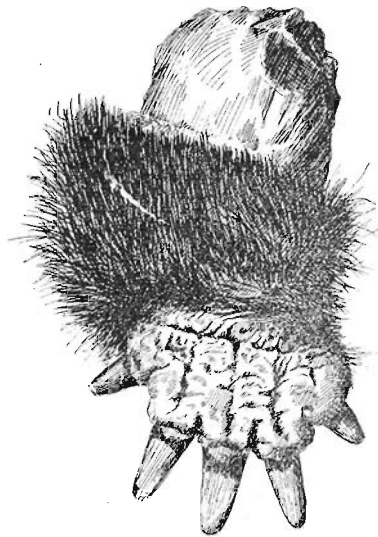
Finding the Relationship

There are several distinct expressions of the relationship which exists between the intense study of Australian animals and the steady progress of medical science. Surgical knowledge of the human muscular system provides a striking instance of this relationship.

Man's stature differs from all other mammals in that he moves on two hind or lower limbs and leaves the fore or upper limbs free. This fact is the basis of his intelligence. In the last war, fully 80 per cent. of the wounded suffered from injuries which interfered with the functions of the erect posture—injuries of the bones, muscles, joints or nerves. The successful treatment of those wounded men depended on the scientific knowledge of principles pertaining to the human erect

posture. The study of Australian fauna, so well adapted to the occasion, was essential and, for this purpose, the blue-tongued lizard, bearded lizard, platypus, echidna, kangaroo, native bear and the opossum were pressed into service.

To illustrate the result of this research, it is only necessary to refer to the chief types of splint adopted by both Allied and German armies for injuries to the arms. This splint held the arm out from the side of the chest and was devised from the study of the upper limbs of the native bear and opossum, either of which, while sitting in a fork of a tree, was able to reach above his head for the eucalyptus gum leaves which form the chief article of diet.



Hand of the Echidna or Australian Porcupine, specially adapted for digging

It is interesting to compare the structure of this hand with the climbing hand of the Koala on page 7

The modern and successful treatment of infantile paralysis was worked out in Melbourne in the same manner and the principle has been accepted throughout the scientific world.

Examining the Brain

There is another extensive field of medical research in which a study of Australian native animals is of great importance—the brain and ductless glands.

The most intricate portion of the intricate human body is the brain, both in structure and function. Briefly, the human brain consists of two halves connected by a broad band called the callosus, which enables the halves to function as one. The problem of co-ordination in nervous diseases is a most difficult one to understand, but

the clue is discovered in Australian marsupials, where the two halves of the brain function without the development of this connection. If with such a highly organized animal as the kangaroo, the development of this connecting band is unnecessary, the problem facing scientists is the query: Why is the callosus necessary with the human brain?

In the human body are ductless glands—structures which are necessary for existence. The most commonly known of these is the thyroid gland, enlargement of which is associated with goitre. The kangaroo, singularly, does not depend so much for its existence upon this gland, which in some cases is altogether absent.

Three New Glands

Again, certain glands, poorly developed in humans, are largely developed in Australian mammals. In the platypus, three new ductless glands have been discovered and it is possible that these may exist in the human body.

In the study of Australian fauna, in fact, lie the clues to the functions of the ductless glands which at the present time are so ill understood.

As another example of the importance of Australian fauna, that most common hospital operation, appendicitis, may be mentioned. It is recognised that the prevention of this is far more important than the actual operation, and, as in the case of the ductless glands and the muscular system, scientists must turn to Australian fauna to understand the organ's origin and development. In the well known Victorian bearded lizard, the appendix first makes its appearance. It reaches its greatest development in our native bear and common opossum, and in the former may reach the astonishing length of eight feet.

Without an Appendix !

Directly opposed to this, the Victorian wombat has, in some instances, actually been found to be devoid of an appendix, and generally speaking, it has reached a greater state of disappearance than that of man. Significantly, no instance of appendicitis has ever been recorded in any of these animals.

Scientific bodies throughout the world today expect the Australian people to act as custodians of the unique fauna found only in this continent. Although quite common twenty years ago, many varieties of Australian animals are now almost extinct, notably the bandicoot, Tasmanian tiger, banded ant eater and the marsupial mole.

It is the bounden duty of Australians, and should be regarded as their especial privilege, to do all in their power to preserve their fauna for future generations of Australians.

Men of Power—

No. 1: The Substation District Engineer

By S. C. WEETMAN

ONE of the most important features of the arrangements for the supply of power for the operation of electric trains is the provision of substations at certain points around the electrified system. Power is supplied to these substations from Newport power house by underground cables or overhead lines at a pressure of 20,000 volts. The train electrical equipment, however, is designed for operation at 1,500 volts. Consequently, it is the function of the substation to transform this high pressure alternating current to direct current at 1,500 volts, and to feed it into the overhead wires for operating the trains.

The responsibility for the smooth working of this section of the electrified system devolves largely upon the substation district engineers, of whom there are three working under the direction of the distribution engineer and his assistant. There are no fewer than 11 manually operated, 11 automatic and eight industrial substations. In addition, there are eight switch houses which require regular inspection and maintenance. Included in the above totals are the substations for the departmental electric trams.

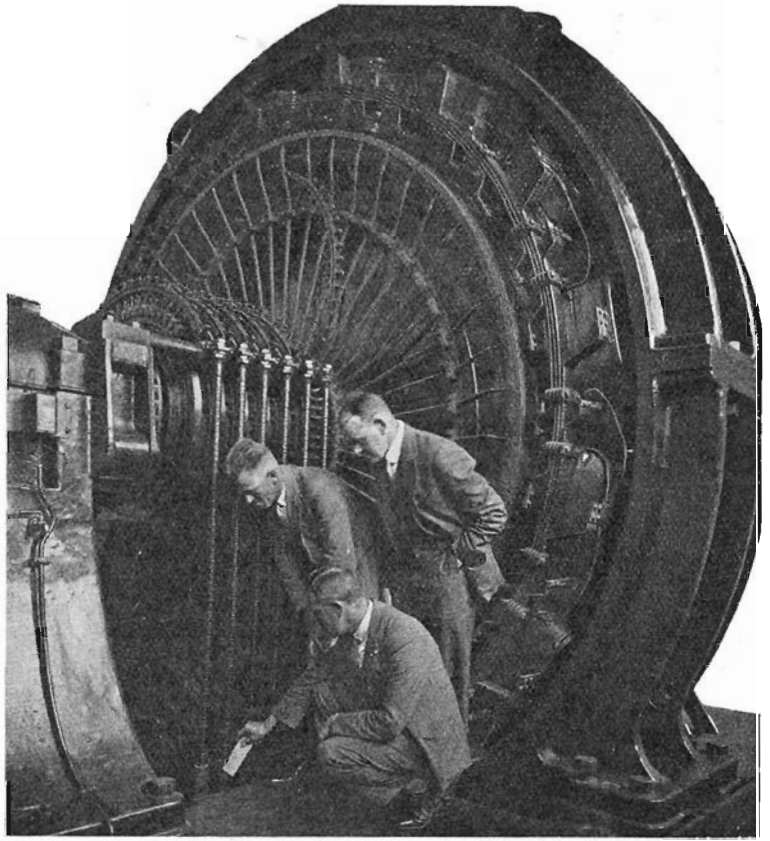
When Troubles Arrive

Troubles developing in connection with the arrangements for supply of power are all reported to the control engineer at Newport, who, owing to the special telephone facilities installed in the control room, and to his knowledge of the electrified system, is able promptly to inform those responsible for rectifying any defects.

At 9 o'clock each morning, a type-written "trouble" report is prepared, summarising all troubles, large and small, experienced during the previous 24 hours. The district engineers refer to this report for events occurring in their respective districts, and, of course, plan their day accordingly.

At manual substations, the engineer's presence is not required for minor faults. At each of these substations a shift electrician is continuously in attendance and he attends to the routine matters which arise from time to time.

An actual day in the life of a district substation engineer will perhaps serve better than anything else as an indication of his duties. Recently, it was my lot to spend a working day in the



A technical discussion in the shadow of one of the huge rotary converters at Jolimont substation

FOR its size, Melbourne has an electrified railway system that, in the matter of equipment and service, can compare favorably with the electric railways of any other city anywhere.

The following non-technical article, which deals with substation work, is the first of a series of articles concerning the vitally important but little known question of power distribution for the operation of electric trains. Other articles in the series will be published at a later date.

company of District Engineer Fred Thornton, whose district embraces the substations at Lower Ferntree Gully, Mooroolbark, Rosanna and several other locations.

During the night, Mr. Thornton had been called out to attend to a fault which had developed in the Mitcham substation. On arrival there, he had found that a coil in one section of the equipment had burnt out and was still smouldering. The prompt application of portion of the contents of a convenient fire extinguisher made everything safe. But the coil was ruined and it was necessary to make arrangements for a new one to be sent along.

As luck would have it, two men from the maintenance depot had been told to proceed by an early train to the Ferntree Gully substation, and by arrangement with the Mitcham stationmaster, one of these men was instructed to detrain and fit the new coil in position.

The Ferntree Gully substation operates automatically and is of the type using a mercury arc rectifier for converting the alternating current to direct current. The maintenance men were on their way to this substation to dismantle for inspection a vacuum pump, the interior of which had been specially treated some 15 months before in an endeavor to minimise corrosion. The second man had arrived at the substation and opened it up prior to our arrival.

As soon as the substation could be shut down temporarily without seriously affecting the running of trains, the control engineer and the local stationmaster were informed that the substation was about to be closed down. The necessary switches were then operated to cut off the power from the substation equipment.

The rectifier substations are not particularly impressive to the casual observer who generally expects to see

whirling masses of machinery. But the protective devices which are installed are very ingenious. Overloading, short circuiting, loss of vacuum in the rectifier cylinders, or excessive temperature of the cooling water are all watched by relays and thermostatic devices. Should any abnormal condition develop, the power is automatically shut off before damage can occur, and it is then necessary for a competent man—generally the district engineer—to visit the substation and give any attention necessary before the equipment will operate again.

When the power was shut off from the substation, the equipment was, of course, safe for handling. Removing his coat, Engineer Thornton joined the fitter and assisted him to drain the water surrounding the cylinder, to disconnect the pipe connections, to remove the apparatus from its foundations on to the small platform at the entrance to the substation, and to dismantle the pump.

The satisfactory condition of the walls of the water jacket, incidentally, showed that the special treatment had been effective. Satisfied on this point, instructions were given to the equipment maintainer regarding the cleaning of the pump, while details to be watched when reassembling the pump were also pointed out.

Mooroolbark's Troubles

Knowing that the work could now proceed without mishap, we joined the car again and sped on to Bayswater and across to Croydon, where a halt was called for lunch. After satisfying the inner men, we continued to Mooroolbark, where another automatic substation, duplicating that at Lower Ferntree Gully, is in operation.

Arrived there, we found the two members of the regular maintenance gang in attendance. These men are so rostered that they visit each of the automatic substations once a week and inspect the apparatus for faults.

At Mooroolbark, the maintainers were

busily engaged renewing the wiring for the substation lights which had been put out of order by a slight mishap. After discussing several matters concerning conditions at substations in his district and giving them a number of directions, a telephone call was put through to head office by the engineer to determine whether any serious faults requiring his attention had developed in his district.

Mitcham substation, although operating automatically, is of a different type from Ferntree Gully and Mooroolbark. Here the first feature to attract attention is the presence of two huge rotary converters along the centre of the station. This moving machinery caught the eye much more quickly than did any one feature of the other substations we had visited. The chief factor of the rectifier substations is the absence of moving machinery which, of course, means that there are fewer parts to go out of order and consequently fewer failures.

Machine Watches Itself

Included in the protective apparatus in the rotary converter type of automatic substation are devices which close a machine down when the bearings become heated to more than a certain predetermined temperature, or when the coils become too hot, or when the machine starts to overspeed. Simple little relays they are, which take only a moment to reset, and yet, by their action, they indicate that something is wrong with the apparatus and may prevent hundreds of pounds worth of damage to a machine.

As head office again had no faults to report, and as there was only one machine needed by the traffic being handled, Engineer Thornton went to the trouble of starting up the other machine as a demonstration. A slight pressure on a

relay started a series of clicks and clacks and bangs in various parts of the substation as the different switches operated. Then the armature of the machine began to rotate. Quickly it gathered speed and, after a few more mysterious noises, the machine was feeding power into the overhead line.

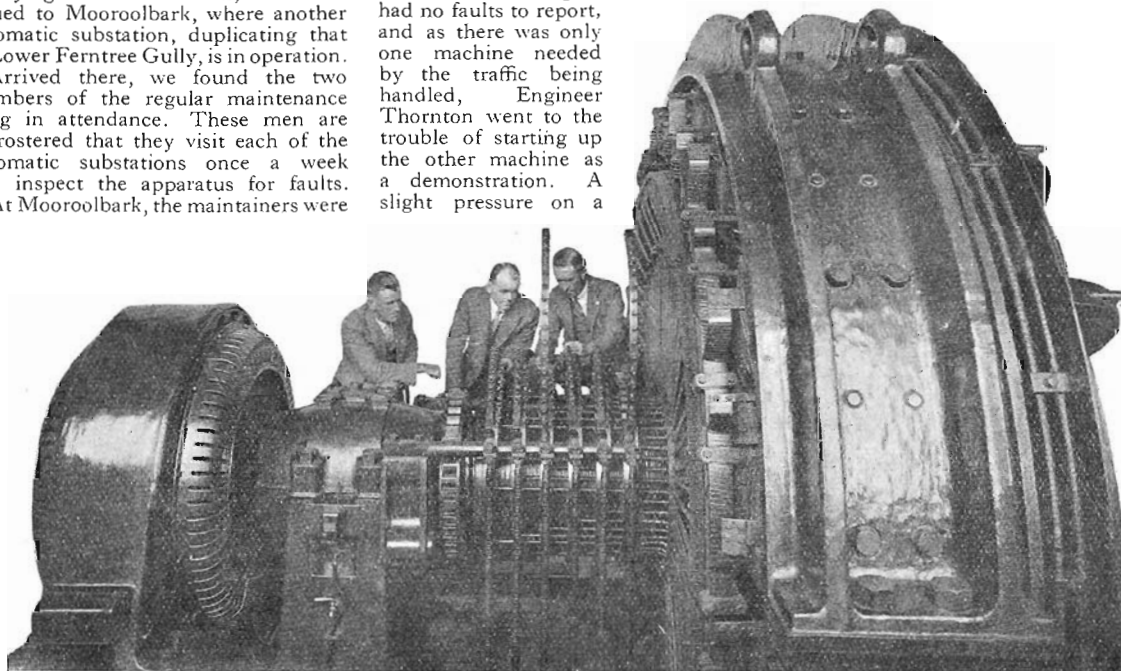
Each of the sounds indicated that a relay had operated and that another switch had been closed, the whole series taking place in a regular sequence so arranged that nothing could occur which would cause damage to the machine or other equipment. Under actual working conditions, the first relay is automatically operated by the demand for power on the overhead lines which are fed from that substation.

.... And so Home

The same series of clacks and bangs, but in the reverse order, took place when the machine was shut down.

As the afternoon was by this time well advanced, as the new coil had been correctly installed, and as nothing irregular had become apparent in any of the other apparatus, we decided to call it a day. Nothing untoward had developed during the day, but, during the evening, when a misty rain was falling, I wondered several times whether my erstwhile companion was also having a quiet time or whether a refractory substation had decided to worry him.

In any case, I knew that, whatever happened, expert attention was available and the trains would be running in time to take me to work the following morning.



What's wrong here? Substation engineers, Messrs. Pell, Thornton and Archibald, inspect the brushes of a rotary converter

Things We Are Talking About

SUPPORT for the interesting argument that the Victorian railways have never really incurred a deficit and are not likely ever to incur one was forthcoming in the Melbourne press last month. The basis of the argument was, of course, that actual working expenses only should be balanced against railway revenue, and that the income should not be expected to carry the burden of the railways' annual interest bill of three-and-a-half millions as well.

Pointing to the fact that at no time within the last half-century at least had rail revenue been insufficient to meet the actual cost of earning that revenue, the protagonists of railway credit insisted that no deficit could really be marked against railway operations. It's all a question of the accepted definition of the word "deficit." The

**WHEN IS
A DEFICIT
NOT A
DEFICIT?**



... the accepted definition of the word

borrowed money which built our railways was advanced to us on the customary condition that interest would be forthcoming at regular intervals. How that interest was earned—whether by the railways or the income tax assessors—was a matter which didn't, and still doesn't, worry the lenders. But in Victoria it has generally been considered by public, press and politicians that, if railway earnings in any period don't balance working costs *plus* the interest charges attributed to that period, a deficit has been incurred. Railwaymen, it is true, hold very definite opinions of the value of the service rendered to the community by the State's railways. And it is difficult to see how any one could deny that that value has been far in excess of the deficits which have been incurred during the past 25 years . . . using "deficit" in the generally accepted sense of the word.

IF the interpolation of a handful of figures is permissible, the position can be clarified somewhat. During the quarter-century ended with last financial year, the nett revenue available for the payment of interest—that is, after working expenses but

**THE MONEY
MUST BE
FOUND**

not adequate depreciation had been met—was £52,517,000. As the interest charges for that period amounted to £54,618,000, the total shortage or loss or deficiency or deficit (whichever term is preferred) was thus £2,101,000. Whatever the viewpoint, however, and whatever the preferred definition of the term "deficit" may be, there can be no escape from the inexorable fact that money has to be found somewhere, somehow, to pay interest charges on the railway asset as well as the railway operating expenses. Nor can it be gainsaid that, at the present time at any rate, railway income alone is obviously incapable of bearing that burden.

MOREOVER, as the Railways Commissioners have emphasised time and again, more money is needed immediately to meet the depreciation of railway property. The true cost of providing service has not

**DEPRECIATION
AND A
RESERVE FUND**

been assessed unless due regard has been paid to the gradual depreciation of the assets which provided that service. Depreciation is a very real factor in the working expenses of every undertaking, and its influence cannot be avoided by the simple expedient of refusing to recognise it. If the whole of the Victorian railway property were new, the amount required to meet annual depreciation would be approximately £250,000 more than is now being provided. But it isn't new, and the non-recognition of depreciation in the past has resulted in a loss of value to the property which can be set down at not less than £16,500,000. Finally, the establishment of a reserve fund to tide the Department over lean years—a precautionary step which the Commissioners insist has been too long deferred—would for a time increase the burdens which now press so heavily on the railway revenue. Still, the only way to handle a nettle is to grasp it.

THE surface of the road from Porepunkah to the Mt. Buffalo Chalet has just been widened by the Country Roads Board to a uniform 18 feet, all sharp curves have been flattened out and the magnificent scenic highway (one calls it highway advisedly) is now open to

**TWO-WAY
TRAFFIC TO
MT. BUFFALO**

two-way traffic. Between McKinnon's-turn and the Gap the road reaches its highest point—4,500 feet above sea level. Every halt along the road having been rendered unnecessary, motorists are now able to make the ascent from Porepunkah at the maximum speed of 15 miles per hour, reaching the Chalet comfortably in an hour and a quarter.



Hay or wheat? . . .

"GROW more wheat!" is today the nation-wide cry of agricultural experts, economists and governments. To help restore our adverse trade balance, more wheat must be exported, and in Victoria the immediate aim is to sow a million more acres this year. While the last 12 months' drought has left the fallows without their usual percentage of moisture, general conditions have never been more promising for a big crop. Given a normal rainfall, areas which have produced little or nothing for three years will be ready, after this long rest, to produce a prolific harvest. Campaign or no campaign, therefore, most farmers would have decided to grow more wheat

**GROWING
MORE WHEAT**

this year for their own direct benefit as well as for the country's benefit. To assist the campaign, the Better Farming Train toured certain districts in the western and south-western quarters of the State which are suitable for wheat cultivation but devoted at present to hay-growing. Good rains between now and November may give Australia the greatest harvest in the country's history.

SO the *Malolo* will return. The Matson Company reports that the recent visit to Australia of the luxury liner was such an unqualified success that the tour will be repeated. There is real cause for satisfaction in this news, which suggests that

MALOLO WILL RETURN these 350 Americans who visited these shores last year have become the forerunners of a far-reaching travel development which will bring Australia a bigger share of the millions which the world's tourists are now scattering in their wake. It is this development which



... the tour will be repeated

the Australian National Travel Association is destined to hasten and extend. The Association's first financial objective of £100,000 for a five-year campaign is now only £16,000 short of realisation, and the margin is being gradually reduced.

IN France, where the reins of government change hands twice a week and a new premier makes his bow at every sitting of the Chamber of Deputies, the recent inclusion in the French Cabinet of a "High Commissioner for Tourism" passed almost unnoticed. The appointment is, however, new, and striking evidence of the great economic importance which the French government attaches to the "tourist industry." It is estimated that foreigners spent no less than £120,000,000 in France last year, representing roughly one-third of the national budget. By far the greatest number of tourists came from Britain—881,045. In one day alone, 121,686 British excursionists landed in

the north of France. Americans numbered 220,000 and spent an average of £480 a head. Spaniards totalled 534,000. The duty of the new Cabinet Minister will be to direct an active campaign to attract even more visitors to the country in 1930 and to induce them to stay longer and spend more.

IN future, consignees who receive their higher-rated loading by road will not be able to take advantage of the low railway rates for heavy and bulky classes of goods. An order-in-council has given the Commissioners authority to withhold the cheap rates from those consignees and to impose instead the higher "A" rate on such loading as fire-

EVENING THINGS UP wood, hardwood timber, manure, coal, agricultural produce and fresh fruit. In similar circumstances, the starving stock rate and the rate for the carriage of fodder for starving stock will also be withheld. The inevitable result must be an increase in railway revenue, either through the wider application of the class "A" rate or alternatively through the recovery of some of the traffic now forwarded by road vehicles. Queensland has already adopted this course, the New South Wales Commissioner (Mr. Cleary) strongly favors it, and there is general agreement that it is the only way to deal with the trader who helps himself to the railway concession rates for goods which the road competition cannot handle profitably, if at all, while using road services for the higher-rated loading which must be carried by the railway if those concession rates are to remain.

WORK is proceeding steadily on the new locomotive erecting shop at Newport and a skeleton framework of steel girders has already taken shape. The new shop will have two erecting bays (408 ft. long by 66 ft. wide) and an additional 216 ft. bay for a machine shop. Each of the larger bays will be served by two 75-ton electric cranes, whose travelling speeds

NEWPORT'S NEW ERECTING SHOP will be 250 ft. per minute, and cross-traversing speeds 75 ft. per minute, compared with the corresponding speeds of 40 and 30 ft. per minute respectively of the existing 35-ton rope cranes. The runways of these cranes will be 38 ft. above floor level, which is sufficient to allow of the lifting of one of the largest contemplated locomotives over a similar engine. In addition, each bay will be served by a 10-ton crane on runways 24 ft. above floor level. Handy to the locations where engines will undergo repairs, space will be available for axle-box equipping work and for the storage of materials which should not leave the engine from which they are stripped. Completion of the shop will result in increased efficiency in erecting shop methods which are now largely handicapped by lack of space and by obsolete crane facilities.

Getting the Business—2.

YES, she was moving down to Melbourne. Liked living in the country all right, but the family had to shift to the city.

The trouble was the furniture. Polished furniture scratched so easily. No, she didn't think she'd send it by railway. Road cartage would be safer

The local railway depot foreman thought otherwise. And happening to be one of the lady's small audience, he said otherwise. He mentioned low freight, quick handling and careful loading and unloading.

And the consignment went by rail, safely and cheaply. When that lady moves again, she'll move her furniture again by rail

That's called salesmanship.

—R.H.J.

Sydney Goes Under-ground

By Rutherford Brown

OUR neighbors in Sydney have rolled up their sleeves and settled down determinedly to the task of excavating an underground railway system which, considering their city's age and size, will compare very favorably with the tube railways of London and New York.

A young Victorian railwayman who was recently on leave in New South Wales has written this description of the work which is proceeding steadily beneath the steel-and-concrete foundations of some of Sydney's loftiest buildings.

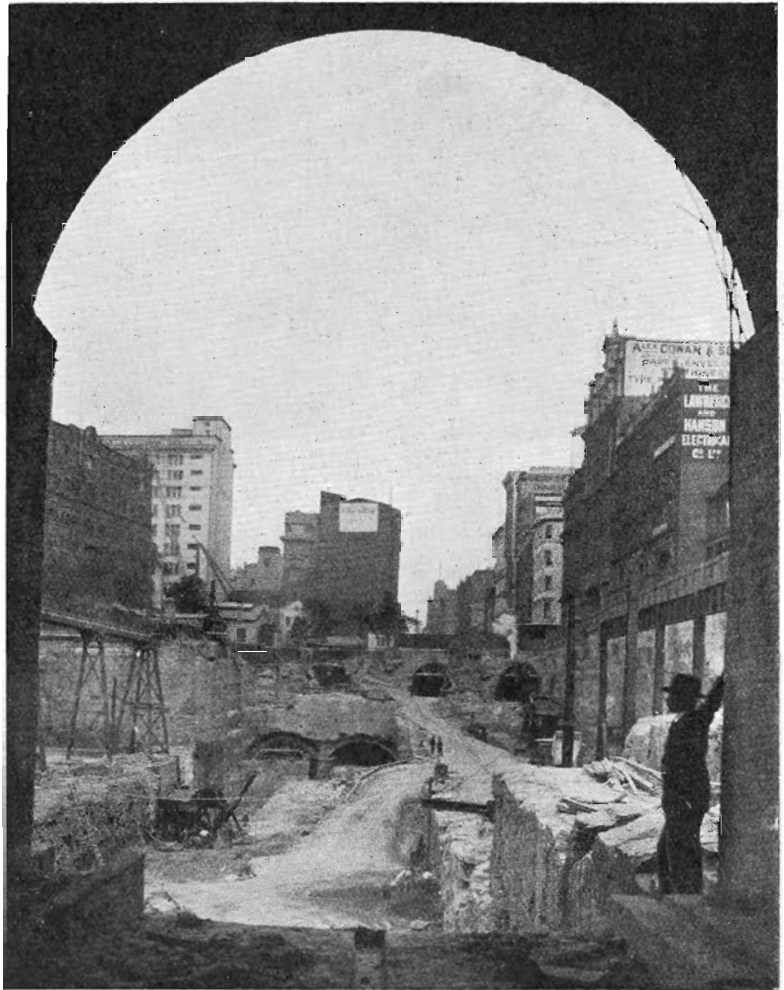
BY courtesy of the New South Wales Railway Commissioners, I was enabled to spend a recent morning with Engineer Mr. Pyne, of the City Railway construction division, underneath Sydney's busy streets and buildings inspecting the construction of Wynyard Station.

York-street, between Barrack and Margaret-streets, was an area of roadway and buildings which looked as if someone had thrown a particularly large-sized bomb. Eventually this area will be Wynyard Square and, underneath it, Wynyard station—the largest underground station in the world, I was informed by Mr. Pyne, who, like the workings, is a mine of interest and information.

A Hole in the Ground

In this seemingly battle-scarred ground, surrounded by a very long and high iron fence, we carefully picked our way round mounds of clay and stone, among scattered steel and timber till we came to a hole in the ground—and a ladder.

A twenty-foot climb down that ladder brought us into an enormous cool cavern with an atmosphere of the scent of freshly dug clay and newly cast concrete. This was the top level of the station. At both ends could be seen the opening of four tunnels



Surveying the site of Wynyard station from the tunnel which connects with the harbor bridge. The two lower level tunnels ahead are for the city railway, while on the higher level are the two shore tunnels. Two other local shore tunnels have since been driven above the city tunnels.

aglow with electric lights. These will carry the four tracks which are to cross the great Sydney Harbor Bridge, now under construction, on to Milson's Point.

Two island platforms, 520 ft. long, 30 ft. wide and 3 ft. 7 ins. above rail level, serve these tracks. The station roof, then practically completed, is made of 24 in. by 7½ in. by 100 lb. (also 90 lb. new British Standard) I beams with seven to 10 in. thickness of concrete waterproofed with two layers of mastic, each ¾ in. thick and covered with a layer of brick.

This roof is supported from the top level station, 15 ft. above the platforms, by one hundred concrete encased steel columns fabricated in I section of 6 in., by 4 in. by ¾ in. angles, 14 in. by ½ in. flange plate and 18 in. by ½ in. web plate. They are placed 26 ft. apart along the station, two rows on each platform and one row between the centre tracks. Those on the platform

will be tiled as are all surfaces against which the public will move.

The distance from wall to wall across the tracks and platforms is 115 ft. 6 in.

Down we went again. This time the ladder was placed in the space where escalators will be put when the traffic warrants them. Until then, the stairs will be used.

We were then on the concourse level, 312 ft long and 31 ft. 4 in. above sea level, where booking offices, refreshment and cloak rooms and book-stalls, will be located. Stairs, lifts and later the escalators, will communicate with the platforms above and below, while the entrance will be through the basement of two buildings, one in George-street and the other in York-street.

It is understood that the buildings will be constructed by the Commissioners only to the first floor above ground and the right of further buildings will be leased on a 66-year term.



Museum station is built beneath the south-western corner of Hyde Park

Show-case space and shop sites in these huge basements should return quite a fair amount.

We looked down from the edge of the concourse floor into the huge square excavation for the George-street building and one wondered for a moment how the pick and shovel men, who looked like ants so far away, would ever get out again.

Before long we were there also. Down the half-finished stairs leading from the concourse to the lower level,

we came to the tracks and platforms of the city railway proper—those that run round to the Quay, St. James, Museum, Central, Town Hall and back to Wynyard. There are only two tunnels and tracks here and one island platform. Rail level is 12 ft. above sea-level.

All tunnels are of the same dimensions (excepting length, of course), 15 ft. wide and 17 ft. 3 in. from rail level to underside of arch roof. The cost of construction is £57 per foot of

double tunnel through rock.

Those not made in open cut have been concreted by placing the forms in position and forcing in the liquid concrete under air pressure.

Tunnel roofs are not waterproofed, adequate track drainage into the city storm water system being provided. Concrete moulded blocks are bolted to the tunnel walls to form four continuous troughs for running feeder and signalling cables. Relay cabins have been constructed in the walls at 2 chains intervals.

A very great deal of the tunnelling and excavation has been made in solid rock, and the necessity for blasting, diverting water, gas, and sewage mains, underpinning big buildings and carrying on without disturbing traffic and commerce more than absolutely necessary has made the work arduous and expensive.

Broadly speaking, the stations have been built as are other steel and concrete buildings, but where they are beneath buildings already standing, shafts and tunnels have to be cut so that the main steelwork can be erected and the surface building supported before the complete excavation is made.

The supply, fabrication and delivery of all the steelwork for Wynyard was successfully carried out by Goninans of Newcastle.



Where the roof of Wynyard station will be. The steel framing of the station is seen in the centre, with temporary footpaths laid down for pedestrians

This Little Locomotive Lives on Alcohol

A LOCOMOTIVE that lives on alcohol, that is only eight inches high and will pull two men, was a feature of the second annual exhibition of the New York Society of Model Engineering.

It is a reproduction of the Pacific type locomotive, on a scale of three-eighths of an inch to a foot. It was designed by L. Lawrence of London,

England, the fruit of two years' work, and is valued at £120.

The models of three Pennsylvania railroad engines won the grand prize at the exhibition. These are the first of a fleet of 45 toy locomotives which will amuse their owner, Milton Cronkhite, on his estate at Greenwich, Conn., where he is building a complete miniature of the Pittsburg division of the

Pennsylvania at an estimated cost of £7,000.

In two years this "fan" hopes to have reproduced and in operation everything, including the scenery, on a scale of a quarter of an inch to a foot. Six hundred pieces of rolling stock will set up a cheerful rumble in his back yard.

A Fishing we will go

BY "BERKELEY"

WE joined politely in the conversation at the breakfast table of our seaside hotel. Oh! yes, we liked fishing. Indeed, we were very fond of fishing. Nothing like it for a restful holiday. For real recreation and sustained interest, fishing in our opinion, was the king and queen and all the royal family of sports.

And quite a lot more in the same strain.

We, who had never fished in our lives, were well and truly up to the neck in it.

After breakfast, Nanette turned upon me. "And now," she inquired, "what do you intend to do about it?"

"Catch fish," I answered, easily. "Not necessarily a lot of fish. Just enough to show 'em. It's quite simple. All you have to do is to get a line into the water, wait for a while until a fish bites itself on to the hook, and then pull it in. Beats me why they make such a song about it."

In a little shop nearby we found an assortment of rods, ranging in price from one shilling to three guineas. We compromised by acquiring a perfectly good one for eighteenpence, a sturdy, honest length of bamboo that gained in solidity what it lacked in finish.

A "Hercules" line, a couple of dozen stout hooks, and a pocket full of lead-weights which Nanette shamed me by referring to as "anchors," and we were now in the fishing business up to the eyebrows.

DISCREET inquiries elicited that the fish in our particular locality were on a strict diet. Nothing but sandworms, not even—incredible though it may seem—not even with a westerly wind.

The sandworms, we learnt further, were obtainable only at a point approximately three miles distant from where the fish would eat them. When eventually we reached the worming grounds, we found difficulty in securing an area of beach to operate upon. Those who had preceded us had, as it were, pegged out leases upon which no others possessed a moral right to enter. However, we were glad to have the opportunity of studying the



technique of harvesting the worms. We learnt that the worms had to be baited, and that they were quite as picky as the fish, rejecting everything except the meat of the white cockle or "German oyster."



not to allow the line to get around my neck

THE procedure, we observed, was to watch intently the sand at the extreme edge of a receding wave, and where a small eddy was to be seen in the wet sand almost certainly would be found a worm. The cockle meat, grasped firmly in the left hand, must be held beside this little eddy, and presently, if Fortune smiled, two keen antennae would emerge and grasp the bait.

Then the hunter must employ all his cunning. The crooked forefinger of the right hand is inserted, carefully, insidiously, behind the creature's head and, at precisely the right moment, the thumb jams the worm and holds it fast against the crook of the finger. But all is not yet over.

Carefully, carefully, the delicate body of the worm—and sometimes it is three feet and more in length—must be drawn from the sand. A sudden jerk, and the hunter gets only the head; a gentle, steady, consistent pull is necessary.

Quite simple; yet Nanette, on her first view of the centipede-like body, shuddered a little and thought it rather disgusting.

It took us scarcely more than an hour to catch a worm. By that time we were both thoroughly wet to the waist, but as everyone else was in the same condition, we had at least so far preserved the appearance of normal anglers. This preliminary soaking, too, was a useful introduction to what was to follow when we made our way to the rocks from which we were informed by an urchin, who had somewhat embarrassingly adopted us, some "beauts" had been caught as recently as last week.

WE made our first cast at 11 o'clock. By noon we had succeeded in disentangling the line. It was during this interval that Nanette displayed the highest qualities of a helpmate. Gently she pointed out some of my minor deficiencies.

- Item one: I was too impetuous.
- Item two: The "anchor" should be kept at end of the line, not mixed up with the hooks.
- Item three: It would be better not to allow the line to get around my neck.
- Item four: You can't expect to get a knot out by pulling it tighter.

Item five: Anyway, there's no sense in losing your temper.

There were a number of other items, but these will serve to illustrate the benefits to be gained by fishing in company with one's wife.

By half past twelve we had lost five sinkers, nine hooks and about thirty yards of line. We returned to the beach and consulted the small boy.

"Huh!" he pronounced, judiciously, "the seaweed's gettin' yer. Y'wanter get into a deeper 'ole." Which was about the last thing we wanted to do, for we were still reasonably dry, in parts, from the waist up.

AT lunch-time we were again polite. No! no luck at all. Lots of bites, but mostly annoying little beggars that just sucked the bait off. Going out this afternoon? Oh! rather. Nothing like it for—and so on and so on.

"My next holiday," I whispered fiercely to Nanette, "will be upon a barren rock on a mountain top." But she was too busy examining a hook-wound in the palm of her hand to heed me.

That afternoon, drenched and cold, we again sat on a slippery rock, without enthusiasm, without hope. Our tobacco and cigarettes were wet, our chocolate a sticky mess.

Then, when endurance could stand no more, we got our bite. The stout rod bent and quivered with the strain upon it, but we landed our catch, and at that moment could have been seen on our faces the exultation that one experiences on occasions of great success, such as passing one's first



Bucking and leaping on the remaining hook was a fish, a real fish

examination in telegraphy, or winning Tattersall's, or being accepted by a girl that some other fellow wanted.

After great exultation, it is said, inevitably comes the reaction of depression. It descended upon us like a dark cloud when we realised that the line held a flopping, squirming stingray, a useless creature that not even an angler calls a fish except in his rare facetious moments, a repulsive thing that fights with its tail and swallows a hook so deep that an intricate operation is necessary to recover it. Not even the kind of thing that a cat would bring into the house.

We cut the line and pushed the wretched creature back into the sea. We gazed balefully at each other for several tense moments. Then—"What

you can see in fishing," said Nanette, "is beyond me."

The storm broke. For an hour we argued, standing in our wet, cold clothes, in an endeavor to fix the responsibility. Our line had fallen idly into the seething waters. Disconsolately we were drawing it in, when suddenly there came from Nanette an excited squeal on a high note. Bucking and leaping on the remaining hook was a fish, a real fish, a fairish-sized, gaily colored, furious parrot-fish.

As we walked proudly back to the hotel, Nanette tucked her arm through mine. "Isn't fishing a wonderful way to spend a holiday?" she gurgled.

"Tomorrow," I said, "we must get out early. Before breakfast . . ."

Morning at Ferntree Gully

By Harry Tunnecliffe

ON Ferntree Gully when the dawn
was paling
And shadows played on hill
and timbered steep,
I watched the beauty of the night
im-
-veiling
Over the valleys, where the tree ferns
sleep.

A variant breeze, entangled in the rushes,
Saw to the running creek a morning
see,
Then, passing on through intermittent
lushes,
It lost its way in blossom, bush and
tree.

Loudly I heard a kookaburra waken
A chain of echoes from the green hill
crest,
Which drove the grey owl, now by night
forsaken,
On rapid wing to seek his lonely nest.

Sweet as a flute, along the gorges stealing,
A magpie's warble filled the scented
heath
And a brown hawk, above the forest
wheeling,
Scattered with fear the timid birds
beneath.

I heard a bell bird from the bushes
calling,
Her liquid note came soft and clear
to me.
And on the uplands, where the light was
falling,
The waking flower opened to the bee.

Now in the eastern sky the dawn was
lifting,
The white stars faded for the night
was done,
And through the clouds, above the
ranges drifting,
In matchless splendor burst the morn-
ing sun.

Odds and Ends

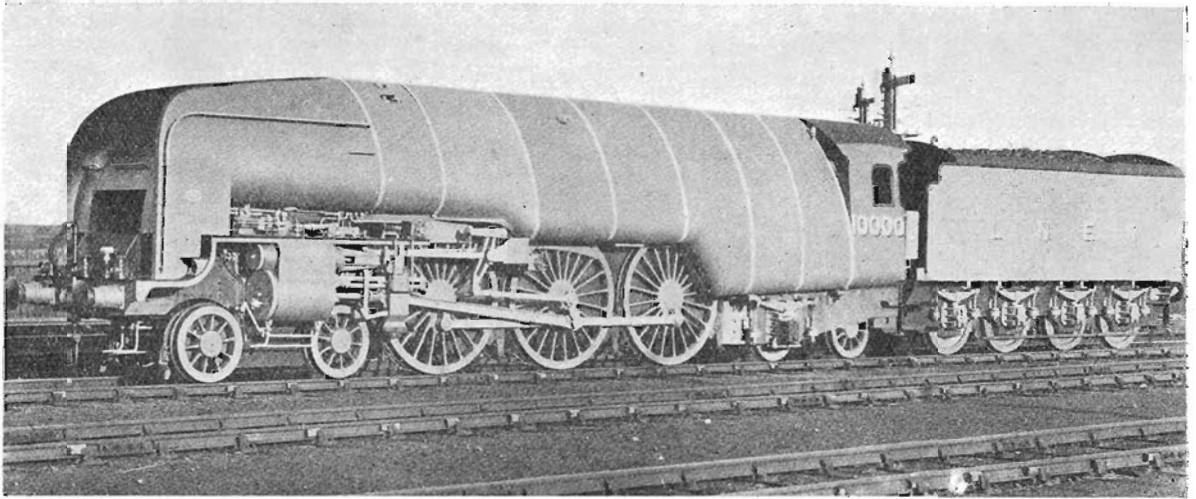
From the World of Railways

It is understood (says *Modern Transport*) that the Pennsylvania Railway has secured control of the Boston and Maine Railway through stock purchase. This, however, takes into account the holdings of the New York, Newhaven and Hartford Railway, which has long been affiliated but was not known to be actually under the control of the Pennsylvania Railway.

The London, Midland and Scottish Railway are to give orders for 100 vans to be specially built for the conveyance of bananas. These will bring the total number of banana vans now in use on the L.M.S. up to 1,700.

Easterners going west for the first time in America have never been known to pronounce correctly the names of the two terminal cities on one of the Southern Pacific's feeder lines in Arizona. These cities are Gila and Ajo, the first pronounced Heel-ah, and the second Ah-ho.

Lines from Other Lines



The London and North-Eastern Railway's new experimental 4-6-4 high-pressure compound locomotive. The exterior contours of this locomotive were the subject of considerable experiments with models in a wind flume, and their adoption marks a wide departure from conventional appearance.

Streamlining of Locomotives

SEVERAL experiments have been made in order to exploit the possible lessening of wind resistance on the railway. As far back as 1887, Frederick Upham Adams, an American engineer, designed and built what was termed a "boat-shaped" railway train, in which all possible projections were removed from the cars, eliminating even the usual clerestories in the roofs, while the tender of the locomotive was covered by a sort of turtle-deck. Nevertheless, the locomotive itself was of the orthodox American type of the 'eighties, complete with tall chimney and dome, and a flat-fronted cab. The train ran its trials on the Baltimore and Ohio Railroad, but Adams's rosy dreams of "one hundred and fifty miles an hour" were never realised.

During the early years of the present century (writes Mr. C. Hamilton Ellis

in *The Times*), the Paris, Lyons & Mediterranean Railway built large numbers of so-called "wind-cutter" locomotives, in which the front of the engine was formed like a ship's prow, while the cab was similarly treated. The advantages gained thereby were none the less obscure, and most of the French "wind-cutters" have since disappeared.

The final experiment was conducted by the Bavarian State Railways in 1906, with a 2,000 h.p. locomotive specially built by J. A. Maffei. Like the French engines, this machine was streamlined, and during the tests, which took place between Munich and Augsburg, some remarkable records were made. Notwithstanding these, the engine was found unsuitable for ordinary traffic conditions, and was withdrawn from service. It may now be seen in the Transport Museum at Nuremberg.

French Railway Improvements

BRITISH and French railroads are ever on the alert to catch the valuable American tourist business. With a view to affording improved service to the American tourist next summer, the French railroads are putting many important improvement works in hand.

Not long ago the Eastern Railway of France began the construction of a magnificent new terminal in Paris, to rank as one of Europe's biggest passenger stations. Now the French State Railways are to completely rebuild the Gare des Invalides terminus in Paris as a boat-train terminus.

Between Paris and Cherbourg the French State Railways will operate fast boat trains occupying $4\frac{1}{2}$ hours on the run, in place of the present six hours. The most modern passenger cars, of all-steel construction, will operate this service.

"Below" Sea Level

The trainmaster's office at Indio (California) on the Southern Pacific is probably the only one in the country situated below sea level. Just in front of the office is a neat sign, bearing the inscription: "Indio, Cal., 22-ft. below sea level."

MY ERROR

"Pardon me, sir," indignantly snapped the lady in the subway jam, "your glass eye has just broken my hatpin."

Railway Track for a Bed

SLEEPING on railroad tracks—a practice highly recommended for persons not wishing to grow old—usually means a trip to the morgue for the drowsy one.

In the case of John Johnson, a Washington colored man, it only meant a trip to the police station and a severe lecture from the judge on what such slumber-habits do to engineers' nerves and what ordinarily happens to the

person who picks out a railroad track for a bed.

Johnson was sound asleep, using one rail for a pillow and the other for a foot-rest, when the engineer on a Washington, Baltimore & Annapolis express saw him and stopped the train two feet from his head.

"Too much cawn liquor," was the negro's explanation when he was awakened in the police station.

RAILROAD KIDNAPS INFANT SPARROWS

FOUR baby sparrows were treated to a big thrill and separated from their parents for two days on the Southern Pacific when the company's wreck train went to clean up a derailment. The youngsters, two in a nest on either side of "the big hook," seemed to enjoy the ride, but were rather tired and hungry when the wrecker returned to Carlin, Nev., and they were happily reunited to their distracted parents.

SHORT LINE IS WELL OFFICERED

ACCORDING to the *Christian Science Monitor*, the Cassville & Exeter Railway can claim to be America's shortest railroad. The length is 4.9 miles, but the line is of standard gauge and works standard vehicles in conjunction with the St. Louis & San Francisco Railway, with which it connects at Exeter, Mo.

The president of the road owns half the stock, and also acts as locomotive engineer, while his joint proprietor serves as auditor and station agent, their respective wives holding the offices of vice-president and treasurer. There are six other employees.

There is one locomotive, named *Mary Ann*, and one passenger coach. Freight rolling-stock is borrowed, or worked through as required. The engine is a 4-6-0, about 25 years old.

OBEYING THE REGULATIONS!

ACCORDING to a recent issue of the *Neepawa Press* (Manitoba), Philip Sutkoski, a Canadian railwayman, ate 63 raw eggs in 20 minutes when they were found cracked in a railway truck at Eland.

He explained his gastronomic activity by pointing to the clause in the book of rules and regulations which directs every railwayman "to protect all railway consignments and to salvage as much as possible anything injured in transport."

THAT ACCOUNTED FOR IT

THE "local" Scottish train was pulling out of the platform. The old gentleman was just settling down comfortably. Suddenly the door burst open and a young man tumbled into the carriage and seated himself panting and puffing, opposite the old gentleman.

The latter looked on with obvious disapproval. "You must be very unfit, young man," he said, after a while. "Why, when I was young I never panted and got out of breath like that after a run."

"Perhaps not," returned the other, regaining his breath a little, "but I missed this train at the last station."

NO MORE STEAM BATHS

A MUFFLER designed to stop locomotives from blowing off their spray of steam and hot water to one side was exhibited recently at the annual meeting of the Railway Equipment Manufacturers Association. Its function is to discharge the steam and hot water downward in a tiny spray between the tracks.

An automatic soot blower for locomotives was also shown at the same meeting. This device keeps the combustion chamber and flues constantly free from soot and cinders, so that a full and sustained steaming capacity may be maintained. The foreman simply turns a convenient valve and the blower does the rest.

MOUNTAIN SICKNESS FOR RAIL PASSENGERS

PERCHED among the Peruvian Andes is Cerro del Pasco, the world's highest city. The railway thither, starting from Callao, proceeds up through Lima, the capital, and, continuing, crosses the Andes at an altitude of some 15,000 ft. After dipping somewhat, the line presently ascends again to reach its lofty terminus. Travelling at such heights often induces "soroche," or mountain sickness. For this reason the trains are equipped as a precaution with cylinders of oxygen which can be administered should the symptoms become too distressing.

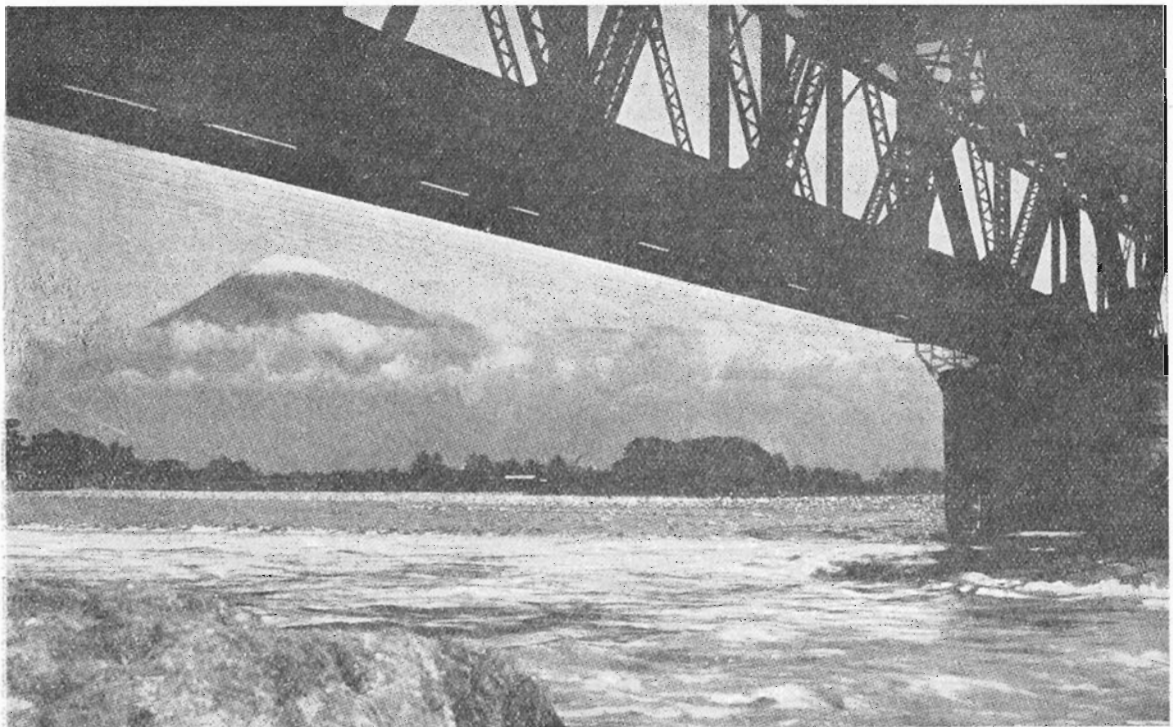


Photo.—*Railway Gazette.*

A striking view of Fujiyama from beneath the Tokaido Railway Bridge. A recent survey by the Japanese Ministry has disclosed that the actual height of the mountain is 12,358 ft.—not 12,391 ft. as formerly calculated.

Where Pianos are Born

by CLIFFORD HERBERT



SO FAR back as the year 1300, the forerunners of the modern day pianoforte under the name of "clavicytheriums" and "spinets" were in existence, and the evolution of the present day pianola has been one of the meritorious achievements of civilization.

Music under the suzerainty of the mythical god Pan has ever struck chords of human nature to excite passion, loyalty, respect and devotion—it has the power to induce depression or elation. Indeed it can be said that every sense heir to human nature may come under its influence.

Masters—Past and Present

Expression of music is necessarily dependent for its reproductive sincerity upon the instrument voicing it. Such masters as Bach, Handel, Beethoven, Wagner, Liszt, Mozart, Schubert, Mendelssohn and Chopin owe much of their fame to the interpretation of their compositions by Paderewski, Percy Grainger and the still more recent prodigy Nancy Weir.

They owe, however, much more to the wonderful capabilities of the pianoforte. Exquisitely pure in tone, of delightful modulation, of rich full-sounding volume, the mellow quality of the pianoforte is dependent upon the craftsmanship in its manufacture and the quality of the materials employed.

Primarily the assembly of scaled strings operated in conjunction with a keyboard was of European invention. It has been established that the Orient had earlier instruments, but their primitive ideas and diverse musical expression do not permit of any comparison.

Here in Australia are several pianoforte factories, all of which have the advantage of being equipped with the latest machinery and highly trained



staffs. But than Mr. Herbert Wertheim, managing director of the Associated Piano Co. at Richmond, no one is better qualified to explain the intricacies of piano manufacture.

Indicating huge stacks of timber under cover, Mr. Wertheim stated that it was necessary to keep 1,000,000 super. feet of various kinds and sizes of timber in stock to ensure correct seasoning and consequent durability of the instrument, the term of seasoning varying from a minimum of two years and upwards, according to the nature of the timbers used.

In the sawmill, a three-foot log was reduced to planks in a few moments. The whirring, shrieking circular saw bit again and again into the wood and yet there was no sawdust. The place was spotless. Big pipes led to the benches and exhaust air drew the wood particles away to the boiler house where the sawdust was burnt.

The engine room was a picture. Tiled walls enclosed a huge 200 h.p. engine which whirled an 18 in. belt connected to a dynamo generating the power.

Dovetailing the Boards

A dovetail glue-jointing machine did its job with punctilious exactitude. Dovetailing the edges of a half dozen boards, it automatically glued and fitted them together under pressure. The joint was so finely made as to be almost imperceptible. Near by was the sounding board machine turning out its one product with astonishing regularity.

As with all high class cabinet work, the body of the case in piano manufacture is not constructed, as might be supposed, of solid walnut or mahogany planks. Specially selected veneers of walnut, mahogany, blackwood, silky oak and of many other timbers, laid on a suitable "core" wood, are used to produce a desired result.

So precisely was the laying of these veneers done that the layman's eye was actually unable to detect the joint. The application of glue to the "core" proved an interesting detail. Run over a roller slowly rotating in a trough of glue, the plank was evenly coated both sides. This ensured an even coating upon which the veneer was carefully laid.

TO learn to play a piano is a sufficiently difficult task. But to make a piano how is it done?

This article describes how Australians are making Australian pianos at Richmond, which are equal in quality to the best that the world can produce.

Various ingeniously devised clamps were in use to treat different lengths of timber.

The sound board was rested on trestles and a pattern laid on it to mark the position for the bridge pins. An automatic drill sank into the hard wood in the impressions so formed. Each of the machines in use was fitted with an automatic blower which, when directed at a dusty bench, cleared it in the twinkling of an eye.

Each room was fitted with an elaborate system of steam heating. This was found to be a very necessary precaution as the variation in temperature acts adversely on the timber in the constructional stages. The same heating appliances were applied to the timber-warming cupboards used for heating timber before joining up, and also for the heating of the great glue boilers.

The iron frames, cast in Melbourne, were first spray painted with the body color and then with a gold bronze, the lasting power of which is said to be practically limitless. This process was carried out by means of a spraying plant, which was one of the first of its kind to be introduced into Australia. Subsequently the iron frame was fitted to the sounding board, and the completed back was then ready to be "strung."

Getting the Low Notes

The strings that pass across the sounding board are of a specially high grade of manufacture, as they have to withstand an enormous tension when pulled up to the full pitch. In the bass section of the instrument, it was necessary to cover this steel wire with another copper wire in order to be able to produce the lower bass notes.

The machine used for doing this covering was truly fascinating. The steel wire was tightly stretched throughout its whole length by being firmly gripped at either end by the machine. A lever was pulled, the machine moved, and the suspended wire was set rotating at a terrific speed. An operator drove the desired size of copper wire to be wound round the steel wire, and within a few seconds, the complete string was finished.

One end of the string had been looped by means of a mechanical device, and this looped end was placed over a pin and bedded in the iron frame. The other end was attached to the tuning pin, which was driven into the specially laminated and prepared wrest plank, which was directly behind the other end of the iron frame. A tuning-hammer which exactly fitted the tuning pins was used to pull the individual wires up to the required pitch.

The sounding board with its strings was then joined to the case work as the next step in the completion of the instrument. That veneered case work had been seasoning for three months.



The finishing touch—tuning a piano

Now standing on its castors the piano was moved into the next department where the hammer work, keys and pneumatic actions were installed. This is work demanding great exactitude and attention.

The tuners were the next to handle the instrument, and were responsible for the laying of the "scale," and bringing the instrument up to the desired pitch.

In modern piano manufacturing, lacquering has superseded French polishing. The lacquer was sprayed on the timber by a device similar to the one used for the iron frames, and was afterwards rubbed down and burnished, producing at last a wonderfully flat and brilliant surface.

Even boiling water will leave no mark on this lacquered surface. The foreman left no doubt on that score. He placed an aluminium pannikin of boiling water on the lacquered board. Carefully he poured more boiling water

all over it and with a triumphant smile he allowed the pannikin to remain there for several minutes. Lastly he removed the receptacle and wiped the board with a soft cloth. There was no sign of any mark, and the lacquer was certainly none the worse for its harsh treatment.

Long practice and natural ability have made the workers adept at their various tasks. In the showrooms were displayed magnificent specimens of their skilful craftsmanship.

Pianos, players, horizontal grands and semi-grands awaited railing to compass points in Australia . . .

There was sincerity as well as pride of achievement in the managing director's parting words. "Every instrument that leaves our hands has a soul. None save the pianist may reach that soul, and then only if the intellect realises its existence.

"Why man! Pianos are born, not made."

Underground Railway for Rome

AT long last, after a debate which has been going on for several years, it has been decided to construct an underground railway in Rome. The danger of damaging irreparable archaeological remains has been the chief obstacle, but it is understood that a technical committee, which has been at work for the past three years, has now reported, giving satisfactory assurances.

The system will consist of three lines, one of about seven miles from San Paolo to Villa Savoia, a second about 3½ miles from San Paolo across the centre of the city to Viale delle Arti, and a third of five miles starting from the Viale delle Milizie and running to beyond the Piazza San Giovanni.

The entire construction will probably occupy some 12 years, and, when completed, will link up the principal quarters of the city with the main State railways. The project is more than opportune, in that it has recently been decided to abolish the tramways from the centre of the city.

BERMUDA'S FIRST RAILWAY

The island of Bermuda, the British naval station, out in the Atlantic Ocean, is to have its first railway next spring—probably some time in April. The railway is 24 miles long, and it will cover the island, which is only a few square miles in size. The island is much frequented as a health resort by Americans and Canadians.

Representative Railroaders

No. 31

Senior Audit Inspector W. DAVIDSON

Caricature by ANGUS MAC

By R. H. JUNIOR



WHERE his ancestors saw gulls wheeling above white-capped billows, he sees waybills fluttering above warehouse ledgers. He grips an auditor's pencil as his father grasped a sailing-vessel's wheel. He has exchanged foreboom tackle for classification sheets and has substituted uncleared accounts, miscellaneous debits and sundry credits for roaring westerlies, flying jibs and sea chanties.

Yet the wanderlust that sent his forebears down to the sea in ships is as strong in his blood as it was in theirs and, his auditor's outlook notwithstanding, he has contrived after a fashion to respond to the promptings of that inherent travel urge. For 17 of his 45 years of experience in the V.R. Audit branch have been occupied with the peregrine duties of a travelling audit inspector. And into two spells of leaves he has contrived to rush two world tours—one in 1925 and one in 1928.

His father, William Davidson Senior, deserted the ship on which he was first mate, to plunge at Port Phillip into the turbulent stream of adventurers pouring north to the colony's new-found goldfields. Shares of that gold, however, didn't pass round to everybody, and eventually the old man joined the railway service as stationmaster at Deep Lead. His son, the sturdy, genial senior audit inspector of today, followed his father into the railways in 1885.

In the batch of permanent appointees which included Bill Davidson Junior was another clerk, David Henry Falconer, who is now the acting chief of the Audit branch. The pair were destined to rub shoulders together throughout their careers. They started in Melbourne under Traffic Auditor Harold Kent on the same day, and they received their appointments as audit inspectors on the same day also.

The inspectorship happened along in 1913, and Bill Davidson put up something very like a record in his graduation from theoretical to practical qualification. Each potential au-

dit inspector qualifies by office experience over a more or less protracted period and then, before appointment, goes out on the job in company with a fully-fledged inspector, picking up wrinkles and absorbing seasoned advice. Usually this cadetship extends over six or eight weeks. With Bill Davidson it lasted six days.

The new man's mentor was the late George K. Low, and, together, the pair audited the station books at Mordialloc, Frankston, Carrum, Meredith, Bannockburn and Lethbridge. Then Inspector Low said to Inspector-to-be Davidson: "You don't need me at all. Go on by yourself and pick me up at Geelong tonight."

Davidson went on alone and duly reported that night at the Pivot with

an impeccable balance-sheet for his superior officer.

Today, as senior member of the outside auditing staff, Bill conducts a round of auditing duties which includes regular inspections of railway ledgers and accounts at Ballarat, Bendigo and Geelong, the Government Tourist Bureau, Melbourne goods sheds and the Flinders-street booking office, the Spencer-street main booking office, inwards parcels office and cloak room and the Geelong road motor depot.

He has been adding, subtracting and checking endless columns of figures for 45 years, but his eyesight remains as clear as a youth's (he never wears spectacles), and his transmigratory duties, reinforced by his adaptability,

have given a loose rein to his inheritance of the Davidson wanderlust. Besides, there were those two round-the-world trips. And he has a third to look forward to when retirement finally audits and closes his personal departmental ledger.

One other little matter is worth mentioning, dissociated though it is from classification sheets and sundry accounts (although certainly linked with debits and credits). Bill Davidson can pick winners almost as well as he can balance figures. As an instance, during the 1928 visit to England, he selected the winner of the Derby six weeks before the race was run. His friends laughed at his choice but the outsider, with Bill's money on him, won nicely at 40's.

A Steel Trail Beneath By Evan F. David the Northern Lights

WHEN this article appeared in the "New York Herald-Tribune" Magazine, the 500-mile railway to Hudson Bay, had not been completed by the Canadian National Railways.

The writer gives a graphic description of the difficulties which confronted the builders of this railroad as they struggled northward through blizzards and snowstorms, blasting through solid glacial ice to lay the steel track.

UP in the Far North—just under the Northern Lights—Canada is rushing to completion one of the greatest railroad building feats in history. Shining steel rails, 510 miles of them, are steadily pushing back America's last frontier at the rate of a mile a day, carrying it beyond the timber line, across the glacial ice of the Barren Lands, to Hudson Bay.

Why is Canada spending some £10,000,000 in building a railway to a point which is free from ice for shipping only four months in the year? There are four important answers to this question: (1) wheat; (2) cattle; (3) freight; (4) ore.

Shortest Way Round

Annually Canada ships to England immense quantities of wheat and hundreds of thousands of cattle and horses. Now, the shortest way to ship commodities from Western and Central Canada to England is from a point on Hudson Bay. By sending cattle over such a route rather than by the present route through Montreal, from two to three weeks of feeding and maintaining in transit would be saved, and the animals would be in much better condition when they reached England.

Back in 1911 the Canadian government, with the certainty of shipping wheat and cattle, and with the possibility that valuable ore might be discovered and mined by means of the northern railroad, began laying rails

from The Pas, where the prairie ends, to the mouth of the Nelson River on Hudson Bay, at the same time beginning to build a complete port at the terminal, with waterways, docks, warehouses, grain elevators, etc., sufficient to accommodate ocean-going steamers.

Submarine Menace

The project proved exceedingly difficult, but it was continued through the war with the idea that if German submarines should close the southern route between Canada and England, Canadian materials and men could be sent via Hudson Bay and north of Newfoundland.

The war over, the Canadian government inaugurated a policy of retrenchment, and work on the railroad was abandoned. During the next ten years what had been done on the 356 miles of railroad went to wrack and ruin. The roadbed sank into the muskeg. The ties decayed. It was impossible for anything heavier than a handcar drawn by dogs to run over it. Many Canadians thought it would never be rehabilitated.

But the advocates of the railroad got the government to resurvey the whole project. An impartial English railroad expert, Mr. Frederick Palmer, was brought over to give an unbiased opinion on whether it would be wiser to complete the railroad, or abandon it forever.

This was early in 1927, before the break-up of the ice and snow which cover the country for nearly seven months in the year. To get Mr. Palmer and his surveyors to Port Nelson, 500 miles away, would have taken weeks by dog teams. But man's new transportation aid, the aeroplane, was called upon and covered the distance in five hours.

At the same time another very important survey had to be made hundreds of miles farther north. Again the aeroplane did the work, transporting men, food, fuel, clothing, tents, medical supplies, tools, instruments and other supplies. The planes flew in all kinds of weather, the thermometer sometimes dropping to 50 and 60 below.

New Route Suggested

At the end of his survey, Mr. Palmer recommended that the railway be reconstructed and the road laid into Churchill, a point 60 miles north of Port Nelson which the ice survey had proved to be a better site for the port. The government began work at once. To save a year's delay 14 men, 800 pounds of dynamite and eight tons of other material had to be got to Churchill at once. Aeroplanes did it.

Now came the task of rebuilding the railroad. While work was going forward on the old railroad, tractors were sent to Port Nelson and everything that could be pried loose from the old construction was piled on sleds and

hauled 60 miles over the ice to Churchill. Sections of the bridge, steel girders, piles and lumber were towed there on scows during the summer. It was a £1,200,000 moving day in the frozen north!

Meanwhile new ties had to be laid and old ones dug out of the old road-bed; new bridges constructed, new gravel dug and hauled from new pits and dumped into the muskeg to fill in. Thus was the old road rejuvenated for 356 miles.

The route over the new section of the country soon proved to be much more difficult than that over the old road. The Nelson River—as wide as the Hudson—had to be spanned. This was done successfully and permanently.

Over the Barren Lands

Fifty miles beyond the Nelson River the timber line ends. The remaining distance is over the famous Barren Lands, where nothing but caribou moss grows. It is also nearly 25 per cent. water. Trenches had to be dug to drain the water from the route and corduroy logs laid as a foundation for the gravel and rails.

To prepare the roadbed, laborers from Belgium, Holland and Scandinavia were imported by the government to work on a yardage basis. This plan was found to be very satisfactory, because the men could work during the long Arctic day as late as they liked. In the Barren Lands the laborers struck ice only a few inches below the muskeg. It was blue, showing that it was of glacial formation and must have been there for ages. Even during the summer it was necessary to blast out the ice.

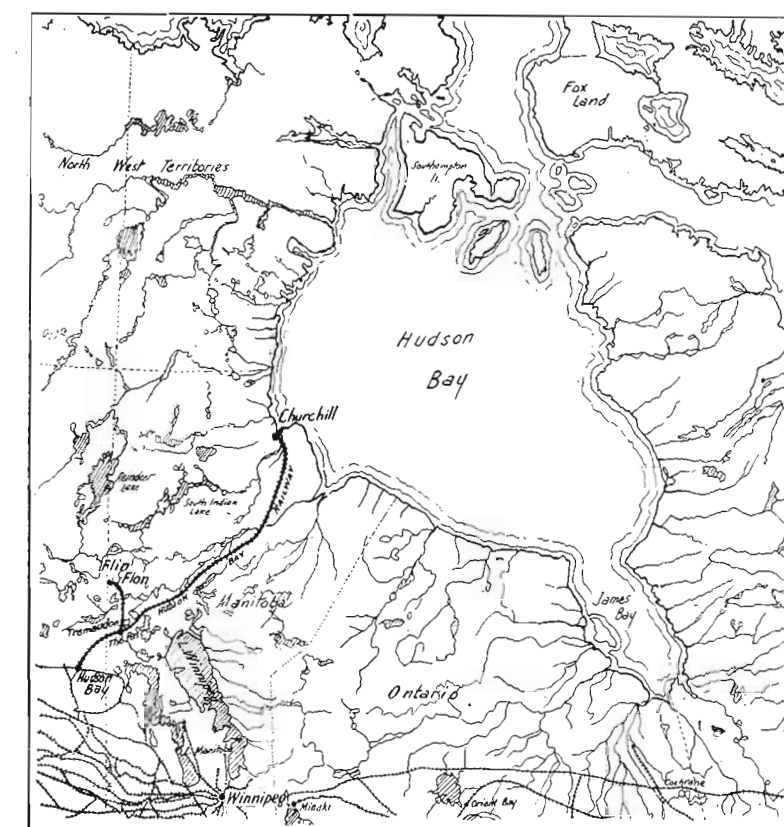
Then the freeze-up came. Everybody expected that the work of track-laying would stop. But the construction engineers believed that, since the ground was frozen so hard during the winter, it would save half a year if they could lay down the ties and spike down the tracks on top of the ice and snow. They determined to try to lay the rails the remaining 80 miles to Churchill. The following summer they would jack them up and fill in with gravel.

When the old railroad builders heard

Indians Objected to Railway

ONE of the most remarkable protests ever made against the construction of a railway has been registered by the Indians at York Factory (Manitoba), against the Hudson Bay extension of the Canadian National.

During the two days' "pow-pow" of the council, which is held annually following treaty payments, the Canadian government paying agent was officially requested to stop the construction of the railway to Fort Churchill because of the effect that it would have



Map showing the location of the new line to Churchill.

of this they said it could not be done. But it was done. Through blizzards, snow-storms, freeze-ups and winds as high as 60 miles an hour the work train with the big track-laying machine at the front laid the track down on the ice and snow. The locomotive behind the train, with tractors, snowmobiles and dog teams by its side, and the aeroplanes overhead, literally pushed back America's last frontier a mile a day across the ice and snow of the Barren Lands right into Churchill.

Since then men have been jacking up the tracks, draining the glacier formation, while gravel trains have been pouring the foundation of the

trail to the Far North.

The work is nearly finished now. The first passenger train, equipped with Pullman cars, will be running before the freeze-up. Jack Frost has been licked.

Meanwhile work on building the seaport is progressing. Most encouraging of all, copper and gold have been found in quantities so large that an 80-mile railroad spur has had to be built to the Flin Flon mine.

Sixty million dollars will be spent in this section of the country. Already thousands of men, women and children are following the trail of '29 to the last frontier on this continent—just under the Northern Lights.

BREVITIES

A railway statistician was asked by the pastor of his church to check its efficiency. He cast about a long time for an index and finally produced this one: "Brands Plucked from the Burning per Pew Hour."

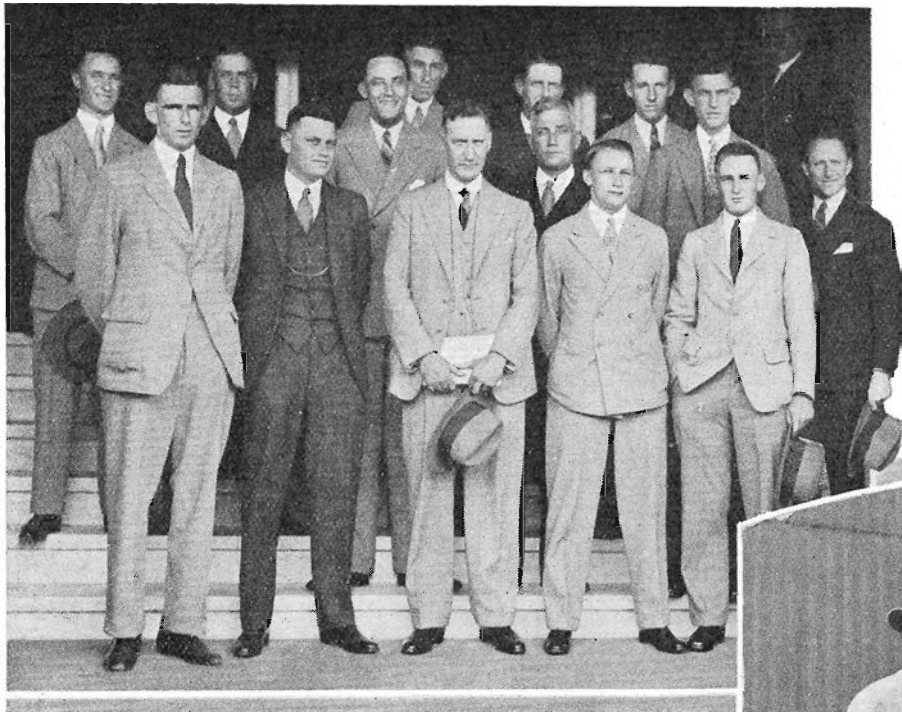
"Recreation Cars," provided with a polished floor and all the other ball-room accessories, have been introduced by the Chicago, Burlington & Quincy Railroad, so that their passengers can dance. Phonographs and radios will provide the music. The car also has a screen for moving pictures as part of its equipment.

on the fur trade in the York Factory region.

The York Factory tribe claims that settlement of Fort Churchill will prevent the habitation of the Hudson Bay coast by white foxes, which are the chief source of the Indians' fur catch each season.

An international sports meeting for railwaymen in Canada and the United States is being planned by the International Railway Athletic League.

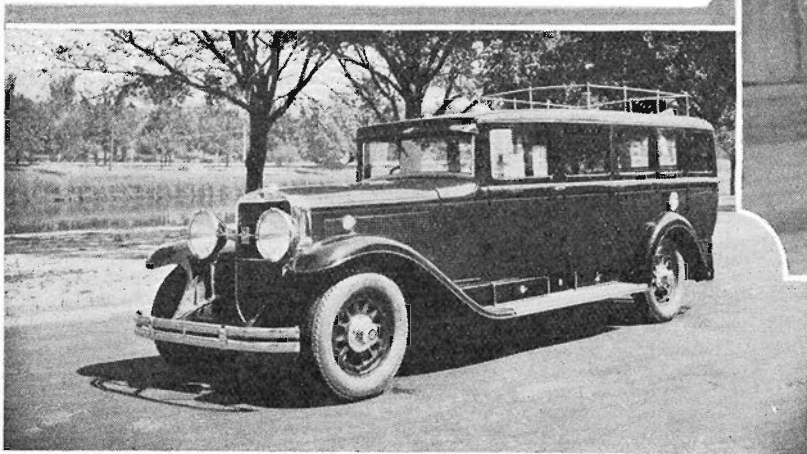
The Month



ABOVE: Australia's test team, photographed in Melbourne after the arrival of the Queensland and N.S.W. players by the Sydney Limited. Back row—C. A. Walker, W. H. Ponsford, A. Fairfax, A. Hurwood, A. F. Kippax, A. Jackson, P. M. Hornibrook and W. A. Oldfield. Front row—T. W. Wall, W. M. Woodfull (capt.), W. L. Kelly (manager), T. H. Howard (treas.), D. G. Bradman and S. McCabe. RIGHT: A couple of tremendous problems for English bowlers—Archie Jackson and Don Bradman.



TOP CENTRE: The N.S.W. water polo team, recent visitors to Melbourne.



LEFT: The new motor coach, which is now in service between Porepunkah and the Chalet, Mt. Buffalo National Park.

in Pictures



ABOVE: Mr. H. C. Fenton, one-time editor of this Magazine, left by the Otranto to take up his duties as London representative of the Australian National Travel Association.
BELOW: Visiting Canadian bowlers who inspected Yallourn.



CENTRE: A trainload of picnickers from Numurkah photographed at Spencer-street en route to Mordialloc.

INSET: Mr. W. Hutchins, well known secretary of the big rail excursion from Talbot to Royal Park, which was also conducted during last month.



Railway Outposts—

No. 23

Kilmore

BY its position on the crest of the Dividing Range, 1213 feet above sea level and $42\frac{1}{2}$ miles from Melbourne, Kilmore enjoys a pleasant climate throughout the year and has never known a drought. The township has a population of approximately 900 and is the centre of a district devoted to mixed farming.

Dairying has, until the last few years, been the principal district activity, but more recently increasing attention has been given to sheep raising. Kilmore's loadings of wool by rail totalled 624 bales for the last season. The district stations of Willowmavin, Moranding and High Camp, which are supervised by the stationmaster at Kilmore, added 238, 217 and 554 bales respectively to the season's clip. High Camp, incidentally, despatched large quantities of firewood, which commodity formed a considerable proportion of the 4181 tons of goods handled at that station last year.

Heavy Stock Traffic

With the operation in the town of two bacon factories and the holding of two stock markets each month, in addition to special sales from time to time, it follows naturally that the stock traffic from Kilmore assumes considerable importance. The loadings during the last twelve months totalled 70 trucks of sheep, 20 of cattle, nine of horses and five of pigs. A further 44 trucks of sheep, 26 of cattle, 12 of horses, and 101 of pigs were discharged during the same period. The revenue from this traffic amounted to £1,108.

Approximately 600 pigs are treated weekly at the bacon factories. The animals are all received by rail from



Operating Porter, Wicking and S.M. O'Sullivan of Kilmore

Melbourne and towns in the Goulburn Valley and North-Eastern districts. Bacon and ham are despatched in considerable quantities, a fully loaded bacon truck leaving Kilmore each Monday. Numerous smaller consignments are also forwarded.

The butter factory, which, by the way, occupies the massive bluestone buildings built as a jail when Kilmore was a depot for convicts, also sends its produce by rail, up to three tons of butter weekly being consigned.

From a local poultry farm with about 5,000 hens, about 30 cases of eggs are despatched by rail weekly and, during the season, large numbers of day-old chickens are railed to all parts of the State.

A considerable area of the district land is cultivated for oats. Much of this is cut and threshed for the grain, the straw then being sold to the paper mills. Some 200 tons of pressed straw are railed each year from Kil-

more for this purpose. A small traffic in chaff is also handled.

Assumption College is a regular customer. About 160 to 180 boys are in residence at the College during the year, and at the end of each term a special train is chartered for their transport. At the present time, extensive additions are being made to the buildings, and about 20,000 bricks are being received by rail weekly. The College's weekly payment to the railways has averaged about £25 for some months past.

In all, the goods received at Kilmore for the past twelve months amounted to 4,734 tons for a revenue of £2,495, while outwards loading during the same period totalled 1,048 tons and represented £755 in revenue. Parcels traffic added a further £152. The total revenue from all sources for the year was £4,844 as against £4,739 for the previous year.

Kilmore East's Influence

Although only 2,378 passenger journeys were made from Kilmore during the year and a revenue of £541 was thus secured, these figures do not give a true indication of the extent to which district residents patronise the railways. The bulk of the district passenger traffic uses the Kilmore East railway station where a more suitable train service is available. Two cars operate a regular service between these points which are only two miles apart. Much of the livestock loading is also lost from Kilmore to Kilmore East.

The station's destinies are, at present, guided by Stationmaster P. M. O'Sullivan with Operating Porter W. L. Wicking as his assistant, and the capable way in which they attend to the requirements of the local residents is ample evidence of their ability and their interest in their work.

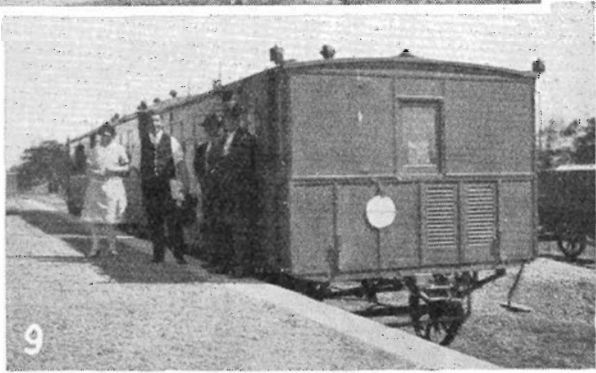
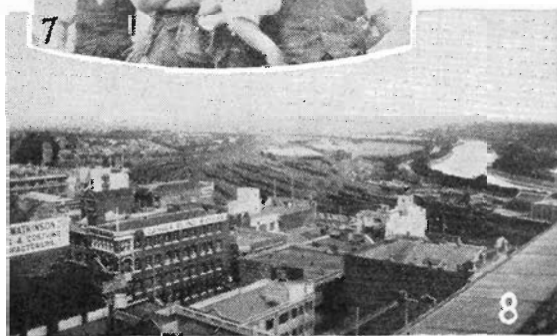
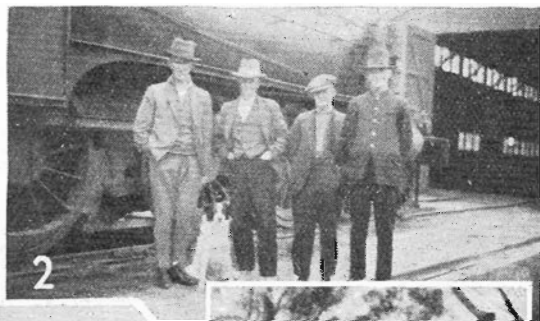
—S.C.W.



Kilmore's butter factory, just opposite the station, was once a jail

Snaps Round The System

Sent in by Contributors



1.—Nos. 8 and 9 gangs, Hopetoun and Patchewollock. 2.—Victorian Loco. Staff at far-off Pinnaroo. 3.—Railway avenue at Lang Lang. 4.—Track gang at Moama. 5.—Guard Dore, S.M. Ryan, Vanman Swaile, and the local Postmaster at Glenloth. 6.—Down goods beyond Ararat (photo. J. C. M. Rolland). 7.—Eaglehawk gang, winners of gravel ballast prize, Bendigo District. 8.—A new view of the Jolimont Yards from the roof of the T. and G. building. 9.—Rail motor at Bumberrah.

Blackwood's Vanished Glory

By *M. J. Harkins*

*A tenantless old house alone remains
Where once were homes of men,
And there where heavy silence reigns
Man rarely comes again.*

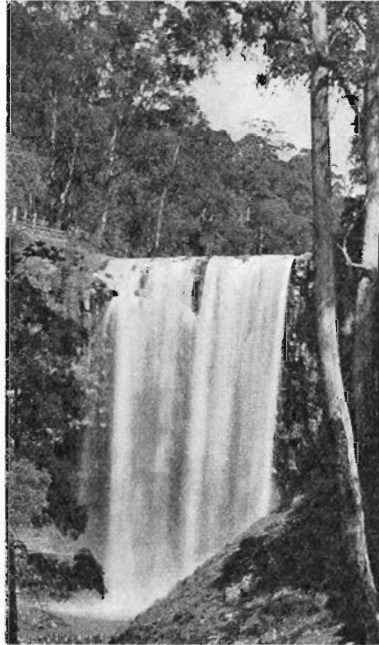
THUS did an itinerant poet deliver himself after wandering through Blackwood. Perhaps his thoughts were actuated by impressions of Blackwood's past glory, gleaned in childhood, and dimly remembered as he surveyed the green hillside where once his kinsmen built a home. But, whatever the motive, his lines could not have been better chosen, so well have they captured the atmosphere of this now almost forgotten mining town.

The history of Blackwood does not differ materially from that of any other of our "worked out" gold fields. As has been the case with many of the richest finds, the discovery of gold at Blackwood was made by chance. In 1854 two drovers from Ballan were taking cattle to graze in the hills surrounding the Lerderberg-river and, whilst camped on the stream, made the discovery that its bed contained gold. After disposing of the cattle, they made secret preparations to revisit the locality but, at a time when the "gold fever" was at its height, the reason for their stealthy departure immediately caused speculation, and ere long a rush set in. The original find, however, was only the forerunner of many others, and in a short time Blackwood had an estimated population of 30,000 people distributed between Red Hill, which may be termed the civic centre, and its three suburbs, Simmons' Reef, Golden Point and Barry's Reef.

Population Now 100

For about 60 years the field gave prolific yields, but eventually its production commenced to decline, and finally the last of the big mines—the Sultan—where 700 men once found employment, closed down. Slowly the population began to drift away and deserted houses either decayed or were removed to the prosperous farming communities surrounding Trentham and Bacchus Marsh. Now, Blackwood shelters scarce 100 inhabitants and its streets remain empty save for the spasmodic influx of holiday-makers at week-ends and during vacation periods.

Connected by road with Trentham, from which it is nine miles distant, Blackwood possesses many natural attractions which are slowly receiving recognition from the touring section of the community. Below Red Hill, near the site of what was once called Tipperary Flat, are two mineral springs



Trentham Falls, near Blackwood

of excellent quality and, 200 feet above the river on Shaw's Hill, is a miniature lake which equals in all respects any natural or artificial bathing pool in the State. Farther afield is Foster's Hill, a high view point commanding a panorama extending from Blue Mountain in the north, across Corio and Port Phillip Bays to the Dandenongs in the east.

Whilst the motorist when entering Blackwood must confine himself to the main highway, he who is willing to become one of that strange band styled "walkers" may forsake the dust-haloed motor track and wander down the disused roads that meander through the forest to the east of Blue Mountain.

Carruthers' Old Home

For about five miles the way lies across the top of a forest-clothed ridge past the sites of several old homes, indicated by an occasional clearing or perhaps one or two moss-grown fruit trees. Then begins a sharp descent along the steep side of a gully which flows into the main Lerderberg stream just below Red Hill. Near where the two streams junction are the remains of Carruthers' old home. Here the road passes through a beautiful glade roofed by tall pines and hedged with

those shapely beauties of Australian bushland the blackwoods.

In contrast with the decay of the old homes, is the birth of a new township consisting of log week-end huts near the end of Red Hill's main street. Should the wanderer, revisiting perhaps the birthplace of his forebears, chance upon this new suburbia and encounter some of its populace, he may hear scraps of Blackwood's history which have almost been his gospel since early childhood. Maybe they will show him the home of his ancestors. So is the old order changing. Soon names once household words will be forgotten as the few remaining representatives of the older generation disappear and the incoming tide of week-enders envelops their home sites.

The change, however, is not unpleasing, for slowly but surely some of Blackwood's past prosperity, if not glory, is returning. The water races which won the golden wealth now make well-grassed foot tracks to fern gullies and mineral springs. The poppet heads of mines are being requisitioned as lookout towers to afford views from the surrounding hills, and the mines themselves are the objectives of pleasant walks through the surrounding bush.

But, when the echo of the last motor siren has faded in the distance, Blackwood, despite the new prosperity, again resumes its cloak of silence and retreats beneath an atmosphere of decay, a shadowy remnant of a short though glorious past.

Railway Brevities

One hundred coaches have been equipped by the German Railway Company as railway travelling schools. Old sleeping-cars have been altered to contain 36 seats for the "pupils," a room for the instructor and instructional material covering all branches of railroad operation, though some of the cars are devoted to special branches.

The L.N.E.R. announces that coat and trouser hangers of an improved type are to be fitted in all their first-class sleeping cars.

Relocating the New York Central's track through Syracuse, N.Y., in order to avoid running trains through busy streets in the heart of the city will cost £6,000,000, P. E. Crowley, president of the company, informs the Interstate Commerce Commission. The New York Public Service Commission has ordered the change.



Wonderful!

Now I Can Dress Well

On One Shilling a Day

THE ONE-SHILLING-A-DAY BUDGET BUYING PLAN puts the Finest Clothing within the reach of men who ordinarily find it inconvenient to make a single payment of, say, £8 or £9 at one time. Men accustomed to purchasing homes or furniture on Deferred Payment will find this plan of utmost convenience in purchasing Fine Clothing.

This Newly Established Charge Service permits railwaymen to purchase clothing on the following basis :

For £6/6/- Suits or Overcoats—

You pay £1/12/- at time of purchase and 1/- a day

For £8/8/- Suits or Overcoats—

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For £7/7/- Suits or Overcoats—

You pay £1/17/- at time of purchase and 1/- a day

For £9/9/- Suits or Overcoats—

You pay £2/7/- at time of purchase and 1/- a day

Payments to be made Weekly or Fortnightly

NOWHERE in Melbourne can you get such excellent values for your money. This is accounted for by the fact that our upstairs location, which saves us at least £60 a week in rent alone, enables us to offer clients a saving of 20 per cent. on all their purchases. If you cannot call, write for patterns and full particulars.

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Be as Well Dressed as Your City Friends

Write us today for our free book of samples and self-measurement form with full instructions how to measure—just take your own measurements and post to us. We'll do the rest. Try it—costs you nothing—just a post card. Get the free samples and prices anyway, and also our handsome booklet "How to Dress Well on a Shilling a Day." You will learn something interesting about dressing well and saving money.

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Railwaymen"*

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Country Clients Please Post Coupon

Kindly send me patterns of your suitings

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Address.....

NOTE.—Please indicate shade and price

V.R.M.

Railwaymen of the Month

Ballarat Man Goes

POPULAR old George McCubbin, workmaster on the Ballarat District Engineer's staff, closed 47 years of active service when he went on final leave last month. He started on May 17, 1883, and has been workmaster since August, 1928. In the absence of District Engineer Ward on leave, Herb. Nolan was spokesman for the branch in its farewell to the veteran. George was always interested in sport, and in his younger days was footballer, cricketer, footrunner, gun shot, tennis player and golfer.

On the Move

IN all his 47 years of railway service, District Superintendent A. J. Morris, just retired, has seldom remained long in any one spot. His career has been one change after another, with move treading hot on the heels of move. First, he was a clerk-telegraphist at Ararat (1883) with service at Dimboola and Beaufort, and a subsequent transfer to the relieving staff. Then he was S.M. at Gisborne, Mildura, Sandringham and Nyora, and was just becoming accustomed to the dictatorship of the Wonthaggi-Nyora section when he was called into head office to act as train running officer. Finally he had four years as D.S. at Maryborough and another four at Seymour, before stepping into the restless shoes of a relieving District Superintendent. Needless to say, he will travel abroad in his retirement, while golf will also help to keep him on the move.



Eastmalvern's First

RAILWAYMEN along the Darling line farewelled Guard Matt. Welsh last month on his last run before retirement after 41 years of unbroken service. For five years he was guard on Wirth's circus train, and for the past decade he has been stationed at Darling and Eastmalvern. Incidentally, he is the first guard to retire at Eastmalvern since that station has been a depot. A presentation of a silver-mounted pipe and pouch was made to him.



Branch Chief Retires

RETIRING on account of ill health a few weeks ago, Mr. W. E. N. Keast, General Passenger and Freight Agent, severed a 45-year connection with the Victorian Railways. He joined the service as a junior clerk at Bendigo in 1885, later gained experience at Spencer-street and was transferred to the then General Traffic Manager's office. Promotion to the position in charge of the passenger division of the office soon followed. In 1911, he succeeded the late Mr. Commissioner E. B. Jones as Deputy General Passenger and Freight Agent, and on Mr. Jones' appointment as Secretary in 1915, Mr. Keast became General Passenger and Freight Agent, a position he has held ever since. His activities as the Department's authority on freights and fares are well known to railwaymen, but it is not known so generally that he was appointed chairman of the first Railway Classification Board in March, 1917, nor that he has carried on the duties of Commissioners' representative on the present Classification Board since its inauguration in 1919. Again, not many railwaymen are aware that Mr. Keast is a member of the Government Tourist Resorts Committee, of the Buffalo Park Committee and of the Buchan Caves Management Committee. Whatever the task however, and whatever the issues involved, his indomitable energy, his trained judicial mind and his capacity as an administrator and organiser were ever a guarantee of successful achievement.

Trotted 100,000 Miles

WALLY MANSELL of Welshpool has established two claims to prominence during his railway career. First of all, he is easily Welshpool's oldest railway identity—

he has watched the local railway traffic fluctuate for the last 35 years. Again, and what is perhaps more interesting, Wally was the first horse-tram driver in the Victorian railways service, and has been the sole member of this grade since 1905, when the tram service was instituted between Welshpool and the Welshpool jetty. Two trips each way along the 3¼ mile stretch of two-foot-six tram line has been his daily lot and, in his time, he has trotted his horses considerably more than 100,000 miles. And just how many boxes of fish he has transported during that time only the wild sea waves could say. He relinquished his reins of office last month.

A.S.M. and Shop

Foreman

FEW railway workshop foremen—indeed, if any—have had the experience of being an assistant stationmaster as well as a foreman. Yet Foreman W. Leigh of Spotswood who retired the other week, started as a railway porter in 1887 and was an A.S.M. at Spring Vale in 1901, when he transferred to the Way and Works branch. He had served a seven-year apprenticeship as a carpenter in England and was soon recognised as one of the best joiners in the Spencer-street Shops. Appointed foreman at Arden-street in 1924, he helped to establish the new joinery shop at Spotswood when the railway wood-working activities were transferred to that depot. He was given a presentation at a crowded farewell social in Unity Hall.



When He Isn't Printing

WHEN Geo. Oakley of the V. R. printing division isn't coloring railway tickets or ruling departmental stationery, he is usually arranging splints or tying bandages or uncorking iodine bottles. One of the most prominent first aid experts in the railway service, George is leader of the head office ambulance corps, and led the champion State railway team in 1929. He also won



the champion individual event at the 1924 ambulance competitions. Other of his non-printing interests have been music, football and cricket. For seven years he was a player in the railways band and he has also played junior football and cricket with the premier team of the Railways Association. A good fellow and a good worker.

North to South

LALBERT said good-bye a week or so ago to Stationmaster N. V. Donne, who is now installed at South Melbourne. The district will miss him, as he was founder of the Lalbert fire brigade and practical instructor of its members, secretary of the annual carnival and member of the progress association. Residents made him a farewell presentation on the station.

April Birthdays

EACH of the twelve branches which comprise the Victorian Railways is represented in the Magazine's birthday list this month. A typical day is the 4th of the month when Travelling Audit Inspector Bill Ellis, Cashier A. E. Bowser, Shift Electrician Claude Hocking of Newport power house, Works Foreman W. H. Philpott of Ararat, and E. J. Tatterson of the livestock office will all be celebrating. Others who will pass another mile post this month include:—



Commissioner Mr. Shannon

Ex-Chairman Arthur Hyland of the Betterment Board and Roadmaster Jim Hamilton, of Geelong, on the first; Frank Coombes of the Livestock and Bookstalls Manager Letcher, on the second; Clerk Edward Rosman of the Signals and Frank Adams of the Secretary's branch, on the third; Manager S. H. Evans of the Newport signal shops, on the sixth; Fares Clerk J. H. Reilly, on the eighth; Pym Goode of Room 10 and Foreman Urban of the Car and Wagon Shops, on the 9th; Chief Mechanical Engineer N. C. Harris, on the 10th; Train Lighting Inspector W. A. Chipper, on the 11th; Conductor Dick English, on the 12th; J. A. Russell of Room 2, on the 13th; Electric Train Driver John Gault of Jolimont and Inspector of Ironwork W. Watson, on the 15th; Stores Chief Clerk Geo. Farrelly, on the 18th; Yard Foreman R. Long of Newport and Workshops Manager P. O'Neil of Bendigo, on the 19th; Sales Officer Harry Agg of the Stores, on the 20th; Chief Ticket Inspector George Johnson and Assistant Chief Storekeeper W. D. Morgan, on the 21st; Senior Yard Foreman G. Calder of the Melbourne Yard, on the 22nd; Jack Ramsay of the dining car depot, on the 25th; Safeworking Officer Tom Edwards and Storehouse Manager A. Steele, on the 26th; Commissioner W. M. Shannon and Assistant Chief Engineer for Railway Construction Fred. Box, on the 27th; Assistant Chief Engineer of Signals and Telegraphs S. P. Jones and Driver F. Bacon of Maryborough, on the 28th.

Topicalities

During the past few weeks, Geelong was visited by two retired railwaymen—Mr. H. J. Cadwallader, formerly district superintendent, and Mr. W. S. Fraser, formerly refreshment room inspector. Both are in the best of health.

Maryborough Transportation men said *au revoir* last month to Relieving Clerk H. S. Crapper, who has been transferred to the city, where incidentally he will play League football with the Melbourne club. He was presented with a travelling rug.

Stationmaster W. Hayward of Lethbridge has been transferred to the relieving staff. The local staff and district residents presented him with a handsome travelling rug and a wallet of notes.

Stationmaster Brenussi has retired from Creswick. He intends to live at Sunbury.

After 43 years service, Stationmaster A. E. Evans of Windsor has retired. He had been stationed at Yarraville, Yarram and Natimuk.

Clerk J. Sharkey of the Stationmaster's staff at Bendigo was presented with a handsome hall wardrobe on the occasion of his recent marriage.

Head Porter James Goggin of Princes-bridge has retired after 41 years service. He was at Princes-bridge for 10 years. Every branch of the service was represented at the farewell to the popular old veteran. The staff's gifts to him were two arm-chairs, an umbrella and a smoker's outfit.

Fitter-in-Charge O'Shea has been promoted and transferred from Echuca to Wodonga.

A SHATTERING ANNOUNCEMENT

A NEW MALVERN STAR



ROADSTER MODEL FOR £9.10

FREE INSURANCE and GUARANTEED FOR 10 YEARS

HERE is the cycle you've been waiting for—a genuine "MALVERN STAR" Roadster for £9-10-0.

Realising the public need for a low-priced bicycle that would combine strength, easy running and reliability, Bruce Small Pty. Ltd. have produced the new "MALVERN STAR" Model No. 5, a machine featuring these necessary qualities at a price within the reach of everyone

This new "MALVERN STAR" may be purchased for £2 down and 5/- weekly, it bears our usual 10 YEARS' GUARANTEE CERTIFICATE, is INSURED FREE AGAINST ACCIDENT AND THEFT, and is not built down to a price, but up to that same standard of excellence that has made the name "MALVERN STAR" famous throughout the world.

Call or write for particulars of the new Model No. 5, **TO-DAY**

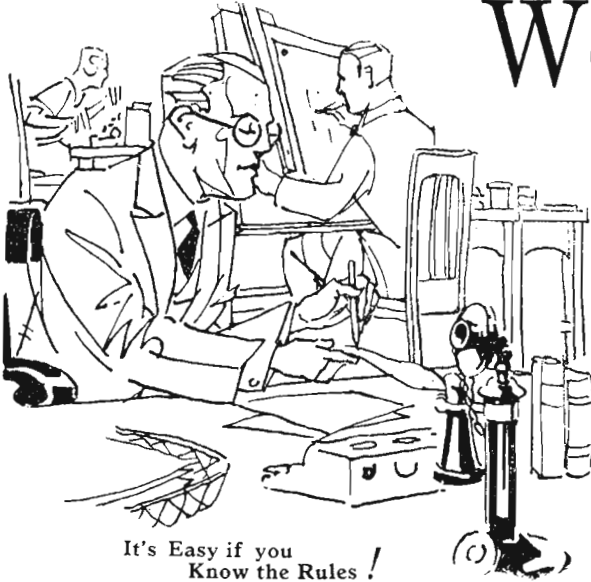
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BEHIND all Commercial Prosperity — and directly responsible for it— is the man who sells the goods. Without his impetus the wheels of industry would cease to turn. The fires of production would run low.

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Study ADVERTISING

WRITTEN by a council of leading English authorities, the H. & R. Advertising Course tells in a simple straightforward manner all that the average man needs to know in order to fit him for a responsible post in advertising. There are fourteen profusely illustrated study-series, each equipped with a comprehensive list of examination questions an advisory service ensures application to practise.

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By AERIO

An "Outdoor" Loud Speaker

YOU can drive this easy-to-make loud speaker with quite a small set, but you will be surprised by its extraordinarily faithful reproduction and the bass notes it can handle.

It is just the speaker you want for out-of-doors work.

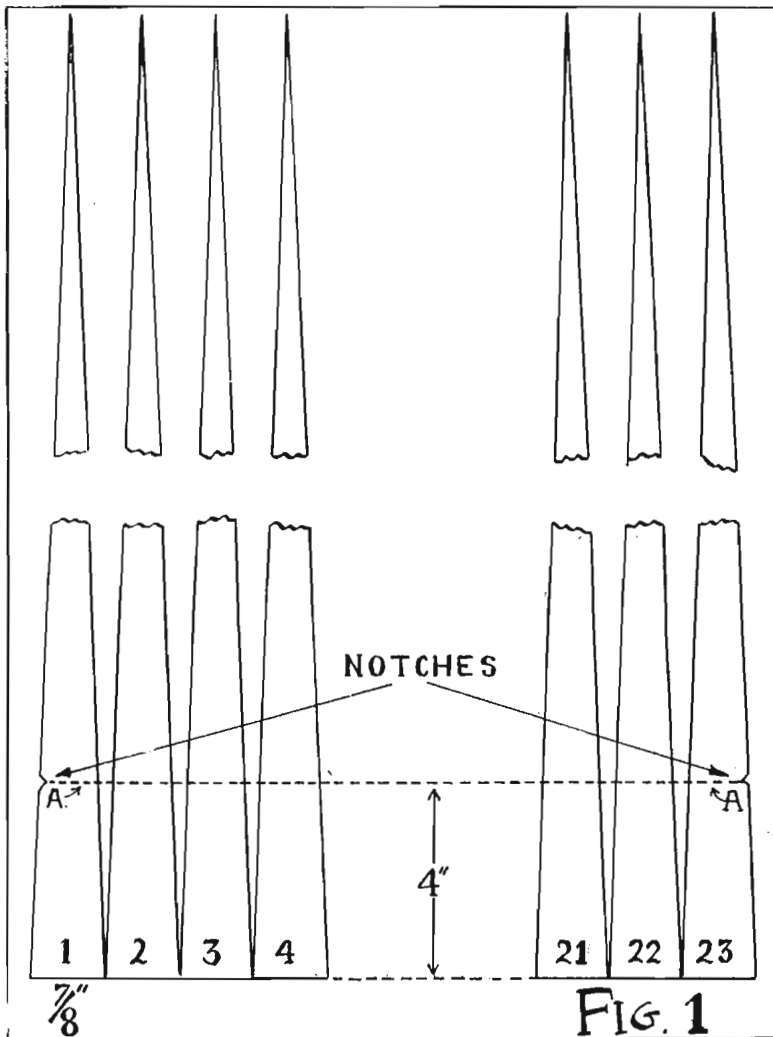
SOONER or later most people get tired of the loud speaker with the little trumpet. Hoping for better things, they turn to the cone. The cone is good. Of all types of loud speaker the cone holds the monopoly in low notes. For a given output from the receiver, however, its volume is considerably less than that of the loud horn type of speaker. Where small sets are concerned, therefore, a horn type speaker is usually employed to obtain reasonably loud results, the tone (or ability to reproduce low notes) depending on the length of the air column or horn employed. On large sets, too, a horn-type speaker will bring in distant stations which are too weak to be heard on a cone speaker. Each type of speaker, therefore, has its own particular advantages.

One Disadvantage Only

The only disadvantage with the horn type speaker is the horn itself. A low note of 50 cycles has a wave-length of nearly 22½ feet. But a high note of 5,000 cycles has a wave-length of less than 2¾ inches. The latter will undergo many reflections and reinforcements in an ordinary horn of 20 to 30 inches in length, but the former wave will not.

Furthermore, the column of air in a small horn is insufficient to give good loading. As the horn is lengthened and increased in diameter, both the output (volume) and the low notes increase up to a limit. We are not, however, concerned with that limit—it means too big a horn for normal, homely purposes—all we modestly ask for is a reasonable compromise. We want some of those low notes, and some of that extra volume.

About eight feet is a very nice length for out-door work. If it consists of a 6 ft. horn and a 2 ft. detachable bell, or flare, then we have an instrument which may be used in the garden in the summer—or even in a passageway indoors for dancing—and can be tucked



away under a bed or in the back shed when not required.

An eight foot horn is not the sort of

thing one would—even if one could—purchase in the city and take home under one's arm. It is far safer and

cheaper to make it yourself. The total cost of such a horn, made of wood and finished as described, is only about ten shillings.

Remember, too, that the finished product will not only be the envy of all the neighborhood, but also a source of justifiable pride to the maker and user. With even the cheapest unit attached, it will give more volume and depth and fullness of tone than any commercial speaker you are likely to hear (excepting of course power dynamic speakers utilizing powerful and expensive amplifiers).

Some idea of the vast difference made by adequately loading a diaphragm will be gained from the fact that with an ordinary *earpiece* attached to this horn, speech can be clearly heard 100 ft. away, using a *two-valve* set, employing B406 valves with 45 volt B Battery, at a distance of nine miles from the A class stations. This, too, without overloading the earpiece, which would obviously rattle badly if as much power was used as with a proper speaker unit. In passing, it may be mentioned that the extra load of a 6 ft. or 8 ft. horn greatly diminishes the tendency of the diaphragm to rattle or resonance.

Materials Required

25 6 ft. wooden laths, 1 in. wide (planed), i.e., $\frac{1}{2}$ in. actual width.
1 tin of plastic wood.
1 sheet of $\frac{1}{4}$ in. strawboard, 30 x 40 in.
 $\frac{1}{2}$ lb. of glue and tube of secotone.
2 bricklayer's lines (strong, thin twine).
1 9-in. square of thick plywood.
Coarse and fine sandpaper. Screws and small staples.
Rubber ball, about 4 in. in diameter.
An old tea plate, about $5\frac{1}{2}$ in. in diameter.

Although you have 25 laths of 6 ft. each in length, you will actually require only 12 for the cone and 8 for the bell. But it is wise to buy the extra. Some of the laths will suffer from a surfeit of knots, others will be chipped or splintered, and others will be damaged during the process of manufacture.

Pick out the 12 laths most free from knots, or splinters, or uneven edges, and cut each diagonally lengthwise, using one lath as a guide, which is laid diagonally over the lath to be cut. The cutting is done quite easily, for the wood is soft, if only you use a sharp, small-bladed knife and do not press too heavily. The secret is to take time and cut through the wood for a third to one-half of its length at a time.

You have now 24 long triangular strips of wood, with a base of $\frac{3}{8}$ in. and a length of 6 ft. The one side of the triangle is, of course, slightly longer than the other, but the difference is negligible. You require 23 of these strips for the conical horn. Discard the least desirable one. If necessary, you may cut a few extra ones out of the surplus laths in order to replace any which may have been badly cut. This is most likely to have happened where you have tried to cut through

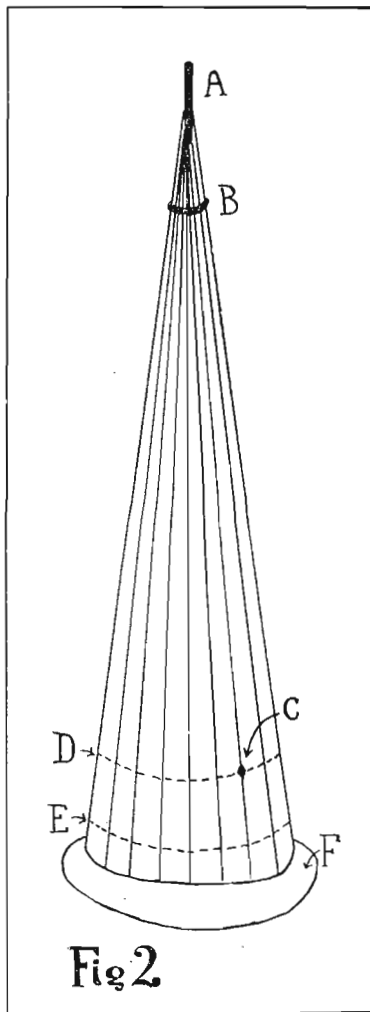


Fig 2

a knot and left a slight *protuberance* on one side of the triangle. Slight indentations on a side do not matter, as these can afterwards be filled up with plastic wood. Smooth off the edges with sandpaper.

With a small Archimedean drill (or if you wish, with a red hot darning needle) make a hole *widthwise* through each triangle at a distance of $\frac{1}{4}$ in. from the base (see Fig. 1). Again, do not hurry, and do not exert too much pressure, and the work can be done quite easily without splitting the wood.

Wax and Thread the Line

The bricklayer's line (or strong, thin twine) is waxed at one end and threaded through each of these holes. Slide the strips of wood along to touch each other and leave about 12 in. of twine projecting at each end of the "necklace" of triangles. Secotone is now run along each edge of each strip of wood. Also on the twine, which is drawn backwards and forwards through the holes to draw the glue into them.

Obtain the aid of an assistant who does not mind a little glue on his hands. A roughly formed conical horn is now made by bunching together the pointed ends of the triangular strips of wood while the bases are also drawn together by means of the twine (D, Fig. 2) which is pulled up as tightly as possible and tied in a knot, which must on no account afterwards slip. This knot fits into a small notch (C, Fig. 2) which will later on be filled in with plastic wood.

Bind the apex of the cone temporarily with some string. The rubber ball (about 4 in. in diameter) is now dropped down the mouth of the cone and pushed in firmly enough to force the strips of wood very slightly apart and, of course, to make them form the circumference of a circle. String is temporarily bound round the point where the ball comes to—about half way along the cone—sufficiently tightly to pull the strips of wood into intimate contact. The resilience of the rubber will allow this. If not, remove the ball and try again.

Push in the Tea Plate

In the large end of the cone is now forced an old $5\frac{1}{2}$ in. tea plate (E, Fig. 2) so that it is at right-angles to the axis of the cone. It should be a reasonably tight fit, to make the mouth of the cone circular. If the twine has been pulled up and tied tightly there is no fear of the strips of wood being forced apart.

Coming now to the smaller end of the cone, the string at the apex is wound so that the individual strips of wood may be eased into position at a point about $1\frac{1}{2}$ feet from the apex, the object being to see that none of them sag or bend inwards. When this has been done, a curtain ring about 2 in. to $2\frac{1}{2}$ in. internal diameter (B, Fig. 2) is forced firmly over the outside of the cone in order to grip it together at this point. Failing the ring you can bind it with string, using a few tacks to keep the string from slipping down the cone towards the apex. The ring is better as it does not "give" like string.

The points should then be arranged, and string wound round the apex and at several other points $1\frac{1}{2}$ ft. apart.

If you examine the individual strips of wood which make up the cone, you will find that they gape a little on the outside, but touch on the inside of the horn. It is advisable to run secotone along the joints, not to fill them up completely, but to ensure that the whole of each length of wood is well glued. Or, hot liquid glue may be painted along the crevices. But see that it is really hot and thin, and do not let it flow over the string bindings or the curtain ring, for you will want to remove these later.

At this point, or even before, you should be agreeably surprised at the rigidity of the cone and its comparative symmetry.

Give the cone a day to set, and then fill up the crevices with plastic wood, using the blade of a knife to smooth it into place. The plastic wood, by the way, may be purchased at any paint shop, and should be soft and moist and reeking of "pear drops." If it is not, you have bought old stock.

At the end of the second day, when the glue and plastic wood should be well set and hardened, remove the curtain ring and bindings and, with a razor-edged piece of broken glass, scrape along the joints. Shavings will come off and the surface will begin to assume an even contour. It is best to try scraping first one way and then the other according to the way of the grain, so as to raise as few splinters as possible. Finish off with coarse and then fine sandpaper.

Sufficient wood should now be sawn off the apex to leave an internal diameter of just over half an inch.

Describe an 8 in. circle on the square of 3-ply wood. In the exact centre of this circle stand the cone, base downwards, marking with a pencil the exact shape of its circumference (which will not be a perfect circle, but slightly polygonal). A mark should also be made on the side of the cone and on the circle for registration purposes later.

Cut with a fretsaw around the inner and outer circumferences marked on the plywood, which will then form a

wooden ring about 1 in. wide to fit tightly round the large end of the cone.

The inner circle should be cut slightly *inside* the pencil line, in order to ensure a tight fit. This is shown at F, Fig. 2.

Procure a poker, smash the plate, put your hand down the cone and pull out the rubber ball.

The wooden ring is now seccotined and forced over the outside of the cone so that it fits closely and as near to the base as possible. If the cutting has been carefully done, the pencil marks on the cone and ring will show you the exact position to obtain the firmest and tightest fit. A few brads should be driven from the inside of the cone into the edges of the wooden ring to strengthen it, and a layer of plastic wood is moulded around the joint.

Glue-coating the Inside

Tie a piece of sponge on the end of a lath, soak it in very hot and fairly thin glue for a few seconds (to heat the sponge thoroughly), and coat the inside of the horn liberally with glue, so that cracks and crevices are well filled. When you do this, keep the base downwards so that no rivulets of glue run down into the small end. Keep the sponge soaked in hot glue as much as possible, otherwise as the glue cools on the wood it will be apt to peel up and form into little blobs.

The glue coating not only strengthens the horn, but also renders the wood less absorbent to sound.

A cardboard tube of 1/2 in. internal diameter for the input (A, Fig. 2) is made by winding a strip of seccotined brown paper (about 3 in. by 2 ft.) around a stick. It is then glued into the small end of the cone and well packed round the plastic wood. See that the glue and plastic wood are well set before attempting to attach a loud-speaker unit.

Before making the bell or flare, try the cone itself as a horn. It should be an immense improvement on your present speaker, but when fitted with the bell it should reach down into the lower notes to the extent of another two octaves.

The framework of the bell is composed of 22 laths, each 2 ft. long. A hole is drilled widthwise through each of these at a distance of 1 1/2 in. from the one end. They are then threaded on twine, slid along to touch each other, the twine seccotined (as before) and then tied with a knot which will not slip.

The cone is held base downwards and the necklace of 2 ft. pendants slipped over so that when they reach the ring they spread outwards.

The diameter of the bell should be 19 to 20 in. Force the skeleton bell tightly enough against the wooden

Concluded on page 47

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RAILWAYMEN in SPORT

By REG. HUNT

NEW SOUTH WALES RETAINS BLANCH CUP

WHEN rain interrupted the tennis match between Victorian and New South Wales railwaymen for the Blanch cup, New South Wales had won nine rubbers and Victoria seven, with five rubbers unplayed. It was agreed to declare the match drawn, and New South Wales will accordingly retain the cup.

Detailed scores were:

SINGLES.—R. E. Cook (N.S.W.) d. F. Darcy (Vic.), 6-0, 6-2; A. W. Cobham (Vic.) d. G. W. Murray (N.S.W.), 6-0, 6-2; A. Willard (N.S.W.), d. W. Ahern (Vic.), 6-0, 6-2; A. W. Cobham (Vic.) d. N. McGreal (N.S.W.), 6-1, 6-0; G. Lynch (Vic.) d. G. Hatherley (N.S.W.), 6-0, 12-10; L. O'Brien (Vic.) d. G. W. Murray (N.S.W.), 6-3, 10-8; J. Turner (N.S.W.) d. R. Ryan (Vic.), 6-4, 2-6, 6-4; G. Hatherley (N.S.W.) d. W. Ahern (Vic.), 6-3, 3-6, 6-0; L. O'Brien (Vic.) d. N. McGreal (N.S.W.), 6-2, 6-2; A. Willard (N.S.W.) d. G. Lynch (Vic.), 6-3, 3-6, 6-4.

DOUBLES.—G. Hatherley—J. Turner (N.S.W.) d. F. Darcy—R. Ryan (Vic.), 6-2, 6-4; R. E. Cook—N. McGreal (N.S.W.) d. A. W. Cobham—W. Ahern (Vic.), 6-4, 4-6, 6-4; G. Lynch—L. O'Brien (Vic.) d. G. Hatherley—J. Turner (N.S.W.), 4-6, 11-9, 6-4; A. Willard—G. W. Murray (N.S.W.) d. F. Darcy—R. Ryan (Vic.), 10-8, 6-3; A. Willard—G. Murray (N.S.W.) d. G. Lynch—L. O'Brien (Vic.) 6-2, 2-6, 6-4; F. Darcy—R. Ryan (Vic.) d. R. C. Cook—N. McGreal (N.S.W.), 7-5, 4-6, 6-3.

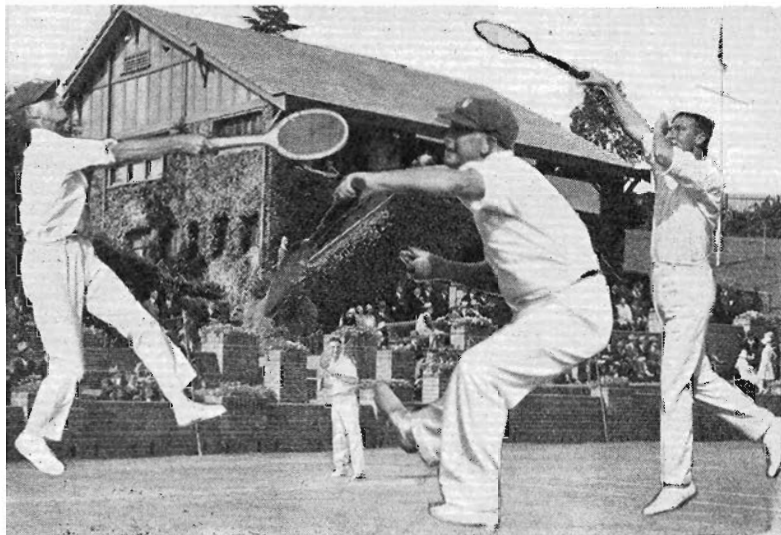
Totals.—New South Wales, 9 rubbers, 20 sets, 186 games; Victoria, 7 rubbers, 19 sets 191 games.

FOOTBALL ON THE HORIZON

THE Railways Association held its annual meeting on Wednesday, March 12. Five clubs were represented: North Loco., Car and Wagon Shops, Eastern Lines, Coburg and Essendon Lines and Heidelberg and Reservoir Lines. It is still hoped that another team (from the Yard and Flinders-street) will be formed and so make six teams in the competition.

The office bearers elected were: President, J. Cummings; secretary, G. Broadbent; asst. sec., E. O'Meara; vice-presidents, Messrs. Williams and Bowman.

Mr. Johnson, secretary of the S.A.R.I., attended the meeting to urge that a team



Prominent figures in the Blanch Cup tennis match. From left: Aubrey Willard and Jim Turner (N.S.W.), George Lynch (Vic.). The player on the court is Laurie O'Brien (Vic.)

be sent across to Adelaide, about September next, to play the Institute team over there. The meeting was strongly in favor of the proposition, and steps are to be taken to give effect to it. Mr. Johnson explained that in Adelaide, close to the Central station, they have a very fine sports ground. There are eight tennis courts, a bowling green and a full-size football oval, fully grassed and in first class order; at present a £3,000 grand stand is in course of erection.

THE Eastern Lines club held its annual meeting at the V.R.I. on March 14. There was a very large attendance and another successful season is assured. The office bearers are: President, S. Jenkins; vice-presidents, E. P. O'Meara, G. Gorrie and C. Coombe; secretary and treasurer, A. J. North; asst. sec., J. C. Hare.

THE Coburg Line Club, owing to the withdrawal of the Heidelberg-Reservoir section, held a special general meeting at which fresh office bearers were elected: President, W. Banner; senr. vice-pres., F. Salvana; treasurer, L. O'Toole; organizer, W. Keppell; secretary, C. Morgan; social secretaries, E. Williams and H. Asker.

THE Heidelberg-Reservoir Line will field a strong team, under the presidency of Mr. Reg. Bowman, and their prospects for an interesting season appear better than for some years.

QUEENSLAND WINS INTER-STATE RAILWAY CRICKET CARNIVAL

THE annual interstate cricket competition for the "Mick Simons" challenge cup, was held in Melbourne this year and, although



Down by the sad sea waves at Coogee, Angus Mac. happened upon the cricket match for the Commissioners' Shield between Victorian and New South Wales railwaymen. Here we have the Victorian Captain Bert Lansdown, N.S.W. scorer George Johnson, N.S.W. Sec. Ted Seymour, with Treasurer George Maidment, President T. G. Hartigan cracking jokes with Victorian scorer Tommy MacPherson, and Harry Parker of the N.S.W. Entertainment Committee facing Captain Bill Ives' wicketkeeper, Bob Tory



The Victorian Railways cricket team which played railwaymen from Queensland and New South Wales for the "Mick Simons" cup.

a great success socially, the matches were somewhat spoiled by bad weather. Victoria commenced well by defeating N.S.W. by an innings. The New South Wales-Queensland match had to be abandoned account rain, and the game declared a draw. The concluding game, Victoria v. Queensland, was again held up by bad weather, and play on the first day did not commence until nearly 4 o'clock. The match could not be played to a finish, Queensland winning on the first innings by 70 runs.

The points scored were thus : Victoria 5, Queensland 5, N.S.W. 2.



The rival captains toss up before the Queensland-Victoria match

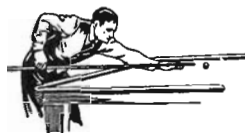
As Victoria and Queensland finished level on points, the V.C.A. was asked to give a decision on percentage, and awarded the cup to Queensland.

The social arrangements made by the V.R.C.A. were voted a success, and the entertainments provided kept the visitors fully engaged. The programme included a trip to Belgrave and Sassafra, theatre party, reception by Institute Council, luncheon and inspection of Newport workshops, smoke night, week-end in Ballarat and match against Ballarat Railways, social evening at Institute, and an inspection of Federal Distilleries. The week-end in Ballarat gave the visitors much pleasure and enabled them to see a bit more of Victoria. The Mayor of Ballarat extended a civic reception at the city hall, and the team was welcomed by heads of branches, president Ballarat Railway Cricket Club, president and secretary of the Institute.

Roy Kydd, secretary of V.R.C.A., was presented with a gold-mounted

Continued on page 46

ALCOCK'S HOME BILLIARD TABLES PAY AS YOU PLAY



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UP COUNTRY



Dried Fruit Packing

Packing sheds in the Redcliffs settlement are busily engaged in handling this season's dried fruits. Large quantities of currants have been delivered and sultanas are steadily arriving. Officials of the Water Commission state that the yield per acre this year is particularly heavy and the berries larger in size.

Manure Traffic Brisk

The artificial manure firms at North Geelong are working at high pressure. At present 150 trucks per day are being handled, necessitating the use of approximately 200 covers, 150 lashings, and at least 300 standards daily.

Cattle Fattening on Victoria's Roof

Cattlemen who yearly move their stock to fatten on the high plains in the Australian Alps, report that the season on that vast expanse of rolling downs on the "roof" of Victoria is the best experienced for many years. Grass is everywhere abundant, and it is estimated that 10,000 head of cattle are depasturing on this ideal summer country. The altitude averages between 5,000 and 6,000 feet, and has felt very little effect from the particularly hot summer experienced. The annual mustering will take place very soon as the stock has to be got down before the first heavy falls of snow.

Wool Decrease

Final returns of the north-east's wool traffic now available disclose that a total of 103,195 bales (9,922 bags) were railed compared with 135,340 bales (11,050 bags) for previous season, the decrease being mainly due to lighter clip, road competition and the holding of some wool by growers awaiting more favorable sales.

WOODCARTER'S LUCK

AT Avoca recently a local woodcarter was unable to follow his calling owing to heavy rain. He tried his luck at "specking" in the abandoned Avoca Lead, but after some hours' fruitless search for the precious metal, he returned home without finding a "ghost," as the finest color of gold is termed by diggers.

Prior to the rain he spread some gravel, carted from the Avoca Lead, in his yard, and the rain washed it clean. Upon entering his yard, something was noticed glittering among the gravel, and this, to his surprise and delight, proved to be a nugget weighing 11 dwt.

Heavy Currant Crop

Reports from the irrigation area round and beyond Swan Hill indicate that the currant crop has proved very heavy and of excellent quality. The sultanas are now being garnered and dried, with every prospect of equally good results being obtained, the continued fine weather being a great factor.

South-West Busy

Owing to favorable conditions, busy season activities prevail throughout the south-western district. Large consignments of fresh and condensed milk are being dispatched by rail from Allansford and Dennington, and, in addition, the chaff and fodder traffic throughout the section is very heavy.

Fresh Fruit Increase

At the beginning of last month the fresh fruit records in the north-east disclosed an increase of 718 trucks above the figures of the corresponding period for last season. The peak period was reached about the middle of March when the splendid "Cling" crop was being handled.

Buying Seed Wheat

Although the wheat crop was below normal in the north this year, much of it is of excellent quality and is being eagerly bought up at many stations to be used for seed wheat for the coming season.

King Valley Broom Growing

Whilst the area under crop for broom-growing this year in the King Valley and other districts was nearly a record, the yield will generally be much lighter owing to the prolonged dry conditions.



Left: The committee which organised the recent Bendigo Guards' and Shinters' Picnic at Malmesbury.

Below: A happy picnic group.



Grapes Heavy

For the period January 4 to March 1, 7515 cases of fresh grapes have been forwarded from Merbein by rail, and on one day 18 trucks of fresh fruit, comprising mostly grapes and figs, were loaded at Redcliffs, Irymple, Mildura and Merbein stations.

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RAIL USERS SAY—

Tributes from Satisfied Picnickers

WITH reference to the special train chartered by the picnic committee of the Melbourne Electric Supply Company in connection with the employees' picnic to Mornington, I desire to express the appreciation of all who travelled thereon for the excellence of the service supplied by your Department. In previous years the train journey was regarded as a necessary evil by those who were unable to secure accommodation on the boat. This year, thanks to the splendid appointments of the picnic train, the passengers were unanimous in their praise of the type of carriages supplied, the freedom from overcrowding and the courteous attention of the train staff. This standard set by your Department on this occasion will certainly induce more of our people to travel by train if in the future the picnic is again held under the auspices of this company.

—Mr. N. B. Worrall, hon. secretary picnic committee, Melbourne Electric Supply Company, Ltd., writing to the Chairman of Railways Commissioners.

AT a meeting of this committee, I was directed to convey our thanks to you and all others of the railway staff responsible for the running of the train chartered for our trip to Brighton Beach. The train supplied left nothing to be desired, and the courteous attention of the railwaymen was greatly appreciated by all. Will you kindly pass this letter on to all.

—Mr. R. Thompson, hon. secretary, Golden Square Schools committee, writing to the Superintendent of Passenger Train Service.

I WISH to draw your attention to the splendid service given to us by the members of your Department in connection with our school picnic to Brighton Beach. We wish you to express our appreciation to all concerned, especially Mr. Lanigan, S.M., Yarragon, for the capable way they catered for our comfort. Also assistance given to me as secretary to make the picnic a financial success.

—Mr. B. E. Olsen, hon. secretary, Trafalgar,

Yarragon, Moe and District Excursion Committee, writing to the Superintendent of Passenger Train Service.

YOURS to hand notifying that a rebate of £10 0s. 9d. will be sent on, as being 10 per cent. on the train earnings in connection with our annual bay excursion. I thank you for your congratulations on our successful result, and would here just express the appreciation of not only the committee, but of all the excursionists, on the satisfactory rail arrangements, everything being up to time and not a hitch.

—Mr. H. M. Hodgson, hon. secretary, Bacchus Marsh Schools Excursion, writing to the Superintendent of Passenger Train Service.

IN connection with the Balmoral and Cavenish districts state schools excursion to Portland, I would like through your Magazine to express my appreciation and thanks to the stationmaster and staff at Balmoral for their valuable help and courtesy. Everything was arranged like clockwork, and it is due to their efforts that the trip was such a success. The time table was carried out to the second. Balmoral is fortunate in having such a courteous and obliging staff, and I trust we will have their services for some considerable time. Wishing them the best of luck.

—Mr. T. Duncan, secretary state schools excursion, Balmoral, writing to the Editor.

I HAVE been requested by the Tatura and District Schools committee to write and thank the Railways Department for the excellent train arrangements in connection with our excursion. The comfortable train, and the fact that it ran right on time both ways, was much appreciated by everybody. We have decided to have another excursion next year, and hope the same satisfactory conditions will obtain.

—Mr. John S. Hill, secretary, writing to the Secretary for Railways.

Railwaymen Rose to the Occasion

WE would like to take this opportunity of expressing our appreciation of the assistance and courtesy extended to us in connection with our transportation of a printing plant for the *Sentinel* office at Koroit. This printing office was burnt out last week and it was necessary that we use every endeavor to get a plant down as quickly as possible. In this connec-

tion we had to depend entirely on the Department to give us assistance. Your Mr. Twomey, of the Outwards Freights Department, did everything possible to facilitate delivery. We greatly appreciated his attention.

—Carmichael and Co., Limited, paper merchants, Melbourne, writing to the Railways Commissioners.

THE "MOST ENJOYABLE WAY"

WITH very great pleasure indeed I wish to tell you that our recent trip to Portland proved most enjoyable and most restful. Your Department contributed greatly to that pleasure. The accommodation and service afforded by the Railways Department was in every way most excellent, and I should like to convey to you our appreciation of your courtesy, the kindness of Mr. Brittain, the train conductor, and the thoughtfulness of the Stationmasters at Ararat and Portland. We travelled in great comfort, without any inconvenience whatever, and after all the most enjoyable way of travel is the railway.

—Mr. F. H. Penn Tonkin, "Eschol," Fenhurst-grove, Kew, E. 4, writing to Mr. J. C. Dickson of the Government Tourist Bureau staff.

"PLEASURE AND SATISFACTION"

WILL you kindly afford me a small space in your valuable Magazine in which to express pleasure and satisfaction at my perusal of the appreciative letters forwarded by rail users. I can assure you, sir, that I am in full accord with the statements of your many writers regarding the kind attention and never-failing courtesy meted out to rail users. Especially do I commend the whole of the service for the greatest of efficiency. At present and for some time past our railways have been smarting acutely under a grave injustice—keen road competition. Let us very earnestly hope that ere long, special action will be taken to thwart these unfair competitors, and that the sun of prosperity, in every sense of the term, will once more shine upon our fine railways and all those connected with them.

—Mr. Fred. G. Wilkinson, 213 High-street, Bendigo, writing to the Editor.

"NEVER RECEIVED ANYTHING BUT COURTESY AND CONSIDERATION"

RECENTLY, I sent my young son by the 5.30 p.m. train to stay with relatives at Mildura. He has lately returned and has told me of the care and attention which he received at the hands of the train staff, especially on the forward journey which necessarily was an all-night one. If you could find it possible to convey my thanks to those concerned, I would be glad. The experience is not in the least a surprise to me, as in forty years travelling in the Victorian Railways I have never received anything but courtesy and consideration.

—Mr. Charles E. Fox, 147 Grange-road, Glenhuntingly, S.E. 9, writing to the Secretary for Railways.

To Men Who are "Tied Down"

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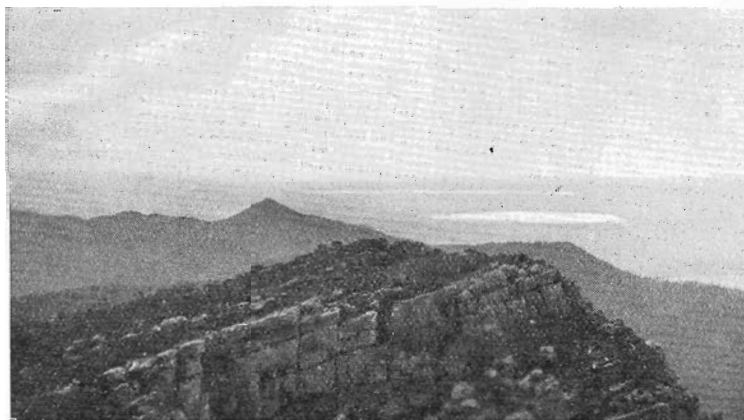
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THE . . .
**VICTORIA PALACE
NEXT TOWN HALL
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View from Redman's Bluff, Grampians, showing Fyan's Lake and Lake Lonsdale

Milady's Page

BY
NANETTE

And Now the New Season's Tweeds . . .



Top: A coat of diagonal tweed in brown and fawn tonings with fur collar. Right: Coat and skirt of hunter's green flecked tweed. The skirt is worn with a tuck-in blouse.

—Models selected from Georges.

BEATING carpets on the wrong side expels the dust instead of beating it in. A flat stick or short length of rubber hose makes the best beater.

HALF a press stud sewn on your kitchen apron, and the other half on your oven cloth saves a lot of unnecessary worry when busy baking.

AND now Milady junior must needs turn her thoughts to the coming seasons. For Autumn and Winter business wear, there is no more serviceable frocking than the new season's tweeds.

The smart ensemble here pictured illustrates the graceful lines to be obtained. Moderately priced hats and bags to match make pretty additions to the charming outfits. In the ensemble, the skirt is of lighter weight tweed than the coat.

* * * * *

Last season's short sac coat has not found favor again, and the costume coats are all longer, many of them being three-quarters length.

Some lovely tweed effects are being obtained in wool jersey and these are proving popular for sports and outdoor wear.

A feature of the new season's coats, is the semi-fitting style slightly shaped to the figure.

What Men Make the Best Husbands?

NOW-a-days, of course, marriage is no longer the only career for woman. All classes of women the world over are adopting avocations that, not so many years ago, were the sole prerogative of men, and adopting them with a great deal of success, too. Women doctors, veterinary surgeons, journalists, architects, members of parliament and many others have amply demonstrated that their ability is quite equal to that of men filling similar positions. And as office assistants and office managers women have found a wide field of activity for which they have proved they are eminently suited.

Yet, despite what we may say to the contrary, most of us would feel rather unhappy if we believed that there was no prospect of our ever marrying. Marrying, of course, the right man. Thank Heavens we are no longer obliged, like our early Victorian sisters, to wait for marriage to secure a reasonable amount of freedom! We have grasped this new freedom of ours too firmly to ever let it out of our hands again. And perhaps that is what makes many of us hesitate before making the final decision to subordinate our existing interests to the career of a wife.

The truth is, I think, that we are becoming more particular in our choice of husbands. And we are, I think also, better equipped than ever before with the worldly knowledge that enables a woman to sum up a man's qualities. In other words, we are not so apt to "marry in haste and

repent at leisure" as we once were.

But there is a wider difference between marrying in haste and not marrying at all. An unmarried woman of forty is not generally an object of envy, even if she is no longer an object of pity.

All this does not answer the question: What men make the best husbands? And, although I have asked the question, I am not at all sure that I know the answer. A good dancing partner can make a good husband, but it doesn't follow that he will. And the best looking men are not always ideal mates, as we know from the records of some of our favorite film stars.

What does seem to be the main thing to look for in a prospective husband is a sympathetic understanding. By that I mean the ability to enter into and share one's interests, and one's joys and sorrows, too. Unless he can do that, he will certainly not make the best husband.

After all, I am afraid I have not been very helpful. No doubt all of us will continue to say that the men who make the best husbands are those whom we have made up our minds to marry.

CUT roses and indeed all flowers have a habit of opening out when placed in a bowl. The addition of a little salt to the water will prevent this.

MACHINING silk binding around the neck and armholes of Milanesse undies prevents laddering and stretching and will considerably prolong the life of the apparel.

Should Women Hold Business Positions?

Mrs. L. Drexler, travel hostess at the Government Tourist Bureau, puts the case for the affirmative:

ALTHOUGH it is a popular belief that women only actively entered the business world within the last fifty years or so, this, like many popular beliefs, becomes exploded after careful investigation. Eve was the first woman to become involved in an agreement, and one senses the business instinct in such characters as Rebecca, Leah and others.

Saul of Tarsus, on his mission of preaching to the Macedonians at Phillippi was sheltered, succored and protected by a woman. Her name was Lydia and she is described as a "seller of purple." She was so respected and powerful that, despite Saul's persecution by his enemies, her intervention was sufficient to silence the execrations of the mob, and her home became a refuge for Paul and his disciples.

Today there are few important executive positions in Australia which are open to the alleged weaker sex, with the exception of overseas buyers for large drapery establishments where, during recent years, women have in some cases been substituted for men.

But let the woman who steps into a job previously filled by a man beware,

for to retain it she must display outstanding ability. That more is demanded of a woman than of a man in most responsible jobs is no doubt due to the primitive and perfectly

COULD YOU SPEND 10/- ?

IF you had 10/- given to you, you wouldn't have any difficulty in selecting something to buy with it, would you? The only difficulty would be in arranging for the 10/- to be given to you.

"Nanette" is offering that money prize for the best labor-saving kitchen hints received for publication on this page. Hints should be addressed to her, c/o Editor, V.R. Magazine, Betterment and Publicity Board, Head Office, Spencer-street, and forwarded to reach there not later than April 10.

The winning hint will be published in the May Magazine, together with a selection of the best of the other entries.

ridiculous sex antagonism which is dying so hard in Australia.

Geographically isolated as we are from countries of more advanced and matured thought, responsible Australian business women take their jobs very seriously, and the result is that their outlook in directions other than business sometimes becomes rather cramped.

And the American woman scores

over us in that she has insisted on a system of equal pay for equal work in most positions where women are engaged on similar work to men. Until there is more unity between the Australian women, they will labor under a maddening sense of injustice in being compelled to sell their brains and business ability at an appreciable discount.

Today it looks odd to see an adult man typing, and yet, 50 years ago, the decorative girl typist and stenographer, who now is recognised as an institution that has come to stay, was unknown. Surely the present day shop girl is an improvement on the male assistant of the eighties, with his pale lean face and his rusty black coat, shiny at the seams.

Let us by all means have the well-groomed, bobbed and even pert miss of today.

All over the civilised world today women are actively interesting themselves in peace movements. Could all women in all parts of the world but realise, it rests with them to become the biggest factor towards the peace of the world.

*A lady with a lamp shall stand in the great history of the land
A noble type of good heroic womanhood.*

We Sell At Least 20% Below Shop Prices

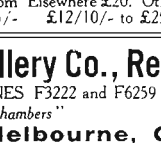
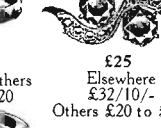
No Heavy Ground Floor Shop Rents, or Middlemen's Profits to pass on, are the reasons

The Diamonds are imported direct—the rings are manufactured on the premises, and sold direct from upstairs showrooms.

Railway men receive a discount of 10% when purchasing, which means a definite saving of 30% in comparison with ordinary shop prices.

A written guarantee of quality and value is given with each ring, also a promise to refund the money, if a customer is not satisfied . . . Could any offer be more satisfactory? Conforming to the latest modes, these rings possess the refinement, charm and dignity, indicative of high quality jewellery.

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JOTTINGS from The INSTITUTE

TICKET CHECKER'S CLASS

PORTERS and other employees of the Transportation Branch who are desirous of gaining their ticket checker's certificate, are advised that a class pertaining to this subject commenced in February.

Classes will be held at the Institute, Flinders-street, every Tuesday during the educational class year, at 10 a.m. and 3 p.m., and, in addition, correspondence course papers are in readiness so that candidates in the country may be afforded equal opportunity of qualifying.

Intending students, both oral and correspondence, should enrol without delay. Registration fee, 1/-.

V.R.I. ROWING CLUB

RAILWAYMEN interested in rowing, should join the Victorian Railways Institute Rowing Club, recently formed to encourage this form of sport. The club is open to all financial members of the Institute and is to affiliate with the Richmond Rowing Club to enable it to have the use of Club-house accommodation, training equipment, etc.

Intending members should communicate with Mr. Keith Millar, c/o Jolimont Workshops.

DIVVY. SIGS., FALL IN

IT is proposed to hold the second reunion of former members of the 4th Div. Signals on Thursday, April 24 (Anzac Eve) at Railway Unity Hall, 636 Bourke-street, Melbourne. The first reunion was held on Anzac Eve, 1929, and was considered by the 68 old boys present to be a thorough success and well worthy of being made an annual event.

The secretary for reunion is Mr. A. J. Townsend, 62 Athol-street, Moonee Ponds, W4, and he would be pleased to hear from all ex-members who have not yet received their notification per mail.

Even if an old comrade finds he cannot attend this year's reunion, the secretary would appreciate receipt of his address for future correspondence, and would gladly pass on any message to special pals with whom race has been temporarily lost.



MISS ADDIE STRAIN, A. L. C. M., L.L.C.M., who was for some years assistant instructress at the Victorian Railways Institute in dramatic art and public speaking, has now been appointed instructress in those subjects. Since 1923, when she won the aggregate in the first year of the Railway Competitions and the championship at Maryborough, this talented young lady, who is the daughter of a railwayman, has been a consistent prize winner at Ballarat South-street contests and at competitions organised by the A.N.A. and other bodies in different parts of the State. She has played as leading lady in about 40 one-act and three-act plays, and will appear, early this month, in the name part of "The Little Flower," which will be produced at the Play-house.

APPOINTMENT TO INSTITUTE COUNCIL

MR. W. LANGAN, Assistant Stationmaster at Clifton Hill, has been appointed to fill the vacancy on the Institute Council, created by the death of Mr. McDonald.

ACCEPTED RAILWAY TENDERS

FOLLOWING contracts have recently been let by the Railways Department to the tenderers mentioned:

Oil switches—Standard Waygood Ltd., F. L. Cook and Williams Pty. Ltd.; carriage cleaning compound—Parsons and Jacques; copper plates—Gilbert Lodge and Co. Ltd.; steel tyres—Thompsons Eng. and Pipe Coy. Ltd.; hams and bacon—J. C. Hutton Pty. Ltd.; copper plates—Elder Smith and Co. Ltd.; solid drawn copper tubes and pipes—Knox, Schlapp and Co.; cast steel wheel centres—Steel Coy. of Australia Pty. Ltd.

ELECTRICAL ENGINEERING BRANCH PICNIC

THE annual picnic of the Electrical Engineering branch, held recently at Aspendale, was a success in every way, the attendance of employees, their families and friends totalled about 700. In the Colwell cup competition, four sections—Head Office, Overhead, Newport power house and Electrical—obtained an equal aggregate of points. The overhead section's team, captained by J. M. Webster, won the tug-of-war. The Electrical section retained the Drayton challenge shield, H. Beswick defeating D. Ferrier of the District Engineer's section by one point. Sports, a merry-go-round, free toys, lollies and ice cream were provided for the children.

In presenting the prizes, Mr. C. G. H. McDonald expressed his appreciation of the splendid team work displayed and the keen intersection rivalry which existed in the varied contests during the day. It was good to "get together" and so come to know each other better, and the net result would be an asset of no mean value in the successful operation of the branch.

Last Mile Post

DEATH OF INSTITUTE COUNCILLOR DAVID A. McDONALD

RAILWAYMEN will regret to learn of the death of Mr. D. A. McDonald, ex-stationmaster at Broadmeadows, who was accidentally killed at Kensington station, leaving a widow and five little girls.

Deceased was a member of the Institute Council and very popular both in the service and with the public in general. He was a native of Ballarat.

The funeral took place at the Fawcner Cemetery, being largely attended by many railwaymen and representatives of public bodies. Deepest sympathy goes out to the widow and family from his staff and the public of Broadmeadows, who were greatly shocked at the tragic manner in which he met his death.

STATIONMASTER M. McCRAITH

AFTER 46 years of service, Stationmaster M. McCraith of Bendigo, retired on a Tuesday last month, put in hand his preliminary arrangements for an immediate tour of the Continent, was taken ill and died on the following Saturday. His tragically sudden death was a great shock to his wide circle of railway friends around the State. During his quarter of a century on the relieving staff, he had charge of such important depots as the State Coalmine, Dimboola, Port Melbourne Pier and Bendigo. He was in charge of the last station for seven years and was honorary president of the local Institute centre.



KEEP a sharp eye on your expenses, no matter how unimportant they may appear. Small amounts wasted soon run away with an alarming proportion of your income; small amounts saved and lodged in a Savings Account grow rapidly into a very comfortable sum.

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ALEX. COOCH, J.P.
 General Manager

Soon Parted

"The fool and his money are soon parted" is as trite a quotation as could be selected, but it has the disturbing effect of being so true that it cannot be disregarded.

No financial institution, least of all a Savings Bank, could advocate that money should be saved only and not spent. It is true that wise spending is as necessary as wise saving, but it is quite obvious that the saving must come first.

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Every Post Office in Australia is an Agency of this Bank, and in every city, every town, every district in the Commonwealth the Savings Service of the Bank is made available to the people.

Commonwealth Savings Bank of Australia

(Guaranteed by the Commonwealth Government)

Sport

Continued from page 37

inscribed fountain pen by the visiting teams, the presentation being made by Messrs. R. Tait and M. O'Brien, managers of the New South Wales and Queensland teams respectively.

Scores in the matches were as follows:—
N.S.W. v. Vic.—N.S.W., first innings, 153 (Weissel 40, Savage 31, Marquet 23, J. O'Brien 5 for 39, Ellis 3 for 33); second innings, 159 (Weissel 45, Baker 28, Crowe 20, Maker 20, Lee 4 for 36, Vance 2 for 12, J. O'Brien 2 for 35). Victoria, first innings, 372 (Flynn 91, Anthony 89 n.o., Morrissey 74, Ellis 30, Blake 28, Brown 5 for 93, Maker 2 for 69).

Queensland v. Vic.—Queensland, first innings, 185 (O'Neill 60, Ryan 40, Jago 18, Vance 6 for 32, Blake 2 for 21); Victoria, first innings, 115 (R. O'Brien 21, Anthony 20, Jago 4 for 16, Westacott 3 for 33, Kennedy 2 for 21); second innings, 8 for 113 (Flynn 42 n.o., R. O'Brien 32, Blake 17, Westacott 4 for 37, Jago 3 for 24).

LEADING AVERAGES

	Batting				Ave.
	Inn.	N.O.	H.S.	Runs	
W. Flynn ... (Capt.)	3	1	91	140	70.0
M. Anthony	3	1	89*	100	54.5
T. Morrissey	2	—	74	83	41.5

	Bowling			Ave.
	Wkts.	Runs		
A. Vance	...	10	118	11.8
J. O'Brien	...	9	124	13.7

BALLARAT WAY AND WORKS DEFEAT HEAD OFFICE

FOR the fourth year in succession the Ballarat district engineer's staff defeated the Way and Works staff office men on the cricket field. The match was played on the St. Patrick's oval and the scores were: Ballarat, 73 runs; Staff office, 68 runs.

W. Piggott gave a brilliant display with the bat for the visitors. Applying his knowledge of safeworking, he built an impenetrable stone wall round his wicket and allowed W. Mitchell, who has the whole of the railway estates into which to drive balls, to make the runs. The two Slattery's also did well, Tom shaping attractively for a duck and Syl also obviating any need for writing down the score.

Geelong.—The cricket season terminated for the Railways when the semi-final match against Newtown was completed. On the first day Newtown compiled 222 runs, which was by far the highest score made by an opposing team during the year. In reply, Railways made 77 in their first innings and following on scored 150. Newtown made the necessary runs to win outright with the loss of one wicket.

For Railways, Stan. Thomas, the Geelong footballer, made an excellent 45, and he was well supported by Brislan (29).

GYMNASIUM NOTES

MEMBERS of the V.R.I. gymnasium are given every opportunity to prove their ability as athletes, and at the last competitions a record number competed. The re-

sults were: skipping, won by J. P. Thompson; jumping, V. O'Donnell; gymnastics, W. Dern; weight-lifting, J. Delaney; physical exercises, H. Casey; best all-rounder, J. Delaney. A full programme of sports has been drawn up for this year and students are requested to join the classes without delay.

The open boxing and wrestling competitions will be conducted during May. Trophies, valued at £2 2/—, will be awarded winners of open competitions and £1 1/— to winners of novice competitions. Entries close on Saturday, April 28. Particulars will be supplied by G. Munro, hon. sec., V.R.I. Gymnasium sports committee. The weights for the respective divisions are:—

	Boxing.	Wrestling
Flyweight	... 8-0	Nil
Bantam	... 8-6	8-11
Feather	... 9-0	9-8
Light	... 9-9	10-5
Welter	... 10-7	11-4
Middle	... 11-6	12-6
Heavy	... Any weight	Any weight

SWIMMING

THE Institute swimming club is preparing for the various championships which will be held as under:—

100 yds. (free style), April 8.
200 yds. and diving (plain, nominated and own selection), April 15.
400 yds., April 29.

These events will commence at 4

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5.30 p.m. at the city baths, Swanston-street. A trophy will be presented to the competitor gaining the highest aggregate points in the racing events. A separate trophy will be presented to the winner of the Diving competition.

A dance will be held at the Institute on April 10.

It is intended to have training nights at the city baths during the winter, and it is desired that as many members as possible attend there on Tuesdays between the hours of five and seven p.m.

Wireless

Continued from page 35

ring to make the laths spread out to this diameter. A small screw is now put through the end of each lath ($\frac{1}{4}$ in. from the end) into the cone itself.

Measure the diameter of the bell at several points, to obtain a fair average. Space the laths equally, using a pair of compasses to measure from the centre of one to centre of the next, and so on. As each one is spaced from the preceding one, it should be held in



*MANY Victorian railwaymen who were stationed at State Mine depot in the early days will remember this dog, "Trucks," who was found by a guard in an empty truck attached to his train and was made the railway mascot. He went out regularly with the train crews who changed over with the Melbourne crews, riding on the engine in cold weather and in the guard's van during the summer. He was never known to follow any man but a railwayman.
Yard Foreman, J. D. Muller, of Geelong, kindly supplied the picture.*



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THE "NUGGET" TIN OPENS WITH A TWIST!

position by tapping a pin through the lath and into the edge of the wooden ring. The pin need penetrate only far enough to hold the lath in place (gramophone needles are better than pins, but do not knock them in too far).

Bind round the smaller end of the bell with about twenty turns of seccotined bricklayer's line or strong thin twine, commencing the winding about $\frac{1}{2}$ in. from the smaller end and working with a firm pull, towards the larger end. Before doing this it is advisable to tap in half a dozen small tacks to prevent the twine slipping as it is wound.

The sheet of strawboard is now cut to obtain 22 pieces with which to fill in the spaces between the outspread laths forming the skeleton of the bell. These strips are now seccotined and stapled or tacked to the laths so as to form the complete bell. As each one is placed in position it should be fixed at the small end of the bell first. Most of this work can be done with the horn standing bell-downwards on the floor or on a table.

When the glue is set, the screws and pins are removed, and the bell may then be slipped off the cone. Used with the cone, the bell will normally keep in position by the wedge action of the cone and the wooden ring.

ANSWERS TO CORRESPONDENTS

W. B. (Beaufort), J. E. H. (Ferntree Gully), P. K. (Melton), A. E. S. (Tallangatta): Thanks, with nice prints as space permits. J. F.: Sorry, but those who know him here can't recognise him.

Miss Jean C. (Camperdown): Thank you, will use later.

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Books and New Books

Thumbnail Reviews by J. D. MICHIE

Life Under the Soviets.—By Alexander Wicksteed. The author taught English for five years in Soviet Russia. His book has a charm all its own. It makes no pretensions to be the last word on the subjects considered. Wicksteed gives his views on such aspects on Moscow shops, restaurants, housing conditions, amusements, religion and morals and everyday matters. It all reads interestingly and leaves you with the impression that Russia is neither as depicted by its fierce friends or fiercer foes, but a country of many drawbacks and many compensations. The housing in Moscow is terrible: the social equality is complete. Dullness has been banished.

The Deputy Sheriff.—By Clarence E. Mulford. The Deputy Sheriff is an old friend, no less a person than the laconic but swift shooting Nuecess, Bob Carson's fighting partner on the J. C. Ranch. This is Nuecess' own story inasmuch as he is the sort of trouble-shooter who makes events as he goes along. It is a book full of thrills, action, tense moments, and plenty of fighting tactics as well as of excellent range color and authentic tang of the sage brush.

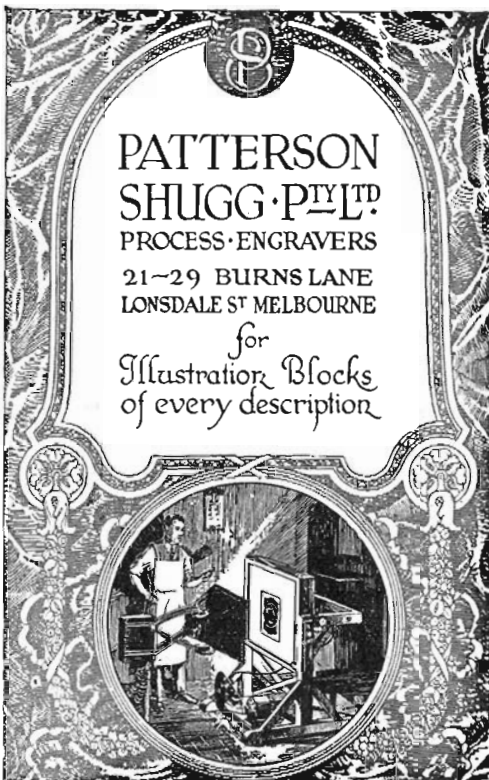
Sir Toby and the Regent.—By Paul Herring, the author of "Bold Bendigo." This is a story of Georgian times, accurate as to its period, brilliantly written, full of the sportsmanship of Georgian days, cock-fighting, boxing, coach-racing and the gallantry and foppery of the beaux of the period. This is an excellent book for men, but women will perhaps find it lacking in the essential romance. (Our copy through Robertson and Mullens).

Dr. Priestley's Quest.—By John Rhode. Perhaps the greatest achievement of Dr. Priestley's career as a criminologist was his clever solution of the strange mystery which is related in this volume. The curious problem presented by the case of the Heatherdale brothers was well suited for the exercise of his peculiar powers of logical reasoning. From the first dramatic disclosure of Mr. Gerald Heatherdale, the narrative proceeds by a series of startling events to a conclusion which few readers will be able to foretell. The author of this volume will be remembered as the writer of that thrilling story—"The Paddington Mystery."

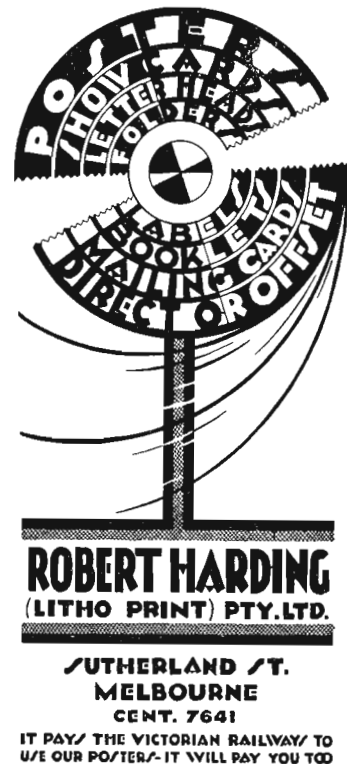
The Rebel Generation.—By Jo van Ammers-Küller. This is a particularly able interpretation of the life and times of the womanhood of 1840, 1872 and 1923. The fortunes and opinions of the Cornvelt family as they change with growth, are woven into a most attractive story set in Holland. Both the story as such and the portrayal as such of woman's rights on the march arrest attention and please greatly. The writer of this worthy book is an artist of distinction.

The Fatalist.—By E. W. Savi. This is another of those numerous novels of love and adventure for which the author is famous as a big seller. The plot is set in India and weaves around a girl whose nature upbringing becomes the cauldron of slanderous gossip, misunderstanding and death. Natives and Europeans impinge one upon the other in the evolution of events. There is tragedy, but in the end true love is the conqueror.

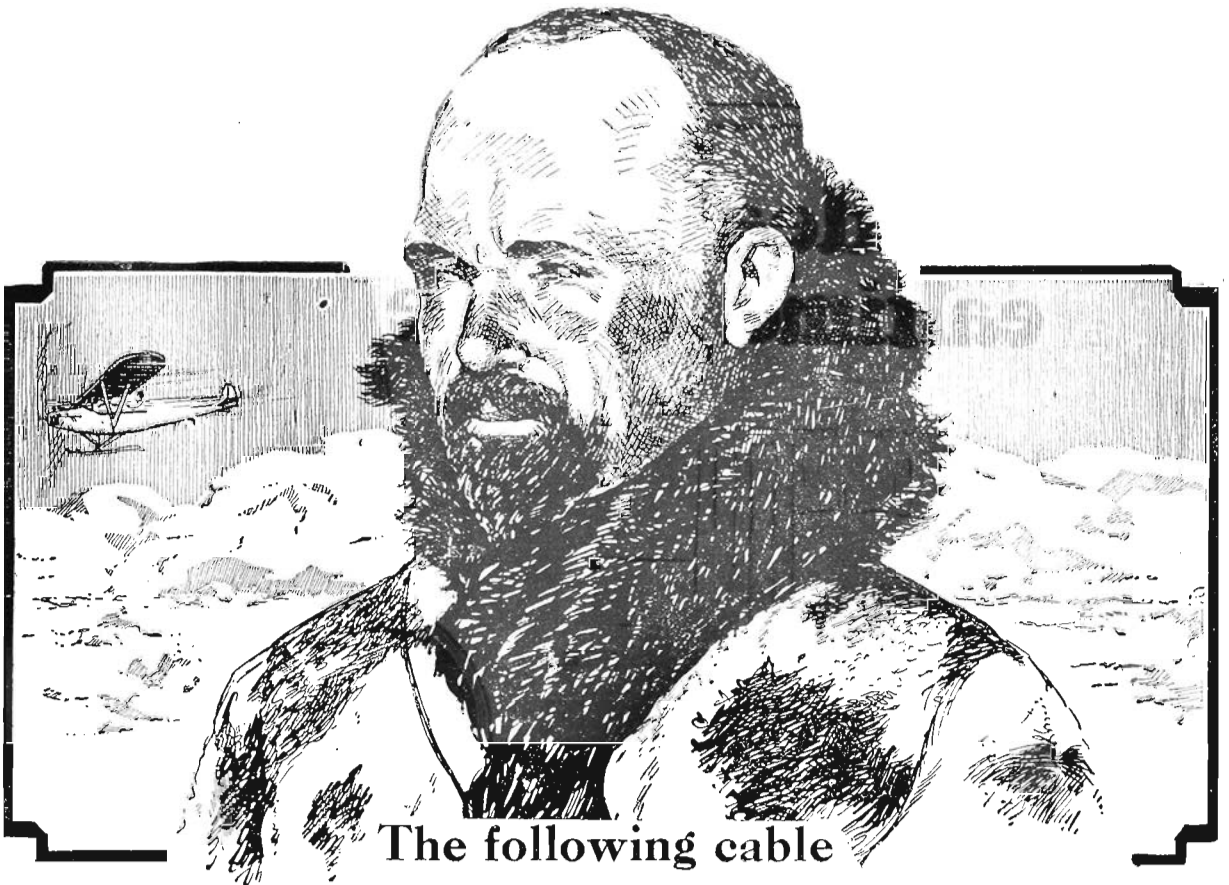
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MAY - 1930

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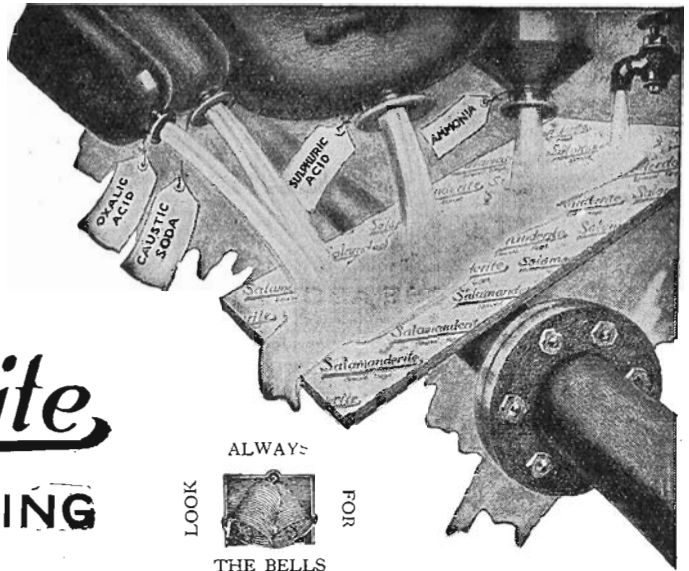
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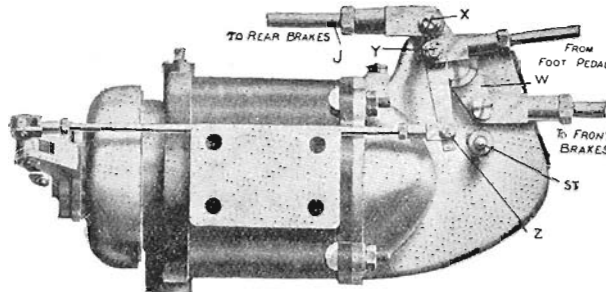
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BENEFIT BY YOUR IDEAS

THE following awards were made during March for adopted suggestions:—

Total Amount ... £17

Highest Award ... £6

The number of suggestions received during March was 240. Arrangements still exist for the placing of adopted suggestions of particular merit before the railways of the various States; also the Commonwealth and New Zealand Railways.

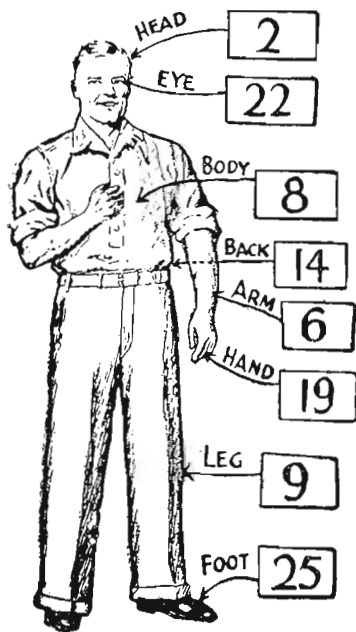


Diagram showing personal injuries sustained by employees during March. These accounted for 105 "lost time" accidents

THIS IS THE SPIRIT

IN the one envelope five separate suggestions came to the Betterment and Publicity Board a week or so ago. The suggestor slipped in an introductory note which read:

"I submit these suggestions in answer to your appeal to the man on the job to suggest ways and means of improving his job. If any of these suggestions are considered worthy of acceptance, I will be gratified, and, if not—well, I have at least tried to help the Department which provides my daily sustenance." Certainly a good trier.

The men who try to do something and fail are infinitely better than those who try to do nothing and succeed. —Lloyd Jones.

Why an Accident?

By A. C. WARFEL

In the "National Safety News"

IT is often said that the man who thinks does not have accidents.

I do not agree with that statement, for the man who thinks can and does have just as many and just as severe accidents as the man whose mind is a perfect blank. The statement is too broad, for he may be thinking right at the very instant the accident occurs.

Would it not be better to say "the man who thinks or concentrates on what he is doing is less liable to have an accident than the man who does not?"

This does not mean that you have to have a one track mind, but that the major clicking of the brain must be on the act of what you are doing, getting on the train or doing something else

We must think about what we are doing. We don't like to get hurt—it's painful to sit up all night with a throbbing finger or mashed foot. We don't purposely hurt ourselves, but let's take our own cases. Why don't we think about our job? I don't know, do you? What causes our mind to wander and think about the mortgage—wire that mother is sick—the doctor's bill—the kid's birthday—the fishing trip—the mother-in-law—when it should be thinking about the job we are doing?

It's Lack of Interest

Maybe, on second thoughts, I do know. Lack of interest in your work will invariably cause you to think of a dozen other things than what you are doing, and it is just at these times when the accident happens.

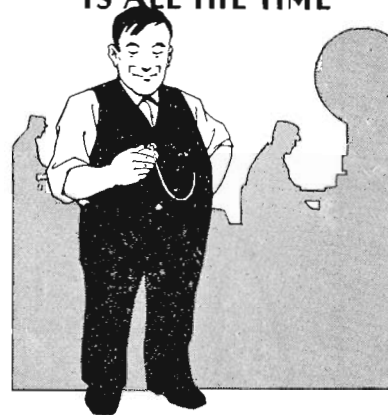
We often speak of machines, tools, and industry in general as "she." Most all shes have a jealous and sometimes revengeful nature. How often at home or out on Sunday have you heard something like this? "Jack, what in the world are you thinking about?" "A penny for your thoughts—you look as if you're a thousand miles away."

This, as a rule, gets your mind back on the right track, and sometimes, as the saying goes, "out of the gutter." But, industry is not so considerate, and when you take your mind off of her and think of something else, most likely you land in the hospital or worse.

You don't have to think about safety all the time, and in most cases, even part of the time, for if you did, you never would leave your house, but do think and think *hard* about what

SHORTY SEZ:

THE BEST TIME TO PRACTICE SAFETY IS ALL THE TIME



you are doing. Concentrate on it, leave your family troubles at home, and say "Good-morning." Be cheerful at your work, but think about it and be interested in it. Then you stand 99 chances out of 100 of escaping injury.

Not only do you have to think about what you are doing, but so does your organisation. They have appointed a safety committee to do some of that thinking, and you can help them in many ways, the principal one being to think of what you are doing—and not think about that which you are not doing.

MAY SUGGESTIONS DRIVE

THE subject chosen for the 29th Suggestion Drive, which will be held during May, is:—

Lighter-up and Washer-out Systems

Suggestions should be submitted to the Betterment and Publicity board in the usual way. Suggestions on any other subject will, of course, also be accepted.

Railwaymen!!! Don't Read This

UNLESS YOU WANT TO BENEFIT BY IT

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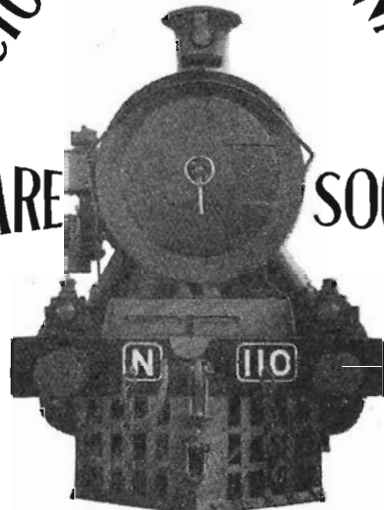
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Photo—W. Howieson

A arresting view of the deck of the Discovery,
taken from the crow's nest

BACK from *o o* The ICE

By
C. H. Cheong

DISCOVERY must come before settlement and development; exploration before railways and communication.

There is, accordingly, very real interest for railwaymen in this review of the achievements of the recently returned Antarctic expedition and of the benefits which will be derived from the scientific research and general exploratory work performed by the personnel of the *Discovery*.

The accompanying pictures were taken immediately after the ship berthed at Port Melbourne last month.

AND so they have returned. The *Discovery*, slowly chugging her way through the Heads, her 280 h.p. engines battling against an ebb tide, has brought the British-Australian-New Zealand Antarctic expedition back from the vicinity of the South Pole.

Down there, their research has extended over a period of 5½ months—a half year of scientific examination of the uncharted polar regions.

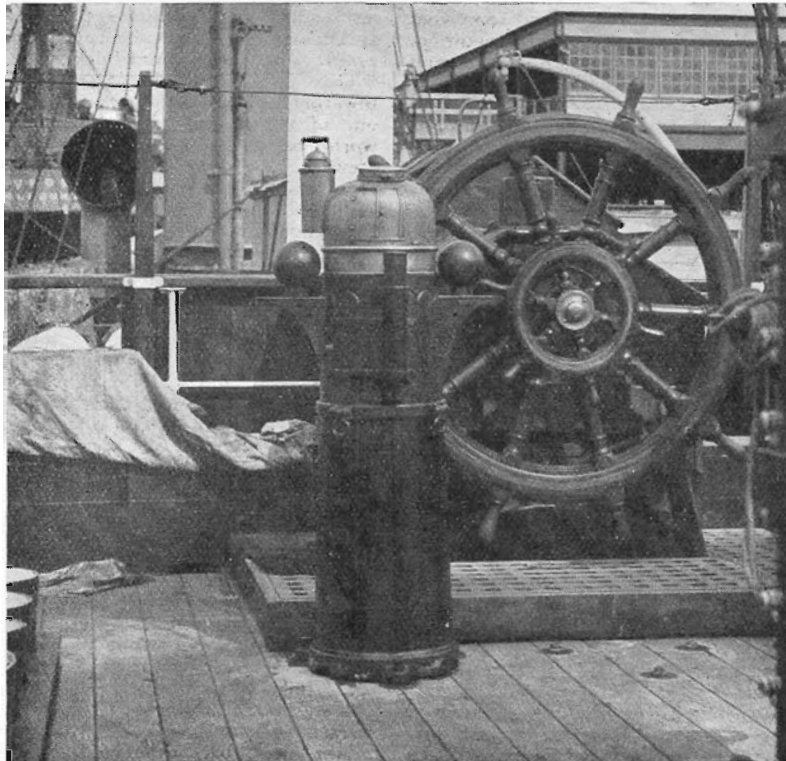
Floating floes of icebergs bearing down in the teeth of roaring blizzards, snow capped crags of ice mountains

towering hundreds of feet above the ship, undulating icelands stretching away to a glaring white infinity— isolation, no living kindred with whom to share enthusiasm, their hardships or their discoveries. And above this, the terrible silence of the Antarctic, a deathly stillness save for occasional crunch as iceberg met iceberg.

They skirted the explored portion, fittingly named a new MacRobertson Land, guided their tiny craft among the walls of ice to Enderby Land, and planted their flag on the very Antarctic circle. Away farther south they



Sir Douglas Mawson, leader of the expedition



The wheel of the Discovery

charted ranges of mountains, rocky peaks and hundreds of ice hummocks.

An aerial survey was not the least important feature. With every trip the two aviators took their lives in their hands; disaster awaited them at every turn, yet they won through after flights over virgin icelands.

The expedition was composed of 38 members, led by Sir Douglas Mawson. This, Sir Douglas's third expedition to the Antarctic, has proved one of the most successful yet launched. He has returned with welcome news of a promising Antarctic industry which should, without doubt, prove most beneficial to Australia. By his discovery of new whaling grounds alone, the explorer has justified his expedition.

Frequently the expedition, by means of its special marking gun, branded whales, in order that, when caught, the movements of these schools might be traced. The new proposed whaling area is situated off Enderby Land, and it is said that immense schools of whales make this location their habitation.

The study of whales, their peculiar habits and movements, however, was really subordinated to the meteorological and oceanographical research conducted by the party.

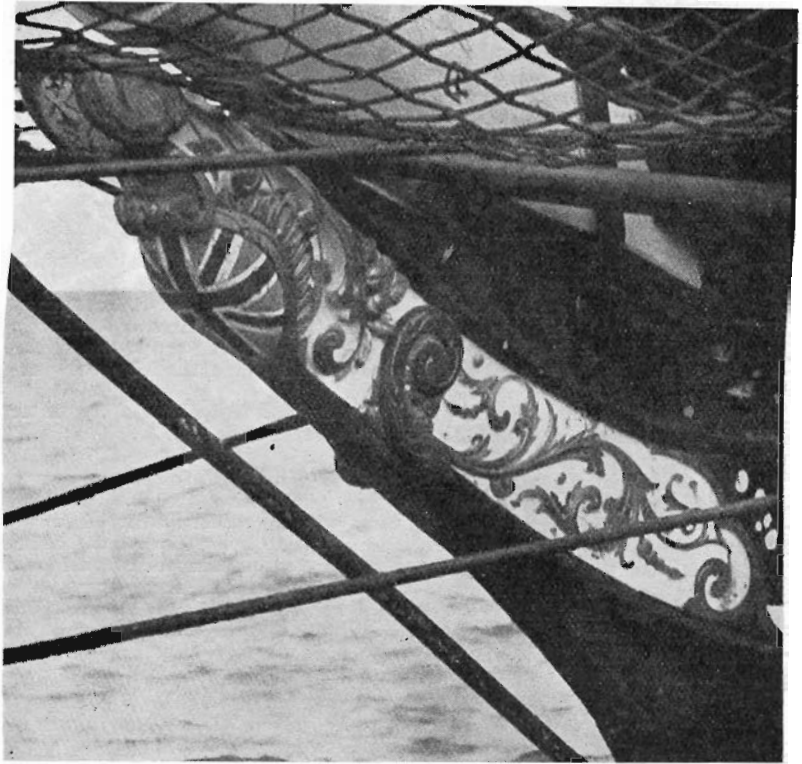
The knowledge of the physical nature of the ocean floor is quite as

important as the possession of data concerning the character of new lands, and the formation of the Antarctic ocean floor has been subjected to a close examination.

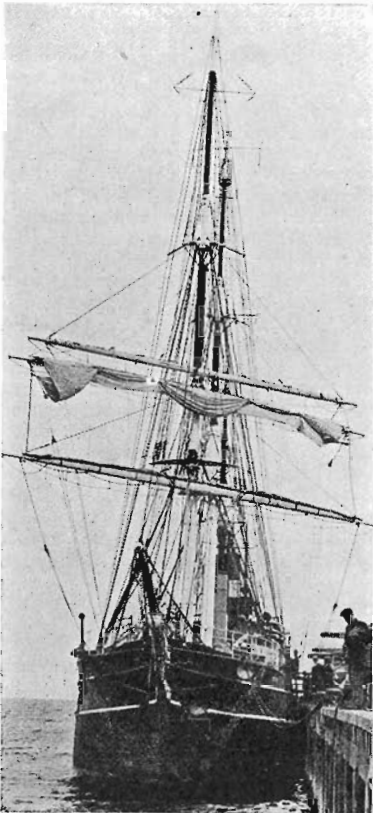
In this research it was found that the bottom of the sea frequently rose abruptly to the height of 6,000 feet. The floor of the ocean is in character similar to land—it is broken frequently with mountains, valleys and hills, or it runs for miles in the equivalent of plains and deserts.

And, as with animal life on land, there is also a large variety of sea life, the larger species of which are already known to science. The expedition accordingly made special research into the study of the minute plankton life. Plankton is the name given by Professor Victor Hensen, to the crawling population of the sea. This division of the sea fauna is of the swimming or drifting type which never rests on the bottom of the sea, and its analysis provides further scientific knowledge which will be used to advantage.

A special winch hauled tons of geological specimens from the depths of the icy Antarctic ocean, and the brilliant band of scientists included in the expedition found their scope unlimited in this interesting field of hitherto little known science.



The Discovery's crest, inlaid along the bows of the boat.



The Discovery at Port Melbourne.

That their work was somewhat curtailed was no fault of the expedition. It had no control over the roaring blinding blizzards, over the coal shortage or over the utter impossibility to cope with the seasonal conditions which gave no indication of striking a milder note.

The *Discovery* is rigged as a barquentine with auxiliary engines and, as the use of her sails was, to a large extent, impracticable, the call upon the engines soon exhausted most of the available coal.

Refuelling Difficulties

Sir Douglas attempted an early return to Kerguelen to refuel and again navigate the ice-strewn Antarctic, but his chances of so doing were ruined by an inconsiderate polar winter.

It is, of course, his expressed desire to return and continue his scientific exploration so ably begun, and the decision regarding this will depend largely on the support enlisted in this country.

The crew were selected from many thousands of applicants in England. They were all from the merchant service, and were chosen after personal interview. It is said of them by the officers that no finer crew could possibly be got together. Following closely in the traditional footsteps of the memorable Scott's men, and the dozen intrepid pioneer crews whose Antarctic dashes time and again thrilled the world, they have resolutely carried out their

tasks under most arduous conditions and in such a manner as to bring warm praise from their commanders.

Capt. J. K. Davis, whose seven trips towards the South Pole rank him as one of the leading navigators of the world, pays a handsome tribute to his crew. A good type of men, ruddy faced and of fine physique, they have associated themselves with the aims of the expedition with as much interest and determination as the leaders.

One Australian is among this crew, and with typical daredevilry he is happiest swarming up ropes, swinging in mid-air, or disdaining the use of ladders to slide from the masthead.

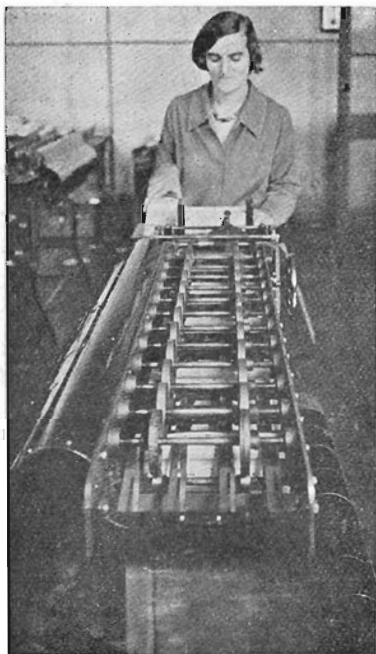
And their ship. The barquentine *Discovery* is 30 years of age. She was built specially for Antarctic work and has thoroughly justified Captain Scott's early opinion that "she is the finest ship ever built for polar navigation."

Constructed of solid oak, her timbered portions have suffered nothing in her contests with the ice packs. Her steel plated bows bear no sign of the terrific strain imposed by the sandwiching pressure of icebergs or by the *Discovery's* battling to and fro in her disentanglement from the drifting ice. The 26-inch thickness of her oak bulwarks withstood the raging elements of the Antarctic . . .

And now, back from the ice, the ambition of scientists, officers and crew alike is to accompany Sir Douglas back to the ice.

Machines that Think for Themselves

By S. C. Weetman



One of the machines that sorts the punched cards

FOR statistical information to be of value, it is essential that the various figures be accurately compiled without loss of time so that any action necessary may be taken promptly. Consequently, with the almost universal application of machinery throughout the industrial world, it is not surprising to learn that much of the routine accountancy work of the Victorian Railways, such as that previously carried out by the station staffs in regard to freight movements, has been centralised in head office and reduced largely to a matter of mechanical operation.

This change, by the way, has relieved station staffs of much office work, enabling them to devote more time to train running and to that service to the public which is a recognised feature of present-day railway transport in Victoria.

Various machines have been developed for mechanical accounting work of very heavy volume, and the types selected as most suitable for railway conditions here are known as the Powers tabulating and adding machines. These machines, which

WITH the increasing complexity of modern large-scale business, the use of statistics is becoming of greater importance as a means of determining, among other things, the volume of a certain class of work carried out and the cost of carrying out such work.

Information of this kind is vitally important to the management of every business, and particularly is this so in the case of an organisation such as the Victorian Railways where the sphere of operations covers the whole State and the number of transactions each year runs into millions.

operate in conjunction with one another, are of three different types and are used for punching, sorting and tabulating respectively.

The installation now consists of 27 punching machines, seven sorters, and nine printing tabulators, these appliances being used for the auditing of goods and live stock freight accounts for all Victorian stations and for interstate traffic, for the checking and analysing of pay rolls for the whole of the State, for workshops costing for Newport, Ballarat and Bendigo workshops and Newport signal shops, for the compilation of locomotive, train, car, truck and ton mileage statistics.

First, the Card

The basis of the whole system is the card. By means of perforations, all the data required is transferred from the original waybills, running sheets and other documents to compact unit cards suitably designed for the purpose. This obviates the repeated handling of cumbersome forms. The same group of cards can be used for various returns which can be checked with one another.

Each card is printed with 45 columns, each column containing the figures from 0 to 9 as indicated on the card, which has been reproduced. The black dots represent the perforations which have been punched in the card, thereby permanently recording the information desired. In this case, particulars of a freight waybill are shown, each hole representing an entry on the waybill.

Each of the three machines is a really ingenious piece of mechanism,



Punching information contained on waybills on to the cards

but the most spectacular of them is undoubtedly the sorting machine which will unerringly sort 15,000 cards per hour into numerical order, such as station number order, and so on. A pointer moving along a graduated scale is used to set the machine to sort on any particular column. The action then is entirely automatic, the only attention required being the placing in position of additional supplies of cards from time to time.

The tabulating machine will print back the cards at the rate of 3,600 per hour, and totals may be obtained automatically at any point desired. The output of the punching machines, of course, depends on the standard of efficiency attained by the girl operator, and this, in turn, is governed largely by the length of her experience with the machine. The necessity for accuracy in the punching operations is really of more importance than specially high speed, but an operator of average capacity and average experience can punch 300 cards per hour with ease.

Perhaps the best means of explaining the operation of the system is to select one section of the work, such as freight accounting, and follow a waybill as it progresses from stage to stage. For

the purposes of the system, each station is given a number by which it is known throughout the operations of the division. Similarly, each commodity or class of commodities is also given a number. This is necessary as the machines will work only with numbers. Hence the necessity for extreme accuracy on the part of the punching machine staff.

In the first place, the forwarding station prepares a waybill in triplicate for each consignment of goods despatched. The original waybill accompanies the consignment, the first copy is sent under cover to the inwards station, and the second copy is retained at the outwards station for record purposes.

The waybills received each day by each station, after being checked and amended, if necessary, are abstracted and forwarded to the Powers machines division. On the abstracts is recorded the waybill numbers, stations from which goods were received, weight of goods, particulars of charges and other essential information. Any corrections in charges which are found to be necessary after abstracts have been forwarded for auditing are adjusted by the preparation of correction notices which are shown on subsequent abstracts as additions or deductions as may be necessary.

When Punching Starts—

On arrival of the waybills and abstracts at the Powers division, cards are punched showing the particulars which are required to be tabulated. One card is used for each of the specified commodities as summarised on the waybills by the inwards stations. The totals of the tabulation of these cards is checked in each case against the abstracts forwarded by the inwards stations.

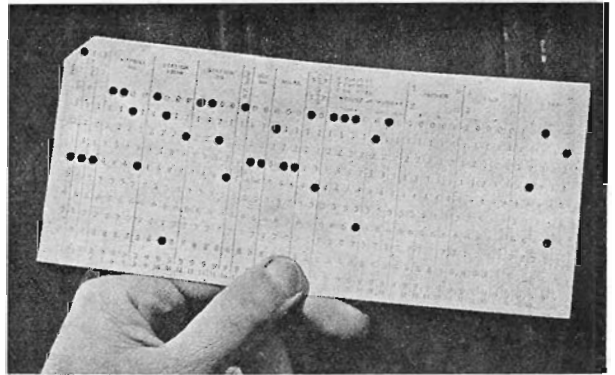
The waybills pass on to the revision bureau for checking. Any adjustments necessary are effected by the issue of correction notices to the stations concerned. After this, the cards are passed through the sorting machine where they are automatically sorted into numerical order for each outwards station, and a tabulation is then prepared which is compared with the outwards stations' abstracts to ensure that all waybills issued have been accounted for by the inwards stations at the proper charges. Variations frequently occur in the "to pay" amounts, but the reasons for these increases or decreases compared with the outwards stations' abstracts are readily ascertained by a perusal of the original waybills.

Incidentally, it is interesting to note that the revision bureau referred to above, was established to check waybills in regard to the classification of commodities, the rates charged, and the total amounts involved for each consignment. The fact that the additional revenue which is obtained as a result of this revision after the way-

bills have been finalised by the stations, has been greater than the total cost of the bureau, is ample justification for the establishment of this means of protecting both the revenue of the Department and the interests of railway users.

As the cards are released during the progress of the audit, they are sorted into the different commodities and tabulated to obtain the total tonnage, revenue, and average haul for each commodity. The cards are sorted again, and those representing traffic to, from, or passing over non-paying lines are extracted and tabulated separately to obtain the proportion of the revenue earned which is to be credited to the respective non-paying lines as a set-off

This mystifying array of dots on one of the machine cards can be read quickly and easily by the initiated. Interpreted, the information records the movement of a 6½-ton consignment of firewood from Bealiba to West Footscray—there being £3 6s. 1d. to pay, the date being April 4, the machine operator's number 13, and the waybill's number 14



against the expenditure incurred on such sections. By this means, the loss on the working of such lines is determined.

Train mileage and similar statistics are obtained from the guards' running statements, one of which is received for every train run. Gross and contents ton miles, loaded and empty truck miles, and shunting miles are first computed, comptometers being used for this purpose. Checkers then insert code numbers representing direction, sections involved, authorised loads, and so on, passing the statements to the punching machine section where cards are punched with the particulars recorded and coded.

Four-Weekly Calculations

The cards are sorted and tabulations are prepared weekly, and at the end of each four-weekly period, they are passed through the printing tabulating machine to obtain totals for each division. These totals, when summarised, give the total for the whole State for the period. Mileage statistics for non-paying lines, mileage run by individual engines and gross ton miles earned are also prepared from these cards.

The machine system is also used for workshops costing, each workman furnishing a time slip daily or as otherwise determined, upon which is set out particulars of his location, the number of the job he was working on

and the number of hours he was engaged on that job. From this information, he is credited with time for the payment of his wages.

The slips are then sent to the Powers division for the punching of a card for each job. These cards are filed away until the end of the period or the completion of the job, when they are tabulated and the total cost of the jobs per period must agree with the total amount paid to the men engaged on these jobs.

Another important phase of the operations of the division is the checking of the payrolls. Under the present system of staff payments, salaries and wages are disbursed fortnightly before the payrolls are checked, and the

assistance of the accounting machines is sought to ensure that all errors, if any, are detected.

A rough idea of the volume of work handled by the division is obtained when it is remembered that 10,000 cards are handled daily for the freight accounting, 5,000 daily for workshops costing, 10,000 weekly on mileage statistics, and a further 30,000 each fortnight for the payrolls.

Even the most casual inspection of the Powers division at work will emphasise importance of accuracy on the part of the men responsible for inserting code numbers, waybill numbers, mileage and so on in waybills, running sheets, and the numerous other returns which are handled by the division, and, equally important, the necessity for showing the various figures clearly. By close attention to these matters, the work in the central office is greatly facilitated and the number of errors with the consequent inconvenience of extensive searching to locate such mistakes is reduced.

Considerable improvement in the accuracy and legibility of figures on forms has been effected since the freight accounting system was first introduced, but there is still room for progress in this direction. An invitation is extended to all station staffs and other employes interested in the machine system to call and see for themselves how it works.

Things We Are Talking About

Making the Gippsland Line Longer—Truth About Strikes—Touring Central Australia in Comfort—A Divorce Without a Co-respondent

MR. CLAPP was in good form at the farmers' convention at St. Arnaud last month, when his straight-from-the-shoulder address on the subject of rail finance and road competition held an attentive and friendly audience from first word to last.

RAILMAN AND MAN ON LAND

Characteristic flashes were: "The railway map of today is really a road map. We need roads at right angles to the railways to feed them.

These roads alongside the railways are for private use and were never intended for this dual, deadly competition. . .

"If you turn your backs on the railways, you'll be paying



. . . you'll be paying for the holes in the road and the grass on the railroad

for the holes in the road and the grass on the railroad. . .

"The railway concessions to country interests total £344,000 a year. . .

"We are wedded—the primary producer and the railways—but certain people are trying to divorce us. . .

"In the Wimmera and the Mallee alone there would be a drop of £40,000,000 sterling in land values if the railways were scrapped. . .

"If an attempt were made to handle all the wheat with motor vehicles, it would mean thousands of motor trucks at the port every morning for six months in the year, and there wouldn't be a road left back to the wheat areas." . .

A significant feature of the discussion was the prolonged applause which greeted Mr. Clapp's reference to the new by-law which allows the Department to "raise the low-grade rate on the man who has been choosing and picking and using the road for the high-grade goods."

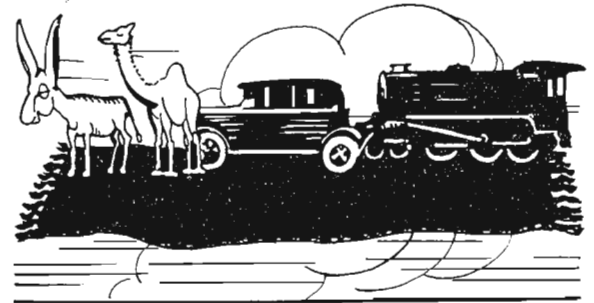
THERE has been a sharp and sudden increase in the numerical strength of nominated days of loading. Drastic revision of his original scheme by Goods Agent W. N. Wortley has considerably improved the railway service for stations whose existing number of nominated days of loading was more or less limited. Now, 68 stations, instead of 55, will have daily loading; while 229 stations, instead of 72, will have three days a week, and 521, instead of 187, will have two days. Only 59 stations will have one solitary nominated day a week; formerly 561 stations did. Of course, the revision will in

MORE NOMINATED DAYS OF LOADING

no way affect the Department's willingness to accept urgent consignments on any day and to give them the quickest possible despatch at all times, nominated day of loading or not. The revised system came into operation at the beginning of this month.

THE "Back to Central Australia" movement is expected to set in round about the end of next month and to extend throughout the winter until September. A tourist's magic carpet—which will take the shape of a railway train, motor car, camel and donkey—has been supplied by the Australian Railways Commissioners, and personally conducted tours will be made of the interior, each tour being limited to 16 persons and to 14 days of exploration and sight-seeing in the heart of the continent. After leaving the Commonwealth's train at Stuart railhead, the parties will live under camp conditions. Tents (each accommodating two persons) and blanket-lined sleeping-bags with ground sheets will be provided, adequate arrangements made for bathing and sanitation, and meal preparations left in the hands of experienced cooks.

BACK TO CENTRAL AUSTRALIA



A tourist's magic carpet . . . railway train, motor car, camel and donkey

THE remoteness of the region which will be traversed by the tourists, its complete isolation from the cares and worries of civilisation, and the remarkable and novel nature of its scenery and general environment, will make these tours specially interesting to many Australians who have been prevented by the existing financial difficulties from holidaying abroad this year. The grandeur of the gorges which appear at intervals in the gaunt

mountain ranges of the interior, the bizarre coloration of the towering cliffs, the palm-studded valleys and the castellated ravines all have a fascination which is accentuated by the consciousness that they have been reached after hundreds of miles of travel into the very centre of the great Australian continent, and in primitive territory which bears but little evidence of its penetration by white men. Apart from this purely tourist aspect, Central Australia offers much that is novel and of intense interest to the scientist and the geologist, to field naturalists

THE GREAT HEART OF THE CONTINENT

ornithologists and ethnologists. For example, while the influence of the Hermannsburg mission station—the story of the foundation of which reads more like a romance than a story of actual achievement—is gradually extending, there still exist many aborigines of the Arunta and Loritja tribes who are living under Stone Age conditions precisely as they were 10,000 years ago.

AND the cost? It varies according to the capital which constitutes the starting-point of the tourist's journey.

From Brisbane it is £83; from Perth, £75; Sydney, £73; Melbourne, £65; Adelaide, £57. Which—considering that it covers rail fare, sleeping

BUT HOW MUCH? berths, meals, car trips, the use of camels and donkeys where necessary, accommodation, and all other incidental charges during the fortnight's 500 miles of sightseeing in the interior—can't be called unreasonable.



... in the direction of the snows of yester-year.

CARRYING on its good work of putting Australia on the world's tourist map, the Australian National Travel Association has just prepared a little handbook which contains in condensed form, detailed information concerning matters historical, statistical and political in Australia. Appropriately titled: "Talking Points on Australia," it tells tersely of climate, beauty spots, native flora and fauna, tall

TELLING THE WORLD timber, mineral resources, Murray-river waterways, the Sydney harbor bridge, railways and airways, wheat, wool and cattle industries, and a hundred things besides. A copy will be handed to each Australian going abroad, and to each visitor returning to his or her home land. It is considered that the patriotism of the one and the natural enthusiasm of the other for a country that has afforded a home and prosperity or a unique and pleasant holiday, as the case may be, must, as opportunity offers, find expression in conversation, talks, lecturettes and press articles on Australia. "Talking Points" are the basis, in fact

and figure, which it is hoped will give conviction to that expression.

IN a couple of compact paragraphs, the "Talking Points" handbook chases the bogeys of Australia's droughts and strikes in the direction of the snows of yester-year.

BOGEYS OF DROUGHT AND STRIKE

NEARLY one million square miles of country has an annual rainfall of from 10 to 20 inches, and nearly a million more from 20 to over 40 inches. Sydney has twice the rainfall of London, although considerably fewer wet days; Brisbane twice that of Paris; Melbourne a little more than that of Marseilles; Adelaide a little less than that of Berlin; Perth and Hobart approximately those of Chicago and Edinburgh. Were Australia a drought-stricken continent, as has sometimes been alleged, it could never have become—as it has—the world's premier wool-growing and sheep-raising country, and one of the largest wheat exporters and cattle raisers in the world.

And as for talk about strikes:

THE bogey of industrial unrest, sometimes held up against Australia, is grossly exaggerated. In the five years ended 1928, Australia's disputes involved 5,848,394 working days lost, as against 181,197,000 in Great Britain and Northern Ireland. As Australia has one-seventh the population of Great Britain and Northern Ireland, the true comparison of working days lost through industrial disputes (obtained after multiplying Australia's lost days by seven) puts Australia in a very favorable light compared with Great Britain. The average loss in days through industrial disputes per Australian worker over the 16 year period ended 1928 was 1.22 per year. For the five years ended 1928 the loss in days per worker per year decreased to 0.77.

GIVING evidence before the Railways Standing Committee on the subject of the proposed Yallourn deviation the other week, Mr. Clapp said that the work would cost £107,500, and that, setting the volume of the traffic from Yallourn at 1,000 tons

YALLOURN DEVIATION a day, the Department would make a yearly loss of £2,975 on the operation of the line. The proposal involves relocating the line between Moe and Morwell by bringing it around the northern end of the Haunted Hills into Yallourn direct, thus increasing by more than a mile the haulage distance from existing stations east of Yallourn, and decreasing by two miles the haulage distance between Yallourn and stations on the Melbourne side. The anticipated loss on the line would be reduced to £83 if traffic from those easterly stations were mulct in the extra freight for the increased haulage. A straight out gain of £437 would be made on a traffic of 2,000 tons a day from Yallourn, an average tonnage which the Electricity Commission expect to produce round about 1934 or 1935. To a committeeman's question, "Are you as serious about the electrification of the Gippsland line as when you promised it some years ago?" The Chairman replied: "Yes; nothing we are now doing will militate against it. It is all getting up to that point."

Getting the Business 3—

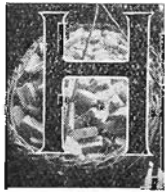
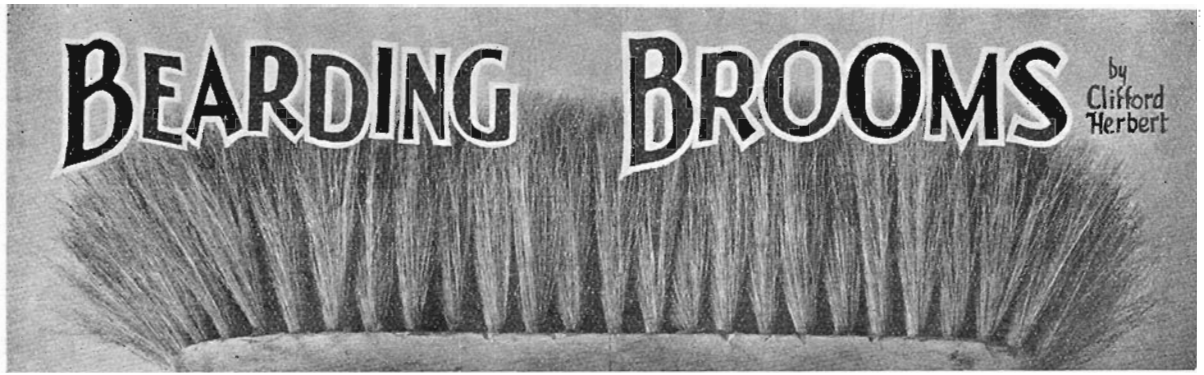
THE stationmaster at A—heard that the material for a large building which was to be erected in his district had been ordered from a factory near station B—, some miles away. He dropped a line to the stationmaster at B—, giving him the tip and suggested that he make sure that the material was coming by rail.

The stationmaster at B— hustled on to the job and discovered that, at this early stage, the factory company had already decided to send the material by road at a quote of 15/- per ton.

He pointed out to the company that the rail freight through to A— was no more than 7/8 a ton, and, keen staff work by the railway commercial agent having in the meantime unearthed a local carrier who was prepared to deliver the material from the railway yard at A— to the site for 4/8 per ton, the big factory consignment was diverted into railway trucks.

Intelligent teamwork, if ever there was.

—R.H.J.



HERE in the throbbing heart of the city is Zevenboom's five-storey factory. One could throw a well aimed cricket ball from their roof to the G. P. O. — maybe it would bounce a couple of

times, but it could be done.

Here is the place that gives the lie direct to the adage that hair won't grow on wood. Actually it seems to flourish.

The business destiny is guided by men whose association with brush and broom manufacture extends over four generations. The trade holds no secrets for them. The director served his apprenticeship in London. On his office wall is framed "the freedom of the City of London," and at 75

IN these days of political and housewives' brushes, it is rather a novelty to read the story of the common everyday garden or kitchen variety of brush or broom manufactured in Melbourne.

Zevenbooms claim to be one of the largest manufacturers of these items in the Southern Hemisphere, a sweeping statement, granted, but it bristles with facts.

years of age he is yet the dominating voice in the industry.

The staff singularly have a monopoly of long service. They claim that their champions have broken national records.

"How long have you been here, Annie?" The question brought the astounding reply: "56 years last September." On another floor the same query was contemplated in silence as the man calculated. "49 years," he replied laconically.

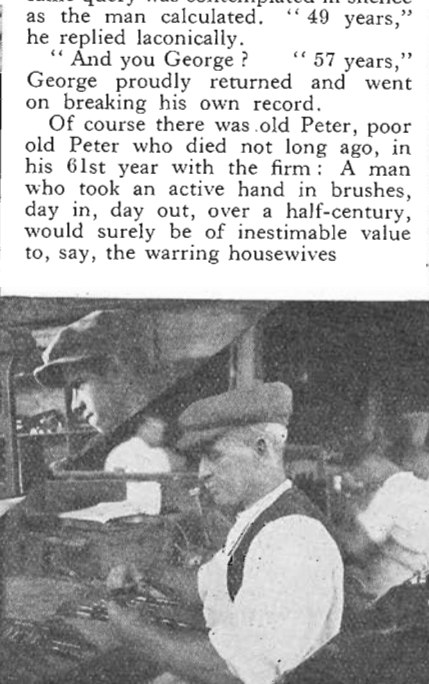
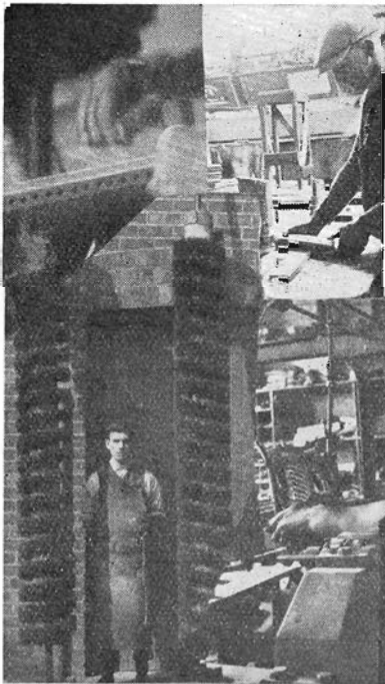
"And you George?" "57 years," George proudly returned and went on breaking his own record.

Of course there was old Peter, poor old Peter who died not long ago, in his 61st year with the firm: A man who took an active hand in brushes, day in, day out, over a half-century, would surely be of inestimable value to, say, the warring housewives

Getting down to the metaphorical brass tacks—which, by the way, are supplanted with battens of soft wood in brush and broom making—Zevenboom's wood working department seems obsessed with the idea of prolific production. The band saws start the ball rolling, or the broom sweeping, and roughly shape the handle or the base of the broom.

They drop from the bench like windfall apples from the trees on a windy day.

Boxes of them are heaved to the shaping machines which bevel the wood and finish the shaping. There are a dozen different shapes and sizes being treated at once. Nail brushes, scrubbing brushes, yard brooms, paint brushes, horse brushes, clothes brushes and hair brushes may be sawn from planks simultaneously. The sandpapering roller smooths off the rough surface. These bases fill yard-high



Hair-raising pictures these! This is where they grow hair on wood

panniers which are hauled with block and tackle to the next floor.

In this department the hair or bristle sprouts from the wood—assisted in its growth by Zevenboom's specialists. The electric drills sink into the soft timber and withdraw long spirals of wood boring, which fall in masses and spill out over the floor in curly mountains—clean cut shavings whose aroma is of the forest when axes bite deep into yellow sap wood and mammoth trunks are split in twain and hewn into planks. Romantically the droning refrain of the drills is poor substitute for the ringing axe, but times are changed. Science intervenes and primitive tools are of the past.

Sent to the hand-making department where the better quality brooms are made, these bases divide among the artisans. Benches, surrounded by girls

clanks a pair of steel fingers plucks the standard amount of bristle, and with a heavy crunch staples it in position. A coil of steel wire is automatically cut in short lengths and bent to form the staple on the machine. That is not all. At precisely the second that the staple is driven home, a drill descends and bores holes in another base. Stapling and drilling tools operate simultaneously. When they finish the correct numbers they automatically cease.

Very Boring Work

The bored base is switched over to have the bristles affixed and a new base is supplied for the drilling. Remembering that these holes are not put in vertically, but, in the case of the outside rows, in a slanting fashion, the performance of this machine is meritorious. The invention by the

recognised throughout the Commonwealth as ranking with the world's best. They supply the painting public with approximately 200 different brushes. You may calomine your kitchen, or slap your whitewash on the fowlhouse with a Zevenboom, or you may paint dainty designs on fire-screens. That is approximately their range of sizes.

They manufacture the paint brushes on the top floor, where an elongated machine with an endless belt carries the bristles along, clamps them down combs them, and sends them along to the operator. Four men comb the bristles again, singe the stragglings, shuffle bunches and pass them to the benches.

Here men weigh out the desired proportion of bristles, comb it once again and push it into a tin container



These brooms are being rushed—in more senses than one. The two broom-makers are rushing with rushes. After pitching with pitch, of course

busily securing bunches of bristle to the bases, are periodically relieved of the finished brooms.

With orderly unflinching action these girls grip tufts of bristle, double them, thread thin wires through the holes in the wooden bases, secure the doubled bristle and tug it into place. Tufts succeed tufts, and the orderly rows of bristles soon assume a brush-like appearance. Then when every tuft has been wired in position the craftswomen trim them by brushing the be-whiskered surface over a sunken blade which cuts the straggling bristles to their correct length.

Hand Versus Machine

The table, lined either side by deft fingered brushworkers, makes interesting comparison with the latest machines employed. To whom the verdict of production should go is quite immaterial, for the hand-made articles command greater patronage the world over. These machines, however, are practically human, and it is not easy to believe that they are able to perform such intricate work.

Bristle is placed in a feeder and the wooden bases affixed. The machinery

way, comes from New Zealand.

Brushes of all descriptions take shape; perhaps nail brushes and hair brooms and scullery scrubs, shoe brushes and household brooms rub shoulders with each other and the hundred and one other brushes made by Zevenboom. Twenty-nine of the Victorian Railways' 49 different varieties of brushes and brooms were bearded here last year.

Tougher Beards These !

The large yard brooms are treated in much the same manner as their smaller brethren. The bristles perforce are coarser and are of rush. The artisan dips the end of a tuft in bubbling healthy-smelling pitch, securely binds the bunch with string, sticks it in the hole of the base and twists it down and around to the correct depth. As the pitch consolidates, so the bristles are firmly secured in position.

One man in particular catches the eye with his rythmical movements which seem never to alter. Each one of his muscles appears to come into play, and they all work in unison.

Zevenbooms are famous for their paint brushes, and these products are

which needs but the handle to complete the brush. The bristles are pushed about half way through the tin holder which is then reversed and pure rubber poured in. The rubber vulcanises after several stages of a treatment peculiar to Zevenbooms, and sets the ends of bristles in an everlasting and suitable foundation.

The fitting of the handle is done either by hand or machinery, and both of these media nail the tin securely to the handle. Painting the handle completes the item.

In the warehouse, stocks of brushes and brooms are strung from the ceiling, hooked on the walls, stacked on shelves packed in boxes, bundled in parcels new brooms—they they sweep best.

IN A NUTSHELL—

Great opportunities come to those who make the best use of small ones.

Solitude is essential to man; we come into the world alone; all leave it alone.—*De Quincey.*

Those who bring sunshine to the lives of others cannot keep it from themselves.

Uncle Sam's Interstate Commerce Commission

—What It Is and What It Does

By Ernest I. Lewis

Member of the Commission

WHAT is the Interstate Commerce Commission? What does it do?

To reply to those questions, I must face the fact that if I try to lead you into the forest of details we shall get lost in the underbrush and not see the trees. We must stand back a bit and be content with a sketchy picture.

To begin, the word "just" appears in the Institute Commerce act 48 times, the word "reasonable" 66 times. We may, therefore, well come to the conclusion that the first and foremost of the Commission's functions is to see to it that railway rates, fares and charges, practices and operations are just and reasonable.

Let me emphasize two fundamentals: We have no powers except those delegated to us by our principal, Congress. The railroads are privately owned and we have no direct powers that permit us to invade the field of management.

A Staff of 2,100

To accomplish the ends directed by Congress we have a staff of 2,100 persons. There is a maze of activities. A few illustrations of these activities and their purposes will suffice. One-third of our staff is at work ascertaining the value of the carriers as a basis for just and reasonable rates; by later direction of Congress, valuation is used for certain other purposes, but that does not change the fact that the primary purpose is to lay the foundation for equitable rates.

Another large segment of staff keeps its eyes on accounts and statistics of carriers. To carry on these activities we have established uniform accounting. This is designed as a means of knowing whether rates are just and reasonable, and whether the business of transportation is being honestly, economically and efficiently conducted.

A third considerable segment is busy with matters having to do with the regulation of securities, licensing new and authorising abandonment of old lines, the organisation of carriers, and other kindred matters.

Other groups are busy seeing to it that the railroads, the equipment, the



Headquarters of the Interstate Commerce Commission in Washington. The building on the left is entirely occupied by the Commission, which also uses space in the building on the right

FROM time to time, Victorian railwaymen have read in this Magazine of the activities of the Interstate Commerce Commission, a representative body of experts which, with the possible exception of the Supreme Court, is today the most powerful and important single tribunal in America. A compilation of the acts which the Commission administers, and related acts, annotated with digests of Supreme Court decisions affecting those acts, makes a huge volume of 4,000 pages.

This article, written recently for the Santa Fe Magazine by a member of the Commission, explains interestingly the duties and functions of the body.

operation is safe, and made safer, for traveller, shipper and employee. We have lawyers, investigators, inspectors, inquirers and a library of orders, rules and reports.

But when we sum up all these and others of our various activities, again we find that they all are designed to ensure that in the world of transportation there be fair play, and just equality of opportunity between persons, commodities, localities, and that there be maintained a system of transportation that is adequate in service and safety to our national needs.

Congress' concept of regulation has changed somewhat. Originally regulation was set up as a protection for the shipper or traveller against impositions, abuses, grave injustices and political and railroad domination. But, as these evils were eliminated the concept

of public interest broadened.

In 1920 the country had been brought face to face with the fact that there are immutable laws that man-made laws cannot revise. This country is growing. Its railroads were lagging behind.

Congress statutorily declared the constitutional right of fair return, and a policy of building up and maintaining an adequate system of transportation. To this end it even declared that the weak and short lines be brought into strong systems by consolidation of all carriers of continental United States into a limited number of systems. The right of the user to the highway on just and reasonable terms was balanced with the declaration that the highway must be kept adequate to the needs of the nation.

There has grown up in this country individual businesses and associated

groups of businesses that have great powers of persuasion and coercion over carriers. Their methods and devices sometimes are somewhat questionable. The art of litigation, and attack, has been greatly perfected. The self-interest of business is sometimes short-sighted.

Now that we have had our sketchy view of the Commission and its duties and functions, let us perform a feat of mental legerdemain. I ask you to suppose that when we go home today we are met by newsboys crying: "Extra—all about the abolition of the Interstate Commerce Commission," and we read that all regulation of common carriers has been removed.

Touching High Spots

I do not want to spend much time knocking down this straw man. I am going to content myself with only touching high spots. First, we must assume that, if the functions of the Interstate Commerce Commission were suspended, we would move back to that state of public attitude towards pools and communities of interest which prevailed before the passage of the Interstate Commerce act.

Without competent public supervision, public opinion would not sanction combinations of interest which now knit together the carriers in particular sections. Therefore, at the very outset, we find that the present national attitude towards the railroads is founded and reliant on the existence of the functions of regulation. Another assumption we have to accept is that, if the restraining hand of regulation were removed, there would be a measurable return to free-handed competition by the carriers.

In the business world stability and relationship of rates, generally speaking, are more vital than the level of rates.

Let us cite you a page from the good old days of free hand and free aggressiveness. In the year 1869 there were 13 changes in the first-class-all-rail rate between Chicago and New York; in 1870 and 1871 there were 11 changes; in 1876 there were six changes, and in the period between January 1, 1882, and December 17, 1888, there were 84 recorded changes.

Nobody knew what his competitor was paying. It is true there were published rates, but there were rebates, drawbacks and every other device extended to those who had the power to coerce or those who were favored. Certain favored shippers not only fixed by private agreement their own rebates but also dictated what should be charged their competitors, and demanded and received part of the higher charges collected from such business rivals.

The same destructive wars were waged in the passenger fields. In the Chicago that I first knew (50 years ago), I recall a time when we went to Indianapolis for 25 cents. I have heard it said that at one time it was lower than that. In those days anyone who commanded traffic, influenced public opinion, or had to do with legislation or had a modicum of influence to bear on it, never paid fares for transportation, and those who did not have any influence patronised the ticket scalpers whose places lined the approaches to all the railroad stations.

Level of Rates

Then we come to the level of rates. In the absence of regulation, would these levels advance? It is reasonably certain that carriers in many sections would feel a strong impulse to push rates, in the aggregate, upward. Eventually there would appear a tendency to cut strategic rates here and there, until the general level would begin a downward course which might benefit some, but would make increasingly difficult the existence of the service which the shippers now enjoy.

Communities in the "good old days" faced the problem of maintaining themselves, not solely, as now, against greater efficiency on the part of rival communities, but against the reductions in rates which such communities obtained by virtue of their size or competitive strength.

Removal of the restraining hand of regulation would result in building of competitive lines with possible advantages to particular sections, but with possible losses to the country at large. The creation of through routes and the establishment of joint rates

in the interest of the shipping public would have an uncertain future.

Circuitous routing and cross-hauling of freight would produce much greater wastes than they do at present. Competitive wastes would manifest themselves in countless other forms. The abandonment of service, or of entire lines, would be merely a matter of business judgment on the part of the carriers. There would be no agency to require the construction of needed lines.

Our far-reaching organisation for securing, by planning and anticipating, good car service at all times and for preventing emergencies, would not be available. The shippers and carriers could no longer avail themselves of the auspices of an experienced and neutral agency for the settlement of service and other disputes.

Investors Would Notice

Investors and others interested in the financial and operating practices of railroads would not have recourse to a great body of reliable historical and current information to aid them in judging the value of the particular securities or the present or likely future earning power of particular properties under the new conditions.

Were the functions of the Interstate Commerce Commission eliminated, direct congressional action would follow. With reasonable certainty Congress soon would throw up the task of regulating rates and practices in their minutiae. It could, without difficulty, and if of the mind, enact blanket legislation.

This is the forty-third year of interstate regulation by the Interstate Commerce Commission. The good reputation of the Commission has never been clouded by scandal. Whether it has grown in public esteem I do not undertake to say. But we do know that additional powers and duties are constantly being given—even forced—on us.

And it is a fact that when the creation of new commissions to deal with federal matters is proposed, either in or out of Washington, we read with some satisfaction that the proposal is to establish a body "like the Interstate Commerce Commission."

English Railways Experiment with Rainbow Carriage

MANCHESTER'S highly critical standard of artistic appreciation has set a problem for the chiefs of the L.M.S. and L.N.E. Railways, whose efforts to reach a solution have taken a novel and amusing form.

A coach for the new Manchester, South Junction and Altrincham line electric service, which made its appearance at Euston station for the inspection of leading railway officials, has one

side painted a vivid emerald green with the other in maroon red. The panels and windows are painted and lined in an extraordinary galaxy of color, including red, gold, cream, black and salmon pink. The ends of the coach are also painted in different colors, while the painting scheme on one side is altered every few feet.

The result is so startling and weird as to draw crowds of puzzled and

amused passengers to gaze at the strange-looking vehicle.

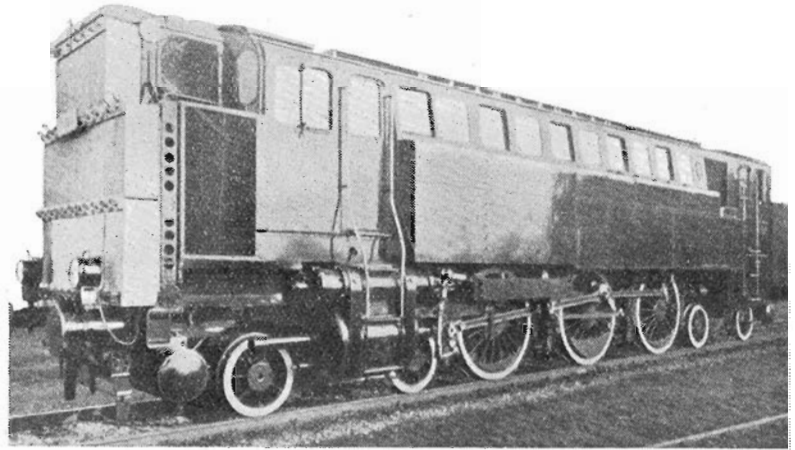
Mancunians can rest assured, however, that such vivid-hued "rainbow" coaches will not be provided for their travels between the city and Altrincham. After due deliberation, one colour scheme will be selected from the many in which the experimental coach is painted and will be made standard.

Lines from Other Lines

This was a Tongue-Twister

MASTER HOYT HOUSTON, Bonneville (U.S.A.), school boy, had heard that if one put his tongue to frosted steel it would stick. He didn't know, but was willing to try it. On his way to school he knelt down and touched his tongue to a steel rail in the railway yards. The idea worked. He heard an engine coming, was unable to move but managed to attract the attention of railroad employees before the engine got to him.

The problem then was to get his tongue loose. It was solved by switching an engine to a track opposite Hoyt, turning steam on to the rail and warming it sufficiently to release the boy's tongue.



THIS is the first large Diesel locomotive to be put in service on the German railways, says the "Railway Gazette." Its special novelty lies in the form and method of power transmission adopted. Hitherto, electrical and geared transmissions have been employed in Diesels, but in this German model the Diesel motor drives an air compressor. The compressed air is subsequently heated by the exhaust gases of the Diesel motor, and used expansively in the locomotive cylinders. The locomotive develops a maximum output of 1,200 b.h.p.

ENGINEMAN PICKS UP LIVE WOLF

IF the wolf who ate Little Red Riding Hood's grandmother had taken a stroll up the Algoma Central tracks (U.S.A.) just before he decided to dine on that dear old lady, there might have been a different ending to that fairy tale.

Anyway, Fireman Charles James should go on the movies.

One night recently (according to the local papers) James was firing a down-bound freight train for the "Soo" when he saw a wolf, confused by the engine's headlight, standing on the track. The fireman made a dash along the running board and down to the pilot and grabbed the animal, while the train was making 25 miles an hour.

James took the wolf into the engine cab and brought it to Hawk Junction. It is unhurt and apparently none the worse for its thrilling rescue.

It is not uncommon for engine crews to capture foxes in this manner, but this is believed to be the first instance where a wolf has been taken. A number of them, however, are killed under the wheels of trains each winter.

THIRTEEN

TO other people, 13 may seem unlucky, but to railwaymen it's just another number. For example, in America, on Friday, September 13, train No. 13, on the Buffalo, Rochester and Pittsburg, received meet order No. 13. On August 13, Rock Island train 13 pulled out of La Salle Street Station on track 13, with engine 4013.

Electrification of Swedish Railways

EXPERIENCE with the electrification of the Government-owned railway between Stockholm and Gothenburg (458 km.) has been so favourable that the Railway Board is now submitting a preliminary plan to the Government for the electrification of the chief main line for communication with the Continent, the Stockholm-Malmö-Traelleborg line (631 km.) and certain junction lines, chiefly those connecting the Stockholm-Malmö with the Stockholm-Gothenburg line.

Forty-eight km. of the Stockholm-Traelleborg line are already electrified as they are common to the Malmö and the Gothenburg main lines. In all, 856 km. would thus be electrified, and if the plan were accepted in principle the question could be definitely dealt with by the next Riksdag and construction work begun in July, 1931.

The main lines would then be opened for exclusively electric traffic in the course of 1934.

Electric power requirements would be entirely met by the Government-owned power stations and Sydsvenska Kraftaktiebolaget. The total net cost of construction is estimated at £2,772,000. The gross cost includes the construction of contact circuits (£1,925,000), alteration of old weak-current telephone and telegraph circuits along the lines (£645,000), the purchase of 104 electric engines and motor trucks, and the reconstruction of old rolling-stock for electric heating

(£1,020,000). From these gross costs must be deducted £820,000, representing the cost of renewal of steam engines and rolling stock that would be necessary if electrification did not take place.

The Railway Board emphasises the fact that there would be a large annual saving in coal, namely, 105,000 tons of foreign and 18,000 tons of Swedish coal, of an estimated cost of £144,600; also in personnel and rolling-stock, owing to the higher speed of the trains. Much indirect economy would also result from the electrification and, as the Gothenburg line has shown, with increased capacity there would also be increased traffic and earnings.

The Railway Board calculates that against an annual cost of £286,950 caused by the electrification, there would be a direct saving of £312,200 and an indirect saving of about £50,000.

If the new electrification programme is carried out, 33 per cent. of the State Railways will be electric.

The longest railway tunnel in the Orient, and the seventh longest in the world, has been completed on the Shimizu Railway, between Gumma and Niigata, Japan. The full cost of the work is estimated at £4,000,000.

When you leave New Orleans on the Texas and Pacific railroad you may take your choice of directions, for, a few miles apart, there are two stations, one named East-we-go, the other West-we-go.

50,000 MEN BUILDING ASIATIC RAILWAY

THE 869-mile railroad being built by the Soviet government across the desert sands of Central Asia is 75 per cent. completed, according to British engineers who recently returned from a visit to this £20,000,000 project.

It will reduce the haul from Siberia to Central Asia from 1,800 miles to 720 miles, and will link the great cotton-growing districts of the latter to the vast grain-producing areas of the former.

More than 50,000 men are employed. Long stretches of the road are through unpopulated and unwatered desert, and miles of track are built over shifting sands.

The road will be finished in 1931.

GERMANY'S FAMOUS LAVENDER TRAIN

MOST famous of all German passenger trains is the "Rheingold Limited," running daily between Hook of Holland and Basle. This service represents the last word in travel comfort, and maintains fast connections from London, Hook of Holland and Amsterdam, or from Switzerland and Italy, to the Rhine Valley cities.

A separate section operates from Amsterdam, the capital of Holland, and during the summer months the "Rheingold Limited" runs through to Lucerne, in Switzerland, instead of terminating at the German-Swiss border station of Basle. *En route* through the Rhine Valley connections are made with the principal trunk services across Germany.

The locomotive of the "Rheingold Limited" is changed only once on the 500-mile run through Germany. The cars are of all-steel construction and comprise combination salon - dining rooms, with intimate compartments in the first-class cars for two and four passengers respectively. Refreshments service is by the Mitropa Dining Car Company of Berlin.

The exterior of the "Rheingold Limited" cars is painted bright lavender, with cream window frames and a silver-gray roof.

BIG WAGONS CROSSING THE NORTH SEA

UNUSUAL high capacity wagons are daily dealt with by the Harwich-Zeebrugge train-ferry steamers. They include Belgian covered trucks 25 feet long, Italian motor-car wagons 43½ feet, German flat open wagons with stanchions, carrying 15 tons, 32 feet long, and refrigerator wagons 25 feet.

The train-ferry traffics include elephants, electric locomotives, live fish with supplies of oxygen, live quails and *de luxe* passenger coaches for rail service abroad.

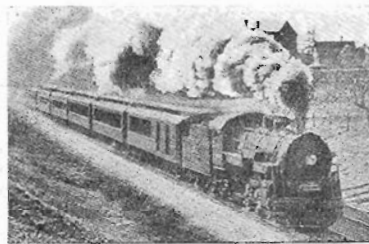
SOME FAMOUS AMERICAN TRAINS—



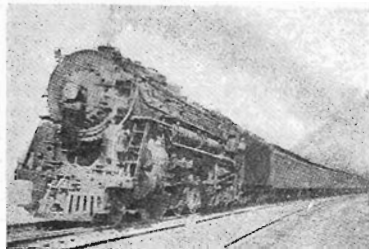
The Katy Texas Special



The North Coast Limited



The Flying Yankee



The Wolverine



The Oriental Limited

RAILROAD CHANGES HANDS

THE Pacific Great Eastern Railway, a provincially owned line, is to be sold to the Canadian National or Canadian Pacific, or to both, according to Colonel Nelson Spencer, one of the directors.

Surveys of the natural resources along the line, with a view to its extension to the Peace river district in the north, and to Vancouver in the south, were made last summer by the government, assisted by Canadian National and Canadian Pacific engineers.

The deficit for 1929 was less than £12,000, whereas five years ago it was £62,570. Under normal conditions, Colonel Spencer believes there should be no deficit in 1930.

HERE'S A CASH FARE, FOR SURE

WHAT was probably the largest bill ever presented for railroad fare, according to the *Railway Age*, was given to Conductor P. F. Fitzgerald of the New York Central, by the wife of a prominent theatrical producer, at Cleveland, as she boarded the Ohio State Limited.

The woman had a ticket for a lower berth on the train, but desired to secure a drawing room. Conductor Fitzgerald procured it for her, and she tendered him a one-thousand dollar bill in payment. Of course, the conductor was amazed at the size of the bill and asked her if she had anything smaller. On searching her purse she found another thousand-dollar bill and two one-dollar bills.

Conductor Fitzgerald arranged for the woman's drawing room, and then wired ahead to New York to have the change ready. When the Ohio State Limited arrived in New York, a messenger was awaiting the train with nine hundred-dollar bills and the change for one-hundred.

SUBWAYS IN SEVENTEEN CITIES

OF all the great cities in the world, there are only 17 with underground mileage, in electric rapid transit lines, with a total trackage of 698 miles.

The cities are Barcelona, Berlin, Budapest, Buenos Aires, Glasgow, Hamburg, Jersey City and Hoboken, Liverpool, London, Madrid, New York, Paris, Philadelphia, Sydney, Tokio, and Los Angeles.

New York has the greatest mileage of any city, with 270 track miles, or 38.78 per cent. of the total; Paris, second with 117 track miles, or 16.93 per cent. of the total; and London is third with 115 track miles, or 16.53 per cent. of the total. There are nearly 44 track miles in Berlin and nearly 32 miles in Philadelphia. Budapest has 4.50 track miles, Tokio 5.0 and Los Angeles has 2.14 track miles.

The RAILWAYS— Their Owners and Their Users

An Address by H. H. STERLING

General Manager, New Zealand Government Railways

AT a recent meeting of the South Canterbury Chamber of Commerce, Mr. H. H. Sterling, General Manager of the New Zealand Railways, delivered a most interesting address on the railway position in that country.

As his remarks generally—and particularly his references to certain aspects of road competition in New Zealand—have as much interest for Victorian railwaymen as for New Zealand railwaymen, we reprint this abridged account of the address from the latest issue of the New Zealand Railways Magazine.

“THE railways are the biggest industry in the country,” Mr. Sterling said. “Transport has been called the vital industry of commerce—the basic industry of commerce—and I believe that very aptly describes it, because I cannot conceive that anything could tie up the commercial life of the community more definitely than any tie-up in the transport industry.”

Railways, Mr. Sterling continued, stood in the commercial life of the Dominion as a two-fold organisation—firstly as a commercial institution, and secondly as a developmental institution. It had been a curious psychology that had been developed within the last decade that very often the standards of the one were applied without reference to the standards of the other. What he meant by that was that there was becoming undoubtedly a tendency in modern times to judge the railways of this country from an exclusively commercial standpoint, when it must be very well known, on the slightest reflection, that they were being run, and must indeed be run from quite a different standpoint wherein the developmental aspect, if not uppermost, was at least a very potent factor.

Commercially Speaking

The railways gave certain services—some on the commercial basis, some more or less confessedly on another basis. The expenditure was commercial in such a sense that the whole of the cost of the railways, the whole of the cost of giving those services, whether either directly remunerative or not, was shown in the expenditure account. But was the whole of the benefit from that expenditure shown in the revenue account? He dared to say, without the slightest fear of contradiction, that it was not. He need only remind the meeting that the railway had some services—and a good many services—which were not expected to be directly revenue-producing, because it was believed that

ULTIMATE COST OF TRANSPORT

THE transport costs to the community are not necessarily what any individual might pay, but what it costs to produce the transport. For that sum total of costs has to be paid in some way. It is only a matter of distribution. It might be paid by the users or the taxpayers.

The cost in respect of one commodity might be apparently paid for the charge on another commodity, but the point I am making is this: That the sum total that has to be paid, whether by way of railway charges or otherwise, is measured by the cost of producing the transport.

—H. H. Sterling.

they would be in the interest of the community, either as resulting in an indirect pecuniary advantage to the community, or in some other way—such as social service—being for the welfare of the people.

For instance, they might take such rates as the preferential rates which were given for locally manufactured commodities. The reason for such rates was, generally speaking, the belief that the railways were helping to establish local industry and giving employment to people, and consequently it was worth while to give those rates.

From that viewpoint, those rates “paid.” Otherwise, presumably, they would not be there. There was a direct pecuniary advantage from the sum received which was reflected in the railway revenue account, and there was that indirect advantage, not capable of mathematical statement, but which was the basis of the justification of the preferential rate, and was, by the making and continuance of the rate, postulated to exist.

That was a rate he placed in the category of those where there was a direct financial return reflected in the railway accounts, and an indirect return not in the railway accounts

To appreciate the position, it was necessary to look into the transport problem, and the conditions in the transport industry, many of which were not peculiar to New Zealand, but were universal, because there was not a railway concern in the world to-day that had not felt the pressure of the new conditions in exactly the same way as the New Zealand railways had.

In the old days, before the advent of the road motor vehicle, the railways had what might be termed a quasi-monopoly. They could in those days give unpayable services and readily recoup themselves. Sometimes there would be objections from the people who were going to be asked to pay a little extra in order to make the accounts balance, but in the final analysis they had to pay.

A New Element

In time a new element was introduced, an element which enabled the people to say: “We are not going to pay this; and if you do not remove it we are going somewhere else,” and in these and other ways arose disturbances of the public mind which have led to an inadequate analysis of the position.

Especially in New Zealand, a careful analysis of the position was necessary in order to determine the soundness or otherwise of the railways.

“As our railways are a developmental as well as a revenue earning institution, we have had to face more concessions from that point of view than other railways not situated as ours,” Mr. Sterling proceeded. “We had, however, up to the time when the competition entered, been able to keep the position fairly well in hand by reason of the incidents I have mentioned, and that on the goods that were able to carry the higher rate we were



START SCRATCHING!



SAID the little young red rooster, "I'll be hanged, but things are tough; Seems that worms are getting scarcer and I cannot find enough. What's become of all those fat ones is a mystery to me; There were thousands through that rainy spell—but now where can they be?"

THE old black hen who heard him didn't grumble or complain— She had gone through lots of dry spells, she had lived through floods of rain— So she flew up on the grindstone, and she gave her claws a whet As she said "I've never seen the time there weren't worms to get."

SHE picked a new and undug spot; the earth was hard and firm. The little rooster jeered, "New ground; that's no place for worm." The old black hen just spread her feet, she dug both fast and free; "I must go to the worms," she said, "the worms won't come to me."

THE rooster vainly spent his day, through habit, by the ways Where fat, round worms had passed in squads back in the rainy days. When nightfall found him supperless, he growled in accents rough, "I'm hungry as a fowl can be; conditions sure are tough!"

HE turned then to the old black hen and said, "It's worse with you, For you're not only hungry but must be tired, too. I rested while I watched for worms, so I feel fairly perk; But how are you? Without worms, too? And after all that work!"

THE old black hen hopped to her perch and dropped her eyes to sleep, And murmured in a drowsy tone: "Young man, hear this and weep: I'm full of worms and happy, for I've dined both long and well; The worms were there as always—but I had to dig like hell!" —"The Employers' Review," N.S.W.

able to recoup ourselves so as to come reasonably near squaring the ledger.

"However, with the advent of competition and that feeling of dissatisfaction regarding the distribution of the burden of the developmental or non-commercial rates, a tendency has grown up, and is becoming most marked, for the person requiring transport to transfer his higher rate goods to the competitive form of transport while leaving his lower rate goods with the railways."

Avoiding An Inequity

Obviously, in any action that might be taken in the direction of a general increase in the low-rate of goods, they were going to put an impost on that man who had been loyal to the institution because of the fact that his neighbor had not been able to make such a detailed analysis of the position and had deserted the institution with his better-rate goods, while leaving the lower-rate goods to the Railways department.

How could that inequity be fought? There seemed to be only one way in which to do it, and that was to say to the man who could not recognise the advantages that he or the community received in respect of the low rates: "If you are going to adopt some other form of transport, let that be your standard, but let us be consistent and make it the standard of transport throughout. You cannot have the

benefit of the low rate on the low-rate commodities if you are prepared to go to some other form of transport with your high-rate commodities."

This prompted him to mention a belief or suggestion that had struck him as being very fallacious and mischievous, but was fundamental and led people to wrong conclusions. It was that the motor had reduced transport costs. That was based on the fact that in some cases the motor carriers charged less for certain goods than the railway charged between the same points, but it did not follow by any means that the sum total of the transport costs to the community was being reduced by that procedure.

Two Points

The point that had to be kept clear in mind was that there were two questions involved that must be kept distinct—first, the total transport costs to the community, and second, their distribution.

If a man adopted a line of action that increased the total transport costs to the community and, provided the distribution of those costs was not altered, so that the increased burden was borne by the party responsible for it, then probably no great harm was done, or at least no great discontent would arise.

But when action of that kind was followed by an alteration in the distribution of the costs, so that the proportion to be borne by the party

concerned was reduced and the burden shifted to other members of the community, or to the community as a whole, then of course cause for dissatisfaction arose immediately. The trouble was that, when a man secured a reduction in his high-rate goods by sending them by motor, the advantage was individual, while the burden was borne by the community.

If a man was not willing to give the railways the capacity, by conveying his high-rate goods as they had done in the past, to continue carrying those low-rate goods, he was not entitled to stand in with his neighbor and enjoy the same rate on his low-rate goods as his neighbor.

A great deal of reflection had led him to the conclusion that that was not only equitable as between individuals, but the best way, apart from legislative action, in which the railway position could be guided.

There's Nothing Else—

IPITY no man because he has to work. If he is worth his salt, he will work. I envy the man who has a work worth doing and does it well. There never has been devised, and there never will be devised, any law which will enable a man to succeed save by the exercise of those qualities which have always been the prerequisites of success—the qualities of hard work, of keen intelligence, of unflinching will.—Theodore Roosevelt.

Representative Railroaders

No. 32

Dining Car Steward OSWALD FRENCHAM

Caricature by ANGUS MAC

By R. H. JUNIOR



OSSIE FRENCHAM ought to be drowned. It's a fact.

If the ill-fated *Titanic* had started from Liverpool instead of Southampton on its disastrous maiden voyage, a couple of decades ago, Steward Oswald Frencham would almost certainly have been on board and, most probably, would have been among the lost when the great liner crippled by an iceberg, plunged beneath the icy waters of the Atlantic.

He was steward on the *Celtic*, whose home port was Liverpool, and he had made all arrangements to travel down to Southampton to join the *Titanic* when he met some stewards of the *Olympic*, the *Titanic's* sister ship, who persuaded him that he was better off on the *Celtic*. Their talk, combined with his own disinclination to cut adrift from the associations of Liverpool, put another steward in the Frencham bunk on the *Titanic*.

Two of Ossie's fellow-Liverpoolites, who persisted in their intention of sailing on the great ship, were both drowned. So was Commodore Chief Steward Lancaster, who would have been Ossie's immediate boss.

Today, very much alive and very much alert, Steward Oswald Frencham helps travellers to eat comfortably in Victorian railway dining cars. For 18 years he has watched passengers dine while travelling at anything up to 60 miles an hour: for 18 years he has tactfully suggested entrees, whisperingly recommended savories, and effortlessly balanced glasses on silver trays while, past the plated-glass sides of his fast-moving dining-room, have flashed the open rolling hills and purple and green distances of the Victorian landscape.

Thus, although his seafaring days are over, he is still a steward and still on the move.

When he was a clerk in Bendigo, the irksome confines of four office walls drove him on to the deck of the White Star passenger steamer *Afric*, and on this boat, in the capacity of "writing" steward, he made 3½ round voyages

between Melbourne and Liverpool.

He later gave a thoroughly satisfactory account of his stewardship in Atlantic and Mediterranean waters aboard the *Cretic*, *Romanic*, *Arabic* and *Celtic* (incidentally making his first acquaintance with lovely Genoa as an appendicitis cot case) and, while on shore in New York between voyages, he attached himself to the staff of such sacrosanct eating establishments as the Millions Club.

His steward's experience displayed a well-burnished polish, therefore, when he came back to Victoria in 1912, and signed on as a steward with the good ship Victorian Railways.

His father had been a railwayman too: he retired as sub-foreman at North Melbourne some ten years ago. A grandfather, by the way, is credited with having proclaimed Bendigo a

gold-field in the dim and misty past. His grandson is emphatic that only word of that proclamation and none of the gold has been handed down to the present generation . . .

He would be a stout-hearted mathematician who would set himself to the effort of assessing the number of miles which Ossie Frencham has travelled during his railway and seaway stewardship. And he would be a stouter-hearted who girded his loins to the task of calculating the numerical strength of the host of diners whom Frencham has watched munch and diplomatically encouraged to munch.

As a ship steward, he has watched the play of the jaw muscles of such personalities as Pierpont Morgan and Andrew Carnegie. And in railway dining cars . . . well, name every

distinguished man, woman and child who has visited Victoria during the past 18 years, and see Ossie Frencham incline his head reminiscently at mention of each name.

Edward P. and the Duke and Duchess of York, General Pau and Cardinal Cerretti, Lord Burnham's party, the Big Four, former Dominions Secretary Amery, famous scientists, painters and authors . . . all of them, at some time or another, have gravely considered the railway menu which Steward Frencham has discreetly presented to them; before all of them Steward Frencham has successively paraded consomme asparagus, lamb cutlets maintenons, turkey, ham and greens, sweets, savories, cheese, black coffee, fruit . . .

Himself, Ossie Frencham likes a nice piece of beef.

SPREADING NEWS

By V. LEWIS

WHILE we marvel at the economic progress of the world and give the credit for it in large measure to the railways, shipping, modern manufacturing and such conspicuous units, we are apt to overlook one other tremendous factor in this progress—the ready communication of news and intelligence between widely separated spots. Without the telegraph, the telephone and the radio, many other forms of modern human activity would be reduced almost to impotence.

Our contributor here reviews entertainingly the history of communication and details some of the essential work carried on unobtrusively by the Victorian Railways Telegraph branch.

NOWADAYS, we accept many wonderful things as a matter of course, among which may be named the three main channels of distance communication—the telephone, the wireless and the telegraph.

If anything of outstanding or extraordinary moment occurs on the other side of the world, it will not be many minutes before we receive tidings of it here. Sitting in comfort at home, we may hear an incident described over the wireless which has occurred almost at the same instant many leagues distant; and we may converse for long distances in our natural voices over the telephone.

Before Telegraphy

Such information is commonplace, but when we remember that a little over one hundred years ago, Nelson scoured the Mediterranean for over three months in search of Napoleon's fleet which he ultimately found and destroyed at Aboukir Bay, and yet not once during that long time did he have any information to guide him to where he at last found it, we are astounded and are led to realise in

some measure the tremendous strides that have been made during the last century in the communication of intelligence over the whole surface of the globe.

Mankind has never been satisfied with the normal range of the human voice, and for ages has steadily worked to enlarge the arena of news and word communication. From remotest times man has employed methods of communicating intelligence to a distance.

Greek and Roman Practice

The ancient Greeks used towers on a hilltop from which they relayed signals over long distances. The Romans used flags and semaphores for regulating the movements of their armies, and they had hollow tubes constructed in the walls of their cities by which they could communicate with the several ports or works by sound, as is done in our times in some manufactories by means of sirens or whistles. Whenever the Romans pitched camp they selected an elevated spot for a signal station.

Whenever the North Queensland police have occasion to search the bush

solitudes to interview or apprehend certain aborigines, they rarely, if ever, obtain even a glimpse of their quarry. In the dim distance, and anon, farther, rise spirals of wispy blue smoke to heaven. Elusive, mysterious, they convey their message, and then fade almost imperceptibly into the brilliant sunlight.

Bushmen and police know this smoke system of signalling as the bush telegraph. It warns all of the approach of police and danger. Primitive though the method be, it has served these still untamed savages well.

If Napoleon Had a Telegraph

Signal fires or beacons have been used at different times in history for the promulgation of intelligence, as when the courier fire brought the news of the fall of Troy to Argos; and the chain of beacons told England of the approach of the Spanish Armada.

Napoleon established semaphore routes that totalled thousands of miles. It is interesting to conjecture what might have been the extent of his conquests if, in his many campaigns,

he had had the aid of the telephone, telegraph and wireless.

It will be seen that until comparatively recent times man has had to rely on the most primitive means of communicating intelligence. But he was learning and searching, and when, in 1800, the first really practical battery was invented, he had made a long step towards his objective of more rapid and comprehensive communication of news.

But it was not until 1819 that Oersted found that a magnetic needle was affected by a current passing through a wire near it; and the first electro-magnet did not appear until 1825. The mechanical generation of electricity only became possible with Faraday's discovery of magnetic induction in 1831.

Great Names of the Past

Continuing in the path the pioneers had indicated, followed several men, of whom the most illustrious were Samuel Morse, de Heer, Cooke and Wheatstone. In 1837, Morse invented the telegraph system that bears his name. In the same year Cooke and Wheatstone had their first patent granted, and in 1838 the first actual working telegraph was erected between Paddington and West Drayton, on the Great Western Railway.

To convey some idea of the crudity of the first telegraph instruments, Morse's electro-magnet weighed over 300 lb. A modern Morse relay weighs about 3½ lb.

But the electric telegraph gradually developed, and undreamt of channels were revealed whereby the written word could be conveyed intact from one point to another far distant. It was truly the harnessing of lightning.

Hard Fight Against Prejudice

During its gradual development the electric telegraph had to fight hard (strange as it may sound to modern ears) against prejudice, and even in the seventies press correspondents used the post rather than the wire. But such incidents as the capture of a murderer who, boarding a train at the scene of his crime, was apprehended at the next big station, through the agency of the telegraph, served to popularise it, and people slowly came to realise the great power that had so quickly come to them.

That the telegraph was fast becoming a vital factor in the movements of armies, and the conduct of war, was proved in 1866 when in the Austro-Prussian war "the Prussian Armies—directed by Von Moltke at the end of a telegraph wire in Berlin—completely out-manoeuvred the Austrians, and totally overwhelmed them at Sadowa." The war lasted ten weeks. How long would it have lasted if there had been no telegraph, and, insofar as his immediate association with his armies was concerned, no Von Moltke?

Then followed the discovery of the telephone, and after an interval wireless; but it is not with these two latter that I am at present concerned. And so I bring my article forward to deal with the use of the electric telegraph in the working of the Victorian Railways at the present day.

The telegraph in use in the Victorian Railways extends over the whole State to every station of importance, and to Adelaide and Sydney direct. A message despatched from the Sydney office could be relayed through Spencer-street, and arrive at Adelaide in the space of one minute.

tendent of Goods Train Service, where officers may examine and use the information that has been received from such a tremendous area.

Country depots also receive this return that is so necessary for the effective supervision of a large section of railway activity. Its transmission is just one of the many duties the telegraph performs.

Fortunately for the railway, the electric telegraph grew up with it, its speedy and efficient assistance always available. As the telegraphic message is despatched, so it is received,



Section of the Victorian Railways telegraph office, head offices, Spencer-street.

So intimately is the electric telegraph system related to the Railways Department, that if it were at one stroke wiped out of existence, utmost confusion must reign. So unobtrusively and effectively does it do its part in the working of the State railway system, that only such a state of affairs could bring those connected with it and railwaymen in general to appreciate the indispensable nature of its service.

In addition to its other work, the telegraph is instrumental in the daily transmission from all railway goods stations of the comprehensive rolling stock return, from which at a glance may be seen the number and classes of trucks at each station, and the number of bags of grain, flour, bales of wool despatched that day or awaiting transport.

From Orbst in the extreme east, Serviceton in the west, and Balranald far north in the Riverina, these returns come. Each morning, except Sunday, they are despatched from Spencer-street office to the Superin-

decisive as a hammer-stroke. The old lady who, on receiving a telegram from her son, said "This ain't from Jim, it's not his writing" would not always be able to say that nowadays, as many of the messages are received on the typewriter.

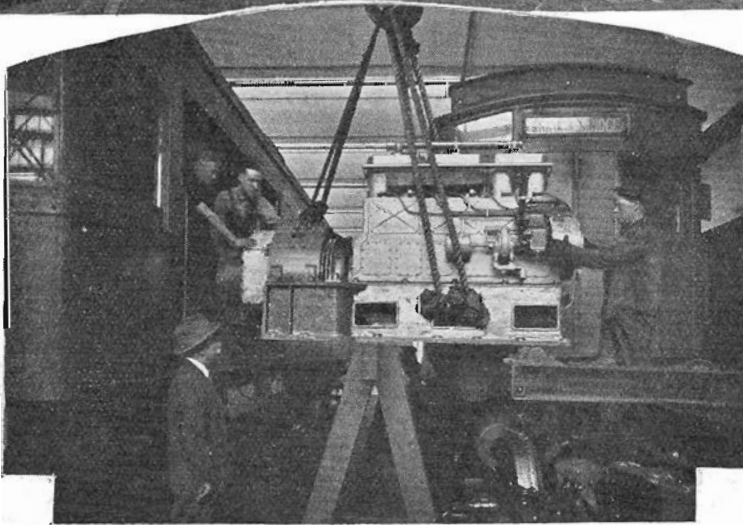
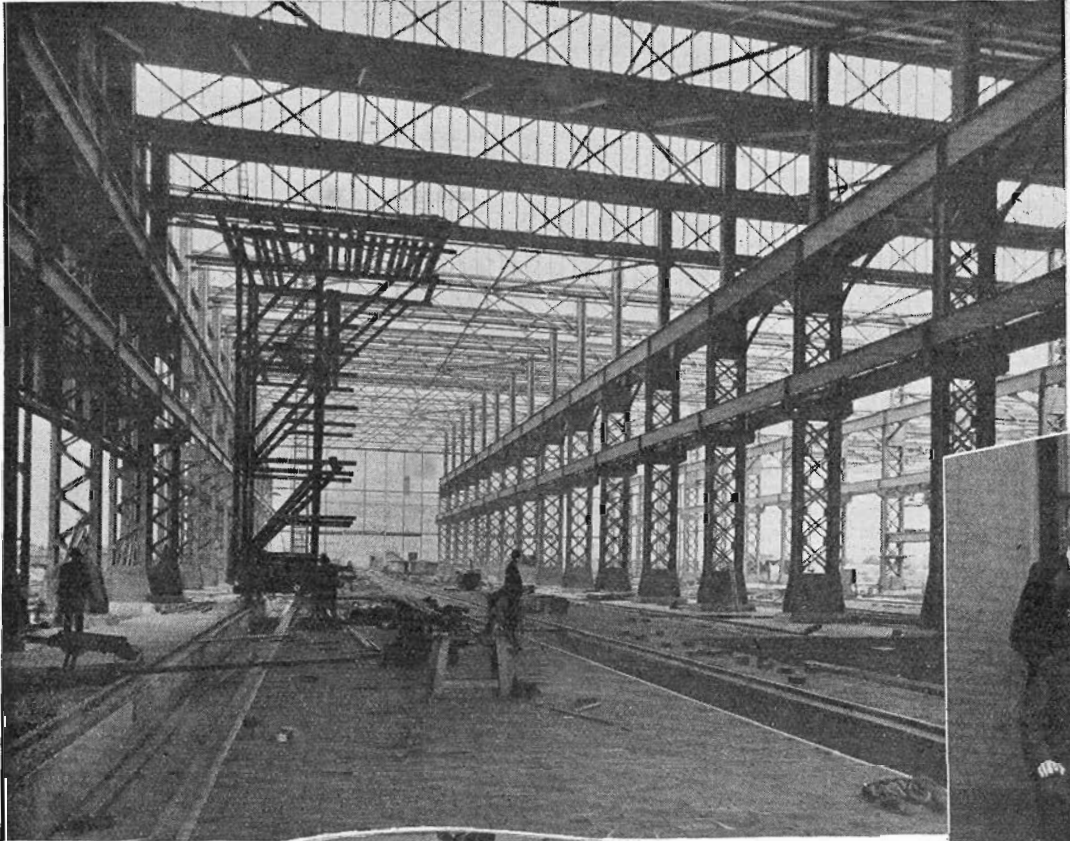
As the world advances, so the development of means of communication advances, and wonderful as are the telephone and wireless, it is hard to imagine that earliest of the more rapid of methods of communication, the electric telegraph, ever becoming extinct.

BREVITIES

A motion is being discussed in Sweden for the establishment of a train ferry service between Sweden and England.

The L.N.E.R. announce that, as an experiment, labels bearing the words "Smoking Prohibited" are to be placed inside all non-smoking compartments.

The Mont



ABOVE: The Audit branch at
State championship for two years

LEFT: The power unit for one
being placed in position at Job

RIGHT: Goods Agent W. N.
system of nominated days of
operation at the beginning of

h in Picture

VIEW: A view of the new locomotive erecting shop at Newport, which will have two erecting bays (408 feet long by 66 feet wide) and an additional 216 feet bay for a machine shop.

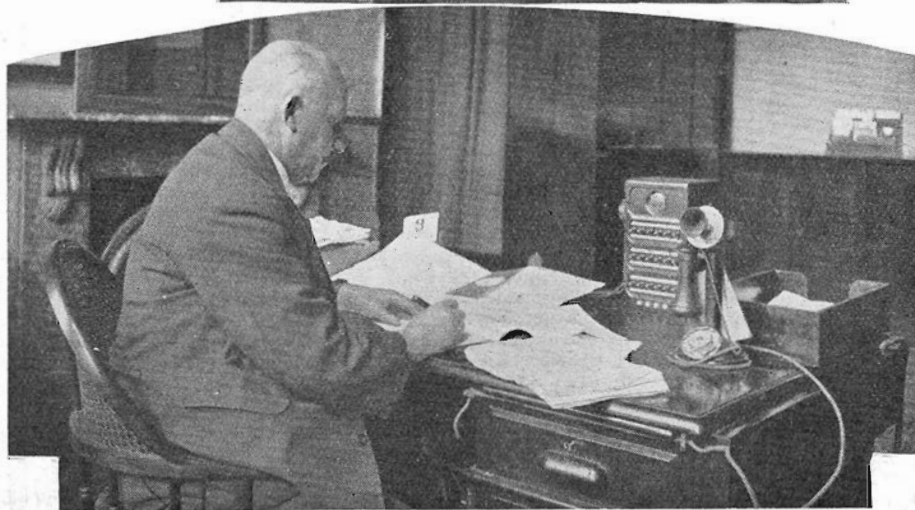
MEET: The visiting golfers, Walter Hagen and Joe Kirkwood, were given a cheery welcome at Spencer-street station on their arrival in the Sydney Limited. Joe Kirkwood was handed an impressive vaccination certificate, as a memento of his enforced sojourn in quarantine, and Walter Hagen, who had burnt a finger when lighting a cigarette in New South Wales, was presented with a fire extinguisher.



WINNERS: A dance team, winners of the... in succession.

NEW: The new petrol-electrics... ment.

WORK: Wortley checks his revised loading, which came into this month.



A Victorian Railwayman in South Africa

Some Impressions by
C. E. STEVENS

IN this article, Mr. C. E. Stevens, formerly a railway clerk at Wonthaggi and now resident in Southern Rhodesia, sketches some of his impressions of life and conditions in South Africa.

THE desire to travel having become an obsession with me, I decided, some three months ago, to leave my native land of Australia and see what Africa had to show me. And indeed I have not been disappointed. From the moment I set foot on African soil at Durban some new and interesting aspect of life has revealed itself to me. Particularly to one who has not been accustomed to the intermingling of white and colored peoples does this vast country of Africa present some absorbing and unusual sights.

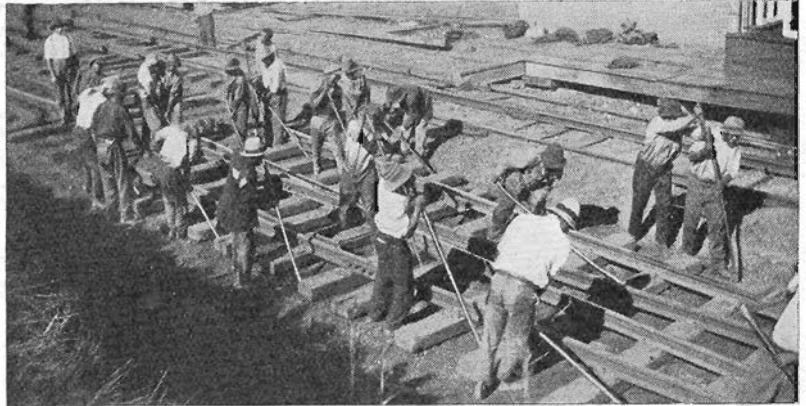
Your first impression of Durban is a lasting one. Its wide streets and many fine buildings are outstanding, as also are its parks and gardens. There is something entirely different here from what one has been accustomed to. To be transported from one point to another in a rickshaw, by human locomotion, is, in itself, an experience which a new arrival feels compelled to enjoy.

Beneath the Jacaranda Trees

The beaches are very attractive, and during week-ends and holiday-time throngs of people disport themselves in the glorious surf. A visit to the suburbs or a drive along the Berea will be a surprise so far as beautiful homes are concerned. It is a sheer delight to take a stroll beneath the shade of the jacaranda trees which are planted in most of the streets, and view the many types of architecture amidst spacious grounds and gardens.

After being so favorably impressed with Durban, I entrained for Southern Rhodesia. Whilst the journey is a very long one and the gauge only 3 ft. 6 in., travelling conditions are most pleasant. There is every facility for the comfort of the passengers and the service is excellent. The trip through Natal is by far the best part of the journey. The train winds through very hilly and picturesque country until the Transvaal is reached.

The first important stop is Johannesburg, the most progressive and largest town in Africa. Tall buildings, wide busy streets and all the amenities of a large city are here to be found. Like Durban its suburbs are very beautiful but extend farther out.



A gang of colored railway laborers relaying in South Africa

After leaving Johannesburg the train passes through Mafeking and on across the border into Southern Rhodesia, where Bulawayo is the hub of business and the railway centre. From here trips may be made to the Victoria Falls and to the Matopos where lies the body of the founder of Rhodesia, Cecil Rhodes. Bulawayo is a very fine town and is situated over 4,000 feet above the sea. Its high elevation and dry atmosphere preclude endemic diseases. The town contains fine wide streets, all running in one direction, whilst the avenues, named after various notable people, run at right angles. There are many well-stocked shops, two picture theatres and a modern swimming bath.

Three hundred miles north west of Bulawayo lies Salisbury, the capital of Southern Rhodesia and the seat of government. Salisbury is undoubtedly one of the finest towns in Africa as far as health is concerned. Situated nearly 5,000 ft. above the sea, it enjoys a moderate climate and is happily free from malaria which is so prevalent in the lower-lying towns. Nothing is denied the resident so far as purchases are concerned. Its large swimming bath is extremely popular, whilst tennis courts, golf courses and playing fields satisfy the wants of sportsmen. The outskirts of the town contain some magnificent homes, and here again the indigenous jacaranda tree lines the

streets and avenues.

One feels a glorious freedom in this capital town of Southern Rhodesia. Its lack of convention for clothing is outstanding. It is quite common for men to discard the orthodox clothes and attire themselves in soft shirts and shorts, together with a tropical helmet.

Never have I seen so many bicycles as are to be seen in both Bulawayo and Salisbury. Elderly, middle-aged and young men and women alike adopt this popular means of conveyance. And so have the natives caught the bicycle habit. The more their machines are ornamented with bells, brakes and various other contrivances the more it pleases them. It was most amusing to see one native with no less than five bells arrayed on his bicycle. During luncheon hour, when the whole town closes down for an hour, scores of motor cars and bicycles may be seen making for home.

As black labor is cheap, there is a predominance of native servants, almost every home having two or three. They relieve the housewife of practically all domestic duties even to the carrying of her parcels when on a shopping expedition, or the pushing of a perambulator. The natives are wedging themselves into all the trades, which will make conditions rather trying for the white man later on. Generally speaking, they are a carefree and happy lot.

Railway Outposts— No. 24 Buangor

DOTTED round, and sometimes farflung from the larger centres of railway activity in Victoria are the seventh, eighth and ninth class stations that feed in revenue as the watchful outposts of an army feed in intelligence to the main bodies they protect.

This series of articles will attempt to summarise the work of a few of these essential railway outposts.

SITUATED on the main Melbourne-Adelaide railway at a distance of 116½ miles from Melbourne, Buangor is surrounded by prosperous agricultural and pastoral country. Interest is added to the landscape by the tree-clad slopes of Mounts Cole and Mistake, which loom up some little distance to the north of the railway line.

The principal activities in the district are sheep raising (mainly for wool), cereal growing and orcharding. Last season, 985 bales and 41 bags of wool, of a total weight of 130 tons, were railed from the station and yielded a revenue of £329. Incidentally, it is gratifying to note that, although 120 bales of local wool left the district by road motor during the 1928-29 season, effective salesmanship by the Buangor stationmaster resulted in a 100 per cent. rail despatch of wool for the past season.

Growing More Wheat

Considerable quantities of wheat and oats are grown in the district. Approximately 3,500 bags of oats were consigned during the year, portion to the Mallee districts for seeding purposes, and the bulk of the remainder to the Melbourne markets. Wheat loadings for the same period totalled about 3,000 bags. It is anticipated, however, that next season's yield will be in the vicinity of 10,000 bags, which is a cheering indication of the support which the "grow more wheat" campaign is receiving.

Another source of revenue last wheat season was the transport of dunnage poles for wheat stacks. These poles were sent to stations in the north-eastern, Goulburn Valley and western districts and added £550 to



Stationmaster W. H. McDonough



Asst. Stationmaster W. W. Nicholas

the station's freight revenue.

Firewood is a regular item on the goods side of Buangor's railway activities. During the winter, about eight trucks of firewood are despatched weekly, principally to Ballarat. The loading of 500 tons of wood for the Ararat loco. depot adds to the work at the station, but is not reflected in the revenue.

Large quantities of honey, a few trucks of straw, thousands of cases of apples for local consumption and export, and stud sheep for exhibition purposes or for sale add variety to the goods traffic.

Outwards Dwarf Inwards

In all, 717 tons of goods, representing a revenue of £523, were received at Buangor during the last twelve months. Outwards goods with 2,472 tons and £1,823 revenue, however, dwarfed the inwards figures. Livestock, in and out, produced £191, and parcels added a further £130 for the year. Passenger traffic yielded £356 for 1,002 passenger journeys.

The goods figures, by the way, represent an increase of £900 as compared with the previous year's goods revenue, which is a tribute to the prosperity of the district, and also

to the faith which the district people have in the railways as an efficient means of transporting their produce. Motor vehicles competing with the railways pass through Buangor, but they have been unable to obtain any of that town's loading.

Risen from the Ashes

A few years ago, the station buildings at Buangor were destroyed by fire. New station buildings were completed in September last. Consequently, with new offices and equipment, Stationmaster W. H. McDonough and his lieutenant, Assistant Stationmaster W. W. Nicholas, were enabled to introduce systematic arrangements throughout the station office. The spic and span appearance of the office, the tidy station platform and yard, and the healthy young pittosporum hedge which had been planted on the platform, show clearly that the staff are keen, efficient and enthusiastic railwaymen.

And the fact that road competition has been effectively countered in the district proves that their keenness has been put to practical use in the interests of the Department.

—S.C.W.



View of Buangor station and yard. Firewood for the Ararat loco. depot is stacked on the right.

The Town of a Thousand Trains

By the Railway Correspondent of the Staffordshire "Sentinel"

THE town of a thousand trains! I wonder if, in the whole of England, there is any town which so well deserves this title as does Burton-upon-Trent? For you cannot walk one hundred yards or so without crossing a railway line; they are in the streets, crossing the streets, and running parallel with the streets; if you are a motorist you will frequently find the way barred at level crossings while trains grumble past with their loads of merchandise.

Burton, by reason of its railways, is probably unique.

With a population of 50,000, it possesses more feet of railway track per person than I should imagine, any other town, yet, unlike other "railway towns"—Derby, Crewe, Swindon and the like—it has no concern with railways as a business; they are merely ancillary to the proper industries of the district.

We all know that Burton's principal industry is the brewing of beer, for several of the most famous firms have their breweries there, but coal, iron and steel are also important features of Burton's commerce.

From a railway point of view, however, it is the brewery traffic which makes the town so interesting, for the various big breweries have rail systems of their own which, for organisation and smooth running, are worthy models of their big brothers that divide the length and breadth of Great Britain.

In one case alone—that of the Bass breweries, the largest in the town—there are some eighteen miles of track

extending over an 800 acre site, and as many as eight locomotives are in constant use, handling more than 1,000 trucks a day. Barrels and stores have to be transported from one part of the site to another; trains for distant parts have to be made up in readiness for handing over to the L.M.S., and, to the lay mind, all these things might be done in haphazard fashion. In reality, every move made by a train is done to schedule, and as strict a time-table as that of any passenger service is adhered to.

Completely Self-contained System

The locomotives themselves are dismantled and refitted at the engineering shops of the brewery, so that it might almost be termed a completely self-contained railway system in miniature. Electric signalling is in force, and the railways are of standard gauge, so that a train can be made up and shunted out to meet its "big brother" locomotive which is to haul it to its ultimate destination.

Similar arrangements are in use at other breweries in Burton, and I believe that the town can boast of 46 miles of sidings.

The great proportion of the traffic is handled by the L.M.S., and their task can be no light one. The one firm I have mentioned send out 12 beer specials a day to various parts, and, in all, the L.M.S. handles 28 of these specials from Burton every day.

Figures speak louder than words sometimes, and these statistics will

help to give you an idea of what beer from Burton means to the L.M.S. In a year, the beer truck traffic totals 184,000 wagons outward and 145,000 wagons inward. One firm alone sends out 10,000 barrels every week, and the total weight of ale and porter despatched from Burton in a year amounts to 390,000 tons.

This is but one aspect of the railways' task. Fifty thousand tons of brewers' grains leave Burton in the course of a year, and 100,000 tons of grain barley arrive. This is brought from England, Chili and California, and much of it is stored in the L.M.S. grain warehouse, an enormous building of three floors, each with an area of 5,000 square yards and each capable of holding 25,000 quarters of grain.

Then there are the hops, five thousand tons of which come to Burton in the year by rail. Three thousand tons of spent hops are conveyed away from the town in the twelve months.

Nor are these all the goods which the railway has to handle, for there is a yearly item of 5,000 tons of stave wood, for barrel making, and 78,000 wagon loads of "returned empties" to be handled. Not satisfied with all this, the L.M.S. have their own bonded warehouse, complete with a mixer store, where various spirits are mixed together. The idea of a railway company as spirit blenders is quite a novel one, to me at any rate.

In addition to its beer traffic, the L.M.S. handle in Burton during the year over 3,000 tons of iron and steel.

Canadian Loco. Will Have 83,200lb. Tractive Effort

DESIGNED to give the tremendous tractive effort of 83,200 lb., a new locomotive to be operated on a high steam pressure principle will be immediately placed under construction at the Angus shops of the Canadian Pacific Railway. This engine, the first of its kind on the American Continent, will be one of the most powerful in the world, and will supersede the 5900 series (described in our February issue) as the most powerful in the British Empire.

An appreciation of the capabilities of the new engine can be gained from the fact that its tractive effort is 5,200 lb. more than the 5900 series, and 37,900 lb. greater than the 2800 series just hailed as the fastest and most modern passenger engines yet produced. Canadian material will be used in the building of this new giant of the railway, with the exception only of materials that are not procurable

from Canadian manufacturers.

The new locomotive will have a two-wheel leading truck, five pairs of driving wheels and a four-wheel trailing truck. It will be known as the Canadian Pacific Railway T-4-a class. The locomotive alone will weigh approximately 466,500 lb. and the tender 297,500 lb., making a total weight of 764,000 lb., or 332 tons—14,000 lb. heavier than the 5900's and 120,000 lb. heavier than the 2800's.

The T-4-a will operate under multiple pressure, and will burn oil-fuel. High pressure steam will be used in the centre cylinder at 830 lb. pressure. This steam will be generated by heat interchange coils in the high pressure drum, the coils being part of a sealed system consisting of tubes and headers which will contain distilled water. A pressure of approximately 1350 lb. will be carried in the closed generating system and heat interchange coils.

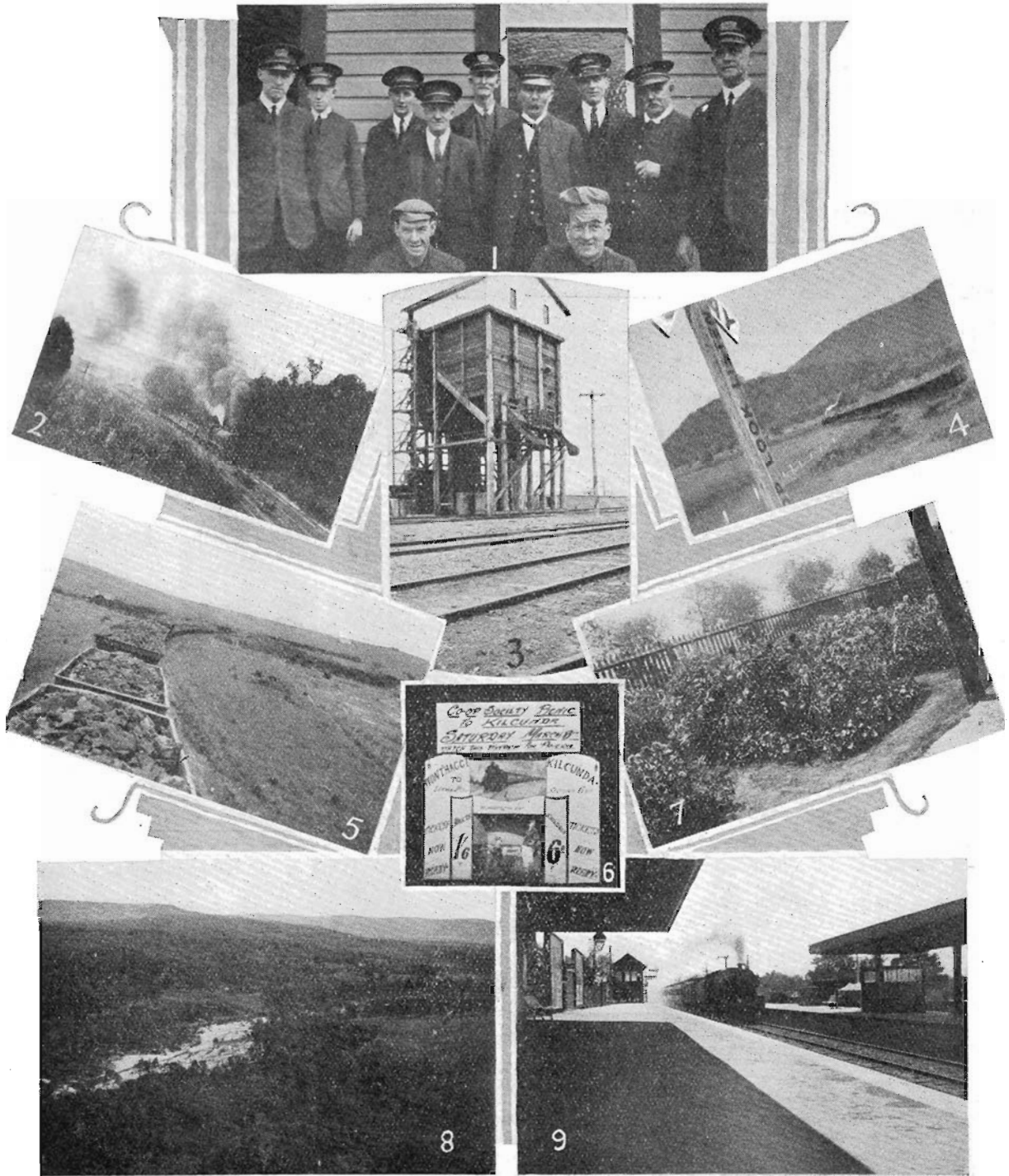
The high pressure steam will be superheated, and after passing through the high pressure cylinder will be supplemented by superheater steam from the low pressure boiler and fed to the two low pressure cylinders; the exhaust from the outer or low pressure cylinders will be utilised in a feedwater heater in the customary way as well as furnishing the stack draft as is customary on conventional types of locomotives.

The feedwater for the high pressure drum, where 850 lb. pressure steam is generated, is obtained from the forward part of the boiler carrying 250 lb. pressure.

The locomotive will have three cylinders, the high pressure or centre cylinder being 15½ in. diameter by 28 in. stroke, and the two outer or low pressure cylinders 24 in. diameter by 30 in. stroke.

Snaps Round The System

Sent in by Contributors



1.—Upper F.T. Gully staff (Photo—Y. E. Hunt). 2 and 5.—When two engines are better than one. Acting Fireman Ekins's striking pictures of the "pusher" trains running between State Mine and Nyora. No. 5 was taken from the tender of the leading engine, and No. 2 shows the same train ascending the Nyora bank with the two engines in the picture. 3.—New coal-fuelling plant at Hamilton (W. Boyle). 4.—A train load of Cudgewa bullocks at the foot of the hill near Bullioh (A. E. Sullivan). 6.—How a railway picnic at Kilcunda was advertised in the window of the Wonthaggi Co.-op. Society recently (T. C. Quirk). 7.—Miss Jean Colcott's fine display of asters in the front garden of Repairer Colcott's residence at Camperdown. 8.—Woolshed Valley, Beechworth (Peter Kleehammer). 9.—The "Up" Sydney Limited thundering into Tallarook at 50 m.p.h. (L. P. N. Sullivan).

Railwaymen of the Month

40 Years of Signalling

SIGNALMAN Michael McNamara of South Yarra attained the statutory retiring age a few weeks ago and can now look forward serenely to cold wintry mornings—in bed. He joined the service as a porter in January, 1889, receiving promotion to the grade of signalman during April, 1890, which position he has occupied ever since. Since July, 1914, he has been stationed at South Yarra where, prior to his retirement, he was presented with a travelling rug for himself and a handbag for Mrs. Mac as tangible tokens of the goodwill of their many railway friends.



Two Successful Students

TWO more apprentices of the Rolling Stock branch have been granted scholarships to enable them to study at the Melbourne



W. J. Scott



N. F. Coutts

technical college for the diploma of that school. Apprentice Fitter and Turner N. F. Coutts, who won the first scholarship, has had a fine record at the V.R. technical college, where he has gained first place in his section every term but one since he entered the service in 1927, finishing his course by securing second place in the special scholarship examination. The other successful student is Apprentice Electrical Fitter W. J. Scott, who was first in his section for each of the past three terms, and who obtained first place in the scholarship examinations.

—And Two More

THE selection of the apprentice most deserving of the Department's free place at the Melbourne University was a difficult proposition. Apprentice Electrical Fitter A. R. Putnam of the Signal and Telegraph branch, and Apprentice Fitter and Turner J. C. Bendall of the Way and Works branch, had practically equal qualifications. Even-

tually it was decided to allow Apprentice Putnam to study for the degree of Bachelor of Electrical Engineering at the University, and to permit Apprentice Bendall, who had practically



J. C. Bendall



A. R. Putnam

completed his diploma course at the Footscray technical college, to continue his course at the expense of the department and in departmental time. In addition, provided Apprentice Bendall obtains his diploma this year, he will be given an opportunity of going on to the University next year.

New G.P. and F.A.

CONSEQUENT upon the recent retirement of Mr. Keast from the position of General Passenger and Freight Agent. Mr. James McClelland has ascended to the topmost rung of the Traffic branch promotion ladder. He matriculated at the Melbourne University after winning a scholarship, and subsequently qualified as an accountant, obtaining the highest marks



Mr. J. McClelland

in the Commonwealth at the final examination. Later he was a very successful instructor in accountancy at the Institute for several years. He joined the service as a junior clerk in November, 1897; he has occupied practically every position of importance in the branch, and was appointed Assistant General Passenger and Freight Agent early in 1925. Some twelve months later, he was selected to visit America and inquire into the latest develop-

ments in railway practice of that country. From his wide experience of the work of his branch, Mr. McClelland is recognised as an authority on all matters pertaining to railway freights and fares, while his ability as an administrator renders him particularly suitable for his new position. When a youth he achieved considerable success in the sporting world, excelling in boxing, rowing and cricket.

Taught 400

FOUR hundred persons have been taught to swim by Fireman Roy Kierl, of Ballarat (up to time of going to press—Ed.) He has been a swimming enthusiast for 12 years, and helped to organise the first swimming carnival at Creswick in 1917, besides being vice-captain of the Ballarat East Swimming Club in 1925 and 1926 and captain in 1927. His youngest pupil is a sturdy four-year-oldster, Gordon Hale of Buninyong, who can swim 100 yards and was able to cover 50 yards under Roy Kierl's tuition when only three years old.



Two recently retired veterans: (left) Foreman Urban of the car and wagon shops, and Head Porter James Goggin of Princes Bridge

Lifetime on the Tracks

GEELONG district officially lost a well-known railway identity, and the Department an efficient and conscientious officer by the retirement at the end of March of Roadmaster James Alexander Hamilton. Joining the service as a repairer on the then newly-opened Narracan line on July 16, 1888, he can look back on 42 years of faithful service. He was promoted to the position of ganger at Lake Boga in January, 1901, graduating to the position of sleeper passer at Echuca towards the end of 1905. Five years later, after having acted as sleeper inspector for six months, a call came from the Construction branch



for a competent sleeper passer and Jim was selected for temporary transfer. On his return to the Way and Works branch early in 1917, he took up the duties of metropolitan depot ganger, moving on as road foreman to Wangaratta at the end of the year. Eighteen months at Dandenong preceded his transfer to Geelong as roadmaster in November, 1921, a position he held until his retirement. He is an authority on Australian timber, and owns a unique collection of 30 walking sticks, each one made of a different variety of local woods.

Three Word Motto

JIM HAMILTON was ever ready to lend a helping hand or to give a kindly word of advice to all employees from repairers to road foremen. And he was keenness itself in his insistence that the tracks in his district be maintained in perfect condition. His philosophy of life was expressed in his motto—"Courtesy, Tact, Fairness." So well did he apply these principles in his daily work that he was popular wherever he was known. At a farewell gathering, he was presented with an easy chair on behalf of his fellow employees, but the large and representative gathering of all grades of the Way and Works, Transportation and Rolling Stock branches who assembled to wish him a long and happy retired life, was appreciated more than anything else by the kindly old veteran.

May Birthdays

THE merry month of May will, at east, be merry for railway engineers and enginemen if topical birthdays are any guide. Distribution Engineer W. Steiger of the Electrical branch will celebrate on the third, Enginedriver C. H. Morrison of Donald, on the eighth, Electrical Engineers Harry James and H. W. L. Forster on the 13th and 15th respectively, Enginedriver Charlie Jordan of North Melbourne Loco. on the 16th, Enginemen's Instructor Ted Burnell of Seymour on the 17th, Enginedriver C. W. Bullock of Bendigo on the 24th, Signals Engineer Jim O'Connell on the 25th, and Way and Works Engineer J. J. Montgomery on the 28th. Others who will qualify for congratulations during the month include:—

Rolling Stock Accountant W. J. Bustell, on the second; Discipline Board Chairman H. W. Clark, on the third; Jack Barrie and Fred, Fewster of the Transportation Despatch, on the fourth; Signalman W. Ferguson, of Camberwell, on the sixth; Chairman of Commissioners Harold W. Clapp, on the seventh; Dick Stanistreet of the Betterment Board, on

the ninth; Auditor of Disbursements Donald McDonald, on the 10th; Stationmaster Ted Hally of Essendon and Bruce Longfield of the Traffic Branch, on the 12th; Yard Foreman J. O'Dea of Bendigo, on the 13th; Special Officer E. Hawken of the traffic branch, on the 17th; Alex. MacDonald, who signs the interstate leave passes, and Tom Beary, ex-safe-working officer, on the 18th; ex-District Rolling Stock Superintendent J. W. Carter, on the 20th; Guard-in-charge Frank Woodford of the Navarre line, on the 21st; Yard Foreman Alex. Robinson of the Melbourne Yard, Audit Chief Clerk J. A. Mactaggart, and Block and Signal Inspector M. F. Baynes, on the 22nd; Loco. Running Officer S. Clarke, on the 23rd; Head Porter A. E. Lyons of Benalla, and Way and Works Shops Manager P. R. Leslie, on the 24th; Station Director H. Kidd of Spencer-street, on the 25th; Les. Timewell, secretary to the Chairman, and Stationmaster F. F. Bobsein of Flinders-street, on the 27th; Yard Foreman Jim Darcy of Bendigo, on the 28th; and Over-head Superintendent G. S. Scott, on the 29th.

Topicalities

Goods Guard H. B. Chalmers of the

Melbourne Yard, well known throughout the State, will hand in his guard's kit early next month and take an interest in Superannuation payments.

Signalman P. A. Hally, whose breezy ways have won him many friends at Box Hill, is approaching his 65th milestone, and he will be sadly missed from his post in the Box Hill box this month.

Friends of popular Stationmaster A. E. Evans of Windsor will be sorry to hear that his health has not improved and that he has been granted further sick leave.

Already a member, by examination, of the Federal Institute of Accountants, Clerk A. Holdaway, of the Stores branch, has now passed the final examinations of the University of Melbourne for the degree of Bachelor of Commerce (B. Com.).

Concluded on page 46



Station Director Kidd

“Brown Coal Winning at Yallourn”

That is the title of the FIRST OF THIS WINTER'S SERIES OF LECTURES in the JOLIMONT LECTURE HALL.

It will be given on TUESDAY EVENING, MAY 6, by Mr. J. M. BRIDGE, General Superintendent and Engineer-in-Charge of Coal Supply, Yallourn.

All Railwaymen are invited to attend
ADMISSION IS FREE

—and Watch for Future Lectures!

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Join Up—NOW!



By AERIO

Gleanings from the Radio Exhibition

THE radio exhibition organised by the V.R.I. wireless club at the Victorian Railways Institute provided such a wealth of information that I find myself in possession of more than sufficient data for the next 12 months' work.

While necessarily of limited capacity, the exhibition was, nevertheless, one of the most interesting I have seen, and reflects great credit on the club, and particularly on the hon. organising secretary, Mr. W. Richards. This wireless club at the Institute is certainly a progressive body and, if a tip from me is worth anything, is well worth while belonging to.

In declaring the exhibition open, Mr. T. F. Brennan, F.I.C.A., General President of the V.R. Institute and Chief Accountant of the Victorian Railways department, drew attention to the rapid progress made by the club, which had in a matter of less than four years grown to a membership of 250 and acquired over £200 worth of gear.

Carried Out by Amateurs

In a brief address, the Minister of Railways, Mr. J. Cain, M.L.A., congratulated the club on its enterprise. He wished the exhibition the success it deserved, and hoped railway employees would join the club, which afforded opportunities and facilities to young railwaymen.

Mr. J. Malone, Chief Inspector of Wireless, representing the Postal department, stated that the exhibition was unique in that it had been organised and carried out entirely by amateurs.

Mr. Bearup, studio manager for 3LO, praised the organisation for the bright show that had been arranged.

Features of the exhibition were the transmission nightly of 3AR's programme from the model studio erected on the stage by the Australian Broadcasting Coy., Ltd.; the Announcers' Competition, arranged by the *Listener In* in conjunction with 3DB.; and the "Information Depot" erected and staffed by the *Listener In*; and the showing of the film, "The Wizardry of Wireless." This picture, which



A section of the exhibits in the Institute concert hall. This Radio Exhibition was an unqualified success in every way.

was produced by the General Electric Coy., is educational. Anyone not versed in the intricacies of wireless would do well to see this picture if another opportunity presents itself, for it depicts in the form of an animated diagram just what happens when a radio receiver or transmitter is in operation.

Among the exhibits were an Australian made talkie amplifier and two talkie speakers, recording and reproducing apparatus, power amplifiers, all-electric sets and kits, and high grade radio parts of all kinds.

A fancy cockatoo, made from colored beads threaded on a wire skeleton, and bearing the legend "VK-3EF" attracted a good deal of attention.

Simple gear for use in television experiments proved a very popular exhibit. The usual scanning disc consisted of a piece of fibre 10 inches

in diameter fixed to the shaft of a motor which at one time had been inside an electric motor-horn. This motor was driven at high speed by A.C. current stepped down from the mains through a bell-ringing transformer.

The scanning disc had been marked off into 50 sections by drawing 50 equally spaced lines from the centre to the circumference. The holes, which were staggered, commenced half-an-inch from the circumference and finished one-and-a-quarter inches from the circumference, so that when revolved they covered, or "scanned" the area of a picture on a piece of ordinary movie-film. A 3/64" drill was used to make these holes.

It was pointed out that, by using an ordinary gramophone record and taking the grooves as a guide, a good deal of trouble would be avoided in

Stop That Drift!

"Too many people are just drifting. Pelmanism can stop that drifting and start the drifter on a useful journey."—SIR HERBERT AUSTIN.

SIR HERBERT AUSTIN, chairman of the world famous Austin Motor Co. Ltd. is an Australian who is recognised as one of the most enterprising and successful industrial leaders in Great Britain. He is a great believer in the value of scientific mind-training, and what he has to say on this subject and about Pelmanism is particularly *a propos* at the present time.



Sir Herbert Austin, K.B.E.

Sir Herbert Austin's Message

City Streets.—"Our streets are crowded with men and women who will pass through this life, fail to get very much out of it, and depart leaving no legacy to posterity." Says *Sir Herbert*.

"The pagan will say 'Such is fate.' In ninety-nine cases out of a hundred this will not be true; it will not have been 'fate' but 'fault.' Most of us start life with just about the same amount of equipment. An infant Einstein possesses no more grey matter than the progeny of Hodge, and both start off scratch.

"Opportunity knocks at the door only of the man who has first gone out to locate the lady and invite her attention.

A Sure Conviction.—"To command opportunity and compel success, every man must have a full and sure conviction of his inherent right to a place in the sun, and must then train his mind to such vigour that it is capable

of grappling with the problems of life as they arrive.

"It is not enough to have a disgruntled feeling about the other fellow's more fortunate lot, nor will it help to envy him his preferment. The job for every one of us is first to *fit* ourselves for better things and then to go out after them.

"Here it is that I am sure Pelmanism is proving of immense help to the people of to-day. A study of the science of Pelmanism will enable the student to develop a will and to make his brain an efficient servant of that will.

A Useful Journey.—"Too many people are just drifting. Pelmanism can stop that drifting and start the drifter on a useful journey.

"There is no sense in going down to an obscure grave. If it should happen that our ashes prove part of a poet's inspiration, this will be no consolation for a wasted life."

Thus, in plain speech, Sir Herbert states a condition and approves a remedy.

The Pelman Course of Training is fully described in "The Efficient Mind," which contains 76 pages of matter and illustrations of very great interest. Copies are posted free. Call or write for one. Inquiries are regarded as confidential communications. We have no outdoor representatives.

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CUT OUT THIS COUPON AND POST TO-DAY
To the Secretary, THE PELMAN INSTITUTE,
32 Gloucester House, 396 Flinders Lane, Melbourne, C1.
Please send your free book—"The Efficient Mind"

NAME.....
POSTAL ADDRESS.....
271

staggering the holes correctly, and that the motor from an electric fan or vacuum cleaner would be suitable for driving the disc, which should attain 1,000 revs. per minute.

Behind the disc was placed a Neon lamp, not the usual expensive type usually recommended in text-books on the subject, but a "beehive" lamp which fits an ordinary electric-light bayonet socket, and costs less than five shillings. This lamp was connected to the output from a comparatively powerful gramo-amplifier. An electric-pickup attached to the input of the amplifier enabled the music from a gramophone record to be "seen" in the form of a constantly changing design thrown on a ground-glass screen in front of the disc.

This is as far as the demonstration went, but I had several opportunities of playing with the gear as a result of which my enthusiasm was aroused, and I have since acquired apparatus for experimenting with a view of introducing this fascinating development of wireless through these pages.

Operation is Inexpensive

The Neon lamp referred to above, I find, makes a splendid night-light plugged in in place of an ordinary electric light globe, and consumes practically no current. I am not in a position to say, however, just how long the Neon lamp will stand up to this treatment.

Alternatively, the Neon lamp can be operated from a Ford coil operated by three dry cells, and I have already devised a simple means of modulating it through the output of an ordinary 2-valve receiver. There is a very fascinating field for experiment here, and those interested and desirous of acquiring gear adaptable to such experiments should get in touch with me.

Inspired, no doubt, by Marconi's feat in switching on the lights at the



Station 3RI, Victorian Railways Institute

Sydney Radio exhibition by radio from the other side of the world, Mr. W. Green of 3RI staged a very interesting demonstration during the course of the exhibition. In the presence of the press and public, Mr. Green turned lights on in the hall by radio by using his voice only. At command the lights switched on automatically. At command they switched off again. Persons from the audience were permitted to come on the stage and blow the lights out by means of a microphone.

The actual procedure in this experiment is shown at Figs. 1 and 2. A microphone was placed on the stage. Leads from this were taken to the club's amplifier on the floor above. The output from this amplifier was

used to modulate the transmitter VK-3RI which was on the air for a few minutes during the course of the demonstration. The transmission was picked up by radio in the hall through a super-heterodyne receiver in Messrs. Carnegie's stall, and the output used to operate an ordinary P.M.G. type of relay which closed or opened the circuit in which the lights were wired.

I understand that as a result of the exhibition, the club has benefited to the extent of about £30, and that the trade has held a meeting and decided to run a big exhibition in Melbourne in July next.

RADIO NEWS
RADIO FIELD DAYS

AS the outcome of interest shown in field apparatus exhibited, it has been suggested that I, in conjunction with the V.R.I. wireless club, should arrange regular field days which would be open to readers of these pages as well as to members of the club.

Sufficient gear is on hand to ensure attractive programmes of field work, in addition to which competitive events would be arranged, and as facilities are already available for such "radio picnics" at Selby (Gembrook line), 27 miles from Melbourne, the first of these field days would probably be held there.

It will be appreciated that a good deal of organisation is necessary to ensure the success of such a venture, and in order that I may be in a position to advise the committee regarding the likely requirements of my readers, you

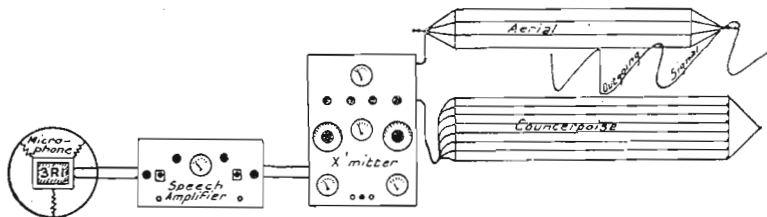


FIG. 1 TRANSMITTING APPARATUS USED IN SWITCHING LIGHTS ON BY RADIO.

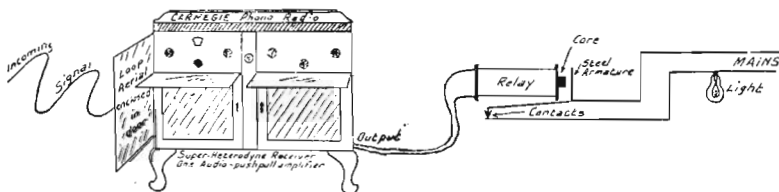


FIG. 2 RECEIVING APPARATUS USED IN SWITCHING LIGHTS ON BY RADIO

are invited to write to "Aerio," c/o The Editor, V.R. Magazine, Betterment and Publicity Board, Railway Buildings, Spencer-street, Melbourne, immediately if interested, and to submit suggestions. If it were thought desirable, the invitation could be extended to family parties, in which case arrangements would be made for the entertainment of those not particularly interested in the radio work. If parties of several are coming from the various workshops, depots and the like, arrangements would be made for a representative from each to meet the committee and discuss arrangements.

Let us get together and arrange some interesting outings for the spring.

RADIO CLUB PLEASE NOTE

IN connection with some proposed new publication, Mr. W. Richards, c/o Victorian Railways Institute,

is desirous of getting in touch with all radio clubs or to hear of any clubs being formed in this State.

V.R.I. Wireless Club Syllabus

THE secretary of the V.R.I. wireless club has advised me that the following syllabus has been arranged for this month :—

Thursday, May 1.—General meeting. *New members enrolled.*

Thursday, May 8.—Special lecturer. Members and friends.

Tuesday, May 13.—Workshop night. Television experiments.

Thursday, May 15.—Technical committee only.

Tuesday, May 20.—Special committee meeting.

Thursday, May 22.—General committee only.

Tuesday, May 27.—Workshop night. Television experiments.

Thursday, May 29.—Beginners' night and demonstration. *New members enrolled.*



Miss Mavis McConnell, daughter of the manager of the Government Tourist Bureau, has just been awarded her diploma as Licentiate of Physical Culture Classes of Victoria. She is here seen with the silver cup which she has won for the second year in succession at the North Essendon gymnasium club.

ANNUAL MEETING of STUDENTS of TRANSPORT

THE Society of Railway Students of Transport recently completed its first year of existence. At the annual meeting, Mr. W. J. Edwards of the Secretary's office was elected chairman, and Mr. L. R. Pike of Jolimont workshops vice-chairman of the society. During the year, eight members were admitted as graduate or student members of the Institute

of Transport, London, and further applications are to be made at an early date.

The object of the society is to enable railwaymen to obtain a wider knowledge of general railway working than they can obtain in their daily work, and, to this end, arrangements are being made to continue the preparation of papers dealing with various phases

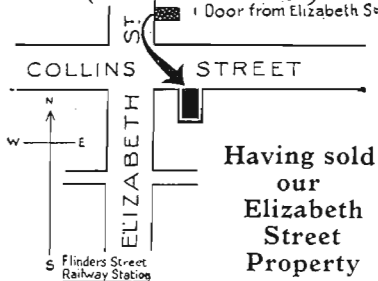
of railway operation and to secure addresses on railway matters from senior departmental officers.

Membership of the society is open to all railwaymen interested in widening their railway knowledge, and further particulars will be gladly furnished by the secretary of the society, Mr. S. C. Weetman, c/o Editor of the Magazine.

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Milady's Page

BY
NANETTE

WHAT CARRILLO SAYS YOU SHOULD WEAR

AN atmosphere of make up
lipsticks, eyebrow pencils, rouge,
powder, charcoal and the multi-
various requisites of the theatrical room.

And, on a low stool before the mirror,
Leo Carrillo, actor, movie star and
ex-railroadman, making up

He leaned back and surveyed the effect
of his left eyebrow quizzically as he
meditated on my question.

GIVEN four types of girls" he
echoed, "the dark Southern
beauty, the blonde, the Titian
blonde, and the brunette—what color
scheme would I employ in choosing
dresses for each? Well, it's not an
easy matter. One is often guided by
the personality of the girl"

His valet hovered uneasily. The
callboy stood at a respectful distance.
A bell rang and the actor strode to-
wards the stage.

"It takes some little thought," he
flung over his shoulder. "After the
act we'll see"

In the body of the theatre myriad
rows of faces dwindled into mere
specks. The dazzling footlights in-
tensified the blackness over the au-
dience The good firm of
Lombardi Ltd., with its reverses and
successes, made popular progress. The
act finished.

Back in his dressing room Carrillo
poked his head into a brown smock,
wriggled convulsively, patted himself
twice, and was ready for his part.

"The dark type looks rather well in
most colors," he hastened to say, "but
certain ones to my mind stand out."

Again duty called and he hurried
away. He came off. Was recalled.
As he met me in the wings I could
tell he was meditating.

"My dark type of Southern beauty
I would clothe in black satin,
black stockings and shoes, black hat
with a dash of scarlet or silver and a
bag to match. My type would be
stately, dignified and proud, and her
gowning would blend with her very
self. Or one might use a fawn dress
and a chic straw hat, felt trimmed,
to match, toning stockings and shoes,
of course."

Then he reflected, "There's royal blue
georgette, it's splendid on dark types."

There was some pause as he made a
lightning change of coats.

"My middle type, the brunette, I
would robe in yellow—rich yellow,
bay colored stockings and shoes. Then



a coat of green with a hat of similar
color. There, Milady holds her coat
so," and the actor caught his coat and
held it back on his hip. "I have
another combination; why not a tango
lace and georgette frock, a long coat
with champagne hat, bag and shoes;
and there's yet another, why not
honey beige moracain with apple green
hat, bag and shoes? Ah, I could make
my middle type very charming."

He rose for the final act and I ac-
companied him to the stage. "Yes,
and my blonde would display black
lace gown, flesh colored stockings and
satin shoes. Give her no headdress
and let those flaxen locks add their
natural glory." He paused. "What
of a bottle green gown with airforce
blue trimmings, light stockings and
blue shoes?"

Then he stepped on to the stage for

the final act and the climax—the
breaking of Lombardi Ltd. and its
sudden and unexpected re-establish-
ment. He returned in time to dis-
cuss the last type.

"A Titian blonde. Yes, our viva-
cious auburn-haired type. I have
such a one in my company Tall, with
regal bearing, she wears a cinnamon
brown dress, flesh stockings, brown
shoes, a brown straw hat; that's one
outfit—the other an apple green gown,
a green toque, nude colored stockings
and dainty green shoes. She carries
a green wallet. I am afraid I could
not improve it."

Leo Carrillo removed his stage face.
Eyebrows and lips resumed their
normal appearance. His valet shuffled
his feet uneasily. My short associa-
tion with the stage gave me the cue . . .
Carrillo, I presume, changed his clothes.

"Bucketmobile" Idea Wins Labor-Saving Competition

TO select the best labor-saving kitchen hint from the flood of entries submitted for this competition was a most difficult task. Many of the suggestors were not satisfied with a single entry but submitted several hints in the one envelope. The winning hint, for instance, was one of four ingenious ideas from the same housewife. Her name is Mrs. R. Jukes, and the 10/- prize is being forwarded to her address at 62, Simpson-street, East Melbourne, C. 2. Her labor-saving hint is:

The bucketmobile saves stooping and lifting bucket, etc., while scrubbing. Procure a wooden soap-box, nail two pieces of wood (slightly wider than the box) underneath and screw on to these four wooden wheels—narrow cotton reels will do. The bucket, soap, scrubbing brush, etc., are then placed in the box, which can be given a push to shift it from place to place.

Mrs. Jukes's nearest rival was Miss Eileen Osman of Coburg, who suggested that "a ledge be fitted underneath the kitchen table, making two tables in one. When preparing meals it is very handy to put the mixing dishes, crockery, peelings, etc., quickly out of the way by placing them on this lower ledge. Much running backwards and forwards is avoided."

OTHER LABOR-SAVING HINTS

Easily the most popular hint was one associated with the multitudinous uses to which old newspapers can be put in the kitchen. Several competitors misunderstood the real intention of the competition as they submitted recipes for dishes. Three other very interesting hints were:

Wash red tiles with water to which is added thin starch left after washing, and they will have

a glazed appearance without any polishing and will be non-slippery.

If an aspro is added to jam when cooking, the jam will never go mouldy.—Mrs. Kennedy, East Melbourne.

I find the little gold-beaded pot scrub the best labor-saver in the kitchen. It is so clean and wholesome, and takes up so little space where a dish-cloth takes quite a lot of care to keep it white and clean. And it will scrub anything from the top of the sink to the seats of the kitchen vienna chairs and the hardwood steps at the back.—Mrs. A. E. Sporre, Essendon.

Apple Snow

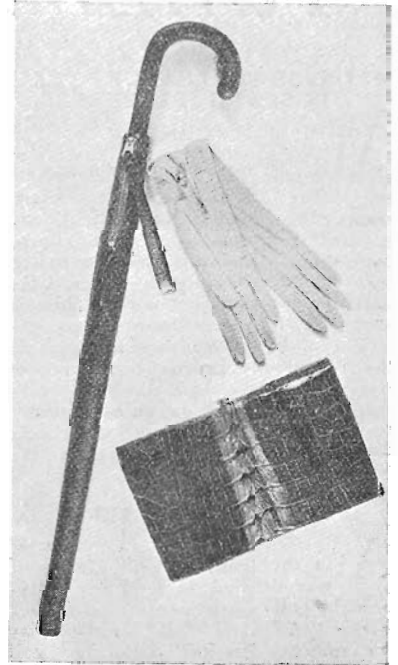
Boil six pared and cored apples until tender, press through a sieve, return pulp to juice, add one cup sugar and boil to thick marmalade. Cool. Beat whites of four eggs stiff and dry. Add two tablespoons of sugar, beating, add pulp by degrees. Beat until feathery. Add juice of one-half lemon. Heap on dish, cover with coconut, garnish with quartered apples.

Brown Betty

Into a pie dish put a layer of sliced apples, then a layer of bread crumbs, then another layer of apples, and so on until your dish is as full as desired. Then pour over all a sauce made of two eggs, one pint milk, one-half cup of sugar. Sprinkle top with nutmeg. Bake in moderate oven about three-quarters of an hour.

Apple and Grape Jelly

Four cups apple juice, four cups grape juice. Boil twenty minutes, then add eight cups sugar and boil twenty minutes more.



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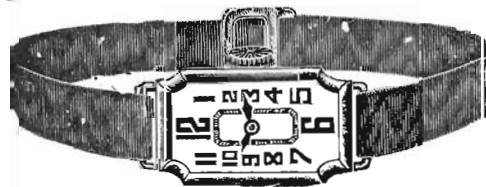
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RAILWAYMEN in SPORT

By REG. HUNT

WEDNESDAY LEAGUE TEAM LOSES 11 PLAYERS

MR. CLIFFORD, sec. of The Wednesday League team had made all local arrangements to go to Adelaide for the annual competition for the Nash shield, and he was disappointed when he heard from South Australia that the match was "off." Twenty-six players were available for the trip, and needless to say, they, too, were disappointed.

The club will field a team again in the Wednesday League, but eleven of last year's players are not now available, so juniors will get an opportunity to make good, and it is quite likely some of them will do as well as the men they replace.

WITH THE GOLFERS

AT a meeting of the committee of the Institute Golf Union, it was decided to hold the inter-branch golf tournament in two sections, "A" and "B," and to play the matches on the Sandridge golf course. Port Melbourne on Sundays, commencing at 9.45 a.m.

The result of the ballot for teams for each section was:

"A" Section.—Rolling Stock, Way and Works, Transportation No. 2, Secretary's Stores—Refreshment.

"B" Section.—Transportation No. 1, Electrical, Construction, Accountancy.

The draw for the tournament is:

"A" Section, May 4—Trans. 2 v. Rolling Stock; W. and W. v. Sec. Stores—Refresh. June 1—W. and W. v. Rolling Stock; Trans. v. Sec. Stores—Refresh. July 6—Sec. Stores—Refresh. v. Rolling Stock; W. and W. v. Trans. 2.

"B" Section, May 18—Trans. 1 v. Elect.; Construction v. Accountancy. June 15—Trans. 1 v. Accountancy; Elect. v. Construction. July 20—Accountancy v. Elect.; Trans. 1 v. Construction.

Winners of "A" and "B" Sections will play off the final on August 3 or 17.

MADE HIS MARK



BILL CUBBINS, who is a carpenter and joiner in the Department, is, at the moment, undoubtedly the outstanding railwayman in the football world.

As a young lad, he threw in his lot with St. Kilda, and right from the very first match in which he was included, he has not looked back. For many years he occupied the important position of centre half-back, but he has also played in other parts of the field and has done well in them all. In one period of his association with the club, there was a little trouble, and in consequence, he played with the second 18 for a while and showed that he was a forward of no mean order by kicking 25 goals in one match.

He has always been noted for his dash and superb judgment in soaring for high marks and his long swinging drop kicks. In his present position as a full-back, these qualities have made him a champion. He has frequently represented the State in interstate and carnival matches, and his appointment this year as coach at St. Kilda is the crowning triumph of his football career. He has had previous experience, having three years ago coached the Warrnambool team, which won the local premiership. He is eminently fitted for the position of coach, and under his guidance the old Saints should have a great chance of "breaking the ice," and winning the 1930 League pennant.

Bill is a very fine, likeable fellow with a grand personality, has a thorough knowledge of the game, is firm but fair and, above all, has the absolute confidence of every one of his players. All railwaymen, no matter to which club they belong, wish him the best of luck and good fortune this season.

FOOTBALL STARTS

THE Railways Association has been fortunate in securing six clubs to compete for the Commissioners' cup this season. Present indications are that the teams will be fairly evenly matched and a very good season is anticipated.

The Reservoir - Heidelberg lines, under Reg. Bowman, is sure to do well, while the other new team—Jolimont-Melbourne Yard should field a strong combination. Coburg, losing the Heidelberg line, will consequently miss some of last season's regulars, but the committee is very keenly scouting for new men—no League secretary has anything on Bill Keppell in that respect.

Chris Madigan also has lost some of his players from the North Loco., but he, also, expects some promising recruits to come along. The Eastern lines showed wonderful improvement last year, and the officials are sanguine of winning the shield this season. The Truck shops are saying little but are quietly confident of getting into the "four" again.

A sub-committee has held several meetings and revised the rules—something that was badly required.

Each of the six clubs has secured League or Association grounds, and Association umpires will be again engaged for the matches. The home grounds of the clubs are: Coburg line, the Coburg ground; Eastern lines, Prahran; Jolimont, Port Melbourne; North Loco., Brunswick; Reservoir line, Preston; and Car and Wagon shops, North Melbourne.

The fixtures for the next four Wednesdays are:—

- May 14.—Eastern lines v. Reservoir-Heidelberg
Jolimont-Melbourne Yard v. Car & Wagon
Coburg-Essendon lines v. North Loco.
- May 21.—Reservoir-Heidelberg v. Jolimont-Melbourne Yard
Car and Wagon v. Coburg-Essendon
North Loco. v. Eastern lines
- May 28.—Eastern lines v. Jolimont-Melbourne Yard
Reservoir-Heidelberg v. Coburg-Essendon
North Loco. v. Car and Wagon
- June 4.—Coburg-Essendon v. Eastern lines
Jolimont-Melbourne Yard v. North Loco.
Car and Wagon v. Reservoir-Heidelberg

ELECTRICAL ENGINEERS WIN CRICKET PREMIERSHIP

THE annual competition for the Commissioners' cup, ended in March, when the finals were played on the Brunswick cricket ground, resulting in a win for Electrical Engineers, who will hold the cup for the following 12 months. The other three finalists were Way and Works,



The Coburg-Heidelberg-Reservoir football team, last year's runners-up in the Victorian Railway Football Association.

Coburg line and Newport. This is the first season Electrical Engineers entered a team in the competition, and to win the premiership and cup was a very fine performance.

The games were all keenly contested, and the final most exciting, the result of the game being in doubt right up to the last half-hour. Lionel Blake proved to be a match winner for the Engineers. Batting practically right through their first innings, he scored 81 out of a total of 133.

Other outstanding performances were Masterton (Way and Works) 62, Flynn (Coburg) 60, Baker (Newport) 57, Ellis (Coburg) 8 for 53, Vance (Way and Works) 7 for 48.

Scores as follows:—

1st Semi-final

Way and Works 184 (Masterton 62, Vance 43, Ellis 8 for 53, Ploog 2 for 31). Coburg 153 (Flynn 60, Ellis 15, Prowse 5 for 40, Vance 4 for 40).

2nd Semi-final

Newport 223 (Baker 57, O'Brien 47, Clifton 4 for 69, Blake 2 for 25). Electrical Engineers 234 for 6 wickets (Blake 74, Miller 48, Duggan 8 for 36).

Final

Way and Works First innings 124 (Davies 22 not out, Brown 17, Hutchinson 4 for 33). 2nd innings 7 for 68, declared (Vance 19, Miller 4 for 30). Electrical Engineers First innings 133 (Blake 81, Vance 7 for 48). 2nd innings 3 for 67 (Stevenson 33, Mumford 1 for 4, Sutherland 1 for 5).

Won by Electrical Engineers by 7 wickets and 9 runs.

Geelong.—On Eight Hours Day the Geelong Railways cricket club visited Richmond cricket ground and engaged in a match with the Railways United cricket club, captained by A. Luff of the G.P. and F.A.'s office.

Geelong batted first and made 189, the first hour's play producing 168 runs. In response Melbourne compiled 136 for the first innings. On resuming Geelong again scored very briskly and closed their second innings with 4 wickets down for 149. At time Melbourne had lost 7 wickets for 110 runs.

Football prospects for the forthcoming season at Geelong are particularly bright; Mr. A. Nelson has been appointed playing coach, and he has a lot of young talent offering, together with a number of new players who are experienced men.

BOXING AND WRESTLING

THE Institute Gymnasium is proving very popular. Open and novice boxing and wrestling competitions are about to commence, and it is anticipated that our boys will give a good account of themselves against all comers.

These competitions serve as a guide to the probable winners in the State amateur championships, and entries have been received from some of the best amateurs in Victoria.

The contests will be held in the V.R.I. hall, commencing on Monday, May 5, and will be continued on 9th, 12th, 16th and 19th. Charges for admission, 2/- and 1/6.

ROWING CLUB DOINGS

THE Rowing club is now in full swing, and coaching of new members has commenced at the Richmond boat house, Princes Bridge.

Several hefty new members, without

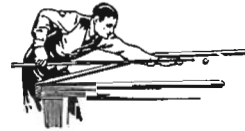
previous rowing experience, have joined up and are being properly coached and "prepared" for racing during the forthcoming season. Among the recruits showing promise are Charlie Cullis and Arthur McDonnell (from Burwood), Bill Lucas (Newport Workshops), Arthur Nugent and Ossie Wood (Jolimont), Percy Meehan and Harry Harrison (Tooronga).

The social committee has arranged a series of dances at the Institute, the first being held on May 30.

More new members are required and Keith Miller (secretary) would be pleased to welcome them at the boat house. Membership is open to all

Concluded on page 47

ALCOCK'S HOME BILLIARD TABLES
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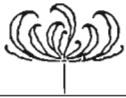
TEMPLE BAR



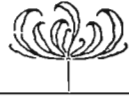
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UP COUNTRY



Maryborough Optimistic

Despite the prevailing depression, transport facilities in the Maryborough district are heavily taxed, particularly in the north where fodder, manure and seed wheat are being handled in large quantities. The recent rains in the northern district have caused an optimistic outlook, and farmers are busily engaged following.

Records in Canning

With a prolific crop of first-grade canning fruits, new records are being created by the Co-operative Canning Coys. at Shepparton, Mooroopna and Kyabram, which have been working at high pressure to cope with the "cling" peach crop. It is anticipated that processing will terminate about Easter. During the month of March equal to 1,072 trucks conveying fresh fruit were despatched from G.V. line stations. Considerable expansion has taken place in the transport of fresh fruit in iced "T" trucks, and to date a total of 142 "T" trucks utilised as against 68 for the whole of last season.

New Industry in Maryborough

The Hume Pipe Company have opened a branch of their works in Maryborough and it is now in full swing.

Mallee Families' Holiday

The Mallee farmers' wives and children are unanimous that the trip to Melbourne will live long in their memories as a rare pleasure. Some two or three hundred were seated for breakfast at Ouyen, a notable achievement by the refreshment rooms management.

Marketing Grapes Quicker

Success has attended the inauguration of two louvre trucks on the express from Mildura on Monday nights for the purpose of enabling fresh grapes to be marketed on Tuesday. Growers state that better prices have been obtained in comparison to those sent by ordinary goods train, the difference amounting in many instances to 2/- per case.

Dried Fruit and Pumpkins

Deliveries of this season's dried fruits to the various packing sheds in Mildura district totalled 14,067 tons up to the beginning of April. On one recent Saturday a truck load of Turk's caps and ironbark pumpkins was consigned from Mildura to Ballarat.

Sheep Moving

Many train loads of sheep are now being returned to the north, and conditions generally point to good seasons ahead.

A QUEER FIND

THE circular saw at a wood mill in the Avoca station yard was stopped recently on encountering a hard object.

This proved to be a horseshoe firmly embedded in a piece of solid wood. How it got inside the wood is not known.

It is presumed, however, that the horseshoe was hung on a limb near the butt of a young tree, and that in the course of years the wood gradually encased it.

Melton's Hay Competition

At a hay crop competition at Melton, Messrs. J. and R. Beaty's crop of Warden wheat and Algerian oats won the first prize.



Stationmaster C. Nye, of Port Fairy, with his two-year-old heifer, Buttercup the Second, which won first prize for best dairy cow and second prize for Jersey cow, any age and class, at the recent Port Fairy Show

Warracknabeal Grows More

Practically every farmer in the Warracknabeal district is carrying out the advice of the Government in the "grow more wheat" campaign, and intend putting in as much wheat as possible.

Heavy Traffic in North

Right through the month, numerous consignments of horses passed through Bendigo on return to farms whence they had been sent for agistment during the drought period. The down traffic has been very heavy, consisting chiefly of superphosphates, seed wheat and fodder. This traffic has necessitated a considerable number of special trains to handle it satisfactorily and to ensure the empty trucks being quickly returned to Melbourne for further loading. The three "X" class engines now running between Bendigo and Melbourne were found extremely useful in handling this business, and during the month permission was given for this class of engine to run as far north as Korong Vale, with very satisfactory results.

Growing More Wheat

About the middle of the month a splendid rain fell throughout the northern areas and a most optimistic spirit is now abroad amongst the wheat farmers. Already they are sowing extensively in the firm hope that next season will break the succession of poor crops and yield a bumper harvest.

Agricultural Anxiety

There is nothing definite to report regarding the north-eastern agricultural outlook without adding to the prevailing pessimism, for it cannot be denied that the very dry autumn is giving cause for grave concern. Apart from the setback to agriculture, hand-feeding of stock is being carried out on an extensive scale even in such recognised good pastoral areas as the Tallangatta district.

Apples for Export

The apple crop throughout the Geelong district has been heavy, and large consignments for export are being despatched daily from various centres.

CONSOLIDATION OF UNITED STATES RAILWAYS

THE long-awaited scheme of the Interstate Commerce Commission, under the direction given to it by the Transportation Act of 1920 to consolidate the railways of the United States, has now been made known. Nineteen trunk line systems are proposed. Five of these are provided for the eastern territory, headed by the Pennsylvania, Baltimore and Ohio, Wabash Seaboard, New York Central and Chesapeake and Ohio. The railway interests favored a four-system plan for the eastern territory, but other interests advocated a five-system plan.

The Boston and Maine, and New York, Newhaven, and Hartford railways will constitute the New England group.

In the South there will be three systems, headed by the Atlantic, Coast-line, Southern and Illinois Central.

Other key systems under the plan are as follows:—The Great Northern—Northern Pacific; Chicago, Milwaukee, St. Paul and Pacific; Atchison, Topeka and Santa Fe; Missouri Pacific; Chicago, Rock Island and Pacific; and Chicago and North-Western.

The Canadian groupings are also approved, but are not included in the list of trunk systems—the Canadian National, with lines in New England, and the Canadian Pacific, with lines in the North-west.

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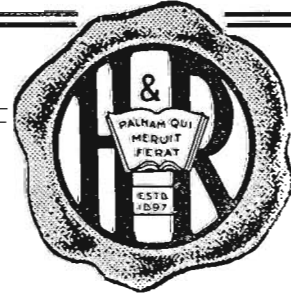
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A special class, combining graceful exercises and eurhythmic dancing is held for business girls on Tuesday evenings in the V.R.I. hall under Miss Dorothy Gladstone, teacher of eurhythmics, ballroom, ballet, toe and tap dancing at the Victorian Railways Institute.

This class is already availed of by many of the head office girls.

GYMNASIUM DANCE

A dance will be held in the Victorian Railways Institute dance hall, Flinders-street, on Thursday, May 8, being the first of a series to be arranged by the V.R.I. Gymnasium.

Tickets (2/-), obtainable from the General Secretary's office or from Mr. G. Munro, honorary secretary of the gymnasium sports committee.

AN APPEAL

RAILWAYMEN will regret to learn that the late David McDonald, ex-stationmaster at Broadmeadows, who was accidentally killed at Kensington station, leaves a widow and five young daughters unprovided for, their only financial support being the lowest possible superannuation allowance.

A committee has been formed to raise funds for their assistance, and an appeal is now being issued to railwaymen throughout the service. Railwaymen, the Institute knows, are experiencing a strenuous time, and it is with great reluctance that this appeal is issued, but it is felt that each will do his best to aid this unfortunate family who are bereft of a comparatively young breadwinner.

Donations to the fund should be made to the General Secretary, V.R. Institute, Flinders-street.

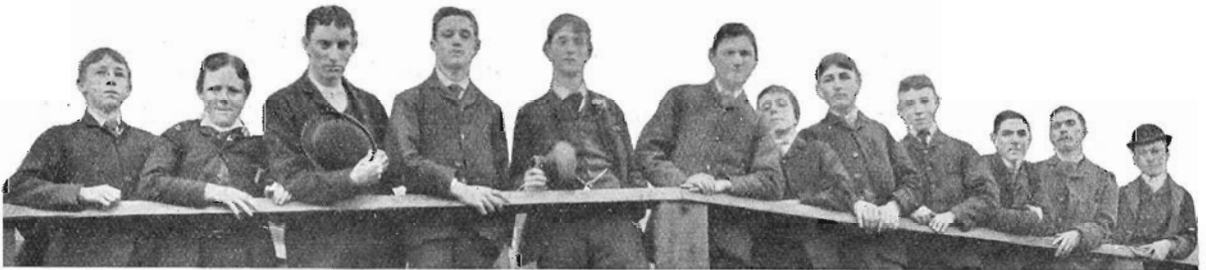
Last Mile Post

DANIEL BRODERICK

RETIRED Parcels Foreman Dan Broderick, who supervised the hauling of the busy parcels traffic at Flinders-street for several years, has died. He had service in the Department from 1885, and was a guard for 31 years. He was guard on the first train that ran on the Glen Iris line.

EDMUND ROSMAN

AFTER an illness extending for some months, Edmund Rosman of the Secretary's branch died on April 5. Entering the railway service as a junior clerk on August 7, 1885, at the age of 19, he was associated with that branch throughout his career. Since July, 1904, he held the responsible position of clerk in charge of registration and records. He is survived by a widow and a grown-up family of three sons, one of whom is a clerk in the Accountancy branch.



The V.R. Audit Branch 47 years ago. From left, the late G. K. Low, A. E. McGregor, the late J. Hill, the late A. E. M. Cooper, the late F. Blackett, A. E. Matthews, J. Kelleher, the late W. Lynar, M. O'Reilly, the late F. Stone, A. J. Ely and J. G. Moore.

News of the Old Brigade Last Month's Meeting of Retired Railmen

THE usual monthly meeting of the Retired Railwaymen's Social Club was held in the Institute on Thursday, April 3. The attendance was a large one and included railwaymen who had for many years occupied positions in almost every grade of the service.

The old-time spirit of comradeship has never lost its hold, but seems indeed to have taken a firmer grip with the advancing years. Many of those present could claim friendships of nearly 50 years duration, and there is hardly a member of the club whose railway service record extends over less than two score years.

These very enjoyable monthly meetings are fixed for 2.30 p.m. on the first Thursday in each month. All retired

railwaymen are invited to join, and visiting railwaymen from any part of Australia are welcomed.

Ladies' afternoons are programmed twice a year at least. Card tournaments are conducted every week in the club's special room from 2 till 5.

Members may enjoy all the privileges of a first-class club and library at a nominal cost. A list of social dances (old and new) has been arranged for the winter months. The first dance was held on Thursday, April 17, at 8 p.m., and subsequent dances will be held on every third Thursday until November.

* * *

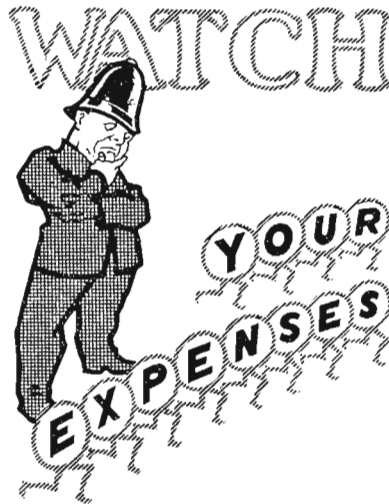
An element of sadness was introduced into last month's meeting when the president announced the death of

Mr. Dan Whelan, a member of the committee who had for years held the position of financial steward.

Members stood with bowed heads in token of sympathy and regard.

Great satisfaction was expressed when the secretary announced that the annual boat trip to Queenscliff had been a record success, socially and financially, and already members are looking forward to the first Thursday in next February, which is recognised as a retired Victorian railwayman's day-out for the year.

Two members are leaving for a trip to England during the month—Mr. G. Overall by the *Balranald* and Mr. C. Mumford by the *Orama*. Good wishes were expressed for a pleasant trip and safe return.



KEEP a sharp eye on your expenses, no matter how unimportant they may appear. Small amounts wasted soon run away with an alarming proportion of your income; small amounts saved and lodged in a Savings Account grow rapidly into a very comfortable sum.

Every shilling you rescue and put away to work for you gives you more to spend when the time comes, as assuredly it will, to spend for real needs.

NOW IS THE TIME TO SAVE
 THAT YOU MAY SPEND WHEN YOU **MUST**

Bank Your Savings Regularly with
 THE

STATE SAVINGS BANK

OF VICTORIA

200 BRANCHES
 400 AGENCIES

H.O., ELIZABETH ST., MELBOURNE

ALEX. COOCH, J.P.
 General Manager

RAIL USERS SAY—

Satisfied Charterers of Special Trains

I DESIRE to acknowledge receipt of cheque for £29 11s. 11d., being gross takings of special train from Wedderburn to Williamstown Beach. I also wish to express the appreciation of the committee, of the courtesy and service extended by your Department, especially thanking Mr. Phillips of Bendigo, and Messrs. French and Gray of Wedderburn, for their advice and help. This being a new venture from this district, and the season being so bad, our bookings were not quite up to expectations, but it is certain that in the future a much larger number will make the trip.

—Mr. L. K. Gordon, hon. treasurer, Wedderburn picnic train, writing to the Superintendent Passenger Train Service.

I AM in receipt of your statement re special train, run in connection with the Korumburra show. I might state the whole thing was a most pleasing and satisfactory job. The arrangements this year, with the stock certificates, is worthy of mention, and due to the thought of your Mr. J. Crowe, of Korumburra. All exhibitors concerned spoke in favor of the arrangement, and I think it should be generally adopted with other agricultural societies.

—Mr. L. M. Tolson, secretary Korumburra A. and P. Society, writing to Superintendent Passenger Train Service.

WHILE acknowledging your appreciated remarks on the success of our excursion, I desire to express our sense of indebtedness to the officials of the Railway department, whose courteous assistance had much to do with the excellent result of the function. The officials of your own Branch, whom I interviewed to settle details, were, as usual, most helpful and obliging. For some years past, it has been my privilege to call at the office and arrange matters. Our file is kept there and it is a matter of only a few minutes, till everything is settled. Last visit, I specially thanked the

Department for the class of train supplied. The reply was "This Year's will be as good, or Better." Events proved the correctness of the promise. When one considers that many of the people had been travelling since before 5 a.m., coming from around Apollo Bay, the comfort of such fine carriages as were sent will easily be understood. As on each occasion since he has been in charge of Birregurra, Mr. Ginnane has exerted himself in every possible way to assist us, and to him and his staff I, personally, am very grateful.

—Mr. S. C. Lewis, head teacher, Birregurra school, writing to the Superintendent Passenger Train Service.

I AM instructed by the Mothers' Club of Warragul state school and districts, to tell you how much we appreciated your railway staff, for the services rendered in connection with special train to Royal Park. The carriages, etc., were quite up to the promise of Mr. Rains.

—Mrs. E. J. Tattersson, Warragul, writing to the Superintendent Passenger Train Service.

MAY I take this opportunity of thanking you for your services in connection with our special picnic train, and have much pleasure in advising that the arrangements went without a hitch. I would like to mention also the courteous and efficient treatment received by the staff at Surrey Hills, Mont Albert and Williamstown Beach.

—Mr. R. Hanslow, hon. secretary, Holy Trinity Sunday School, Surrey Hills, writing to the Superintendent Passenger Train Service.

ON behalf of this committee I again desire to thank you and all the staff concerned, in appreciation of your courteous and efficient services in connection with our late excursion, thus making it a pleasant outing.

—Mr. Alf. Dudley, hon. secretary, Euroa district seaside excursion, writing to the General Superintendent.

"MEN FIRST, OFFICIALS AFTERWARDS"

I WISH to thank you for your kindness to me last Monday, when you allowed me to travel by the first division of the express, and for the nice way you saw about my ticket and reserved seat. My father was dead when I got to Hamilton, but you did all in your power to enable me to see him. It is so nice to find public servants who are men first and officials afterwards.

—Miss A. E. C. Bennett, The Manor House, Hamilton, writing to the Stationmaster, Spencer-street.

RAILWAY SERVICE "THE BEST"

I DESIRE to take the opportunity of expressing my great pleasure with the Railways department in the carriage of my furniture from Hamilton to Camberwell. With the exception of a minor mishap to one of the chairs, which was quickly made good by one of your staff, the whole consignment arrived in splendid order. I have always believed that the railway service was the best, and my last experience has verified my beliefs.

—Mr. W. Slater, writing to the General Superintendent.

GIRL GUIDES' THANKS

THE executive committee of the Girl Guides' Association, wish me to express their appreciation of all the help and consideration given to the Association by your Department. Guides and Guiders travelled from all parts of Victoria to the camps held near Frankston recently, and every individual concession was most satisfactorily arranged by the staff in the Passenger and Freight Branch. We are most grateful to your officials for help in this and many other ways.

—Sybil H. Irving, Girl Guides' Association, 60 Market-street, Melbourne, writing to the Secretary for Railways.

Racing Man's Appreciation of Promptitude and Courtesy

I AM in receipt of your letter containing cheque for refund for special train, run in connection with our race meeting, and I thank you for the same and for your prompt courtesy in dealing with this matter. I would also express my appreciation of the service rendered by the stationmaster (Mr. Chesterfield), and staff of Ringwood station, and also by the caretaker (Mrs. Monegetti) at Sebastian. I first consulted Mr. Chesterfield about the train on

a Sunday, when he was off duty, but he was as courteous and willing as ever. I phoned the details of the train to him at 9 o'clock on the Monday morning; he immediately wired to the head office, and the time-tables were ready at his station (120 miles from Melbourne) at 9 o'clock that night. Both Mr. Chesterfield and your head office are to be congratulated on such a fine piece of prompt service. Mrs. Monegetti rendered us very helpful service on the

day of the races. I have always found both Mrs. Monegetti and Mr. Chesterfield and his staff courteous and ready to oblige; and, as I am a public servant, and know what a hard taskmaster the general public is, I think the Victorian Railways are to be congratulated in having such courteous and efficient members on their staff.

—Mr. George A. Mason, Neilborough racing club, writing to the Secretary for Railways.

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Holiday

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whose happy times and laughing
faces will never be forgotten. Take
a KODAK with you!

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And All States and New Zealand



The V.R. Magazine is sent each month to 30,000 railway homes. Of this number there are 1,200 railwaymen on leave for an average of a fortnight at any time of the year with free passes over the whole State railways systems. It therefore offers an unparalleled medium for making known holiday resorts, accommodation, etc. For rates and fuller particulars write the Advertising Manager, Victorian Railways, Spencer St. Station Bldgs., or 'phone C6414

<p>TOLMIE, Mansfield Via 2,500 feet above Sea Magnificent Mountain Scenery Shooting — Fishing — Tennis TARIFF, 35/- Write W. V. WALDRON (Late Vict. Railways)</p>	<p>A Home Away from Home Nowa Nowa Guest House (Close to Railway Station) Central to Buchan Caves, Marlo & Lakes Entrance Public Tennis Court - Swimming - Nice Walks Tariff, £2/2/- J. S. ILTON, Proprietress</p>	<p>“Mounterie,” Healesville A restful, charming home, amid beautiful surroundings, combined with care & comfort Your Holiday is assured. Excellent Table. Home produce, Milk, Cream and Poultry. E.L. H.B. Garage. Spacious Verandah. 10 minutes Station. <i>TEL. 90</i> Tariff, £2/10/- Misses Woodcock & Pynn</p>
<p>SPRINGVALE FARM WINTON NORTH Real Farm - Ranges - Tennis - Shooting Excellent Meals - Unlimited Water Supply Gaslight - Wireless - Golf - Riding Daily Mail - Trains Met TARIFF 40/- WEEKLY Children Taken E. WESTON</p>	<p style="text-align: center;">Setting a New Standard in Hotel Accommodation</p> <p>IT stands to reason that an hotel which is nearly always full must offer substantial advantages to attain such popularity. The Victoria Palace has recently made tremendous improvements for the comfort of its Guests. Its accommodation wins the approval of the most fastidious visitor, it is modern, comfortable and immaculate. A well trained staff renders courteous and efficient service. And here is the reason for the success of this famous hostelry. Whilst providing accommodation superior to that of most of our leading hotels, its tariff is considerably less—about half. <i>Single rooms 5/- to 7/6. Double rooms, 8/- to 17/6. All meals are optional and extra.</i></p> <p style="text-align: center;"><i>The</i> Victoria Palace Next Town Hall Melbourne</p>	
<p>MELBOURNE YARRA FAMILY HOTEL Cr. Flinders and William Streets Tariff: 10/6 per Day, £2/10/- per Week 6/6 Bed and Breakfast RICHMOND BEER 100% pure Pierce Stapleton, Prop. 35 years Vic. Railways. Phone Cent. 2549</p>		
<p>APPLES Best choice eating “Jonathans” or “Delicious” (per case) - - 5/6 (Cash with order) Freight paid in Victoria J. SMITH, “Glenfeba,” North Nar Nar Goon</p>		
<p>MARTIN'S HOTEL TEWANTIN QUEENSLAND North coast 80 miles from Brisbane. Train to Cooroy. Exceptional Table. Fish and Poultry Plentiful. Sep- tic System. Electric Light. Bathing. Fishing. Boating Tariff £3/3/- Weekly V. B. CARDELL, Proprietor</p>		

How Many Times?

HOW many times have you promised someone near and dear that you would, for a mutual purpose, save your money - - - - - ?

HOW many times have you promised yourself that the next big opportunity would find you prepared - - ?

HOW many times have you admitted the wisdom of saving habits and then left the other fellow to do the saving - - - - - ?

DOES it mean anything to you that in Australia there are several million other fellows steadily saving their spare cash and beating you to the big opportunity - - - - - ?

Take a Savings Account into partnership—profit is assured

Commonwealth Savings Bank of Australia

(Guaranteed by the Commonwealth Government)

Railmen of the Month

Continued from page 31

A.N.A. Stalwart

WHEN he's not totting up figures or making columns balance in the Audit branch, Arthur Pullen finds plenty to do secretaring for the Camberwell branch of the A.N.A., at whose annual conferences he has been a prominent figure for some years past. He also takes a keen interest in local affairs, and was one of the strongest advocates for the establishment of a municipal library in Camberwell, later a member of its first committee and now one of its honorary auditors. For a long while, too, he has been on the management committee of interstate head office cricket matches. His association with the Audit branch goes back to 1898, when he started adding, subtracting, multiplying and dividing under the late Harold Kent.



New Prime Minister

FIRST prime minister of Melbourne's new model parliament is Mr. J. J. Sullivan, of the General Superintendent's office, whose eloquent policy speech gained him a substantial majority of followers at last month's preliminary meeting of newly-elected members. The house comprises representatives of every debating society in Victoria, and represents approximately one-tenth of the State's population. Some of the finest debaters in Victoria will crowd the benches, but than Mr. Sullivan no more vigorous or resourceful debater could be found for the leadership of the first model government. The three representatives of the V.R.I. debating society in the parliament, by the way, are Messrs. M. J. Harkins, P. H. O'Keefe and R. Hughes.



Young Railway Councillor

CLERK Garney Wishart, for some years past a popular member of the Transportation staff office, has just made history. A week or so ago, he was elected to office as a councillor of the shire of Moorabbin, being

returned with an overwhelming majority. As he had just attained his 27th year a couple of months before, Garney modestly claims the title of youngest municipal councillor in the Victorian Railways service, and with becoming shyness suggests that he is possibly the youngest councillor in Victoria—or perhaps even in Australia. Are there any competitors? Incidentally, Garney is secretary of the local progress association which he was instrumental in forming.

May Anniversary

THIS month is Staff Clerk Dave Way's 22nd in the Way and Works staff office. The jovial old veteran has had 43 years service all told, having started pen-pushing as a junior in the Traffic branch in 1887.



Later, transferred to the Existing Lines branch, he was employed in the Superintending Roadmaster's office at Flinders-street, and subsequently at Spencer-street. He was for many years secretary of the Permanent Way picnic committee and still acts as manager of the staff office's cricket team in its stern struggles with other repre-

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sentative railway teams every year. And whenever the hat goes round for some deserving charity, no railwayman's hand is ever plunged deeper into a trouser pocket than Dave's.

POSTSCRIPT

Recently promoted and transferred from Spencer-street to Ultima, Stationmaster Ben Anderson has been presented with a four-valve wireless set in a handsome cabinet. The transfer being a hurried one, it was not possible to hand the set personally to the Stationmaster, and it was accordingly forwarded on to him with the best wishes of his former colleagues at Spencer-street.

With 47 years of service to his credit, Workmaster T. R. Daly of Geelong retired last month. His railway friends made him a presentation.

There was only one week's sick leave in Stationmaster A. Millar's 41 years of railway service, which terminated last month. He retired at Tallarook.



"NUGGET"
MIDDLE BROWN

gives a brilliant lasting shine with a minimum of effort. Use it daily on your shoes, not only for appearance's sake but also because it preserves the leather.

THE "NUGGET" TIN OPENS WITH A TWIST!

Sport

Continued from page 39

financial members of the Institute at a fee of 7/6 per annum. The secretary is in attendance at the boat house every evening between 5 and 6 o'clock, Saturday afternoons and Sunday mornings.

Arrangements are well in hand for an Interstate rowing race.

ICE SKATING CLUB

MEMBERS of the Victorian Railways Institute interested in ice skating as an evening pastime are invited to join the V.R.I. Ice Skating Club, thus enabling them to obtain the benefit of special concessions allowed by the Glaciarium.

As the season opened on April 24, those desirous of joining the club should forward their names to the General Secretary at an early date.

CLUB FOR BILLIARD PLAYERS

THE Victorian Railways Institute has decided to affiliate with the Melbourne Club's Amateur Billiards Association, for the purpose of encouraging members of the Institute who are amateur billiardists to take part in the various competitions held under the auspices of this association.

Members of the Institute interested in the movement are invited to forward their names to the General Secretary, and as soon as a sufficient number of applications are received to warrant the formation of a club, a meeting will be held to appoint officers.

RIFLE SHOOTING MATCH

THE V.R.I. rifle club recently tried conclusions with the Ararat Railways club, on the local range. The match was shot under difficult conditions, Ararat winning, the V.R.I. club coming second and the Ararat Railways club third.

On Sunday the visitors were motored to the Grampians, and after an excellent dinner, provided by the wives of the local riflemen, were shown most of the beauty spots. Mountain climbing proved a little too much for some of the visitors, who were very tired when they sat down to a fine tea, provided again by the ladies. The drive home, via Stawell, ended a most enjoyable day's outing, but the strenuous exercise had its effect next day, when some of the marksmen were stiff and sore and all astray in their shooting. The stay was altogether too short, and this was made to feel more so by the magnificent hospitality of the local people.

ACCEPTED RAILWAY TENDERS

FOLLOWING contracts have recently been let by the Railways department to the tenderers mentioned:—

Indication transformers—Noyes Bros. (Melbourne) Pty. Ltd.; weldless mild steel angle rings—Vickers—Commonwealth Steel Products Ltd.; round steel bars—MacPherson's Pty. Ltd.; electric overhead travelling cranes—Ruwolt's Pty. Ltd.; lift door locks and contacts—Edmiston and O'Neill Pty. Ltd.; verandah and fascia—R. K. Mytton and Co.

ANSWERS TO CORRESPONDENTS

M.E.A. (Portland): Thanks, but received too late for April issue and now, of course, too stale. Harry T.: Welcome reappearance. Will use at first opportunity. J.P. (Bendigo), H.E.B. (Berringa), Refresh. (Kyneton): Next month.

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Books and New Books

Thumbnail Reviews by J. D. MICHIE

The Silver Greyhound.—By J. M. Walsh. The story opens in Burmah, where Arthur Clavering, a young Englishman down on his luck, is entrusted with a mysterious parcel for delivery in London. There is no address on the parcel and the accompanying note is unfortunately lost on the voyage home, so Clavering does not know to whom to deliver the parcel. When he arrives in London he accidentally meets the daughter of the man to whom the parcel should have been delivered. The Silver Greyhound is the badge worn by a King's messenger, and one such badge is discovered beside the murdered body of a man in Clavering's rooms. The key to the mystery hinges on the ownership of this badge, and the final explanation is as unexpected as can be wished for.

Blair's Attic.—By Joseph C. Lincoln. A real mystery story of hidden treasure, unconventionally related, and full of humor. Iantha Hallett is a character who will win the heart of every reader, and the unfolding of the weird happenings in the Blair house, in which Iantha plays such a leading part, will hold the interest to the last word.

The Governors.—By E. P. Oppenheim. The Governors are a group of American millionaires who work financial deals together. Phineas Duge, the leader, has suspicions of his colleagues, and in order to get them into his power he resorts to a ruse to procure their signatures on a document which gives him a pull over them. Then comes a struggle for the document. It is stolen from Duge, and all parties, including his daughter and niece, become involved in the search for it. So, with many startling incidents, the story proceeds apace.

The Secret Pearls.—By Otwell Binns. On an atoll in the South Seas lay a stranded schooner, a pearler, horrible with the evidences it still bore of wholesale murder still on board. Towards this island came many people—the murderers to acquire the pearls for which the crime had been committed; an innocent man, self accused, attracted morbidly; and the hero to establish the death of the husband of the woman he loves. Substantial justice is done in the end, but there are breathless moments before this comes about.

Double or Quit.—By E. C. Vivian.

How long can a criminal hold off the arm of the law? At every turn of events the truth threatens to break out. Almost hourly the strain on his resource and invention increases. At last—the inevitable slip! Even the cleverest disguise can be penetrated, and the seemingly most secure hiding-place divulged. He must have eyes at the back of his head, and ears to catch every suspicious sound. This is a book vivid in its reality.

Sally of Sloper's.—By Oliver Sandys. Sally, a captivating little personage who is employed as a manicurist in a fashionable London store, after encountering all manner of vicissitudes, marries the ideal of her girlish dreams. How Sally's romance is almost frustrated through the machinations of Fay Wendover, an actress, with matrimonial designs upon Sally's lover, who also happens to be a millionaire, and how Sally herself eventually wins all the bliss she deserves, is told in the author's happiest manner.

Wholly set up and printed in Australia at the Victorian Railways Printing Works, Launceston, North Melbourne, for the Publishers—The Victorian Railways Commissioners.

RAILWAYMEN

Exposed to All Kinds of Weather

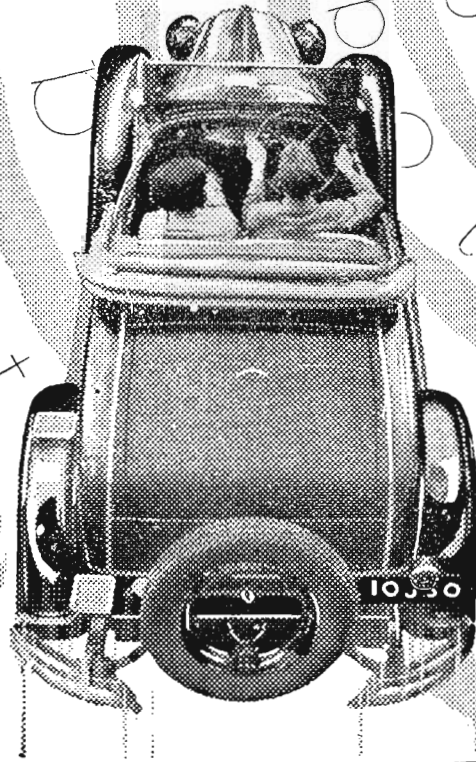
HEENZO IS A NECESSITY

HAIL, rain, wind or sunshine, it makes no difference to the men employed on the out-door jobs in the Railway Department—they have their job to do, and they do it despite all kinds of weather. But exposure to sudden climatic changes often brings coughs, colds, influenza, bronchitis, and other chest and throat ailments. The goodness of **Heenzo** as a remedy for such ailments is proved by the fact that it is a favourite cough remedy in the homes of most Railway folk. **Heenzo** is popular for two reasons: firstly, its efficiency; secondly, its economy, for a two-shilling bottle of concentrated **Heenzo**, when added to sweetened water (according to the easy directions supplied), makes a family supply equal to eight ordinary-sized bottles of cough and influenza remedies that would cost up to £1. **Heenzo** is equally good for young and old, and can be given to even the youngest baby without fear of upsetting the digestion.

In cases where a large supply of cough remedy is not wanted, **Heenzo** may be used in its concentrated form, straight from the original bottle, as per directions supplied. This method is generally known as the bachelors' way of taking **Heenzo**.

Heenzo is the standard cough remedy in many hospitals—used by South Pole Explorers, and carried by Sir Alan Cobham in his flight from England to Australia. Order **Heenzo** from your chemist or storekeeper.

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MODERN cars give greater power through higher compressions but "high compression" cars *need a high compression spirit* before they'll give their best in pace and power appotenic Plume, though *specially designed* to enable high compression engines to give their power-full best, will put new life into *any kind of car* a tankful will prove to you that "added power" is there. **

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*means added
power*

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The Ideal Mealtime Beverage



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RAILWAYS
MAGAZINE

6^d
JUNE - 1930

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Puts the Finest Clothing within the reach of men who ordinarily find it inconvenient to make a single payment of, say, £8 or £9 at one time. Men accustomed to purchasing homes or furniture on Deferred Payment will find this plan of utmost convenience in purchasing Fine Clothing.

Now I Can Dress Well on One Shilling a day

This Newly Established Charge Service permits railwaymen to purchase clothing on the following basis :

For £6/6/- Suits or Overcoats—

You pay £1/12/- at time of purchase and 1/- a day

For £7/7/- Suits or Overcoats—

You pay £1/17/- at time of purchase and 1/- a day

For £8/8/- Suits or Overcoats—

You pay £2/2/- at time of purchase and 1/- a day

For £9/9/- Suits or Overcoats—

You pay £2/7/- at time of purchase and 1/- a day

Payments to be made Weekly or Fortnightly

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 NOWHERE in Melbourne can you get such excellent values for your money. This is accounted for by the fact that our upstairs location, which saves us at least £60 a week in rent alone, enables us to offer clients a saving of 20 per cent. on all their purchases. If you cannot call, write for patterns and full particulars.

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Be as Well Dressed as Your City Friends

Write us today for our free book of samples and self-measurement form with full instructions how to measure—just take your own measurements and post to us. We'll do the rest. Try it—costs you nothing—just a post card. Get the free samples and prices anyway, and also our handsome booklet "How to Dress Well on a Shilling a Day." You will learn something interesting about dressing well and saving money.

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Name.....

Address.....

NOTE.—Please indicate shade and price

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Name

Address

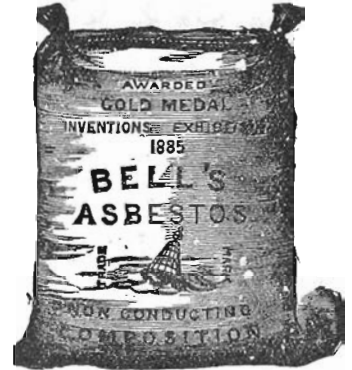
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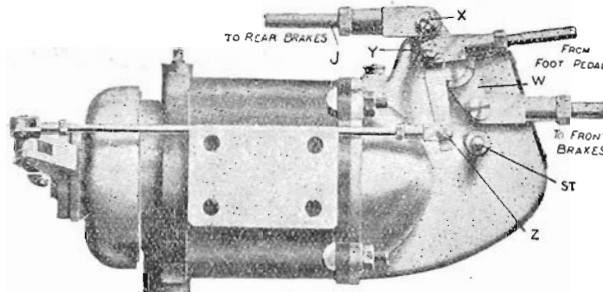
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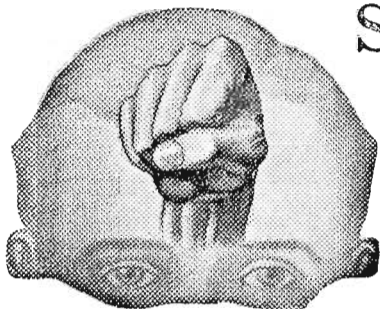
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Pelmanism



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| <ol style="list-style-type: none"> 1. Have you great Organising Power ? 2. Have you Directive Power ? 4. Do people come to you for Valuable Ideas ? 5. Are you a good reasoner ? 6. Do you remain calm and unflurried amidst crowding worries ? 7. Can you master difficult subjects easily ? 9. Have you a Strong Will ? 10. Do you think logically ? 11. Are you a good and persuasive talker ? 12. Can you sell goods ? 13. Can you convince people who are doubtful, or even hostile ? 14. Do you decide quickly and rightly ? 15. Are you in demand as a speaker or orator ? 16. Can you rapidly master difficult facts ? | <ol style="list-style-type: none"> 18. Do you remember everything important you read ? 19. Can you remember details as well as main principles ? 20. Is your memory perfect ? 21. Can you concentrate your brain on one thing for a long time ? 22. Can you remember long series of facts, figures and dates ? 24. Have you a head for statistics ? 25. Have you a good memory for faces ? 26. Can you work hard without suffering from brain fag ? 27. Do you take everything in at a glance ? 28. Are you earning a larger income than last year ? 29. Are you successful ? |
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ADDRESS

266

SAFETY-HEALTH-BETTERMENT

BENEFIT BY YOUR IDEAS

THE following awards were made during April for adopted suggestions :—

Total amount ... £155
Highest award ... £60

The number of suggestions received during April was 157. Arrangements still exist for the placing of adopted suggestions of particular merit before the railways of the various States; also the Commonwealth and New Zealand Railways.

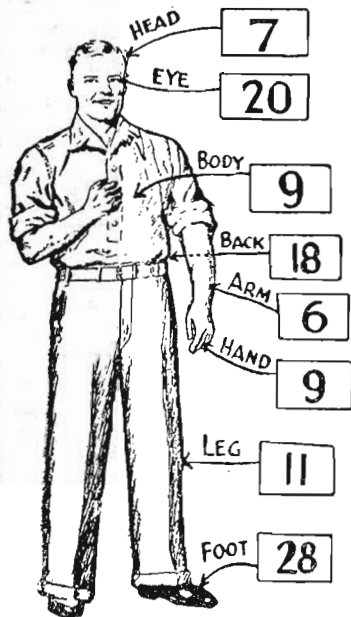


Diagram showing personal injuries sustained by employees during April. These accounted for 108 "Lost Time" accidents.

JUNE SUGGESTIONS DRIVE

THE subject chosen for the 30th Suggestions Drive, which will be held during June, is :—

Improvement in Train Schedules.

Suggestions should be submitted to the Betterment and Publicity Board in the usual way. Suggestions on any other subject will, of course, also be accepted.

Many of us spend half our time wishing for the things which we could have if we didn't spend half our time wishing.

Character is not made in a crisis—it is only exhibited.

Any man may become a Thinker. The subjects upon which he may think depend upon the quality of his receiving set.

TIPS About CRANES

By W. W. Peattie

Abstract of an Address by W. W. Peattie of the Northern Engineering Works before the Engineering Division of the Detroit Industrial Safety Council

ABOUT one-third of all accidents in industrial plants occur in the handling of materials. Although the majority of these occur where materials are being handled without the use of machinery, the more serious ones take place during the use of cranes, hoists, conveyors, elevators and so on.

I believe that one of the main reasons, and perhaps the most important one, for these accidents on cranes is thoughtlessness on the part of the operators and on the part of the men who are hooking on the loads.

You will see a crane going down the runway with a load, over the heads of workmen, and the operator will be paying no attention to the fact that the men are busy and not watching where the crane is going.

Danger of Swaying Load

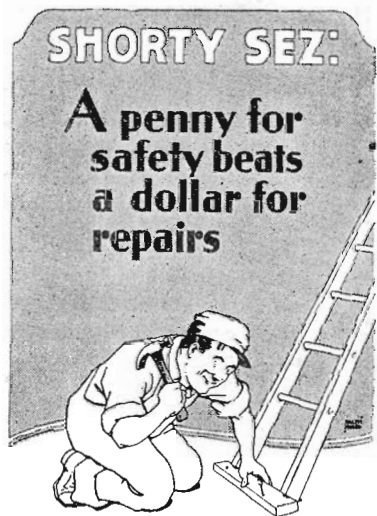
You will find the operators starting the bridge and the trolley moving before the load is lifted completely, which, of course, causes the load to sway and it is very apt to swing into somebody or hit a piece of machinery. Another bad practice is throwing the controllers all the way over when starting or stopping the crane, which may cause a similar accident.

There is also the possibility that brakes are out of adjustment, and it is important to see that the gears, bearings and cables are all kept lubricated. There is not nearly enough attention given, as a rule, to lubrication of cranes. I appreciate that it is hard to get at certain parts, but this is one of the most important things in connection with maintenance, and it will increase the life of the crane considerably if proper lubrication is carried out. Cables should also be inspected frequently, and if they begin to show any wear they should be replaced.

For some reason, men often take a peculiar pride in seeing how much overload a crane will stand. I was in one steel mill of the Pittsburgh district recently and the foreman took me out to show me a crane that had been there for 12 or 15 years. It was a three-ton crane, and he told me how the loads they were handling had increased so that this crane was handling

about 15 tons occasionally. It was a good recommendation for the crane, but some day that man will have something happen. An overload will cause fatigue in the metal of the crane, just as it will in anything else, and eventually something is bound to give way.

Electric hoists present a different problem. The service is severe, and in the majority of plants they do not



get the attention that a crane does. As a rule, anybody can come along and run an electric hoist, and if it breaks down he fixes it himself and there is not much attention paid to it. The same suggestions I have made with regard to care and inspection of cranes should apply also to electric hoists. Particular attention should be given to the limit stops and to the brakes.

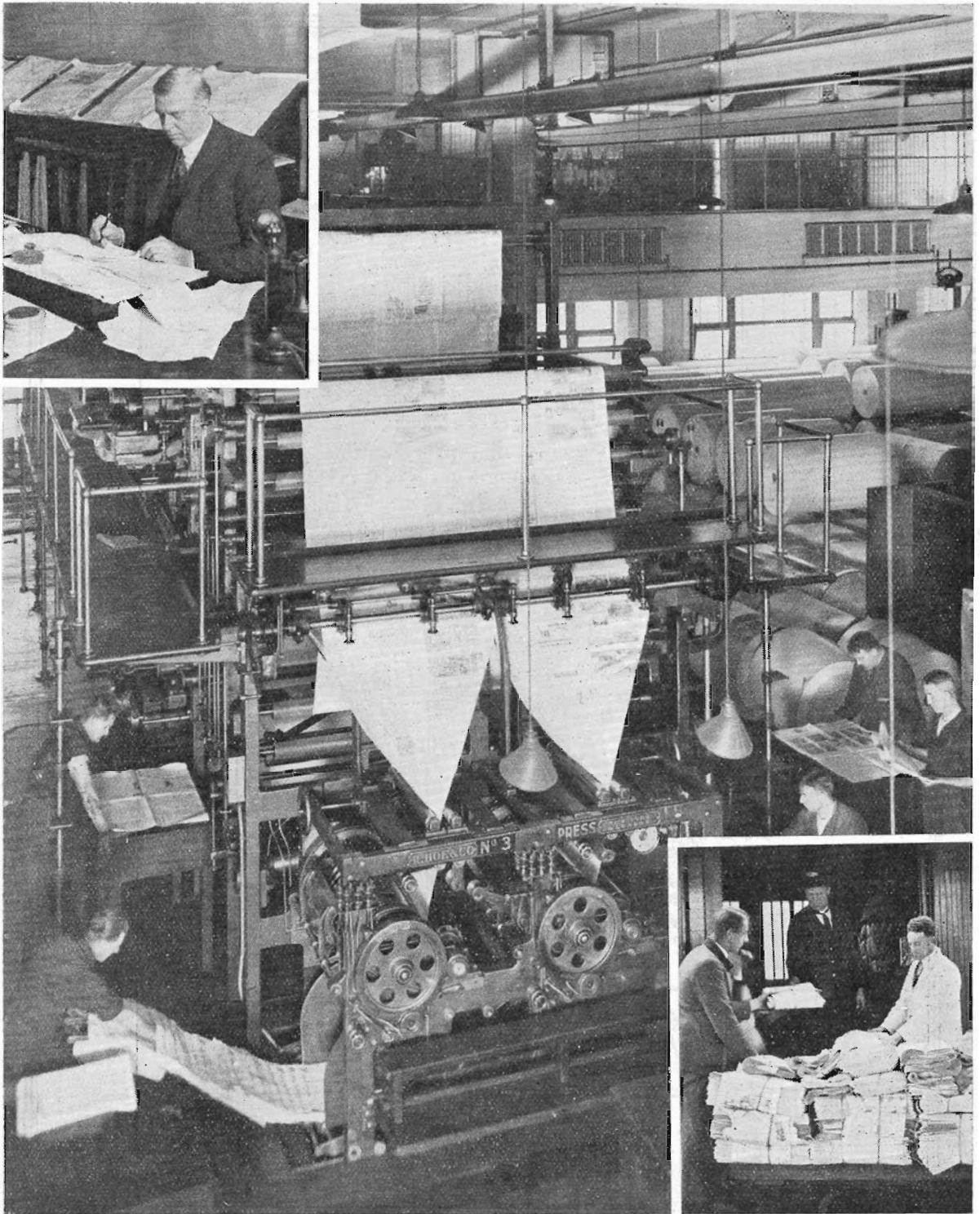
Probably one of the commonest causes of accidents on electric hoists is allowing the rope to come down off the hoist and unwind completely off the drum. This does not happen often on cranes, perhaps because the crane operator knows what he is doing and does not let it happen; but on hoists many times the rope comes completely off the drum and winds back in the opposite direction. This means that the limit stops of the mechanical brakes are entirely ineffective, and when the load is let down again the chances are there will be an accident.

HAVE YOU TRIED



MacRobertson's

LATEST PRODUCTIONS?



—Argus photo.

The Day's News in Black-and-White

One of the huge presses of a modern Melbourne newspaper organisation, with an unending ribbon of news passing through a maze of rollers. In the top corner, the sub-editor is starting the news on its rushed progress through the presses to the railway vans for distribution to the farthest corners of the State.

NO NEWS is BAD NEWS

by C.H. Cheong



HE murderer started it all. He had some little affair with the victim. Then, showing sound judgment, he disappeared.

The reporters, summoned by wireless, telephone and telegraph, were soon on the scene. Specialists with these men, with a

thorough understanding of their paper's needs. They know the space which their story will need to fill, the style of writing, the necessity of obtaining facts, and nothing else but facts . . . in fact, there's only one thing they don't know. They don't know the murderer.

And so they tell their story in a sheaf of copy slips—sheets of hieroglyphics setting out a precis of the case. Down at the reporters' room, a battery of typewriters commences a heavy offensive. The murder mingles freely with sporting, political, international, cabled, financial and rural news.

Messengers—the runners of the army—collect the copy and rush it to the editorial department where dwell the subs, experienced literary men . . . specially chosen to trim the copy to exact size, to check the policy, to watch for possible libel, and, in a word, to size the news up for what it is worth.

WHILE one sub-editor is without tremor closely following the fortunes of the murderer and the murderess, a man pens a diary of coming events across the virgin pages of the "duty book." More reporters come, they see—they go away, after, of course, affixing their signatures opposite the section allotted them. Then they radiate to comb the metropolis for its doings—some good doings, some questionable. The scrawled initial tells the chief of staff that his men understand their jobs and are ready to commence the task.

The murder done in the literal

sense, the news goes to the printer. It goes with an assemblage of advertisements, special articles, leaders, and the whole heterogeneous mass of news which has been gathered in by a staff of nearly one hundred reapers.

The linotypers play an important part in the wanton killing of the victim. They sit each in front of a machine whose keyboard resembles that of a typewriter. An electric motor provides the power to compose a line of type. Given reasonably good and clear copy, the operator can do his portion of the murder at the rate of six lines per minute.

Molten metal is pressed against the matrix and this, after being trimmed and cooled, forms the "slug" which is the local name for the line of cast type ready for the printing machine. The lines of slugs are assembled to complete the setting of the copy and appear in long columns of leaden type matter whose letters are, of course, reversed.

This procedure contrasts strongly

with the old-fashioned hand-setting method, when, after the page was set the type had to be distributed back to the case. The linotype metal is melted and used again and again.

THE columns of type are laid on a small electric press and the galley proofs pulled. These are merely rough impressions of the type on long strips of paper, and they are rushed to the proof-reading department where the readers drone the contents to the checkers. Each two in a sound-proof cubicle, they feverishly search for mistakes in spelling, for departures from the original copy or infringements of style. The galleys, marked with the weird and wonderful signs employed by the proof-reader to suggest the alterations, are returned to the operator.

He removes the lines at fault and resets that portion when it is again checked.

The photographic section has all this while been rushing prints of the

photos collected by the staff men to the editorial office where selection is made of appropriate pictures. Then there's a scurry to the process engravers where the etchers produce the delicate blocks. Cameras click, the impression is recorded on zinc plates, acid makes the permanent impression and presto!—the blocks are made.

The daily paper being of newspaper, a coarse-screened block is required to allow of the ink being readily absorbed. The particular types of block used are "half-tone" for photographic reproduction, and "line" for sketches, lettering or any black and white work.

When they are completed, the proofs are sent to the editorial department

In a special device, molten metal is flooded over the matrix, cools and emerges as a semicircular plate of stereo type of half-an-inch thickness. Then the murder is mechanised—it goes on the machine cylinders in this state.

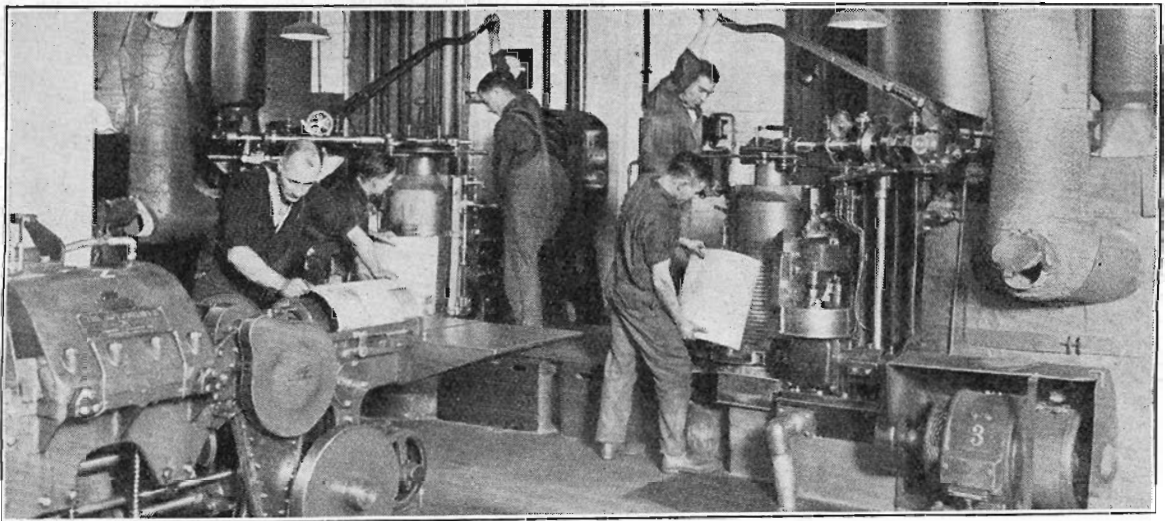
THE machines clank slowly at first whilst the foreman checks for mistakes. A dozen proof copies, as it were. Now they're well into their stride. A long roller of white paper threads over several smaller rollers, loses its ribbon in a maze of vibrating mechanism pounding a deafening noise, slips out, slides over a bar, disappears and quickly emerges—a newspaper.

From the outlet the papers stream in hundreds. Every 25th paper is

newspaper car with. It's not a fair thing to quote figures in reference to the speed, but paper cars have the knack of not wasting any time.

It has been said that Sir Douglas Mawson made frequent trips to the Melbourne Yard to acclimatise himself for the Antarctic. That for what it is worth, but there's no doubt that there are many warmer places in Melbourne around about 2 o'clock on these frosty mornings.

The railway van stowers accept and check the loads of the vans. Rival newspapers line up to radiate their news. In go the paper bundles in order of destination so that the guard of the paper train has the news at his finger tips.



Where the semi-circular plates of stereotypes are made from the matrices. They are cooled and fitted to the cylinders of the printing presses

to be embellished with the titles and block lines of descriptive matter. With these added, they are rushed to the composing room and fitted into their allocation.

Newspapers do not, of course, remain a standard size. Their number of pages is governed by the number of advertisements and the quantity of news offering. The size of the paper is determined in this way on the previous day.

THE assembling of the news and the ads. in the forme is done by encasing the type in a steel frame and locking it tightly by means of clamps. The stereotypers make a matrix of the news at this stage.

The forme is laid on an iron table and a pad of paper composition applied. The press then applies a pressure of about 100 tons on the "flog," as the paper is called, and this is pressed into the forme. The type is thus imprinted on the paper which is now a matrix.

thrown a little further forward to assist in the counting. Men hustle to the long benches, dump an armful already folded, bundle them, tie them, address them to newsagents, and shoot them to an endless belt which carries them along and tips them down the winding chute. Down and around they rock crazily to the ground floor where brawny he-men grapple with the printed doings of their fellow-beings—and of this latest murder—and shout the name of the agent and his railway station at the tops of their voices.

A man sits at a table in the thick of this bedlam booming a deep-throated affirmative at the call of each name and address.

Into the waiting vans the bundled newspapers go, with the driver assisting in the loading. At half-past 1 on a cold wintry morning paper-loading sends one's blood coursing warmly through the veins, and it's a welcome task. A full load—and the driver jumps to his seat and grabs the joystick or whatever it is they guide a

And a word here for the railway co-operation. The administration of each daily paper has many appreciative remarks to make about that matter. They get good service and they're eager to acknowledge it.

There exists a very close relationship between the staffs of the two organisations, and here there is, too, a mutual appreciation of each other's assistance in feeding the outback with today's news today. . . .

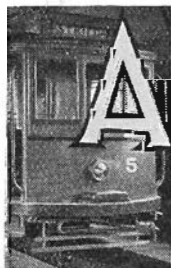
YET notwithstanding all the daily—rather, nightly—whirring and clanking of gigantic modern mechanism, and despite the thorough combing of the State for news, the one sustained rush of a great organisation to produce the paper on time, the locomotives pounding on into the first streaks of dawn one hundred miles away, and the railman's quick delivery—there's still the man who, after scanning each line of daily news, will protest bitterly that "there's nothing in the paper today."

Railwaymen as Tramwaymen

By S. C. Weetman

A FEW hundred yards back from the seafront just beyond St. Kilda, where the shores of Port Phillip Bay jut out to form the popular Point Ormond, there is located a small, comparatively isolated fraternity of railwaymen, who are really not railwaymen.

Here, at Elwood, is situated the unassuming headquarters of the railways electric tramway system linking St. Kilda and Brighton Beach stations, the system which bears the official title of "St. Kilda-Brighton Electric Street Railway."



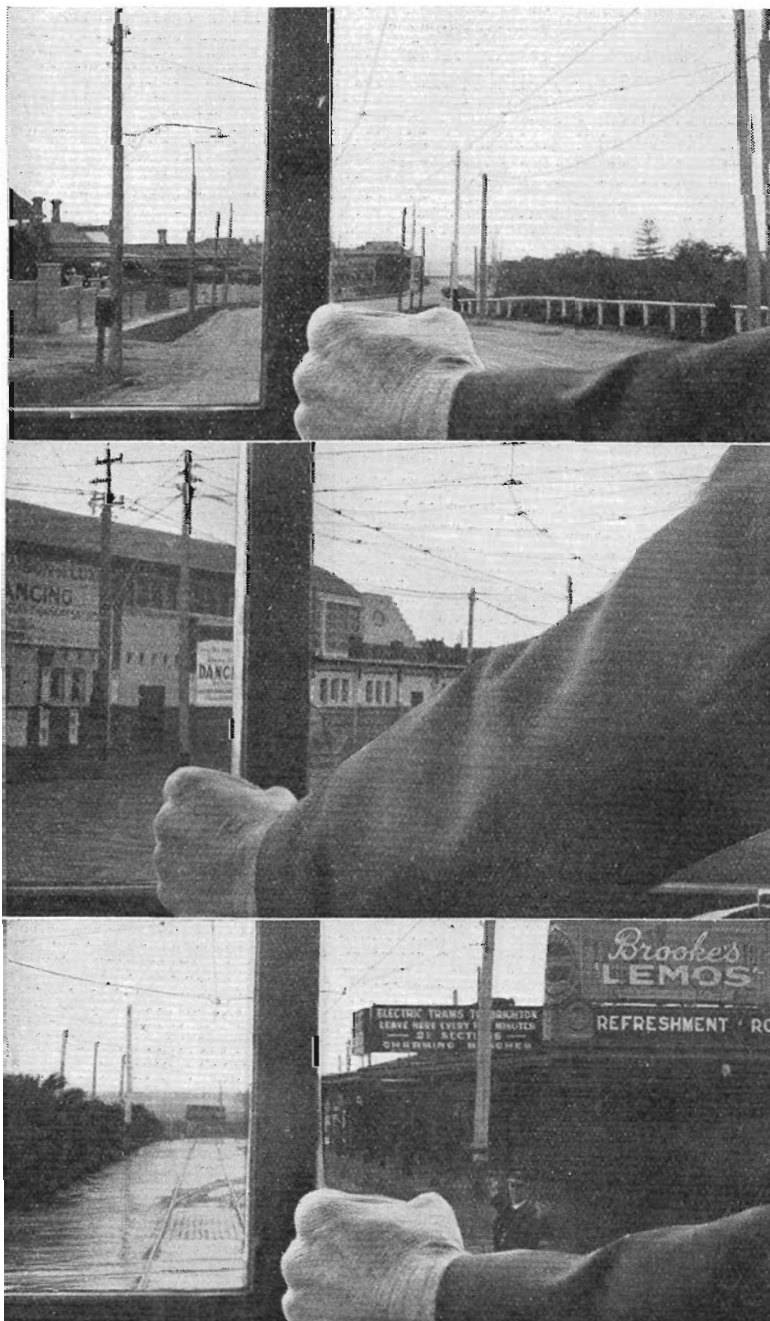
LTHOUGH the services on this route link up with the railway at St. Kilda and Brighton Beach the existence of the trams as a railway institution is perhaps little realised. The nature of the work carried out by the men on the trams, too, is so different from the

generally accepted idea of railway working that the tramway employees seem almost a class apart.

The Elwood depot is located about midway along the 5½ mile line and comprises, in addition to the tramway office and locker rooms for the motormen and conductors, sheds for sheltering cars out of service, a workshop, and a power station. Power for the trams, which prior to the electrification of the suburban railway system was generated by a local power plant, is now supplied from the Newport power house to an automatic substation which is supervised from the Jolimont substation by a system of remote control.

The Transportation staff at Elwood totals approximately 75 men, of whom 26 are motormen and about 40 conductors. This staff is directed by Tramway Inspector James Griffiths, who has been connected with the trams for the past 18 years. In turn, he is responsible to the Metropolitan Superintendent for the operation of the system in much the same way as a stationmaster is responsible for his station.

Sixteen bogie cars and seven single truck cars, with seating capacities of 52 and 36 passengers per car respectively, are used in the service. The maximum number of cars in normal running at any one time is 17.



Views through the motorman's window on the St. Kilda—Brighton electric street railway. Top, approaching Brighton Beach; centre, curving at an intersection; bottom, entering St. Kilda station.

This enables a frequent service to be provided as the running time for the through journey is 27 minutes. The

route is subdivided into four sections, and some of the cars are terminated at these intermediate points as the

traffic warrants.

The speed limit for the route is 25 miles per hour with suitable reductions, of course, where curves are encountered. The timetable, however, is based on approximately 11 miles per hour including stops. A daily mileage of 1,680 is run, the total mileage run for the year amounting to 560,000. The gauge of the track is 5 ft. 3 in.

The conductors are men who, in the main, were previously porters. By accepting service on the trams, promotion to the position of motorman is open to these men who, at the same time, are still eligible for promotion to the grades of operating porter, assistant stationmaster and other railway positions in the same way as though they had confined themselves to station work.

The conductors sell combined rail and tram tickets in addition to those for purely tram travel. This means that nine sectional checks and 20 different railway tickets are carried. All tickets sold on the trams are for first class travel. The revenue handled amounts to from £5,000 to £6,000 each month, which includes a considerable amount of railway revenue. During the last financial year, no fewer than 5,380,698 passengers used the trams on this track, paying £56,513 in fares.

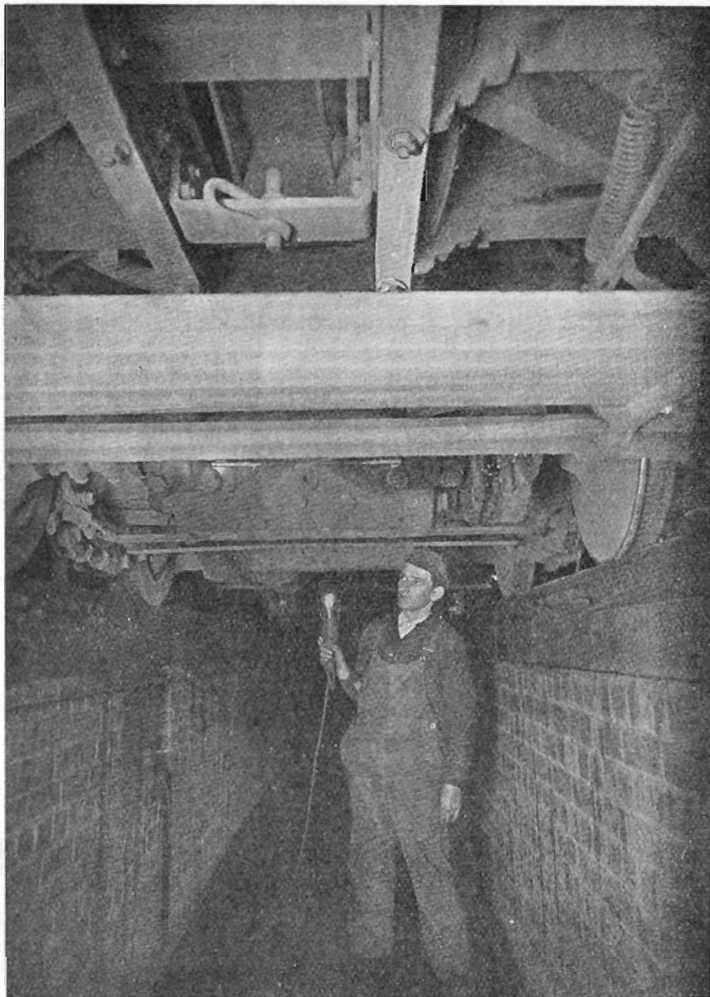
Behind the Scenes

While the words "tramway work" suggest to the man-in-the-street only the occupations of motormen and conductors, there are also the correlated activities directed by the Rolling Stock branch, which is responsible for the upkeep of the cars, and by the Way and Works branch, which attends to the permanent way.

Skilled laborers, electric fitters, electric mechanics, car builders, painters, mechanical fitters, pitmen and electric welders co-operate in effectively maintaining the cars. Each car is cleaned daily, is disinfected with formalin once a week, and is thoroughly washed once every ten days. Which means that complaints of dirty cars are non-existent.

Each car also passes through the workshop once in 48 hours for minor inspection, adjustment of brakes, and similar attention. Again, after every 2,000 miles of running, a general inspection is made, and the cars are lubricated and thoroughly examined to forestall the developing of any possible defects. Practically all the repair and overhaul work necessary is carried out at Elwood, but jobs such as the retiring of wheels and other heavy work is handled by the Newport and Jolimont workshops, where similar railway work is performed.

The permanent way, which in this case is the roadway, has to be maintained in excellent condition, and a gang of men are continuously engaged on work along the tram route. Extra



What an electric tram looks like underneath. A technical inspection at Elwood Workshops.

men are employed when drainage work and similar extensive operations become necessary. The Department, incidentally, is responsible for the maintenance not only of the portion of the roadway between the outside rails, but for an additional 18 inches on the outer sides.

The first section of the route, as far as Park-street, Middle Brighton, was completed at the beginning of May, 1906, the remaining portion to Brighton Beach being ready for service just prior to Christmas the same year. In those days, the service was provided over a single line.

Prior to the duplication of the line the trams were worked under the staff and ticket system of safeworking. At the same period, trailer cars were in service which were withdrawn when double line working was instituted in 1913.

Another interesting item in the history of the line is the fact that a few years after the line was opened, a disastrous fire destroyed the car shelter sheds and cars. In consequence, trams

were rushed across from Sydney to carry on the special service until new vehicles could be provided. The present trams, with the exception of the electrical gear, have all been constructed at the Newport workshops.

Another section of tram track, this time of 4 ft. 8½ in. gauge, was opened between Sandringham and Black Rock during March, 1919, and was extended to Beaumaris seven years later. The route extends for 4½ miles and, last year, carried 1,606,685 passengers for a revenue of £16,987.

This system, which is supervised by the stationmaster at Sandringham, functions in much the same way as the St. Kilda-Brighton system. Rail and tram tickets are not issued, however, as the combined fares are the same as the sum of the separate fares.

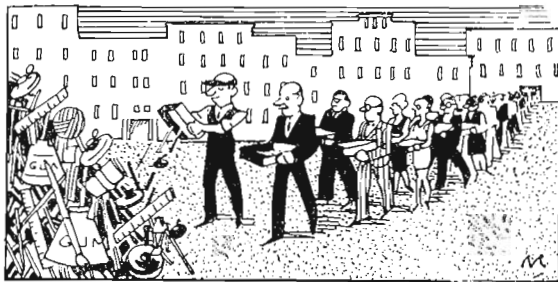
In all, there are 9.9 miles of route, 17.18 miles of running track and 1.40 miles of sidings connected with the Victorian Railways tramway services, and the comparative immunity from complaints of any kind testifies to the efficiency of the service provided.

Things We Are Talking About

Lord Somers as Rail Advocate—More Petrol Electric Rail Motors—Getting Up Early for 56 Years—Mr. Clapp on Economy

ALTHOUGH substantial savings in expenditure have been effected by economies and deferment of works which will bring the total expenditure below that of last year, the deficit is likely to be in the vicinity of £1,000,000." In those words, the Chairman of Commissioners broached a discussion of the general financial position at a special conference between the Commissioners, branch chiefs and representative senior officers recently. "There is only one way in which we can further consolidate our position and that is by still more effective team work. In the past we have effected considerable improvements by

REVIEWING THE FINANCIAL POSITION



A large overseas corporation . . . found sufficient surplus stationery to last for two years

team work, but we will have to pull together more strongly than ever before to meet the present situation. . . We must all fully realise the need for doing without many things that we would like to have—for cutting our coats according to our cloth. We must adapt ourselves quickly to the altered conditions, and look at things from a different angle. Until quite recently our service has been expanding and now we have to turn suddenly round and contract. And keep on contracting until times improve."

STORES and supplies," Mr. Clapp continued, "are big fields for economies. Orders must be reduced to an absolute minimum. A large overseas corporation, a few years ago, made an inspection of office drawers and cupboards, and found

SAVING MORE

sufficient surplus stationery, pencils, pens and the like, to last for two years without any further purchases. . . We must all satisfy ourselves before ordering material that it is absolutely essential, and is not lying idle elsewhere on the property. And then we must order only the bare requirements and not a standard higher than will suffice." Enumerating some possible smaller items of waste which would represent a considerable loss in the aggregate, Mr. Clapp mentioned unnecessary burning of electric light, leakage of water and oil through faulty taps, and careless disregard of any opportunities for "short-circuiting correspondence," or arranging local contracts for unimportant glazing, plumbing or painting jobs on railway premises in country districts. "If every railwayman saved a penny a day in the prevention of waste," the Chairman pointed out, "it would mean £36,000 a year."

stressed. Much was being done to gain traffic, he said, but much more could be done. "Every-

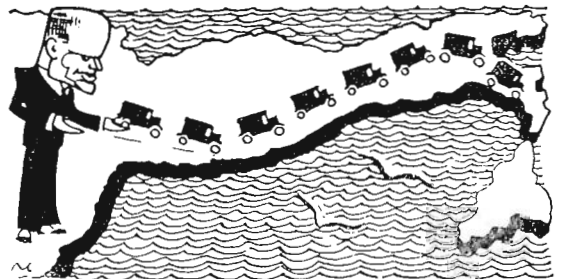
—AND EARNING MORE

one should definitely regard himself or herself as a business-getter—a salesman or saleswoman of railway service. It does not matter if we are in a branch where we never come in contact with the public: we must all keep our ears and eyes open and our minds active for all matters affecting the welfare of the service. . . . Many instances have come to our notice of men in the service, in jobs that were not in direct contact with this side of the business, bringing in new business, getting freight back from the road or doing some good deed which led to the development of more business, and, therefore more revenue for the railways." Mr. Clapp ended on a characteristic note. "This industry of ours," he declared, "is such a factor that we can help the State in its financial stringency more than any other instrumentality. I feel personally that the pinch is going to do us all good. What does us good will do good for this property and for the entire community. It is up to us as railwaymen to set an example to the community we serve—the whole State of Victoria."

CABLES tell of a Better Farming train in Italy which is running on the highways instead of on the railways and which comprises eight blue motor-vans instead of 17 yellow railway cars and trucks. Apart from these more or less trifling differences, the

MUSSOLINI'S SLOGANS behind Victoria's famous "agricultural college on wheels."

The Italian vans have movable sides and are fitted up to illustrate intensive modern systems of agriculture told in pictures and models suited to the intelligence of peasants in Italy's outback. Books are also being distributed, films shown and slogans from some of Mussolini's speeches broadcast. On the sides of one of the vans are emblazoned the following utterances of the Duce: "We must ruralise Italy, even if it costs millions of money and half a century of time," and "if my will and tenacity are supported by your colla-



. . . a Better Farming train in Italy which is running on the highways . . .

boration, a prosperous future opens before Italian agriculture." The blue Better Farming caravan is now making a three-months' tour of southern Italy, Sicily and Sardinia.

THAT the need for increasing railway revenue was equally as urgent and imperative as the need for saving money, was another point which Mr. Clapp

LAST month we had news of a liberalised system of nominated days of loading. This month comes word of liberalised break-of-journey privileges on

country tickets. Outside a 40-mile radius of Melbourne, passengers holding single and ordinary return tickets may now break their journey at any intermediate stations during the availability of the ticket, while those holding holiday excursion, cheap excursion, tourist, week-end and other concession return tickets, may break their journey on the return trip. The latter concession also applies to tickets held by passengers attending shows, race meetings, conferences, and the like.

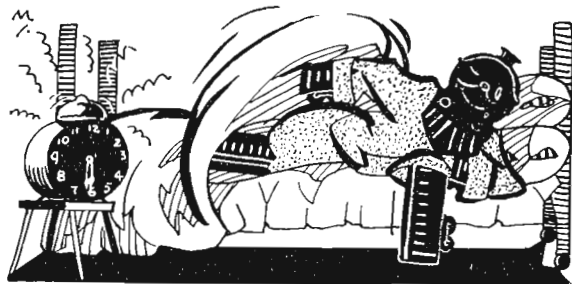
MORE BREAK-OF-JOURNEY PRIVILEGES

FROM time to time, certain trains in certain places have been claimed to be the fastest of all trains, certain others the slowest of all trains, and others again the most comfortable of all trains. Now Mr. Arthur

Rogers, retired signalman and well known railway antiquarian, makes an entirely new sort of claim on behalf of the 6.30 a.m. Melbourne-Geelong train, whose time of departure, he

suggests, has remained unaltered over a longer period than that of any other train. This train has been throwing off the bed-clothes, figuratively speaking, and coming to

56 YEAR-OLD STARTING TIME



... has been throwing off the bed clothes ... at 6.30 each morning for 56 years on end.

its day's work promptly at 6.30 each morning, winter and summer alike, for 56 years on end. Officially it is first scheduled at 0630 hours in the timetable for May, 1874. Mr. Rogers claims that this must at least be a record for Australia, and very likely for any country elsewhere.

ALL the benefits of standardisation have been secured by the use of electric suburban motor bogies in the petrol electric rail motors which are now being placed in commission in Victoria. When the purchase of the

STANDARDISING EQUIPMENT

petrol electric equipment was being considered, it was decided to explore the possibility of using the suburban motors, a decision which necessitated the design of suitable generators capable

of generating power at 750 volts instead of 460. For driving bogies, electric motor coach type were used complete, including the two traction motors in each case. Necessary minor alterations were effected to suit the design of the underframe of the petrol electric units, and, as the units will not be required to operate continuously in the electrified area, the trip gear was discarded. For non-driving bogies, suburban trailer type were employed, the only modification here being in the braking. A single brake block per wheel was provided instead of the double blocking system of electric stock.

QUEENSCLIFF, Bacchus Marsh, Stony Point and Geelong are the lines which have been chosen for the preliminary operation of the new, fast, comfortable and economical petrol electrics. Ten of the units will eventually be built and their

TEN OF THEM

operation will be extended as soon as a survey has shown where the introduction of the cars will be justified. The records of the Geelong service show that a petrol-electric car, drawing a trailer, can cover the run between Melbourne and Geelong, with three stops, in 70 minutes, compared with the Flier's 60-minute non-stop run. A petrol-electric with trailer attached has, of course, been running between Deniliquin and Tcolamba for the past two years.

THE unusual spectacle of a governor leaning through the front window of an electric train driver's compartment with a pair of scissors in his hand was witnessed at Glen Waverley last month, when Lord Somers

GOVERNOR AS RAILWAY ADVOCATE

neatly snipped a silk ribbon and proclaimed the new six-mile line officially open. In his speech after the opening ceremony, he referred to the question of land values and new railways and said that, when he had lived on the land in Canada in pre-war days, he had had some experience of railway surveys, three having been made through his property. "Each time the survey was made," he added, "I was able to borrow a little on the strength of it. But in the end the line never went through." He endorsed the appeal of Mr. Cain, Minister for Railways, to the people to support the railway. "I ask you to support your railways as much as possible," said Lord Somers. "Send everything you can by rail instead of by road, and then you will find at budget time that there is a reduced deficit." The new line cost £170,000 to build, serves 13,800 acres between Darling and Glen Waverley, and for the first five years of operation is covered by a guarantee under which a district railway trust will be liable to raise £10,000 for any loss that may be incurred. The stations passed through from Eastmalvern are Holmesglen, Jordanvale, Mount Waverley, Syndal and Glen Waverley (which is 13 miles from Flinders-street).

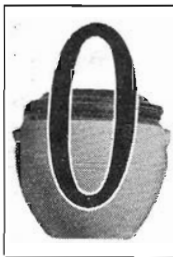
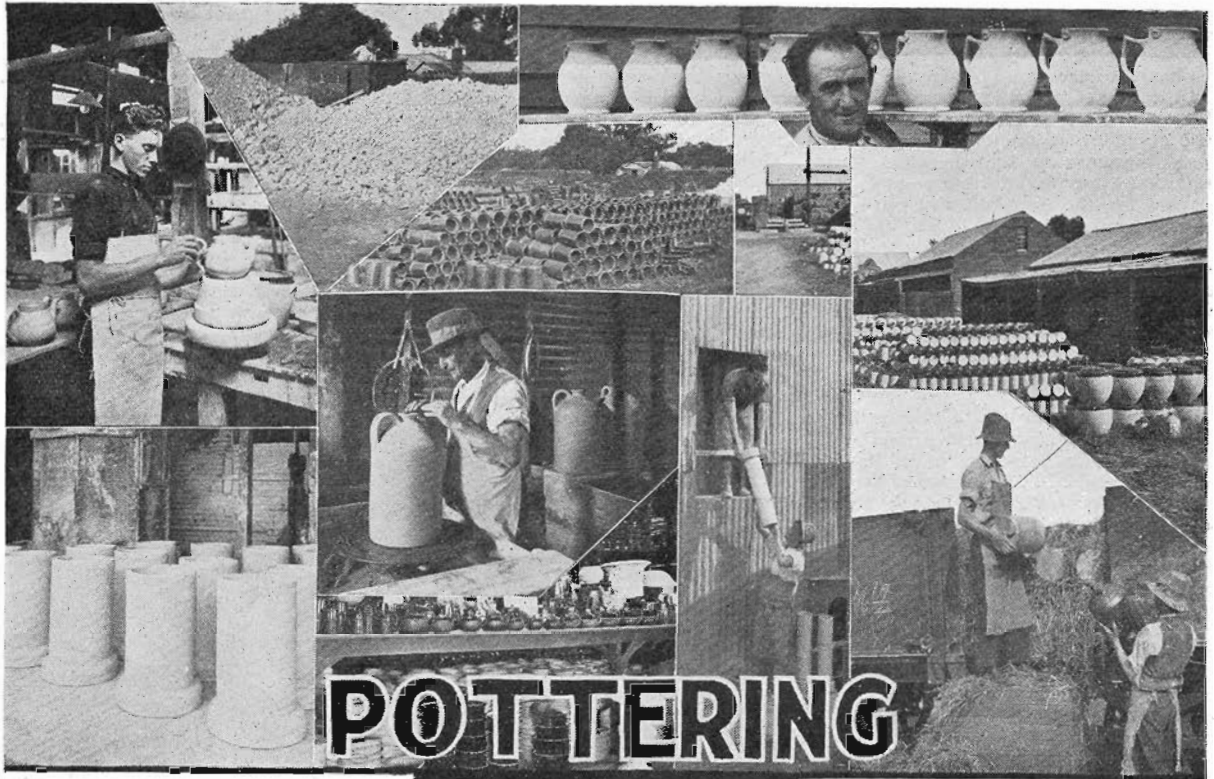
Getting the Business—4

CAST of characters in this episode include fifty (50) passengers who mightn't have been passengers and one (1) lad porter who was a lad porter.

The lad porter was on the staff of a small station in the northern suburbs. He knew somebody connected with one of the local Sunday schools and his suggestion that a day trip to one of Melbourne's bayside resorts for the children and their parents would be a good idea caught on immediately.

The result was that 50 special seaside excursion tickets were sold at the booking window of that small suburban station. The Department got the revenue. The picnickers got the day's outing. Just because a lad porter made a suggestion.

—R.H.J.



AS the art may be, there's always something fascinating about the potter's wheel, something which lures even the most casual into probing the evolution of pottery.

Here is an industry which seems strangely aloof from any

other phase of wordly employment. Here is an art which has been handed down through the ages. Ancient Egypt was at one time the potter's paradise—innumerable followers of the art selected their clay from the Nile banks and, on their "one-hand-power" rotating discs, shaped their earthenware.

Present day collections of that old-world art define the quality of the craftsmanship. And to the scientist or connoisseur, the vases and bowls of the by-gone ages are not merely clay vessels but a record of the changing standards of the centuries, for each clay bowl bears the hall mark of the period in which it was created.

Pottery has not joined in the ranks of advancing science, not so far as method is concerned at any rate. The potter's throwing wheel is the same today as it was in the first Egyptian dynasty.

The fascination, too, has followed down the ages. Perhaps the apparent

IN A POTTERY

BY CLIFFORD HERBERT

POTTERING, according to friend Webster, is a fussy engagement about trifles—loitering.

G. D. Guthrie and Coy.'s Bendigo pottery proffers quite a novel interpretation, however, for here, as they ably demonstrate it, pottering is the art of making pottery.

simplicity may dominate the urge to persevere with the art of transforming sodden earth to dainty ware. Potters, however, are born. Of that there is no question.

Many a man, genuinely brilliant in science and education, has tried to his utter disgust to shape the clay to his will, and just as many have failed and left the mere potter supreme in his kingdom. His artistic sense and delicate touch have ample opportunity to allow his hands to run wild in shaping fantastic designs. Vases, bowls, jugs, teapots, platters, mugs, jars and pots of all descriptions are among his

triumphs.

Clay is, of course, the raw material used. Kaolin, so called from its Eastern origin, is the finest clay employed. Australia, unfortunately, does not possess the purest quality obtainable, but with such as is available, the Epsom pottery is able successfully to turn out splendid examples of general as well as artistic ware.

Just over one hundred miles from Melbourne and located in one of Bendigo's suburbs, this pottery rails its manufactures to the far corners of Australia. New Zealand, too, shares in the distribution. The quality of the pottery has never been challenged. Indeed, it matters not if it were—the proof of the pudding is in the eating, rather the proof of a pottery is in its pots.

Most of the clay is obtained from Axedale and Gordon and is valued at approximately fifteen shillings per ton. It is unloaded in great chalky lumps and carted to a large shed where it is allowed to "weather" for some months. All weathers are permitted to play on the clay at this stage to assist in reducing it to a state of plasticity.

After the clay has been ground in a mill and water showered on it, the puggy mass is filtered through a finely meshed screen. This process rids the clay of any coarse sediment in the form of quartz fragments, and the refined mass is pumped through a canvas filter which allows the excess water to drain away.

Then the potter takes a hand. A small boy slices a great lump from the prepared clay pile and weighs out the necessary amount which he works in his hands to the shape of a rough ball. He then slaps it on the potter's table.

The artisan sits behind a metal disc revolving at about the same pace as a gramophone record—when the motor is running, of course—and he reaches for the clay ball and slaps it on this spinning wheel.

The potter dips his hands in a dish of water. The clay spins on the disc. Casually he presses his thumbs in the centre. Quickly his outer fingers and his palms shape the clay and then, before one's very eyes, a beautifully shaped bowl spins its graceful curves on the wheel.

It is but the work of a minute for the boy to remove the article and replace it with another ball. Bowl succeeds bowl . . . long rows of them line the racks . . . small wonder that some visitors fan the spark of egotism into believing that they too could do as the potter.

Around the corner a brother potter turns teapots, another jugs and another jars. A lad affixes spouts and handles, which have been hand moulded, to the teapots whilst the clay is yet pliable. And there are other items which are moulded by machinery and hand finished.

Drying and Glazing

When removed from the disc, the pottery is still soft clay, remember, and the hardening necessary is imparted first of all by withdrawing all the possible moisture. Placed in a drying room, whose temperature ranges in the region of 80 degrees centigrade, the pottery is dried as far as practicable and then glazed.

Quite a few articles are not glazed, of course, and when fired in the kiln emerge with a porous surface. This is instanced in the manufacture of flower pots, tiles and drain pipes. The household items and indeed many outdoor products of the pottery are glazed by means of metallic oxides and salts.

The glaze is prepared as much as possible in liquid form and applied by immersing the article in it.

Now the wares are ready for the kiln. The clay is burnt and glazed in this furnace, whose inside appearance brings to mind, incongruously though it may be, the interior of an Eskimo snow hut.

The kiln is gradually heated by the agency of one of many fuels offering. Oil supplies ideal steady temperature, but wood, whose heat changes frequently, is commonly employed. Coal and briquettes are often utilised, but the ash is apt to be carried by draught into the kiln, causing the content wares to be browned.

"Saggers" are fireboxes which prevent the articles from coming in direct contact with the flue gases. In

these is stacked the pottery which will be burned and, when the fire is lit, the outlets and crevices are closed and plastered with clay. Caulking these openings is naturally a prevention against variation of temperature inside and does not permit of outside conditions influencing the baking clay.

Cooling the kiln is done by the very simple process of removing the fire and allowing the furnace to cool at its leisure. Undue haste by means of artificial draught would bring disastrous results, in that the sudden contraction would crack the pottery.

After cooling, the ware is sorted into classes as it is well nigh impossible not to have a percentage of spoils or even "seconds." The really spoiled is mixed with fresh clay and moulded again.

Agricultural pipes are treated somewhat differently but in a simpler fashion. A second-grade clay is em-

ployed and the pipes are shaped in a pipe-making machine which turns out a range of diameters up to 24 inches.

After drying in the air for a few days, they are stacked in the kiln and burned. The correct time having elapsed, they are glazed whilst yet in the kiln. Common salt is thrown into the fire grates and anything up to 500 lb. may be used for the one batch. Volatilising, the salt passes into the kiln and, in short, glazes the pipes.

For three days the pipes and kiln cool off. Then the contents are removed—dark brown pipes if coal and briquettes have provided the fuel, or light yellow if wood has been used.

Considerably more than £1,000,000 worth of general pottery is imported annually to Australia . . . It seems strange that Australians won't allow more of their fellows to potter in a pottery—as Potters.

Shaping a vase on the potter's throwing wheel



A clay ball which will be a vase

Locomotive Driving by Contract

IT may not be generally known that it was at one time the custom, on a number of railways in England, for engine drivers to enter into formal agreements with the companies to work trains at a certain sum per mile. The custom seems to have arisen in the earlier days of railways, as, in 1830, the drivers of the Stockton & Darlington Railway were paid ¼d. per ton-mile, out of which they had to find coal and oil, and pay themselves, and probably their firemen as well. The company, however, maintained the engines in general repair.

On some parts of the Eastern Counties Railway, trains were worked by contract, and it is on record that a driver stationed at Peterborough had his price for working goods trains advanced, in December, 1854, from 5½d. per mile to 5¾d. A few years later, a driver working the passenger traffic

between London, Enfield and Hertford was paid 3¾d. per train mile.

The driver had to sign an agreement in the presence of a witness. He had to pay his fireman and cleaner, provide firewood for lighting up, coal or coke for running, oil, tallow and suchlike necessities. He had also, out of the same money, to repair and pay for the cost of certain repairs, giving all necessary assistance himself on shed days. He had not, however, to provide articles of iron, brass, copper or steel, or pay for labor when the engine went into shops for general repairs or repairs due to accidents beyond his control. For an assisting engine he had to pay 3d. per mile. If required to pilot or assist another engine, he received 2d. for every mile out and home.

The drivers bought their fuel and stores from the company.

China's Railway Problems

By Sun Fo

Minister of Railways in China

THE "iron horse" came to China 31 years ago when the Shanghai-Woosung line, a short line of only 10 miles, bringing Shanghai to the very mouth of the Yangtze by modern means of terrestrial transportation, went into operation. For a period of five years, railway construction stood still until 1904, when the Canton Samsui railway, a short line of barely 44 miles, connecting the provincial capital of Kwangtung and its rich western districts, was completed. Since then, 18 longer railways, including the Peiping-Hankow, the Sunning, the Shanghai-Nankin, the Shanghai-Hangchow-Ningpo, the Ching Tai, the Tientsin-Pukow, came to be completed one after another.

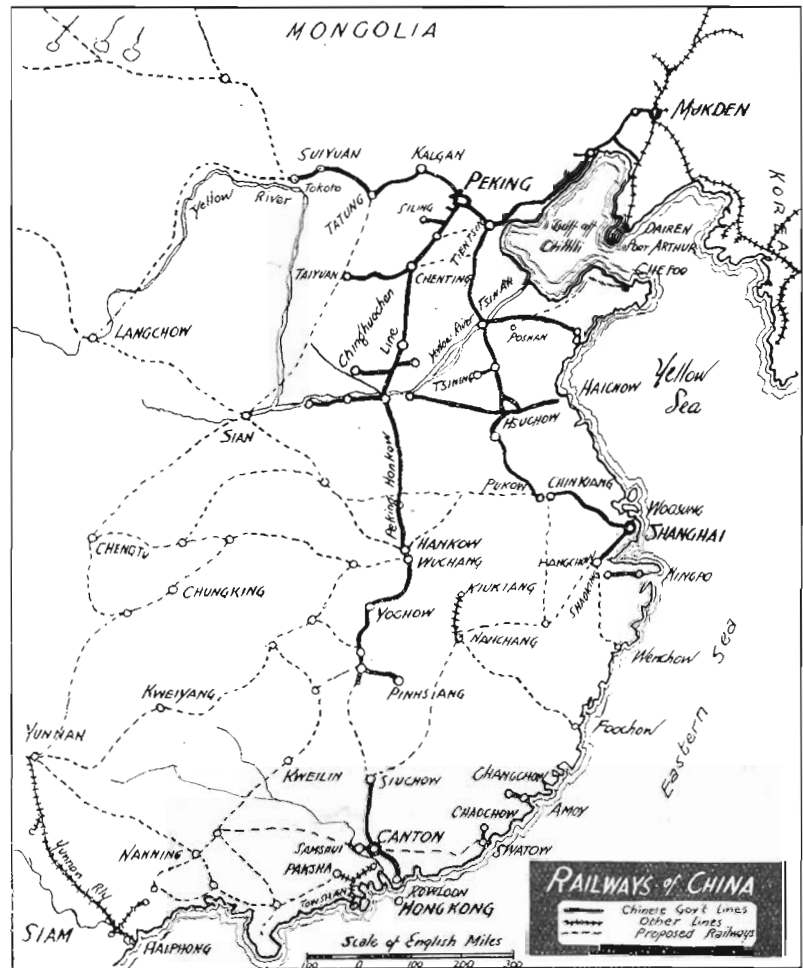
From 1904 to the downfall of the Manchu Dynasty, in a period of seven years, a total of about 4,000 miles was built.

Gesture of Modernization

Railway construction in this period, being under the supervision of the old mandarin, was merely a gesture of modernization. Financial bankruptcy of the state treasury coupled with a total lack of technical experience made the contraction of foreign loans and the employment of foreign officials matters of necessity. The contraction of a loan was inevitably followed by the employment of foreign personnels, hence foreign control of the railway built by such loans.

No definite programme guided the construction. Little consideration was given to political importance or economic significance in building the various lines. Geographically nearly all the railways were built in the northeast and almost nothing in the southwest. The coastal regions were benefited with the construction while the interior was entirely neglected.

Shortsightedness in line selection retarded China's economic development. Shortsightedness in administrative policy cost the Manchus their empire. For did not the Chinese rise to protest



"NUMEROUS causes have been attributed to the civil strife in China," writes His Excellency, Sun Fo, in this authoritative review of the railway position in China today. "But, above all, poor means of communication—meaning backward economic development and lack of proper understanding on the part of the leaders and the people—should not be overlooked. The trans-continental railways have held together the east and the west of the United States. A new network of railways will save China from future dissension. We have lately seen the development of places connected by railways. We shall see the future development of places to be connected by newly built railways.

"The construction of railways in China is a political as well as an economic necessity."

We reprint this article by courtesy of the periodical "Pan Pacific Progress."

against the nationalization of railways which the Manchus tried to enforce? Was not the same protest the immediate cause of the revolution which finally overthrew the time-honored Manchu empire. Had the Manchus or their chief advisers been aware of the political and economic importance of railways, a systematic constructive plan, together with wiser and more conservative administrative policies might have kept the flame of revolution from being immediately kindled in spite of popular discontentment and the persistent

activities of the revolutionists. Such being the relation of railway construction to national economic development and railway administration to politics in China, in vain can monarchists support the erroneous argument that a monarchy is more suitable for China than democracy and that the Chinese revolution is merely the agitation of a few foreign educated young idealists. Nationalization of railways, the immediate cause of the 1911 revolution, came into effect upon the establishment

of the Republic in 1912. Ever since then, all the important lines have come under the ownership and management of the State. No protest came. No objection was raised. From the standpoint of railway ownership and management, the foregone conclusion is that the Chinese people prefer republicanism to monarchy, and this is proved even though the Republican Government, prior to the unification of China by the Kuomintang, was only nominal with regional warlords dictating and civil strifes devastating the country and ruining the people.

Building During War

In the years of nominal Republic Government, in spite of the civil strifes which resulted in the destruction of the operating lines and deterioration of their services, construction of railways continued. Thus within that period, the building of new lines, the completion of unfinished sections, the construction of feeders and extensions increased approximately 3,000 miles of railways, making the total mileage a little over 7,000.

During China's internal dissensions, a ray of hope brightened the horizon in the period of military feudalism. As a response to Dr. Sun Yat-Sen's teaching, the articulate portion of the people had gradually come to the realisation that railway building, the most important part of the leader's constructive programme, would reduce the possibility of internal dissension, help to solve the nation's economic problem by opening up its natural resources, lessen political differences and, in short, unify the country. It, therefore, should be the first and foremost task for both the attention and action of the party and the government.

Upon the reorganisation of the National Government late in 1928, the Kuomintang found it necessary to establish a new and separate department for State railways.

When I assumed my duties as Minister of Railways, I was confronted with two main problems, namely rehabilitation of the operating lines and construction of new ones. In solving the first problem, I inaugurated two administrative policies for the State railways, i.e., the centralisation of administration and the independence of railway finance. These were approved by the State Council.

The necessity of the first policy arose out of the fact that on account of military interference during the period of civil strifes, the control of State railways by the Central Government was so much loosened and the efficiency of State railway services so much minimised that unless the railways came back to the actual control of the Ministry, no important measure of improvement could be effected. Hence, prior to the application of any remedial measure, it was absolutely essential for

the Central Government to regain effective control over the railways. Nine months work in the Ministry succeeded in gradually getting the State railways back to the Central Government's control.

The problem of equipment required serious attention. Civil war in the past not only stopped the purchase of new equipment, but also neglected the upkeep and maintenance of the equipment in use. On the pretext of military necessity, local war lords detained rolling stocks during the civil strife. The detained rolling stocks were roughly used, abused, and uncared for. By the end of June, 1929, all the detained rolling stocks were returned to the original railways. Most of them needed repair at the time of their return. They are now repaired and put back to service. This relieves the shortage of equipment to some extent.

The increase of traffic since the unification demanded enormous increase of equipment. In the last three months orders for several hundreds of thousands of pounds' worth of locomotives and cars have been placed with foreign firms in Shanghai.

Restoring Credit

In June of 1929, through traffic between Peiping and Shanghai via the Shanghai-Nanking the Tientsin-Pukow, and the Peiping-Liaoning railways was fully resumed. Through traffic in other lines was also restored. The Through Traffic Conference will make regulations and provide steps for the institution of through traffic throughout the whole State railway system.

The policy of independence of railway finance aims at restoring the credit of the various railways. It includes the abolition of military surcharges, the publicity of finance and the liquidation of railway debts.

All surcharges added to railway fares collected for the local militarists by the various railways were done away with. Military appropriation of railway funds, a common practice during the period of internal dissension, was stopped.

A thorough investigation of all the railways' indebtedness is now being conducted. As soon as the investigation is completed, they will be gradually paid off. The potential earning power of the railways which will be discussed later, will permit such payment after their restoration to normalcy.

As to construction, Dr. Sun Yat-Sen's programme for 100,000 miles of railways outlined in his book entitled "International development of China" will serve as a guide. For the immediate future, my proposal to appropriate £30,000,000 from the Russian, British and Italian Boxer Indemnity Funds for the completion of the Canton-Hankow line by the end of 1932, the completion of the Lung hai line by the end of 1934, and the construction of a new line running through the province of Kansu to Sinkiang

(Chinese Turkestan) to be completed by the end of 1937, was adopted by the Second Plenary Session of the Kuomintang Central Executive Committee last year.

Survey parties and economic investigators sent out by the Ministry to the various parts of the country are now actively at work. When this little programme is completed, others will follow. It is safe to say that in the course of fifty years, Dr. Sun's railway construction programme will be fully carried out.

China is now poor in possession, yet, in potentiality, she is almost unmatched. Most of the railways are now in debt, but their potential earning power should ease the mind of their creditors. A study of the financial results of operation in the whole Government Railway System between 1915-1925—a decade which covers a period of China's darkest days when civil war constantly prevented industrial development, paralysed trade and devastated the country—shows that the lowest progressive yearly increase in operating revenue was 6.93 per cent., the highest 1.35 per cent. over the preceding year; while the highest operating ratio, or ratio between operating revenue and operating expenses was only 57 per cent. and the lowest 44 per cent.

The percentage of net earnings to total operating revenue was as high as 58.80 in 1919. Even in the worst years, 1925, net earnings amounted to 43.69 per cent. of the total operating revenue.

Looking Ahead

Judging from past experience, a very conservative estimate will allow an increase of operating revenue over the previous year of 5.5 per cent. in the years 1931-1935; 5 per cent. in 1936-45, while net earnings can be calculated as 45 per cent. on the operating revenue from 1930-1934; 50 per cent. from 1935-1939 and 55 per cent. from 1940-1945 inclusive. I call such calculations conservative because the figures are worked out from facts existing in a period of civil war with its evil effects prevailing. With peace restored, trade and industry developed, we have every reason to expect greater increase of operating revenue and greater percentage of net earnings.

Besides general development, we shall, by carrying out our late leader's railway building programme, demonstrate to the world that Dr. Sun Yat-Sen's theory that railways running between densely and sparsely populated areas will be more profitable than those running between big cities, holds true. Without opening up such places China's development of national economy has no solution. By demonstrating the truth of Dr. Sun Yat-Sen's theory we can show that any railway in China efficiently managed and properly operated will be profitable.

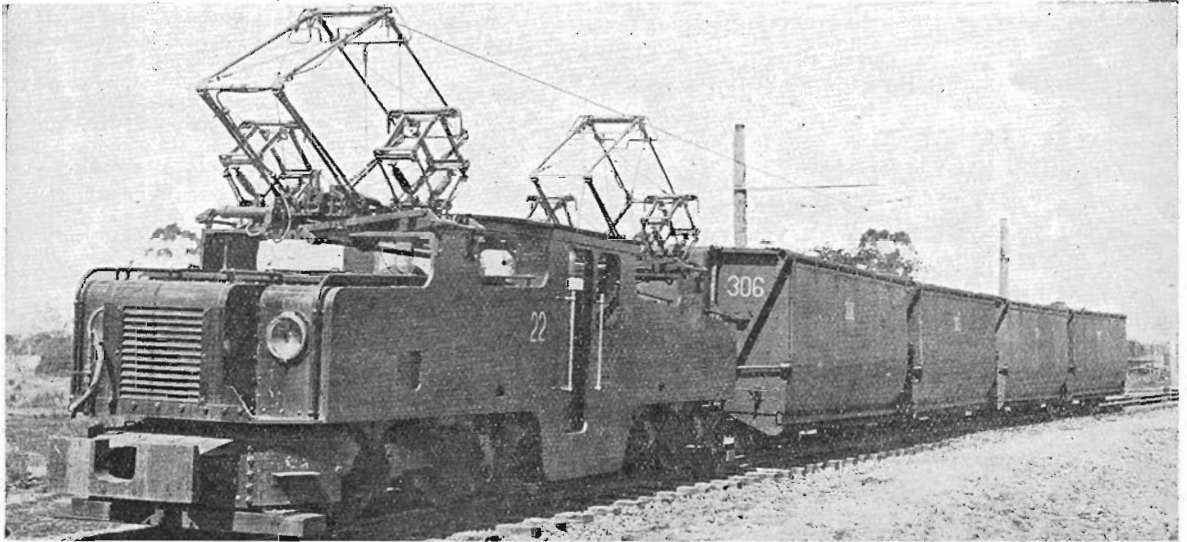
Coal-Winning At Yallourn

By J. M. Bridge

General Superintendent and Engineer-in-Charge
of Coal Supply at Yallourn

THE importance of coal winning at Yallourn lies in the facts that the coal is the cheapest source of fuel supply in the State and that it marks the first step in the series of operations which culminate in Victoria's national scheme for the supply of power and heat to the State at the lowest possible cost.

The coal being won is geologically of Miocene age, and, although possibly twenty million years old, it is a comparatively young lignite. It contains a large amount of material which can readily be recognised as reeds, ferns and trees similar to those flourishing at present.



A typical electric train hauling brown coal from the open cut. The daily output of coal at Yallourn is 6,500 tons

THE first mention of brown coal in this locality is by Cosmo Newbery in 1874, and in 1894 a briquetting plant was erected and produced briquettes of reputedly good quality, but the project was a financial failure.

In 1919, the Electricity Commissioners recommended the installation of a power station on the field, and since that time progress has been continuous.

The coal beds of the Yallourn and Morwell district contain an estimated quantity of six thousand million tons of coal, and on the small area owned by the Electricity Commission six hundred million tons have been proved.

The area on which the open cut is situated contains a thickness of 180 feet of coal overlain by 28 feet of ordinary soil which is known as overburden.

Much of the natural surface of this site is below the flood level of the Latrobe-river. The first work undertaken consisted of putting a levee bank round the area to keep out the flood

waters and in digging drains to divert surface water outside this bank.

All water seeping from the ground inside the levee bank or falling as rain has to be removed by pumping.

The pumps used are of the centrifugal type, and the total capacity installed can handle 6,000 gallons per minute.

Overburden Easily Removed

The soil or overburden on top of the coal consists of clay, sandy clay and sand with practically no stones above 6 inches in diameter. It does not present any material difficulties to removal by power operated excavating machines.

From its nature, however, it becomes very soft when subject to rain, and this makes transport and disposal of the material difficult.

The first excavating equipment installed consisted of two steam shovels of the large revolving type capable of removing respectively 1,000 and 1,500 cubic yards of material per eight hour

shift.

When electric power became available, one of these was converted to electric drive. The field was opened up by removing the overburden from the surface of the coal in a north and south direction for a distance of 600 feet. Successive slices, 35 feet in width, were then taken off the eastern side of this excavation until the coal was uncovered for a distance of 2,000 feet from east to west and 600 feet from north to south.

The material from this area was delivered by the shovel to a loader which in turn passed it on to a system of belt conveyors located on the ground surface on the east side of the excavation. These transported the material to the north side of the open cut area and deposited it in a dump 60 feet in height. As each slice of 35 feet was taken off by the shovel, the conveyors were moved the same distance to the east to handle the material from the succeeding slice.

The conveyors terminated in a

stacker which raised the material to the necessary height, and no portion of the plant was required to work on excavation material.

This stacker pivoted about its lower or receiving end through a horizontal angle of 120 degrees, and enabled the dump to be of sufficient capacity to take all the material excavated. The belts were four feet wide, constructed of eight thicknesses of canvas covered by $\frac{1}{8}$ inch of rubber, and travelled at 450 feet per minute.

After the removal of this material from the initial open cut, it became necessary to take material from the south side of the excavation. The conveyor plant was therefore moved to a site half a mile from the open cut, and the material from the shovel was

yards capacity, 35 $\frac{1}{2}$ inch gauge, double bogie type, and the body is tipped by compressed air to discharge the material. The axles run in roller bearings.

The locomotives are of 440 horse power and weigh 46 tons. They operate on direct current at 1,000 to 1,100 volts, the current conversion being effected by mercury arc rectifiers.

The daily output of overburden is at present 4,000 cubic yards, and 5,000,000 yards have been removed to date.

Coal winning, like overburden removal, was started with electric shovels, the machine adopted having a capacity of 2,000 tons per eight hours, and removing six tons at each bite. It

drying of the coal.

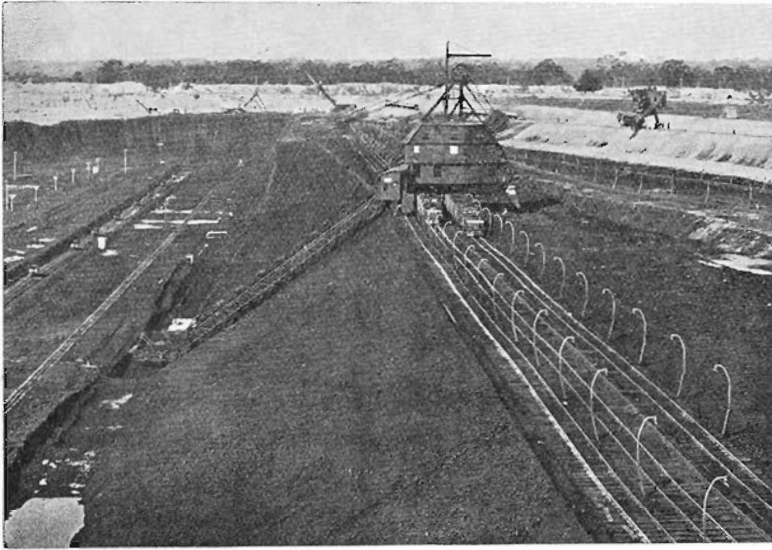
The trucks are double bogie, gable bottom type, 35 $\frac{1}{2}$ inches gauge, and the whole side is a door which is operated by hand or compressed air and swings outwards to allow the contents to be discharged. The daily output of coal is 6,500 tons, and the total removed to date is 6,000,000 tons.

Track-shifting Made Easy

An accessory apparatus essential to the working of the dredger is a track-shifting machine which moves the heavy tracks back from the working face to make fresh material available for excavation. It consists of a cantilever, at one end of which is attached a locomotive and the other is provided with a movable head. The movable head has grooved rollers which grip the head of the rails and raise sleepers and rails from the ground and bend them sideways from the existing to the desired position. The locomotive then pushes the trackshifter along the length of rail to be shifted, and the machine drags the track sideways for its full length and lays it down in its new position.

Up to the present only 90 feet of the 180 feet of coal has been removed, and a level surface is being left at 90 feet below the top of the coal. This horizon is the future main working level. Ultimately all coal from above and below it will be loaded by dredgers into trains on this level, and these will be hauled from it to the surface on the grade of one in seven by a powerful winding engine located at the upper end.

This plant is now being installed, and, when completed, the scheme of coal winning will be fully developed.



The coal dredger working on the open face of the brown coal. It excavates 8,000 tons per 8-hour shift.

transported to it by means of locomotives and trucks.

With the removal of the embargo on the importation of German machinery into Australia, it became possible to take advantage of the specialised machinery which has been developed for working brown coal deposits in that country, and a revolving dredger with buckets of 15 $\frac{1}{2}$ cubic feet capacity was obtained for the excavation work. This machine runs on rails, and can excavate material from above or below its working level. When working above its rail level, it levels off the ground on which its tracks are located.

In operation it moves continuously along its rails and scrapes about eight inches of material off the working face. The buckets carry this material up into the body of the machine and discharge it into the trucks which run underneath it. The output of the machine is 2,000 cubic yards per eight hour shift.

The transport trucks are of 20 cubic

operated against a face 75 feet in height, and delivered the material through a loader to an endless ropeway equipped with three ton trucks which were automatically loaded and discharged.

A coal double portal deep dredger has recently been installed which works on the surface of the coal. Its operation is similar to that of the overburden dredger, but it does not revolve and can only remove material from below its working level. The buckets are of one cubic yard capacity, and the output of the machine is 4,000 tons per eight hour shift.

The coal is delivered to trains of 20 ton trucks running beneath it. A line of railway runs through each portal, and the flow of coal can be diverted to either at will, so that operation can be continuous if trains are available. The depth of face can be anything up to 100 feet, and the present face is 90 feet.

In addition to its large capacity, the shallow cut removed facilitates the

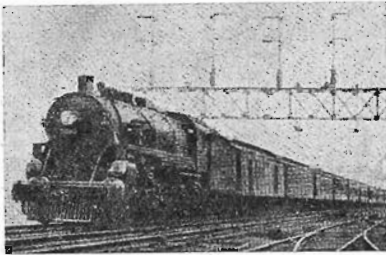
Helping the Made-in-Australia Campaign

FOR some time past the Made-in-Australia Council, on which the Victorian Railways Commissioners have representation, has been endeavoring to stimulate the purchase by the public of Australian-made goods.

It is now interesting to note that, concurrent with the recent action of the Federal Government in substantially increasing tariffs and prohibiting certain imports, several prominent Melbourne firms have launched similar campaigns in support of local industry. The Master Drapers' Association, for instance, is distributing printed pledges which will be issued to buyers at drapery stores in the city and suburbs. The pledges cover a 6-month's agreement to buy Australian-made products wherever possible.

The Railways Commissioners are assisting to the extent of granting publicity space at Flinders-street and Princes-bridge stations.

Lines from Other Lines



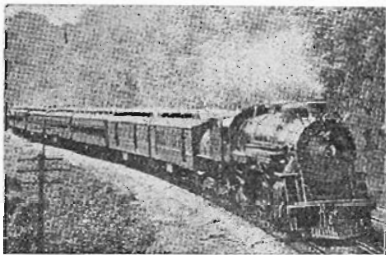
"The Black Diamond"



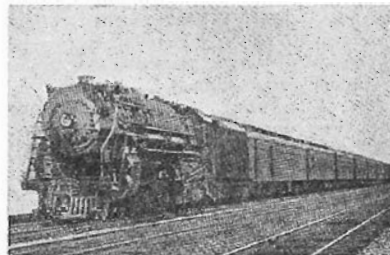
"The Overland Limited"



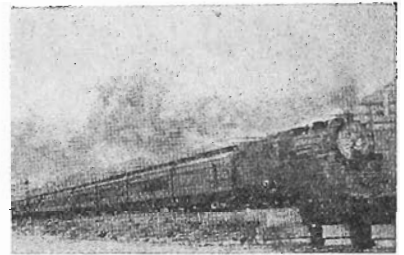
"The North Shore Limited"



"The Dixie Flyer"



"The Twentieth Century Limited"



"The Detroit"

Kissing Causes Congestion Outside New Jersey Station

PROLONGED demonstrations of affection between husbands and wives, young and old, outside the New Jersey railway station cause a traffic jam each morning that is making nervous wrecks of the two policemen on duty.

Patrolman John Shirley, who is married and has four children, says some of the departing husbands linger on the station driveway kissing their wives three or four times before dashing for the trains for New York.

Westfield is a strictly residential city, and some 4,000 men and women travel every day to their places of business in the metropolis. Wives drive their husbands to the station in motor cars. It's the kissing at parting that blocks street traffic and sometimes delays the trains.

"If the men folks were leaving for Havana or Europe, I'd say okay to the ladies," remarked Policeman Shirley during a breathing spell between the 7.46 and the 8.10 trains. "But this is different. Their husbands are going only to New York, and once they've got all the kissing done, it's all got to be done over again the next morning. What a life, I say!"

Captain Edward Nelson of the Westfield police bears out Patrolman Shirley's contention as to the cause

of traffic delay. "It's a show every morning, and it's worth coming miles to see," said the captain.

Nevertheless, it is not likely that anything is going to be done about it. Kissing is an ancient institution, and it will require more than a traffic jam to abolish it.



VERTICAL LOCO. HEADLIGHTS

HEADLIGHTS with vertical as well as horizontal rays are the subject of an experiment being conducted by the Pennsylvania railroad. The Ohio Public Utilities Commission reports that the company has agreed as an experiment to equip a passenger locomotive with a perpendicular headlight whose beam will extend into the heavens for a height of from 700 to 800 feet.

It is thought that the perpendicular beam will be seen at much greater distance than the present horizontal beam.



In 1928 the railway police in U.S.A. made more than 9,000 arrests for felonies and 86,000 arrests for misdemeanors. Convictions were obtained in 97 of every 100 cases tried.

ENGINE-DRIVER'S REQUEST TO BELGIAN KING

THE fondness of King Albert of Belgium for operating a locomotive has resulted in a pardon for a 76-year-old Italian who had served 34 years of a life sentence for murder.

The old man's son is an engine-driver on the Italian State railways and pulled the royal train bearing the then Princess Marie-Jose of Belgium and her parents and brothers on the way to Rome for the princely wedding.

King Albert climbed into the engine cab at Milan, took the throttle and handled the engine for a number of miles.

"You are a good driver," he told the regular pilot. "If there is anything I can do for you I should be glad to."

The driver then told a story of how his aged father was in prison and how he had tried time after time to have the trial reviewed, but had met with no success.

"I think," said the King of the Belgians, "that I might say a word to my 'cousin' of Italy."

He did, and the old man is now back with his aged wife, and two sons and two daughters and the grandchildren.



Up to date the Hudson Bay railway has cost the Canadian government £8,355,640. Of this, £5,938,000 went for actual construction of the road.

Heads World's Largest Railway



(Photo.—B. and O. Mag.)

DR. JULIUS DORPMÜLLER, Director General of the German Reichsbahn, the world's largest single railroad company, has just celebrated his sixtieth birthday. Just before this event, he had received a manifestation of the confidence of his nation through his re-election to this important post by the directorate of the German Federal Railroads Company and confirmation by President Hindenburg, of the German Republic.

The magnitude of Dr. Dormmüller's position can be gleaned from the fact that the German railroads are capitalised at over 24,739 million gold marks, or approximately £1,286,950,000.

There are more than 700,000 officials and employees, and there is an annual budget of more than £240,000,000. With 29,000 locomotives, 67,000 passenger and 708,000 freight cars, it is rated the largest single railway enterprise in the world.

The marked increase in its efficiency, attained since the World War, is largely credited to the direction of Dr. Dormmüller.

NIGHT OWL ATTACKS DRIVER IN HIS CAB

WE recently published an American account of the bare-handed capture of a wolf by a fireman from the pilot of an engine.

Sweden, not to be outdone, comes forward with a story of the driver of an electric locomotive being attacked by an owl. The belligerent bird tore through the cab window and assaulted the engineman with bill and claws.

The driver could not loosen his grip on the propeller switch of the electric engine, but finally succeeded in strangling the bird.

ANIMAL STORIES by AMERICAN RAILMEN

ACCORDING to the American paper *Labor*, five more nominations have been proposed for membership in the "Railroad Men's Association of Impromptu Trappers of Ferocious Wild Beasts and Birds," which was "organised" a few weeks ago when an Algoma Central fireman leaned from the cow-catcher of his speeding engine and caught a live wolf, which was standing on the track, with his bare hands.

Now a muskrat, a screech owl and two deer are exhibited by the paper's readers as proof of trapping qualifications. Another letter writer caught a domestic hen. A hen is hardly wild game, but it was captured under rather unusual circumstances.

E. R. Potter, station agent and operator for the Peré Marquette at Avoca (Michigan), relates the first "deer story."

"About 45 years ago," he writes, "I was agent at Manistee, and saw a train pull in with a big fat deer lodged on the cow-catcher."

The animal's legs were held between the slats of the cow-catcher as securely as if they had been caught in a trap set by the best Indian trapper in the north woods.

Signalman Traps Muskrat

The muskrat met his fate in a "steel trap" just recently. F. H. Sidney, signalman at Boston, was the trapper.

He tried to set the tracks for a fast passenger train, but could not complete the combination, and "locked the route." The train was forced to stop and within a few minutes a string of local trains were held up also.

The signalman hurried out to see what was blocking the switch and found he had caught a muskrat. The animal had crawled into the switch-points to eat the grease just as he pulled his levers.

There may be nothing in a name, but Hugh Bird is the name of the fireman who caught the screech owl. According to his letter to the editor, he was firing on the Lackawanna Railroad a few years ago. Late one night

his engine stopped for water, and when Bird reached for the spout he found a large owl sitting on the pipe.

"Being equipped with heavy gloves, I took Mr. Owl by the neck and put him in the tank box," Bird relates. "When I went to take him out at the end of our run, he showed fight. And don't let anyone tell you an owl can't fight."

Bird, however, evidently knew his "owology." He lit his torch, and "the light seemed to charm the owl until I got him in hand, and turned him over to the secretary of the Railroad Y.M.C.A."

The owl proceeded to stage a hunger strike, Bird says, and after a few days was liberated.

Chicken on the Brakes

About 25 years ago, George L. Etheridge, now a car inspector at Rock Island, picked a live chicken off the brake rigging when the Santa Fe's west-bound California Limited pulled into Raton, in Mexico.

No one knew why the hen picked this strange roosting place, but it was none the worse for its wild ride.

"It is needless to add," Mr. Etheridge says, "that if the engine crew had known of the chicken's presence no car inspector would have had a chance to get the prize."

John D. Ulley, a railwayman of Spokane, saw a deer trapped in a locomotive cab with disastrous results to the driver.

"The deer was standing in a cut on the Milwaukee tracks just outside a tunnel near a mine on the St. Joe river in Idaho," he writes. "The mountains were on one side of the track and the river was on the other."

"When the train came tearing along, the deer ran up the side of the cut and across the face above the tunnel. He lost his footing and fell, landing on the running board, bouncing through the door into the cab and breaking the engineer's arm."

Mr. Ulley "hopes the man who had this happen to him will verify the story."

New 3,000 H.P. Electric Locomotives

INCREASED passenger travel following the opening of the Great Northern's 8-mile tunnel under the Cascades, U.S.A., is reflected by the purchase from the General Electric Company of four additional 3,000-horsepower electric locomotives for use on passenger trains on the electrified division. The new locomotives will cost about £50,000 each.

Co-incident with the completion of the 8-mile Cascade tunnel last January,

the railway's entire route through the Cascades was changed from steam to electrical operation. The saving in time afforded by these and other improvements enabled the Great Northern to cut nearly seven hours off the time of its transcontinental trains.

The new locomotives will be the same type as those now handling the railway's passenger trains. They weigh approximately 530,000 pounds each and are 75 feet long.

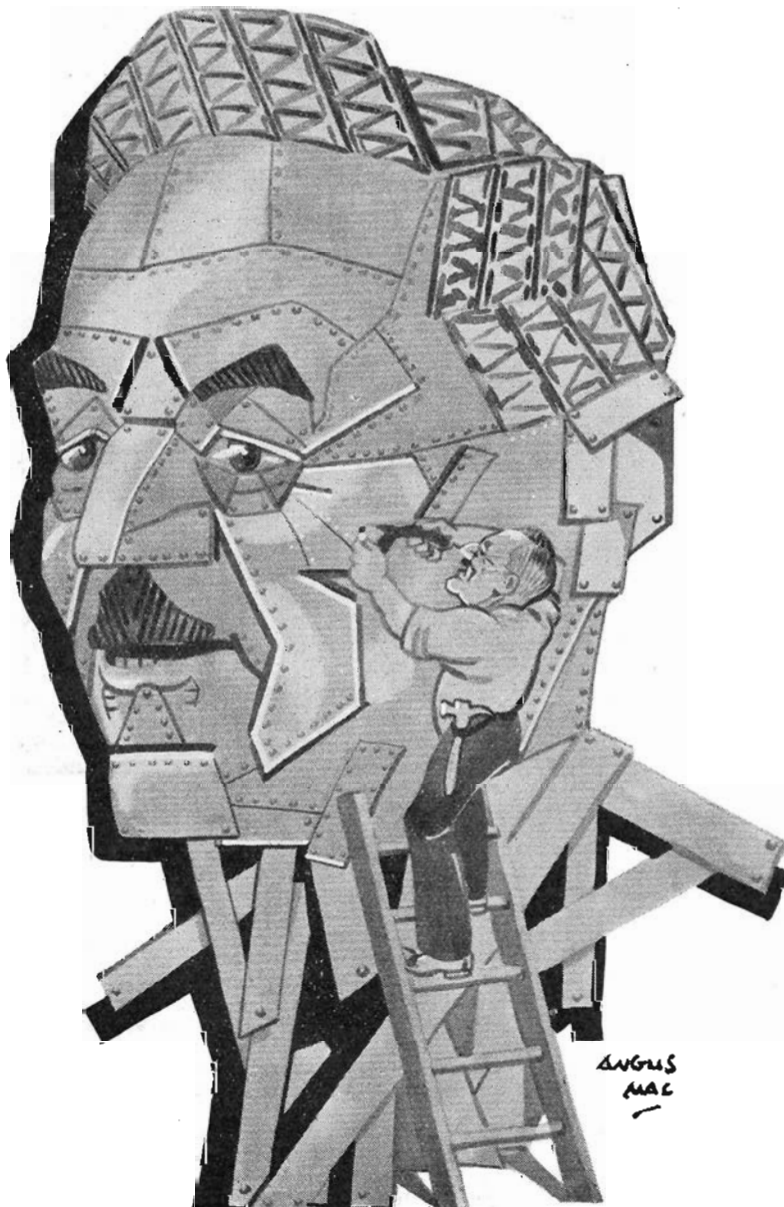
Representative Railroaders

No. 33

Superintending Engineer C. H. FETHNEY

Caricature by ANGUS MAC

By R. H. JUNIOR



A MAN who has been instrumental in spending something like £15,000,000 and getting good value for every penny of it is worth more than a little notice.

Closely observe Charles Harold Fethney, therefore, as he takes his bow, with a steam shovel sounding a tucket off-stage and an oxy-acetylene torch flooding the limelight on to him. He is a brisk, decisive man, firm-jawed and good-humored. He spends his time building bridges, erecting workshops and substations, boring tunnels, flattening railway embankments and obliterating level crossings, and generally, lives, moves and has his being in a world of steel girders, bricks, cement, track ballast, excavators, mortar and cranes. . . .

The Flinders-street viaduct was being built when he linked up as a raw engineering student with the Railways Department in 1889, and he had his first taste of big construction work on that job, incidentally weathering the storm of the great '91 flood, when the whole of the location of the existing station was navigable.

Later, as a draftsman, he went down Gippsland way to take charge—practically if precociously—of the substitution of steel bridges at Stratford and Bushy Park for wooden veterans which had been washed away three years in succession by flood waters.

It was on one of these jobs that young Fethney made his first official appearance—or should it be disappearance?—as a diver. He donned diver's dress during the cylinder-sinking operations and climbed down into the swirling depths of the river to see for himself how things were going.

That little incident gives the clue to the man's amazing versatility. Right through, he has insisted on doing things for himself, has struck a happy medium between reliance on subordinates and reliance on self, and so has bricked and mortared a solid foundation for the framework of his engineering progress.

He was associated with the construction of "A" shed and No. 5 shed at the Melbourne goods, and then came back to his first love—Flinders-street—

for its first rearrangement in the middle nineties. That was when the Brighton, Oakleigh and St. Kilda trains were all accommodated at the one platform near Elizabeth-street. With subway and platform construction and extensive track alterations, it was very strenuous and very protracted work—more often than not seven working days a week and frequently 16-hours shifts for the directing engineers.

But all this—combined with such trifles as the duplication of the Flinders-street viaduct, the regrading of the Port Melbourne line and the construction of the Montague shipping shed—was no more than muscle-loosening preparation for the Fethney *magnum opus*—the reconstruction of the Moorabool viaduct.

This was an achievement which demands an inch of type to itself. The viaduct was a quarter of a mile long and 110 feet high. It had been built in 1859 and was beginning to show

signs of the wear of advancing years. In 1917 it was definitely headed in the direction of the bathchair by the opening of the Gheringhap—Maroona line, the heavy engines of the wheat trains from this new line being unable to venture across the venerable structure.

Engineer Fethney took over and carried through the complete reconstruction of the viaduct without any interruption whatever to traffic. The old bluestone piers were retained, but steel trestles were added and new girders substituted for old while normal train running was maintained.

Suburban electrification was the next item on Engineer Fethney's programme. He was associated with the building of the Jolimont workshops, and most of the substations, the strengthening of the tracks wherever necessary throughout the suburban area, and the erection of the supports and structures for the overhead wiring.

He also drew up the plans for and supervised the construction of the Tottenham gravitation yards and the rearrangement of the Melbourne yard, he has built some half-dozen or more country loco. depots, he put Spotswood and the Newport boiler shop on the modern railway map, and the number of level crossings which he has abolished is rivalled only by the number of bridges which he has renewed.

For the past four years he has represented the Victorian Railways on the Town Planning Commission, and he was also a member of the Traffic Congestion Board of 1919, and of the committee which investigated the proposal for a city square.

At the present time, he is, *inter alia*, throwing up an erecting shop at Newport workshops and shifting a small mountain at Adderley-street . . .

Altogether, C. H. Fethney is a handy sort of man to have about the place.

Railway Beautification

By V. LEWIS

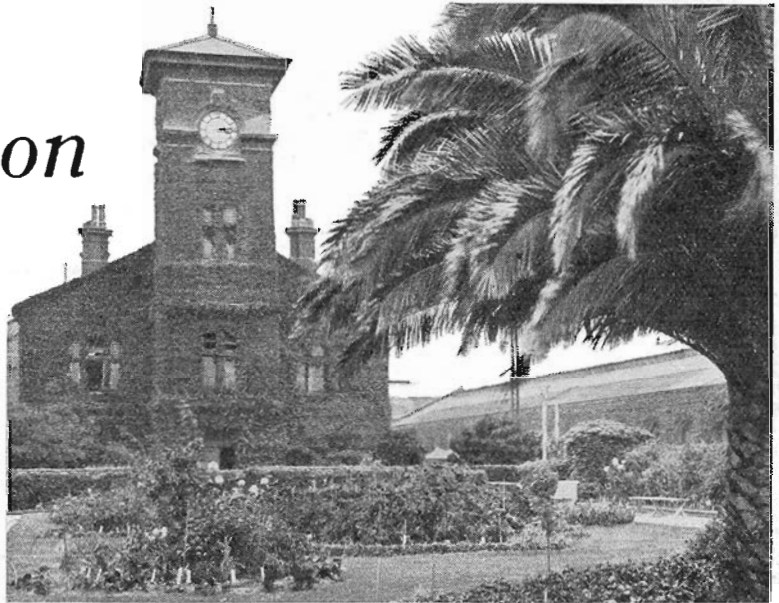
BACON spoke wisely when he said: "God Almighty first planted a garden; and indeed it is the purest of human pleasures; it is the greatest refreshment to the spirits of man, without which buildings and palaces are but gross handiworks."

Reading those words today, and observing the many gardens and flower decked banks, which adorn the surroundings of railway buildings and works, one cannot but realise completely their eternal truth and wisdom.

The Beauty of Ivy

Who is possessed of "soul so dead" that is unresponsive to the dignified beauty of the vine-mantled Newport shops clock tower? What gives the vine its softening, mellowing power to abstract from the harshest building its most unpleasant quality of ugliness, transforming it into something which might almost be called a classical illusion?

The Newport shops creeper is named *Ficus Stipulata*, but the impression of severity its botanical name creates is softened when personal contact is made with this beautiful vine and when its everyday name, Climbing Fig, is known. Similarly, *Ampelopsis Veitchii* is not thought such a dreadful fellow, when his delightful leafy garment of yellow and gold is seen draping the car shops at Jolimont, in the autumn.



The famous clock tower of the Newport Workshops

MANY people think that commercial organisations generally are devoid of the aesthetic sense. This is no doubt true of many concerns which, in the stern contest for business advancement, overlook those finer human sentiments which, after all, are more important to man than mere material success.

Fortunately, this fact cannot be universally applied, and happy is that organisation able to combine with its business activities the power to make the things it deals with, and is composed of, orderly and beautiful. This satisfying state has been reached by the Victorian Railways in many respects; but, in the minds of many a railwayman and railway user, the supreme evidence of its possession of this instinct for the harmonious and the beautiful is to be found in its gardens.

As one travels over the State railway system, the question which comes most readily to the mind is—Who is responsible for its gardens? I de-

cid to find out, and it was not long before I had made myself known to the railway head gardener, Mr. Allan.

We set out for the departmental

nursery at Royal Park. On the way, Mr. Allan explained that the bank at the rear of the railway head office, and upon which now is spread surely one of the most delightful lawns in Melbourne, is composed of decomposed basalt, part of the lava flow which, geologists compute, came from distant Macedon half a million years ago, on its journey to the sea.

Mr. Stewart, the gardener in charge of the nursery, has much to be proud of in his charge. It is truly a most pleasant place. Tall young chrysanthemums in one plot, great flowering cannas in another, and a very fine display of dahlias, made the southern end of the nursery a place of real contentment.

Farther on, in plots interspersed with spotless pathways, were roses, fuchsias, and many another display to gladden the heart.

The Beautiful Umbrella Tree

Then there were the seedling trees—cypress in regiments, like innumerable Christmas trees; gums, blue-leaved and tender, giving no hint in their present form of their ultimate strength and magnificence—and the acacias, silver, golden and Cootamundra. There were ten varieties in all of Australia's national tree. Then the quaint *Melia Azedarah*, the beautiful umbrella tree from the Argentine. This tree is most highly prized in the Republic for street ornamentation.

The conservatory with its palms and ferns is one of Mr. Stewart's show-places. Ferns of the most delicate texture and green, nestled beneath the robust fronds of cool tree ferns; and from the rafters hung baskets which spilled masses of maiden-hair and asparagus fern. It is certain there are few ladies who would not wish to add numbers of these lovely plants to their green-houses.

Then came the bush-house or fernery. Anyone who has not been deep in the glens of Sherbrooke or Belgrave, or some such cool, dark, ferny place, would never form a clear impression of this extremely lovely spot without seeing it.

Ferns, palms and ornamental trees in pots are provided for decorative purposes on occasions of importance, such as the visit of royal personages or notabilities. When thus in use these plants are tended by the gardening staff, just as they were when reposing in the sanctuary of the nursery, and until they are restored to Mr Stewart's keeping.

All flowers are grown at the nursery for their seeds and bulbs. Spare flowers are forwarded to the railway refreshment rooms at Spencer-street for table decorations.

The nursery came into being some years ago, following on the increasing demand of gangers and stationmasters for trees and seedlings. Mr. Allan, anticipating the advancement ahead in

railway gardening activities, and which he has greatly stimulated, suggested to the Chairman of Commissioners of the time that a portion of waste railway land be used for raising plants and trees for railway gardens. The suggestion was acted upon, and the nursery stands a monument to Mr. Allan's vision.

Some idea of the magnitude of its work can be gleaned from figures. In one year 85,000 gums, pines and deciduous shade trees; 100,000 cypress, golden privet, dahlia bulbs, chrysanthemums and seedling annuals and 60,000 small flowering shrubs, were distributed to various railway stations and works. Thus can be computed the tremendous saving this section of the service assures to the Department.

Suburban railway gardens are tended by Mr. Allan's staff, and how well this work is done may be observed every day by every suburban train traveller who has half an eye for beauty.

Country and outer suburban railway gardens are under the care of Stationmasters, gangers and repairers. Some years ago the Department instituted a system of prizes for garden making and maintenance, but while this naturally adds zest to the contest it cannot be said that it is the force which creates and maintains the gardens. Not one of these men but regards his work as a labor of love. If the prize comes to him well and good; but it is the smell of the soil, and the joy all creative work inspires as he watches "the sweet delphiniums and the flocks" and other evidences of Nature's bounty thrust themselves into the air and sunlight, that gives him the zest for his pastime.

A Book—About the Gardener

Some day a book will be written about the gardener. He is one of those rare human creatures who are happy in their calling, to whom an extra hour at his work is not a drudgery but a pleasure. The true gardener—and every gardener is a true gardener—is an artist. Why, I have never discovered—unless by constant contact with Nature he has become invested with her universal harmony.

And, as is quite natural, he is also a philosopher for the same reason as he is an artist. One cannot constantly commune with nature and not learn something about her, and through her, about life.

Such a man is Mr. Allan, the head gardener, a man who "loves to feel the soil run through his fingers." In what breast do not those words conjure up feelings of emotion? What suburban amateur delver who cannot discern in those words the soul of the true gardener?

But, as I said before, all gardeners are true gardeners, and Mr. Allan and his staff are gardeners.

NEW HUDSON BAY STATION NAMES RECALL CANADA'S EARLY HISTORY

THE names of famous British explorers and naval men who were associated with the early history of the Hudson Bay region are commemorated in a number of new stations which have been established along the northern section of the Hudson Bay Railway. The names selected, with their historical significance, as announced by the Canadian National Railways, are:—

Kellett—after Capt. Kellett, C.B., of R.H.M. *Resolute*, who visited Lancaster Sound, Melville and Banks Islands between 1852-54.

Back—after George Back, of the Royal Navy, one of the officers who accompanied Sir John Franklin's party to Hudson Bay between 1819-22.

McClintock—after Capt. F. I. McClintock, R.N., of Lady Franklin's yacht *Fox*, which brought back precise information of the fate of Sir John's ships *Erebus* and *Terror* between 1857-59.

Belcher—after Capt. Sir Edward Belcher, C.B., of H.M.S. *Assistance*, who visited Wellington Channel between 1852-54.

Cromarty—after one of the early Hudson Bay factors stationed at Fort Severn.

Chesnaye—after Aubert de la Chesnaye, a merchant and fur trader of Quebec, in 1679, who started "The Company of the North," and who sent Radisson to Hudson Bay with two vessels in 1682.

Munk—after Jens Munk, who visited Churchill in 1619 in the vessel *Lamproy*.

Bylot—after Robert Bylot, one of the crew of Hudson's ship *Discovery* in 1610.

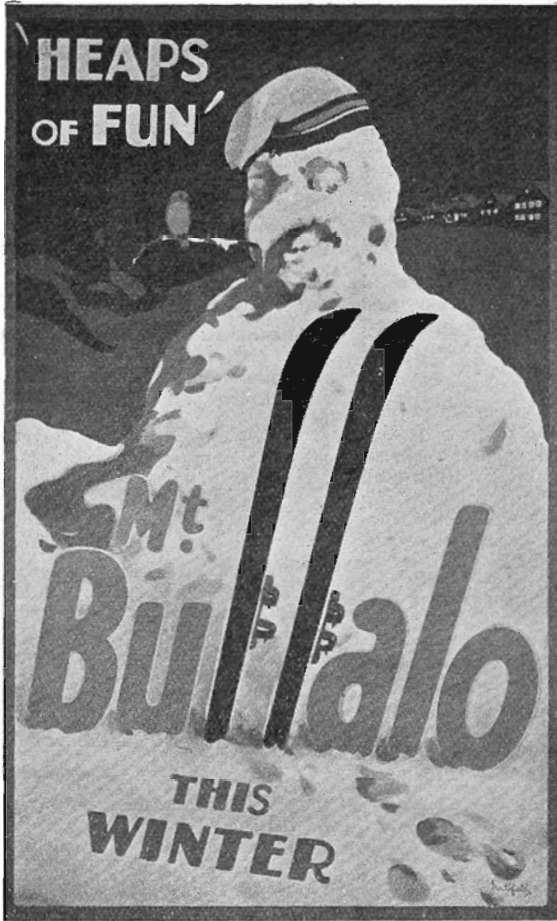
Digges—after an English merchant who with others financed Henry Hudson's trip to Hudson Bay in the *Discovery* in 1610.

Mile 426 has been given the name of "O'Day" after J. E. O'Day, one of the engineers in charge of construction of the new line; Mile 502, the head of tide water on the Churchill River, will be known as "Tidal." The northern terminus, hitherto known as "Fort Churchill" or "Port Churchill," is to be called "Churchill" in accordance with a recent ruling of the Geographic Board of Canada.

The report of the Italian State railways for 1928-29, just published, shows a net profit for the year of 97,000,000 lire (about £970,000). The goods traffic increased from 62,000,000 tons in 1927-28 to 64,500,000 tons in 1928-29.

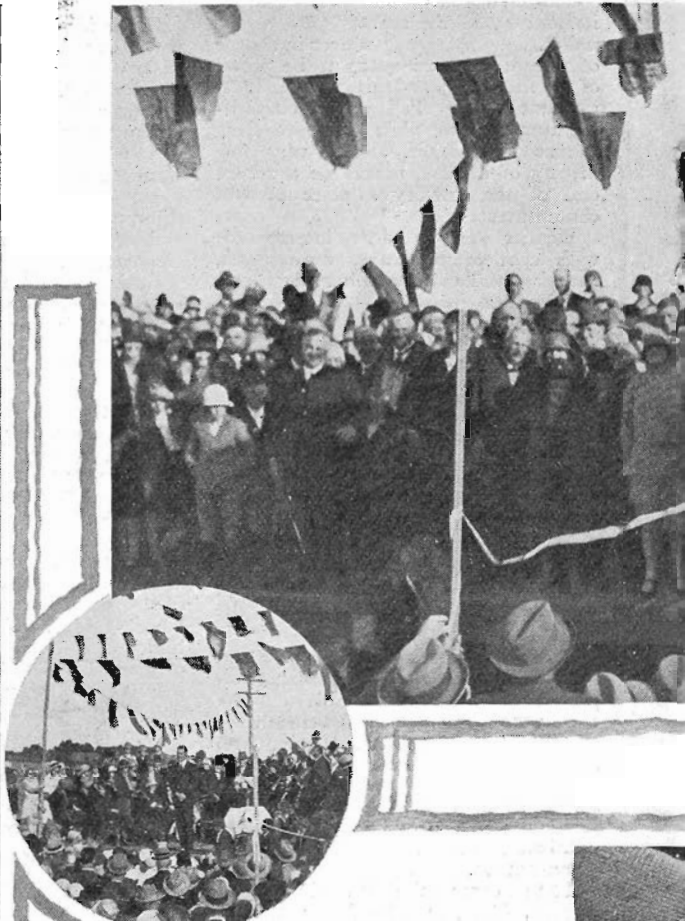
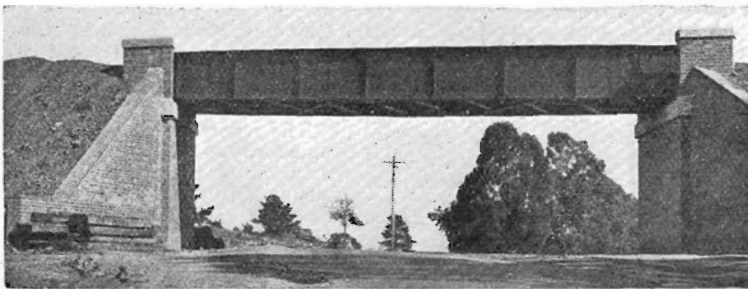
Oliver D. Heavey, supposed to be the oldest railway man in the United States, died in Columbus, Ohio, last month, aged 91. He is said to have been on the payroll of various railroads for 79 years.

The Mont



ABOVE: Northfield's winning design for the best winter poster for Mt. Buffalo National Park.

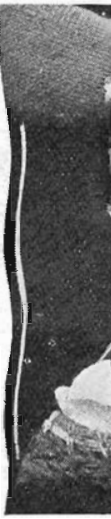
BELOW: The new steel bridge over the main Healeville road at Lilydale.



ABOVE: Lord Somers cuts the ribbon at the opening of the Glen Waverley line.

CIRCLE: The Governor addresses the large crowd at the opening ceremony.

RIGHT: Choice fruit is now being sold at railway stalls in handy baskets of various sizes. This basket costs only 4/-



h in Picture



ABOVE: Tourist Bureau kiosk at the International Motor Show.

LEFT: During Easter the largest escorted party of tourists on record visited Mt. Buffalo National Park—no fewer than 125. (Photo.—P. Lyttle.)

BELOW: Lord Somers recently inspected the Newport workshops. He is here seen with Mr. Clapp, Chairman of Commissioners, on his left and Mr. Taylor, assistant workshops manager, on his right.



Railway Outposts— No. 25 Macedon

MACEDON, the jumping-off station for the fashionable holiday resort of Upper Macedon is situated at the foot of the mountain of the same name at a distance of 43 miles of Melbourne on the main Bendigo line. To the east of the railway line rises the mountain, with the magnificent country homes of many of Melbourne's successful business and professional men scattered around its slopes.

From its location, Macedon is pre-eminently a tourist district and, despite the fact that there is an excellent motor road from Melbourne, and that practically all of the private householders on the mountain run their own cars, passenger traffic is the principal source of the station's revenue. For the last twelve months, no fewer than 8,063 passengers, mostly holiday-makers, purchased tickets at Macedon and contributed £2,499 to the railway revenue.

Luggage Traffic Heavy

Closely associated with the passenger traffic is the huge volume of passengers' luggage which is handled at the station. It is a frequent occurrence for from 15 cwt. to one ton of luggage to be despatched by one train from Macedon only to see a somewhat similar amount arrive by the following train. Which all adds considerably to the work of the station staff.

The parcels traffic also furnishes a steady income, particularly from the despatch of cut flowers to Melbourne. During May, June and July each year,



Stationmaster E. Pennington, Relieving Asst. Stationmaster W. Gwynn and Lad Porter V. S. Lamprell.
Inset: Asst. Stationmaster M. Godfrey

the parcels revenue is considerably increased by the forwarding of thousands of young trees from the State nursery to all parts of the State. The £294 earned during June last year as compared with £46 for April, reflects the extra business from this source. The parcels revenue for the year amounted to £869.

A sawmill is conducted adjacent to the station and despatches all of its sawn timber by rail. With the present depression, of course, the demand for timber is much below normal, and the loading from the mill is comparatively light. Firewood is the other principal source of outwards loading. In all, 1164 tons of goods were despatched by rail last year, representing a payment of £529 in railway charges.

Inwards goods, comprising mainly roadmaking materials, building materials, and general merchandise, to-

talled 3,920 tons and yielded £2,312 in revenue. The inwards loading is adversely affected by the fact that many of the Melbourne warehouses and merchants find it convenient to deliver goods direct to local business houses, using their own motor vehicles for this purpose.

The station buildings are flanked by pines, elms and other ornamental trees which add considerably to the picturesqueness of the surroundings. For the past 17½ years, the station has been in the charge of Stationmaster Edwin Pennington, who has two assistant stationmasters and a lad porter to help him in keeping the wheels moving efficiently at the station. Stationmaster Pennington, by the way, has almost completed 43 years of railway service, unmarred by a single day's sick leave. He will retire on superannuation in November next.

S.C.W.

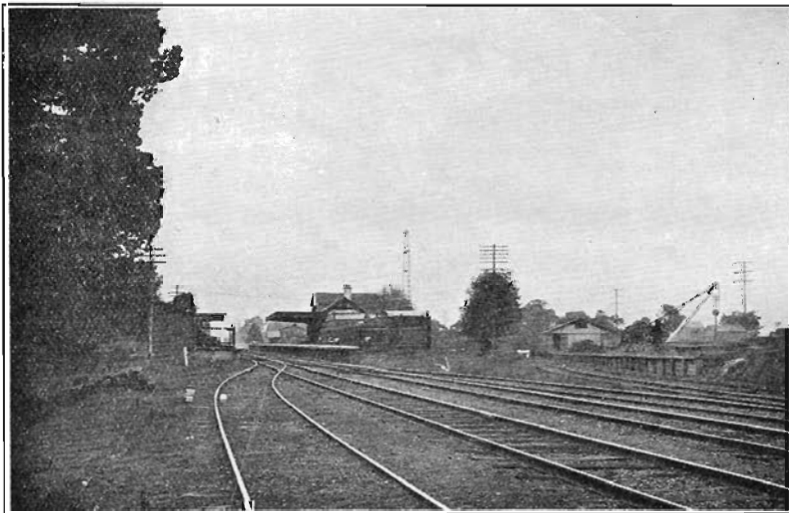
LONGEST RAILWAY TICKET

WHAT is believed to be the longest railroad ticket in the world was sold at the Pennsylvania line's ticket office in Washington recently.

It is nine feet, seven and three-quarter inches in length and entitles the owner to passage over 28 different railroads and into more than one-half of the states in all sections of the country.

QUICKER FREIGHT HANDLING

THE *Railway Age* finds that a 100-mile trip, including time for intermediate shunting and setting out of cars, required nine hours and one minute in 1922 as compared with seven hours and 35 minutes in 1929—a saving of one hour and 26 minutes, on an average, for every 100 miles run by a freight train, or a reduction of 16 per cent. in time used.



The approach to Macedon station

The "Cold Feet" Season Opens

Few are there of the travelling public who have not driven the cold from their toes on railway footwarmers.

By Bert Ford



OR the "cold feet" season lasts from May to September and has many followers. Comparatively speaking, all people suffer the inconvenience of a bleak winter through poor circulation of blood in the extremities. Some

will tell you that they never feel the cold—oh no! it never troubles them. But take the trouble to observe the number of passengers who, on one of our frosty mornings, resolutely push the footwarmers beneath the carriage seat and stoutly ridicule the idea of their feet requiring warmth. Count them. You may do so on your fingers.

There is no shadow of doubt that people find footwarmers most convenient and comforting on the rail journey. A travelling magsman, incidentally, is said once to have found a footwarmer profitable, in that he sold it to a country lad for £5. The buyer was apprehended with his purchase tucked under his arm, and for some

time would not listen to the official demand at the barrier for the return of the railway property.

Victoria favors footwarmers instead of varieties of heating plants installed in trains in colder climes because the comparatively short and mild winter in this part of the world makes any costly installation of plant and equipment an uneconomical, and even unnecessary proposition.

How They are Heated

The method of heating footwarmers is most interesting. Down at the Dudley-street shelter sheds 5,500 of them are divided up among the country districts, which means, of course, that approximately 20,000 travellers could warm their toes at the canned fireplaces of the Railways Commissioners at one sitting. Reason out the daily or weekly statistics—if you have an adding machine.

Footwarmers are of galvanized iron and are manufactured at the Newport workshops. They cost the department roughly 30s. each. The canvas covers are valued at 7s. 6d. and the carpet cloaking used in the parlor cars at about 17s. 6d. each.

At the commencement of the season each footwarmer is filled with 14 lb. of acetate of soda, while two cast iron balls, about the size of billiard balls, are also included. The final shop operation is the soldering up of the tin. Before they are covered and delivered to the carriages, the footwarmers are placed in a huge vat where they are boiled for 1½ hours. The boiling process melts the crystallised soda which has a natural tendency to solidify as it cools. This is offset by the action of the iron balls which roll as the train proceeds and break the crystal up sufficiently to prevent setting.

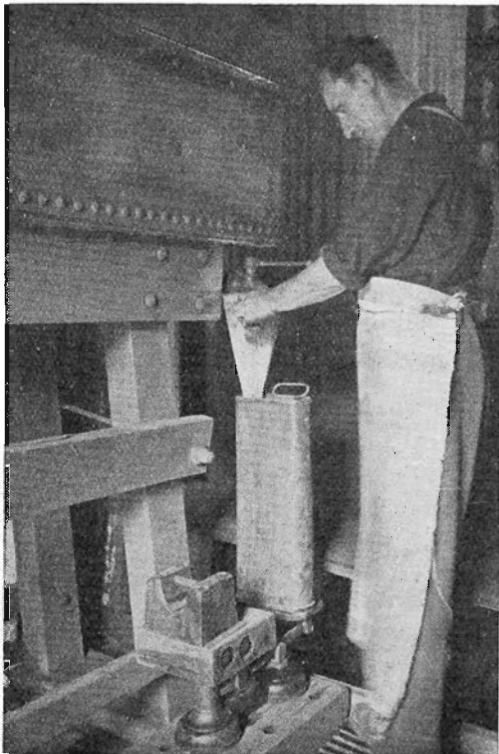
After the first boiling the warmer will retain a good heat for 12 hours. A good shaking up at this stage prolongs its life another eight hours and a subsequent shaking yet another six hours.

A footwarmer container and its cover will last for several years, provided they are accorded reasonably good treatment. Ill-using a railway footwarmer, in fact, is the equivalent of pouring water on the home fire.

DRIVER KILLED IN UNUSUAL ACCIDENT

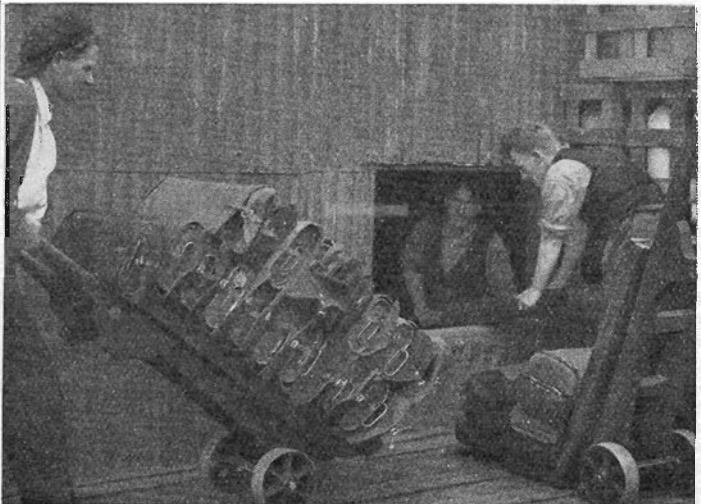
ENGINE-DRIVER Floyd Finch of the Michigan Central's Chicago-Detroit Limited was recently killed as the result of a peculiar accident between Jackson and Ann Arbor.

While the train was running at high speed a brake-shoe loosened on the locomotive and was hurled through the cab, striking the driver on the head and killing him instantly.



LEFT: Filling a footwarmer with 14 lb. of acetate of soda.

BELOW: Transferring footwarmers from the depot to the shelter sheds, where they will be placed in the carriages.



Forgotten Gippsland Roads

By *M. J. Harkins*

Does the road wind uphill all the way?

Yes, to the very end.

Will the journey take the whole long day?

From morn to night, my friend.

Christini Rosetti.

JUST how fittingly these lines apply to the road from Walhalla to Aberfeldy can best be appreciated by walking the 26 uphill miles that lie between. But do not reach the hasty conclusion that the road has nothing more to offer than a steep climb, for it is a means of access to one of the most fascinating and picturesque mining localities in Gippsland.

In this age of mechanical progress when, with the aid of motor cars, the community is apt to take its scenery in large portions, a great deal of the charm and romance surrounding Victoria's fast decaying mining townships, passes unnoticed. Yet, gold was to a large extent the basis upon which the population and prosperity of the State was founded.

Future El Dorados?

As news filtered through of rich discoveries in their vicinity, mention of such names as Aberfeldy, Toombon, Donnelly's and Fulton's Creeks quickened the blood and spurred to activity adventurers in every part of the globe and, though they now hold little significance for the growing generation, there are still old-timers who recall them whenever miners gather to talk of past bonanzas or future El Dorados.

The Aberfeldy road never leaves one long in doubt of its intention to "wind uphill all the way" for, immediately on severing connection with Walhalla's narrow main thoroughfare, it commences a steep climb out of the valley of Stringer's Creek, its erstwhile companion when meandering through the township.

The walker may be truly described as an epicure amongst tourists for, selecting his route with discrimination, he then appreciates to the full all it has to offer. Therefore, as he climbs Kelly's Hill, he will surely stay his stride a few moments to look back on Walhalla cradled in the valley below. From this high vantage point the disfiguring mullock heaps and decaying tenantless houses are hidden, leaving only a charming disarray of homes spilled around the hillsides above the valley or scattered along the tortuous course of the creek. Here and there the symmetry of a spire-like poplar will demand attention as it thrusts a proud crest above the dark green of the surrounding eucalypts, or perhaps



A glimpse through the trees from the track between Donnelly's Creek to Fulton's Creek.

the beauty of an autumn elm "minting gold amongst its leaves" will arrest his eye.

For the next few miles the grade is easier, though ever uphill, until MacGregor's lookout is reached. Then commences a three mile descent into the valley of the Aberfeldy. Here is the place for a camp if the wanderer desires "a bed in the bush with the stars to see," for once past the river water cannot be obtained unless one seeks charity of the proprietor of the Baw Baw hotel, three miles distant.

Massive Mt. Baw Baw

From the river to Aberfeldy the grade never abates. As the road ascends it winds from side to side of the ridge separating the Thompson-river from its tributary stream, the Aberfeldy. Towards the higher levels fine views of the massive Baw Baw Range reveal themselves, whilst in the distance, glimpses are had of Mt. Matlock's bald crest and occasionally the timbered summit of Mt. Useful.

Aberfeldy, once the centre of several flourishing goldfield communities, is now but a tottering remnant of former prosperity. Houses have fallen down or are being rapidly disintegrated by successive onslaughts of wind and rain, the only remaining link with the past being "Svenson's," the first hotel to open and appropriately enough, the last to survive. Though 65 years have passed since she rode on horseback from Kilmore in the year 1866 to join

her husband at the newly discovered Aberfeldy field, Granny Svenson still looks to the comfort of the wayfarer and sees her more hilarious customers are safely abed. Not only is she a hostess in the usual material sense but, for the tactful guest, a source of information and amusing anecdote of those distant days "when men wore curly hats and funny clobber."

But more interesting still, for the walker, is the area south of Aberfeldy lying in the shadow of Mt. Useful. As you come up the road you will mark a notice board bearing the legend "To Toombon." Retrace your steps and take the track—once an old vehicle road—that runs west from this signpost. It has an added charm to those who prefer their scenery in solitude, for the way is barred by fallen logs, and heavy rains have so rutted the road's surface as to render it beyond the compass of the toughest species of car or the hardest driver.

Lyre Birds or Parrots

About 16 miles from the turnoff Donnelly's Creek will be reached. On the way the road descends at times to the creek's edge, and at others climbs some hundreds of feet above the water's level. Occasionally a flock of parrots will scream a malediction on the intruder within their domain or a lyre bird utter shrill warning to his mate.

The old township of Toombon, passed half way, is the first indication of habitation. Situated at the head of a narrow gully it is now comprised of a few tumbled heaps of stones; remnants of deserted homes that were razed by a bush fire some years ago. At Donnelly's Creek a pile of scorched iron and the notice "Telegraph Office" is all that remains to tell the story of a thriving goldfield.

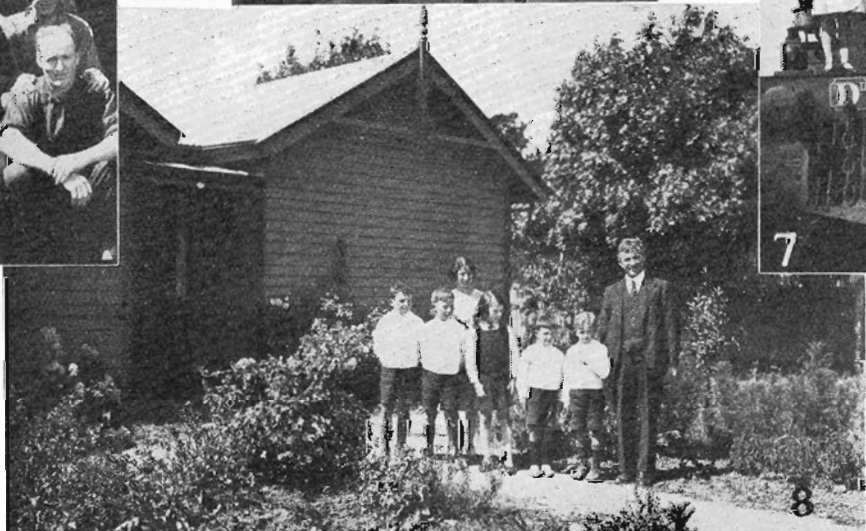
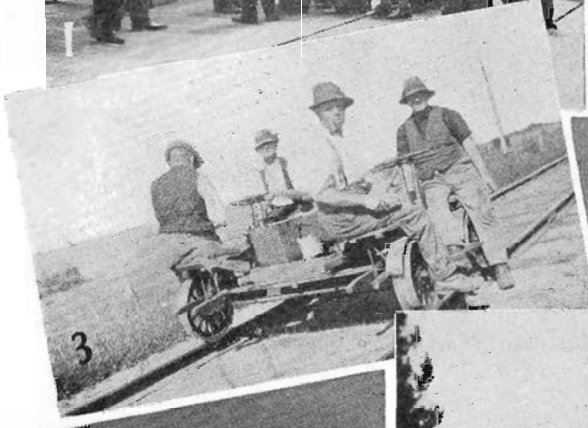
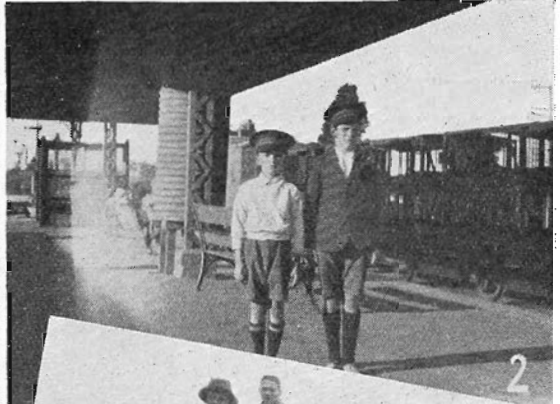
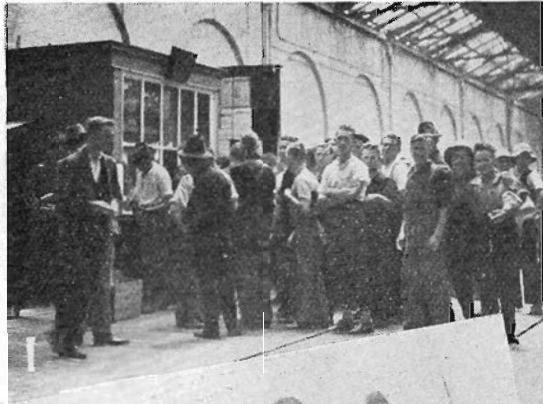
Now the bush is slowly pushing forward its forests of saplings and thickets of wattle scrub to heal the man-made scars in the hillsides and cover the ruins that were once "the homes of men."

Climbing a steep spur between McKean's Creek and the Concord, two streams that unite to form Donnelly's Creek, the road continues on to the springs at the foot of Mt. Useful, whilst a pack track, almost overgrown, crosses the hills southerly to Fulton's Creek. Should the track become difficult to find in places, as probably will be the case, the telephone line that connected the two communities will serve as a guide. Occasionally the

Concluded on page 47

Snaps Round The System

Sent in by Contributors



1.—Poy day at Newport. 2.—Laurie Chapman, son of Signalman Chapman of Tallarook and (left) his cousin Jack Allan—future railwaymen (Photo.—L. P. N. Sullivan). 3.—Ganger Daly and his gang of Fulham, who won second prize for gravel ballast. (Photo.—L. Sutherland). 4.—No. 9 gang at Patchewollock. (Photo.—L. E. Reid). 5.—Since Mrs. H. E. Brown was appointed caretaker at Berringa in 1926, that station has won three first prizes for garden maintenance and one first for tree planting and decoration. 6.—Staff of the Bendigo car sheds. (Photo.—J. Page). 7.—Some of the refreshment room staff at Kyneton. 8.—Stationmaster P. M. O'Sullivan and family of Kilmore.

It Can Snow As Soon As It Likes!

All Preparations Made for Winter Sports at Mt. Buffalo



IT'S snow fun to get a whack on the ear with a snow ball, yet it's good fun. Bookings for the approaching snow season at Mt. Buffalo National Park bear out the statement. The fact that the ski championships are to be held there for the

first time prove that the "man who goes down to ski, then slips," is well aware of the splendid facilities offering for snow sports.

In that period, from August 8 to 15, a cross country race will be run from the Horn to the Chalet in competition for the "Sharp-Brown" cup, given by the genial manager of the Chalet each year.

A Brand New Ski Run

A new ski run has been prepared at the back of the Hump, just before reaching the Horn, and the new jumping-off platform and exhilarating long slope will make special appeal to the enthusiast. This is, of course, in addition to the old run immediately at the rear of the Chalet. Special preparation to the ski and toboggan tracks will ensure their continued popularity, whilst the Whizz-Bang and the Lake Slide will again attract beginner and expert.

Provision for the coming season has also been made with a purchase of new skis for the sports store, which is now stacked with a full complement of skis, snow shoes, flexible flyers, luges, toboggans, sleighs and skates. Skating on Lake Catani is one of Buffalo's thrills, and very few fail to venture on the ice.

The surface of the road from Porepunkah to the Chalet has been widened by the Country Roads Board to a uniform 18 feet, all sharp curves have been flattened out and the magnificent



It's snow fun—but it's always good fun

scenic highway is now open to two-way traffic. Between McKinnon's-turn and the Gap the road reaches its highest point—4,500 feet above sea level.

Every halt along the road having been rendered unnecessary, motorists are now able to make the ascent from Porepunkah at the maximum speed of 15 miles per hour, reaching the Chalet comfortably in an hour and a quarter.

Never has the departmental motor fleet been so competent to cope with Buffalo's requirements as at the present time. Saloon cars have had their ranks supplemented to meet the seasonal

influx.

Painters have been engaged for weeks giving the Chalet a new coat—over which, of course, a mantle of white will shortly be placed, at no expense to the administration. The interior, too, has been newly furnished and new luxurious carpets everywhere lie soft and warm underfoot.

Panelling and redecorating of the ballroom give a new and pleasing touch to that popular rendezvous of the winter evenings

There are still a few vacancies for immediate bookings.

New De Luxe Dining Car for Canadian Pacific

THE last word in car construction came over Canadian Pacific tracks into the Windsor-street station last month when the dining car "Alnwick" was released from the Angus Shops for service on the Trans-Canada Limited, cross-continent train de luxe, which will start its season's runs to the coast next month. The car is one of 15 similar diners that will be used on the Trans-Canada and the Mountaineer.

The "Alnwick" comprises dining car, pantry and kitchen, and is 84 feet in length over all, weighing 94 tons.

It will seat 36 people at meals and is illuminated by 48 lights, sixteen more than in the old diners, arranged in

BELIEVE IT OR NOT!

IT is alleged that an 18-year-old boy named Merle Todd of Michigan recently fell from the top of a slow moving goods train but, in falling, struck an air hose, which disconnected and stopped the train before the wheels reached his body.

Although seriously hurt, the report proceeds, the lad will recover.

three-globe brackets down the centre and sides of the car. The color scheme is blue and gold, the chairs being upholstered in blue calfskin with gilt studs, a color that is echoed in the blue of the window shades and the heavy-piled Axminster carpets. Tables are of solid walnut, while the panelling of the walls is of the same wood inlaid in marquetry. For the greater comfort of passengers these tables are two inches lower than those formerly in use, and each can be taken out and stored away when not needed.

Railwaymen of the Month

June Birthdays



Charles Mullany of the Better Farming Train

RAILWAYMEN will be consuming birthday cake in all parts of Victoria this month. Bendigo will be celebrating at the beginning and again at the end of the month, Chief Clerk Charles Wadelton qualifying for congratulations on the fourth, Clerk H. J. Fitzmaurice on the 29th, and Block and Signal Inspector McIntyre on the 30th. Others in country districts include Driver W. Ludge of Korumburra on the sixth, Depot Foreman W. M. Ross of Ballarat on the 12th, Driver Ballantine of Seymour on the 15th, Leading Engine Cleaner C. H. Pevitt of Benalla on the 19th, Guard B. Jones of Donald on the 21st, and Chief Clerk C. P. Golden of Geelong on the 27th.

Among the men in Melbourne and suburbs who will help to keep the round of festivities moving are Charles Mullany of the Better Farming Train, on the third; Transportation Staff Officer R. McClelland, on the fourth; Phil Mavnard of the Transportation branch, on the fifth; Signals and Telegraphs Chief Clerk Jack Ford, on the seventh; Newport Manager E. W. Arthur, Rolling Stock Chief Clerk Tom Coulthard, Way and Works Engineer A. K. Bartel, Les. Barrett of Room 2, Acting Auditor of Receipts D. H. Falconer, and Bonding Foreman W. C. Pain of Flinders street, on the eighth; Guard P. H. Ross of Melbourne Yard and Tom Sullivan, Assistant to the Metro. Superintendent, on the 10th; Rolling Stock clerk S. A. Rosier, on the 13th; Audit Inspector Bill Davidson and Advertising Sales Officer C. P. Mulcahy, on the 14th; Special Officer J. McDowell of the Traffic, on the 15th; Relieving Stationmaster J. T. Roscholler and Bookkeeper W. H. Tregoning of the Accountancy branch, on the 17th; Workshops Manager Deacon of Jolimont, on the 19th; Way and Works Assistant Chief Engineer Arthur Goudy, on the 21st; Bill Brandy of the Transportation and Assistant Claims Agent P. A. Fankhauser, on the 25th; Reg. Wotherspoon of the Tourist Bureau and Railmotor Engineer T. O. Pugh, on the 26th; Prosecuting Officer Jim Hennessy and Leading Shunter C. Rudd of the Melbourne Yard, on the 27th; and Engineer J. Fowler of the Betterment and Publicity board on the 30th.

Three of Them



AND now the third. Tom Lewis adds a third ball to his secretarial conquests, and is the active advocate for the next Victorian Railways charity cabaret ball, which will be held on June 26. Although this really makes but the second annual rail-

way ball, there was sandwiched in, too, the highly successful Railway Queen charity ball, and Tom's association with this was also in the capacity of secretary. He expects the coming function to equal or even exceed the spectacular cabaret carnival of last year. If his enthusiasm counts for anything, it will.

For London

ONLY 27 years of age, Assistant Engineer J. C. Kubale of the Electrical Engineering branch, has accepted the offer of a responsible position with the Rail Brakes Ltd., a subsidiary company in London of the American Metropolitan Vickers—General Railway Signal Company. He will be engaged on work connected



with the installation of car retarders in Great Britain and other countries. His Victorian rail career has been one of rapid progress. Joining as an apprentice electrical fitter in 1919, he was appointed junior draftsman in 1923, and engineering assistant the following year. Twelve months later he left for America to gain experience, graduating in the engineer's test course of the General Electric Company and continuing with that firm in its railway engineering and substation construction departments. Experience was also gained with the Illinois Central and the General Railway Signal Company, to which firm he is returning. Since his return to Australia in 1928, he has been engaged on substation construction work. He is journeying to London via America to obtain the latest information available in the States concerning the car retarders.

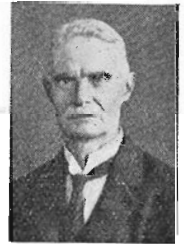
41 Years

FORTY-ONE years service and not a mark against him. With that fine record, Fireman A. M. Harrington of Sale retired last month. A watch and tobacco pouch, with a silver cake dish for his wife, were the staff's farewell gifts.

Departed on Time

MATTHEW Doherty has retired.

No longer will his square-shouldered figure parade the floor which the Superintendent of Loco. Running commands. It will be strange for Mat. to move outside the circle of enginemens and the atmosphere of locomotives for, with the exception of some few years, his railway life has been wholly spent within the confines of administrative walls. Originally with Mr. Jacks, then with Mr. Harry Lewis, and later with Mr. Burgess and Mr. Lorimer, he now retires during the regime of Mr. A. R. Stamp. He was a fine athlete in his day and played with the first elevens of Ormond, Essendon, and North Melbourne. His fine career as a railwayman was reviewed when the Chief Mechanical Engineer, on behalf of the Rolling Stock staff, presented him with a case of cutlery, a tea service, and a well-filled wallet of notes.



Beat 13

ONE of the finest tenors in Melbourne, Will Davey, popular steward in the Institute billiard room, has been singing at Institute functions in railway centres throughout Victoria for years. Although placed No. 13 in the list of entrants, he carried off the tenor solo championship at South-street in 1916. He is connected—vocally—with many churches as leading tenor, and was for seven years leader of the Scots Church choir.



Helping Unemployed

AS debater, sportsman and good citizen, Contracts Officer Peter J. McCracken of the Stores branch has made a name for himself outside the job as well as in it. At the present time he is actively as-



sociated with the Footscray and Yarraville district campaign for the relief of unemployment. A pet scheme of his has just been recommended to the central committee. It is the issue of a neat two-color badge which contributors to unemployment relief will exhibit on shop and house windows and motor screens. Holders of certain lucky badges will be entitled to nominate out-of-work relations or friends for a definite period of work under the scheme.

Brief Personal Items

All Manor and district turned out to farewell Stationmaster F. Critchley and his family on their departure for Buninyong, where the popular stationmaster is now in charge. He was at Manor for 7½ years, and several handsome gifts were presented to him, his wife and his children by district residents and railwaymen.

Retiring from Creswick, Stationmaster C. Benussi has entered into business pursuits.

Friends of Stationmaster S. F. Walters of Whittlesea, will regret to learn that failing health has forced him into retirement.

Works Foreman J. M. Elliott has retired after 42 years service.

Assistant Train Running Officer J. Gingell of Maryborough was successful in winning first prize for the best flower garden in Maryborough during the recent competition. He also gained numerous first and second prizes for individual exhibits.

Engine-driver J. S. Davies was farewelled at the Mildura loco. depot on his retirement after 42 years of service. He has represented the A.F.U.L.E. on the local trades hall council since its inception, and was presented with a gold watch for himself and a bronze vase for his wife.

Last Mile Post

William T. Troughton



FOLLOWING on a long period of indifferent health, Mr. W. T. Troughton, retired chief clerk in the Ballarat District Superintendent's office, has died. He entered the railway service in 1897, was employed for many years in Room 9, and was later district superintendent's clerk at Seymour. He was chief clerk at Ballarat for five years and was only 48 years of age at his death.

World's Longest Suspension Bridge

WORK on the world's longest suspension bridge, joining Fort Washington in New York City and Fort Lee in New Jersey, across the River Hudson, is proceeding rapidly and it is hoped that the structure will be completed in 1932. The span of the completed bridge will be 3,500 feet—almost twice the length of the "Ambassador" bridge—and the cable towers will be 635 feet in total height.

The cables will be capable of carrying a load of 350,000 tons, and it has been estimated that approximately 19,000,000 passengers in 8,148,000 vehicles, 1,500,000 pedestrians, and 500,000 buses will cross the bridge during the first year that it is in opera-

tion. The bridge will accommodate fourteen streams of traffic, and will have two sidewalks and four electrified railway tracks.

The total cost will be approximately £20,000,000.

About 13,000,000 meals a year are served to travellers by the Canadian Pacific Railway, which is the equivalent of saying that it provides 37,000 every day and 259,000 every week of the year. This gigantic total is made up of about 4,200,000 in dining cars and station restaurants; 4,450,000 on Atlantic and Pacific steamships; 1,350,000 on inland coastal steamers; and 3,500,000 in the company's hotels and bungalow camps.

A SHATTERING ANNOUNCEMENT

A NEW MALVERN STAR



ROADSTER MODEL

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FREE INSURANCE and GUARANTEED FOR 10 YEARS

HERE is the cycle you've been waiting for—a genuine "MALVERN STAR" Roadster for £9-10-0.

Realising the public need for a low-priced bicycle that would combine strength, easy running and reliability, Bruce Small Pty. Ltd. have produced the new "MALVERN STAR" Model No. 5, a machine featuring these necessary qualities at a price within the reach of everyone

This new "MALVERN STAR" may be purchased for £2 down and 5/- weekly, it bears our usual 10 YEARS' GUARANTEE CERTIFICATE; is INSURED FREE AGAINST ACCIDENT AND THEFT, and is not built down to a price, but up to that same standard of excellence that has made the name "MALVERN STAR" famous throughout the world.

Call or write for particulars of the new Model No. 5, TO-DAY

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By AERIO

AERIAL EFFICIENCY

WHILE admitting the limitations of this analogy, "Aerio" has, through its medium, succeeded in emphasising in an interesting and simple manner the essential aerial requirements for good reception.

A RADIO receiver is a sensitive instrument, which converts into intelligible sound (music, speech and so on) the tiny electrical currents which reach your aerial from the broadcasting stations.

These currents don't bump against the aerial wire haphazardly. They are actually looking for an easy path to get back to earth, and will take the best path offering. *Make sure that this path is your aerial system.* And, above all, make doubly sure that they go to earth through the proper end of your aerial, that is, through the lead-in and the set.

If you have a good aerial, 20 to 30 feet high, the same height at both ends, a lead-in kept well away from the house until it reaches the lead-in tube, your aerial should be O.K., provided it is well insulated at both ends. *This aerial will provide a good path for the broadcast currents only when tuned to the particular frequency to which they will respond.*

There are three points in an aerial where the currents might leave the aerial and leak away to earth. These are at each end, where, by reason of a wet or dirty insulator, or an insulator not large enough, the current creeps along a wet or dirty rope to the aerial mast or tree, or whatever is supporting

the aerial, and down this support to earth. The third point is at the lead-in tube which, if not of sufficiently insulating material, will allow a portion of the current to creep down the outside of the wall to earth.

It is possible to lose half your energy by such leakages. The remedy is obvious. See that you have at least three large insulators between the ends of the aerial and its supporting masts. If you are using trees, see that the nearest insulator to the tree is well beyond the branches. The lead-in should be a continuation of the aerial wire, but if the wire is found to be not long enough to constitute both aerial and lead-in without joining, then the lead-in should be well soldered to the aerial at the extreme end (within a couple of inches from the end).

Six-Foot Jumps

See that the aerial and lead in are at no point nearer than six feet from a tin roof, tree or wall. Imagine that the broadcast currents, which for the purposes of this article we will call "electrons," can jump between the aerial and any other object within six feet, provided this other object is connected to the earth either by being buried in it, standing on it, or fastened

to something else which is connected to earth.

Now make a critical examination of your aerial. Can these little electrons jump between your aerial or lead-in to any other structure within six feet of it? Of course where the lead-in is brought into the house you can't avoid coming within perhaps half-an-inch of the wall, particularly if an ordinary lightning arrester is screwed on to the wall and connected to the lead-in at this point. Some of your electrons will get away here, and the best you can do is to avoid undue loss. If you can get a lead-in tube which projects a foot on each side of the wall, this will help to avoid loss, and a "Philips" aerial cop lightning arrester will take care of lightning and heavy static without capacity loss.

Take a look at the lead-in now from inside the house. If there is no lead-in tube, but only a covered wire put through a ventilator or hole in the wall, you must certainly get a proper tube.

If you can, visualise the tiny electrical impulses which I referred to as electrons and imagine that, of 100 of these which have landed on your aerial (previously tuned to receive them), you have coaxed 80 down the lead-in as far as the lead-in tube. On the way through the tube

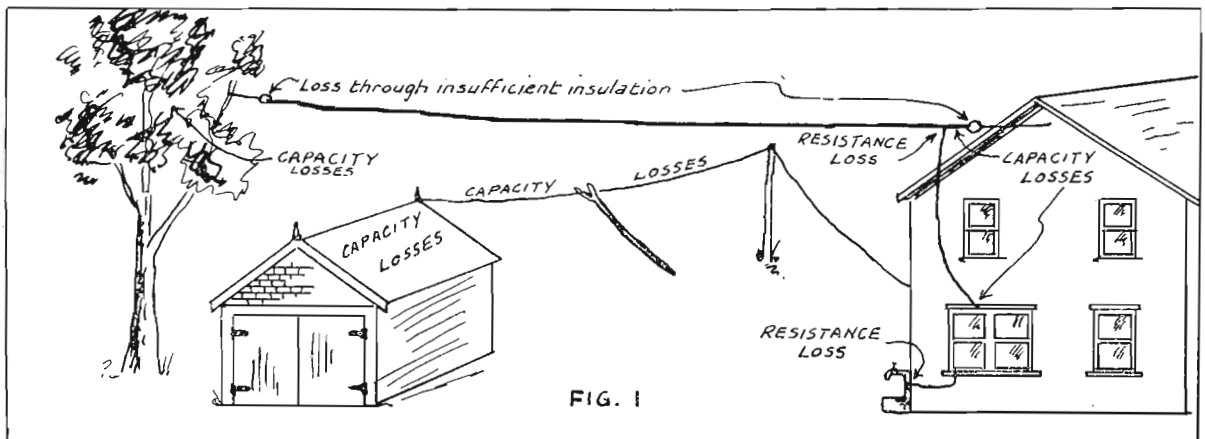


FIG. 1

you will easily lose another 20, so that you have still got 60 to work for you in the little cages on your set which you call your tuning coils.

What a pity if you allowed another 40 of these electrons to escape before you could get them into the cage! Well, you have got to get them from the lead-in tube down to the set. There will be a little congestion wherever a terminal connection is made, and to a lesser extent at every soldered joint. Consequently those behind will be showing those in front, and the stronger ones and even some of the weaker ones will certainly jump off if much congestion occurs. And remember they can jump six feet.

Your wall is connected to earth through the foundations, and if you make the mistake of fastening the wire which connects between the lead-in tube and the set too close to the wall, or even against the wall (as I have seen in numerous cases) how many more electrons will you lose the moment any congestion occurs?

Away from the Wall

From the foregoing you will see that even after the aerial is brought into the house you must certainly avoid walls close to it where possible. Of course you can't drag the set six feet into the room, but you certainly can keep it a foot or so from the wall and see that the wires leading to it are not tacked on to window frame or wall. In fact, if you have a lead-in tube projecting a foot on each side of the wall, as already suggested, it will be a decided step towards efficiency by reason of the fact that the wire coming down to the set will be kept out from the wall for its whole length.

All right; you have got some of the electrons into your "cage." A fair number, let us hope! And a greater or lesser number only according to how you have coaxed them. They will do their work here before passing out on the earth wire. Just how they do this work will be explained another time. It really doesn't matter at this stage.

What *does* matter though is that, having done their work, you get rid of them quickly and effectually, so that those coming on behind can do their work without any banking up or congestion. So sure as there is congestion from start to finish on this aerial-earth path, off will jump the stronger electrons, leaving the weak and comparatively useless ones for work which they cannot be expected to do effectually.

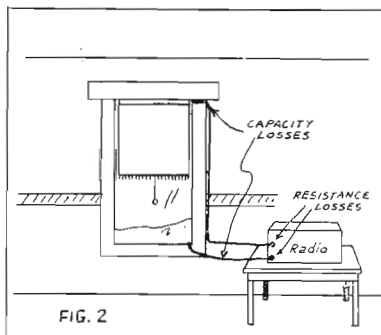
Provide an easy path for them to go to earth after leaving the set. Let this be a number of wires bunched together (at least half a dozen). For reasons which have already been explained through these pages, these wires should be insulated until they reach the earth plate, or water pipe, or whatever "earth" is to be used, as

this assists in sharp tuning, and a sharply tuned aerial provides the best path for electrons quite apart from other considerations.

Now as regards the actual "earth." This must provide a large surface actually touching and at least a foot below the ground. The greater the surface the greater the number of jumping-off places for the electrons.

A water pipe is usually used in the suburbs. This goes into the ground and well beneath it for probably 20 feet without a joint. There is a good deal of resistance in the iron of which such pipes are made, and it is therefore better to connect the copper wires to such a pipe beneath the ground, making sure that the pipe has been thoroughly cleaned (filed) where the connection is made. Otherwise you have a greater source of congestion than ever, and your electrons will bank up along the line with the effect I have already explained.

Unless you can get at the water pipe



to make this connection within 15 feet of the set, it is far better to bury a sheet of galvanized iron, or an old copper, and solder the earth lead to it, thereby keeping the earth lead short, and consequently reducing the resistance.

If your existing earth-lead is soldered on to a tap or water-pipe, make absolutely sure that you have not set a trap for yourself. Most plumbers use hemp, cotton waste and other material (which offers a very high resistance to radio currents) where they join taps on to pipes or where they join two pipes together, and such an insulated joint between where you have your earth-lead connected and the point where the pipe enters the ground would be absolutely disastrous to efficient reception.

In describing the aerial-earth system, we passed lightly over the aerial coil, which, for the purpose of analogy was termed the "cage." As this forms a very important part of the aerial-earth path taken by the electrons, it will bear a more critical inspection.

The aerial-terminal on the radio set should be mounted on some insulating material to avoid losses of electrons, some of which will otherwise creep away to earth without going through the coil. If the electrons have to pass through a small fixed or variable con-

denser before reaching the coil (a doubtful practice but nevertheless employed in many circuits), this condenser also must be well insulated. Furthermore, the leads in this path should be of stout wire, and well soldered to the respective terminals.

There is not the same risk of electrons jumping off the coil once you have got them on to it, and provided it is kept four inches from metal panels or other large masses of metal, such as tuning condensers in the set, this could be regarded as reasonable for a 2½ in. or 3 in. diameter coil. Smaller coils can be brought closer, but are less efficient on the broadcast band.

It might be argued that the coil is in some circuits connected to a variable condenser, one side of which is earthed and that, as the moving "vanes" of this condenser are brought into mesh, the effect is similar to bringing the coil closer to an earthed metal object.

This is so, of course, and accounts for the fact that, if such a circuit is in use, losses occur as the capacity is increased and distant stations on the lower scale, such as 7ZL, are difficult to receive. Modern types of set, however, usually employ what is known as an aperiodic aerial coil, consisting of a few turns of wire (say, between 10 and 25), which are untuned and consequently need not be brought close to an earthed metal object, but are "phantom" tuned by being brought into the field of another tuned coil.

For Extreme Efficiency

The effect of bringing such coils into the field of a tuned coil will be explained in another article.

A source of loss which must not be overlooked if extreme efficiency is desired lies in the material on which the coil is wound. Here you have the wire, forming part of the aerial-earth circuit, wound around and actually touching material which is "earthed" in the same sense as the window-frame or wall is "earthed."

If the coil former therefore consists of ordinary cardboard, which attracts a certain amount of moisture from the atmosphere and becomes more or less conductive, considerable losses may occur. Electrons would escape through the former perhaps to the baseboard, which might not be of well-seasoned wood, and thence to earth.

Particular care should be taken with the former to avoid these losses. Ebonite formers are good; composition formers are a little less efficient, and cardboard dried in an oven and then coated with shellac is fairly good. The most efficient way of winding coils, however, is that described through these pages on several occasions, where strips of celluloid are laid lengthwise on a cardboard former, the wire wound on and attached to the celluloid with

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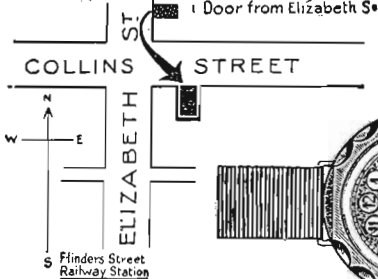
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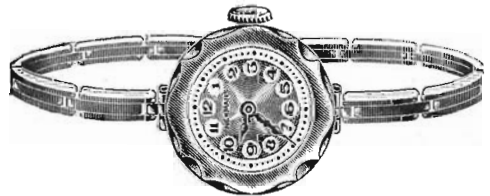
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Milady's Page

BY NANETTE

Solving the Evening Gown Problem . . .

IT'S rather a problem to decide on one's outfit for the coming social season. Of course there's no question of the length of the gown—it must be ankle length.

THE difficulty is in the style and the material. With so many delightfully pretty shades of gowning and a profusion of dainty designs, one is apt to be momentarily bewildered. Popular materials offering in present day, or rather evening, frocks are the soft clinging materials—the chiffons, fissure nets and panne velvets—whilst for the boufont order, taffeta (plain and floral) and moire have proved both suitable and becoming.

Quite recently, at one of the leading city houses, I selected a very chic outfit for the railway ball this month, and was able to obtain the accompanying photograph of it at the showrooms.

The frock was pigeon's breast fissure net, cut with the long princess silhouette and a popular long flared skirt which fell in uneven points around the ankles. Over it was worn a brocaded tissue evening coat, three-quarter length, with shirred cuffs and finished with fur collar and trimmings. The coat was lined with crepe de chene.

This coat incidentally serves the dual purpose of bridge coat and evening coat, and the economical girl would be well advised to consider its addition to the wardrobe.

Satin shoes may be worn either to tone or in contrasting shades. As a matter of fact, black frocks with red and even blue satin shoes quite intrigued me.

And a word here in advance of the times—it is a foregone conclusion with fashion leaders and designers that the longer evening dresses are preceding the inevitable longer day frocks.



WHAT WOMEN MAKE THE BEST WIVES ?

IN the April Magazine, I had the temerity to attempt to suggest the type of men who made the best husbands. I have since received the following letter from a correspondent who signs himself "A Mere Male." He wants to know what women make the best wives. I will let him speak for himself.

Dear Nanette,

Now that you have decided on the men who make the best husbands, what of their wives—the women who choose those men? What guide has the mere male in his selection of a life-mate? How tells he that his future wife is a sweet-tempered, considerate helper to accompany him along life's pathway? What really influences him in his choice of a wife?

Does he aspire to possess himself of the dainty exquisitely-gowned butterfly whose flutterings may arouse a strong appeal? Or does the business woman with her shrewd and calculating ways attract his economic self in admiration of her sense of management? Or is it the homely wench, who by her ready anticipation of his every want and her infectious, jolly nature, has best chance of sharing his responsibilities?

Maybe there's a mingling of all these qualities. Maybe there's no trace of any one of them. To my mind no type is more fitted for the position of wife than another. For I cannot see that there are any different types of the opposite sex at all, except perhaps from the viewpoint of physical beauty. Each woman has her own personal and individual charm, her own way of expression, her own manner of attraction, and the kindling of the sacred love of a man for a woman is as peculiar to herself as the manner in which she rebuffs an unwelcome intrusion.

As I see it, no one woman is more fitted to share man's vicissitudes in life than another. It is the realisation of her wifely responsibilities that makes or mars her marriage.

—A MERE MALE.

Make the Most of Apples While They're Here

Apple Loaf

Take enough bread dough to make a small loaf. Work into this a tablespoon of butter and one-third cup of sugar, one-half teaspoon of cinnamon and one egg which has been well beaten. Add a little flour, knead and let rise. Divide this into three parts, roll each to fit the pan. Put one layer into buttered pan, spread over with a layer of finely chopped apples. Pour over this melted butter and a little cinnamon. Lay second piece of dough on the top and proceed as above. Allow to stand. When it is very light brush it over with milk and steam

an hour and then brown lightly in oven. Serve in slices with pudding sauce.

Sauce

Cup of sugar, tablespoon of butter, dash of salt, vanilla flavoring, two cups of water. Thicken with flour.

Caramel Apples

Boil two cups of sugar with one and one-half cups of water. Peel and core six or more apples, leaving them whole. Drop apples in boiling syrup and turn often while cooking. As soon as tender, when tested with a straw, remove apples to individual plates and fill

centres with a caramel mixture made as follows:—Cook one-half cup of brown sugar and one-quarter cup of milk to a "soft-ball" stage. Then beat until cool. Add the juice of a lemon to the syrup and let it boil down. Add one tablespoon of gelatine which has been dissolved in two tablespoons of cold water. Let cool, beat and pour over and around the apples. Sprinkle chopped nuts over the apples and serve with whipped cream. Recipe may be varied by filling the apple centres with raisins and nuts and by omitting the sauce made with the syrup.

Housewives Can MAKE Flowers!

IT'S not easy to fool nature and get away with it. But, quite recently, I went up to Dennison's flower-making exhibition and demonstration and was astounded at the perfect reproduction of lovely flowers.

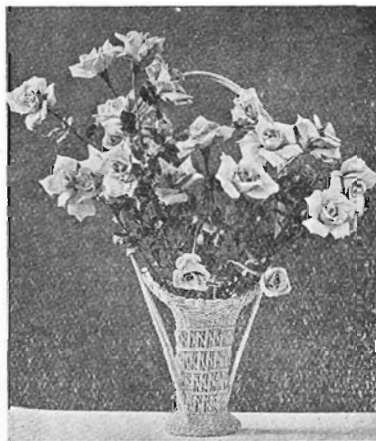
Made of beautifully tinted crepe paper, these imitations surpass anything I have seen yet. Delicate flowerings of peach blossom, the drooping snow drop or the jessamine cluster profusely in their baskets . . . lovely examples of a new art which make a fascinating and distinctive hobby.

There's no flower whose natural charm cannot be faithfully copied, and copied so well as to defy criticism. And if you're interested enough to want to learn this art, there are daily demonstrations, classes and tuition at no cost. That's the incredible part of it. On the fifth floor of Robertson and Mullens' building is to be found this hive of industry. Women of all ages and school girls are eagerly learning to transform rolls of crepe paper into Flanders poppies, waratah blooms, and wisteria, or any flower which takes their fancy.

Fresh flowers are loveliest on their bushes; cut, they wilt, and having wilted, lose all their glory. Crepe

flowers with their dainty appeal may be made at will with no waiting for seasonal growth or climatic changes.

There's scope enough for the artistic temperament—and what woman is without it?—to turn her rooms into arbors of choice flowerings which, without exuding perfume, give the atmosphere of Nature's blooms.



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Signal and Telegraph Branch Romance



Miss Stephens, who is now Mrs. Way.

MISS NELL Stephens is now a-way. It's a fact. As Mrs. Way, of course.

When the staff of the Signals and Telegraph branch gathered to say appropriate words prior to her marriage to Mr. J. F. Way, of the same branch, they presented a tangible

form of esteem in a handsome 66-piece dinner and tea-set.

Mr. S. P. Jones, Assistant Chief Engineer, made the presentation on behalf of the staff, and spoke appreciatively of Miss Stephens' sojourn in the Department. The pioneer of her sex in the branch, she entered the service on 6.9.23, and achieved the distinction of gaining second place in the recent open typing championship. Maintenance Engineer Forrest responded on behalf of the popular ex-typiste.

On a subsequent date, Mr. Jack Way was the recipient of a travelling bag, rug and smoking stand, when Chief Clerk Ford officiated.

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RAILWAYMEN in SPORT

By REG. HUNT

Railway Football Season Opens Well

ALL the Railway football teams made a start on Wednesday, May 14, and everything points to a successful season. The Wednesday League team has lost a large number of last year's regular players, but the new men came right up to expectations, and the side had a comfortable victory over the Fire Brigade.

The three matches in the Railways Association were fairly well contested, and when the two new teams shake down there will be some very interesting contests.

Railways v. Fire Brigade

The Railways team expected a very hard game, but the whole 18 played surprisingly well and demonstrated that, notwithstanding the loss of many leading players, they are going to have a big say in the disposition of the premiership pennant.

The committee was dubious, of course, with so many new players, but a strong, fast side has been got together. They were much too good in the first half and literally ran over their bigger, but slower, opponents. With the scores 7-10 to 1-1, at half time the game was practically over.

Railways failed to score in the third term but they had slightly the better of the last quarter, and ran out winners with the scores 9-12 to 3-5.

There were ten new players, the best of whom were Nosedá, Sarsfield (who played a few games with Essendon last year), Morelli (who has been elected captain), Gough (who has played with Hawthorn and Camberwell), Hulse (a rover and forward from Kew), Jack Summers (a promising follower from Newport), Wood and Mumford. Miles (half back) was the best player. Russell is vice-captain.

The team will be greatly strengthened when L. Murphy (Collingwood), McKay (Footscray), O'Brien (Williamstown) and Forty (last year's captain) come in.

Mr. W. Lewis is again president and Mr. W. A. Clifford, secretary. The vice-presidents are Messrs. A. Danks, R. Monar, G. Samson, D. Sleeth and J. Waldron.

The only match which will be played in June is that at Collingwood against the Post and Telegraph on 2nd. The next is on July 2 against Fire Brigade at Fitzroy.

Railways Association

THE weather conditions were unfavorable for good football in the Railways Association games, but the keenness of the various teams made up for any deficiency in that regard. The new "holding the ball" rule was very troublesome (it has been to all League and Association clubs), but as

time goes on the players will get quite accustomed to it.

The Association umpires were again engaged and they pleased everybody.

The new team—Heidelberg—Reservoir—won its first match beating the Eastern lines by 9.11 to 4.9. The goal-kickers for Heidelberg were Cleary (2), Cross (2), Reardon, J. Wilson, E. Wilson, McDonald and Kennedy, and for Eastern lines Coomber (2), Maginniss and Clarke. The best players were: Heidelberg—Rowe, M. Whelan, Power and Cross; and Eastern lines—North, Matthews, Maginniss and Trip.

At Port Melbourne, Car and Wagon Shops (8.7) defeated Jolimont—Melbourne Yard (3.4).

The latter is the other new team and its form was very promising. The goal-kickers were: Car and Wagon Shops—Smith (3), Sutton (2), McInry, Neeson and Gillock, and the best players Smith, Hayes, Williams, McWhirter and Sutton. For Jolimont, the goal-kickers were Donaldson (2) and Lawrence, and best players Sandlands, Collie, Brown, Malbery and Besler.

Coburg lines (9.15) defeated Loco., (4.6). Goal-kickers: Coburg, Flynn (3), Watt (3), Freelany, Loughnan, Berry and Scott; and Loco., Millen (2), McGinness and Tratt. Best players Coburg—Cracknell, Zeelan, Scott, Austin and Flynn, and Loco.—Millen, Tratt, Sloak, McMahon and Brown.

The fixtures for June are:—

June 4.—Coburg—Essendon v. Eastern lines; Jolimont—Melbourne Yard v. Loco.; Car and Wagon v. Reservoir—Heidelberg.

June 11.—Eastern line v. Car and Wagon Shops; Loco. v. Reservoir—Heidelberg; Coburg—Essendon v. Jolimont—Melbourne Yard.

June 18.—Reservoir—Heidelberg v. Eastern lines; Car and Wagon Shops v. Jolimont—Melbourne Yard; Loco. v. Coburg—Essendon.

June 25.—Jolimont—Melbourne Yard v. Reservoir—Heidelberg; Coburg—Essendon v. Car and Wagon Shops; Eastern lines v. Loco.

RAILWAY BOXING AND WRESTLING CHAMPIONSHIPS

OPEN and novice boxing and wrestling competitions conducted last month by the sports committee of the Railways Institute attracted a large number of entries, and some of the best amateurs in the State were seen in action. These competitions not only serve as a guide to the prospects for the State championships, but also give the prominent members of the Institute gymnasium

News from the Swimming Club

THE Swimming club championships were held during April and May and resulted in a decisive victory for A. King, who won the 100, 200 and 400 yards free-style swimming races, thereby earning the title of club swimming champion, 1929-30. J. Dundas finished second in each event, with T. Shatwell third in the 100 yards.

The diving championship only attracted four competitors and resulted

in a win for W. Lynch. The championship points are:—

Swimming: A. King, 1st 100, 200, 400 yards (15 points); J. Dundas, 2nd (9) T. Shatwell, 3rd, 100 yards (2).

Diving: W. Lynch, 1st (26 points); T. Tierney, 2nd (19); L. Bullen, 3rd (18).

Members are reminded that handicap races will be held at the City Baths on Tuesday nights.

Successful dances were held in the Institute Hall on April 10 and May 14, when everyone present had an enjoyable evening. The next dance will be on June 12.



The Electrical Engineers' branch cricket team, winners of the Commissioners' Cup, 1929-30

an opportunity of measuring their ability with some of the State's best and, in many cases, with the actual champions they are likely to meet if they enter for Victorian honors.

It took four nights to run off the elimination bouts, and the finals were decided on Friday, May 16, before a crowd that filled the concert hall to its full capacity. Mr. F. Adams refereed the wrestling and Mr. Syd. Sherrin the boxing bouts, both these gentlemen being official referees for the State championships and amateur champions in their respective sports, so that competitors and enthusiasts had every reason to be satisfied with their decisions. Dr. Gordon McAdam was honorary medical officer, and still takes a great interest in these sports.

The crowd was keen to witness the open welterweight boxing final, where J. Owen, Australasian champion, was opposed by R. O'Haire, who won the last interstate railways championship. It was a splendid contest throughout, both men displaying a great knowledge of the game. Owens gained the decision on points.

The open lightweight wrestling caused a surprise to wrestling followers as J. Sinclair, Australasian champion, who was considered a certainty, was beaten in the semi-finals by R. Garrard, a much improved wrestler, who won from J. O'Hara in the final. A. Donnet put up a fine performance in defeating W. F. Handley by two falls in the open middleweight division and wrestled A. Muir in the heavyweight final. Muir received the decision on points after a hard battle in which Donnet gave away two stone.

The final results were as follow:—

Novice Wrestling: Bantam, W. Reichelt (8-9) defeated R. J. Gwynne (8-7½) by two falls. Feather, K. Jackson (8-12½) won from H. Wrigley (9-3) on points. Lightweight, J. P. Walsh received a walkover from J. Armstrong on account of an injured arm.

Open Wrestling: Feather, R. E. Moran (9-4½) secured one fall against H. Murray (9-7) after a very hard contest. Light, R. Garrard (10-4) defeated J. O'Hara (10-5) on points. Welter, A. J. Lewis (11-2) defeated J. Muldoon (10-11) on points. Middle, A. Donnet (11-9½) won from W. F. Handley (12-1) by two falls. Heavyweight, A. Muir (14 stone) defeated A. Donnet (11-9½) on points.

Novice Boxing: P. Hart (8-6) won from E. Brabender (8-6). Fight stopped in the third round. Feather, W. R. Cowan (8-8) won on points from G. Harding (8-13). Lightweight, R. Holmes (9-6) defeated A. J. Hodgins (9-9) on points. Welter, C. G. Hobbs (10-1) won from G. D. Thompson (10-7) after a very hard contest.

Open Boxing: F. Taylor (7-13) scored a technical knock out in the third round over A. W. Rackham (7-9) in the flyweight division. Feather, H. Johnson (8-9½) won from B. L. Osmond (8-12½) on points. Welter, J. Owens (10-12) defeated R. O'Haire (10-3) on points.

ENROL NOW!

INTENDING students are reminded that the third term in boxing, wrestling, physical culture and gymnastics, at the Institute, commences on June 30. They should enrol at once and get fit for the programme of competitions and games arranged for the year. Full particulars of these classes will be given on application to the General Secretary's office, or from the steward in charge of the gymnasium.

Harriers Meet

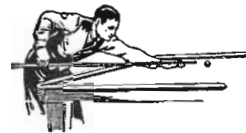
AT the annual general meeting of the V.R.I. Harriers' club the following office-bearers were elected:—

President: Mr. E. C. Evers. Vice-presidents: Messrs. T. F. Brennan, J. Conlan, P. Arnold, V. Barwick, W. Chipper, G. Dowsett, R. A. Guyot, S. Sherrin, J. C. Williams. Hon. Sec. and Treas.: E. J. Jones. Asst. Sec.: R. A. Guyot. Cross-country Capt.: A. R. Newell. Vice-capt.: S. C. Leamon. Executive Committee: R. A. Guyot, E. J. Jones, K. T. Long, S. C. Leamon, A. A. McKean, W. D. McMahon, A. R. Newell. Selection and Handicap Committee: E. J. Jones, S. C. Leamon, A. R. Newell. Honorary Auditors:

Concluded on page 46

ALCOCK'S HOME BILLIARD TABLES

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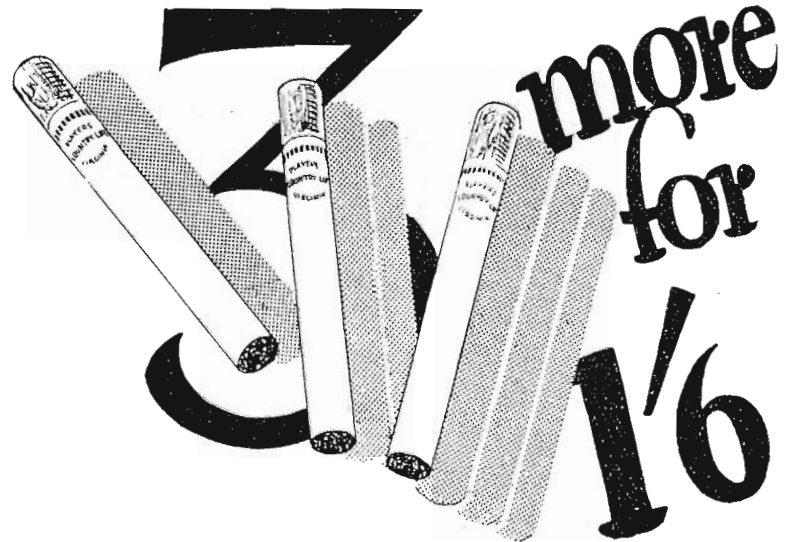
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UP COUNTRY



Welcome Rains

The splendid late autumn rains have entirely changed the outlook in the North-Eastern District as, with the absence of cold weather and severe frosts to date, the pastures should make rapid headway and provide some winter feed. Up to two inches have fallen throughout the wheat belts, and early sown crops will greatly benefit. It is too early at present to determine what influence, if any, the late rains will have in increasing the acreage. For some weeks hand-feeding has been general, and the rain will be a timely relief to graziers and dairymen generally.

Unemployment Assistance

The unemployment problem is being felt in Bendigo as well as elsewhere, and a recent effort by the local railwaymen resulted in £52 10/- being collected towards the relief of those out of work.

Head of the River Traffic

The recent Head of the River races on the Barwon attracted a large number of people, and the transport of those from the metropolis involved the running of extra trains. The arrangements were satisfactory and passed off without a hitch.

Good Season Coming

General satisfaction is expressed at the splendid rainfall experienced throughout the south-western district, and which is looked upon as a forerunner of a good season.

Tons of Health

The total amount of dried fruits delivered to the packing sheds in Mildura for the season, up to the beginning of May, amounted to 29,453 tons, comprising 8,432 tons of currants, 19,866 tons of sultanas and 1,155 tons of lexias.

New Hall at Boort

At Boort a splendid soldiers' memorial hall has been opened. This is an imposing edifice and will seat about 800 persons.

A SNAKE THAT DIDN'T LIKE THE DARK

A STOREKEEPER near Mildura, working late, was surprised by the switching on of an electric light in another part of the building.

He found a 4 ft. snake hanging from a window with its mouth on the switch, which it had turned on.
He promptly killed the reptile.

Boys' and Girls' Week

Boys' and Girls' Week was celebrated under the auspices of the local Rotary club at Bendigo, and this included a visit to the station by parties from the various schools. The girls and boys fully appreciated this part of the programme, particularly those of the boys who were able to wangle a ride on the "X" class engine for a short distance in the yard. The signalling arrangements also appealed strongly to some of the lads (as well as the control room).

Renewing Barwon Bridge

Satisfactory progress is being made with the work in connection with renewing and strengthening of the Barwon-river railway bridge.

Bendigo's Gala

During the Easter Fair at Bendigo, a special feature was made of the competitions between various streets in the city, each street electing a popular girl every vote for whom represented 3d. for the Bendigo hospital funds. Intense enthusiasm was aroused and no less than £2,057 was eventually raised by this means. The Mitchell-street committee asked the local railwaymen to assist, and this was well responded to, although the time was little more than a fortnight. A concerted effort was made by representatives from all branches, and £150 collected by them towards the Mitchell-street nominee. The items in the procession included Ned Kelly and his armor, a phaeton containing two "Beauty Queens" (each weighing well over 18 stone), a costermonger's outfit comprising donkey and cart and with the coster in full pearly king regalia, a concert party on a lorry, also another lorry with first aid party giving burlesque exhibitions of what to do till the doctor comes. Another feature was two "constables" in full uniform pursuing a "convict" through the streets and an "aboriginal" party from Woop Woop.

Record Fruit Figures

During the present season 32,244 cases of apples have been exported from Amphitheatre. Of this total one grower sent 5,413 cases and still retains 1,000 cases for the local market. He also sent 980 cases of pears to a cannery and now holds the record figures for any one grower in the district.

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This advertisement is not for them, but for men of ambition—who want more than "just a living," and who are prepared to make extra effort in order to gain it.

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AS compiled by the Alexander Hamilton Institute (U.K. and U.S.A.) constitutes remarkable training in big business. It is the combined knowledge of men at the pinnacle of business affairs—bankers, financiers, advertising specialists, engineers and economists—and will bring to every man who enrolls a wider knowledge and breadth of vision than he can possibly gain from a lifetime of personal observation.

Here's how to get It!

If you would learn about this famed course and what it can do for you personally—ask us to post you a copy of the interesting booklet, "*Forging Ahead in Business.*" It describes the course in detail, also its accompanying service. This service, which has been inspiration to success to over 400,000 business leaders comprises trade and market bulletins, reading guides, lectures in printed form, etc.—the whole alone well worth the course cost.

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Please post me the new, revised edition of "*Forging Ahead in Business,*" which I may keep without charge

Name

Address

JOTTINGS from The INSTITUTE

STUDENTS OF TRANSPORT

At a recent meeting of the Society of Railway Students of Transport, Mr. Price, Chief Train Despatcher, talked to the members on his experience with overseas railways at the conclusion of the great war, following this up with an outline of the development of the train control system in railway working, with particular reference to the system adopted in Victoria.

As a result of the formation of a somewhat similar railway society in Sydney, approximately fifty of the men concerned have been admitted to various grades of membership of the Institute of Transport, London, and it is intended by this society to endeavor to establish an overseas centre of the Institute of Transport in New South Wales.

Incidentally, September 30 next is the last date for the receipt of applications for membership of the Institute of Transport under the exemption clauses which provide for transport workers in districts where examinations are not held. Anyone interested in the society or in the Institute of Transport and its aims and objects is invited to communicate with the secretary of the society, Mr. S. C. Weetman, c/o Editor of the Magazine, for further information.

CHEAP FIREWOOD

STATIONMASTER DALY of Patchewollock, brings under notice that he can place orders for Mallee roots amongst the district settlers for £3 12s. 6d. a truck. He suggests that if, say, three neighbors shared the cost of a truck-load, a very cheap supply of firewood would be secured for the winter, while the Department would gain revenue, and the hard-pressed settlers in the north much needed help.

CONCERT PARTY HELPS

THE Maryborough Institute concert party assisted in "The Back to Maryborough" celebrations by giving a programme in the town hall, and were warmly thanked by the mayor for their effort.

EDUCATIONAL CLASSES RECOMMENCED

THE new class term commences on June 30, and those desirous of enrolling as students in the departmental classes should do so before that date.

MCDONALD FAMILY APPEAL FUND

THE committee conducting the appeal on behalf of the family of the late D. A. McDonald, desires to acknowledge, with thanks, the ready response by railwaymen to this appeal, as a result of which a very substantial sum has been raised.

The committee asks that any subscription lists which have not yet been returned, should be forwarded at the earliest possible date to enable it to finalise the appeal at the end of June.

A balance sheet will be published at a later date.

Lists should be returned by value letter to the General Secretary, Victorian Railways Institute.

THIS MUSTN'T BE MISSED

THE annual Railway cabaret ball will again be held at the Plaza ballroom, St. Kilda, and is listed for Thursday, June 26. The novelty and cabaret items will, as previously, be a feature of the ball.

Proceeds are in aid of the Lord Mayor's fund for metropolitan hospitals and charities.

Tickets, priced 10s. 6d., may be obtained from the secretary—Mr. T. G. Lewis, Room 95, Railway buildings.

BENDIGO—A Reverie

NO echo lives of the miners' song
That once rang through gorge
and dell,
Or the ringing cooe, loud and long,
That joyously rose and fell
On slope and steep, in the years gone by,
When, round the bright camp fire's
glow,
The laugh went up to the midnight sky
From the hills of Bendigo.

I MOVE again through life's yesterday,
Again I see, as of old,
The pick go home and the yellow clay
In the creek beds yield its gold.
And I see the coach that fords the stream
In the gully deep below,
And hear the beat of the coming team
On the road to Bendigo.

AND bucket and chain made merry sound,
As the miner worked his claim,
And across the lead and broken ground
The burr of the windlass came.
In feverish haste the wash was panned—
Men knew not the words "go slow"—
For the thirst for gold was on the land
In the days of Bendigo.

News of The Old Brigade

AT the meeting of the Retired Railwaymen's club held in the large hall of the Institute on the afternoon of May 1, Mr. Tout, who is a son of one of the veterans, provided a very fine programme of entertaining as well as amusing items, every number being encored, by a most enthusiastic audience.

* * *

During a short interval, the president announced the continuation of the series of winter dances, the first of which had been arranged for April 17, and which will now be conducted on each third Thursday of the month till November 20. Members were urgently requested to keep in mind these dates and endeavor to be present and enjoy the programme of old time dances provided for them.

Satisfaction was freely expressed at the reappearance in the columns of the Magazine of the monthly report of the activities of the club. This is greatly appreciated, and the hope was expressed that this will be a permanent fixture.

The annual business meeting of the club is to be held on July 3, and as the annual elections are a very important part of the programme, a big meeting should take place.

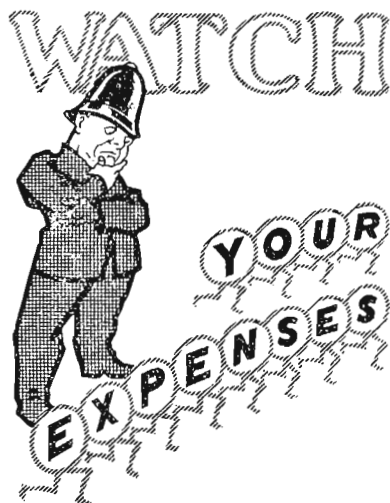
NOW silence steals o'er the lonely
leads
Where once busy life was seen
And the big stage coach no longer speeds
On the roads that run between.
But the fleet express flies swift and fast
Through the scenes of long ago
And twilight falls on the golden past
Of wonderful Bendigo.

—HARRY TUNNECLIFFE

EMPTIES COMING BACK
HAVE you ever sat by the railroad
track
And watched the empties coming
back,
Lumbering along with a groan and a
whine,
Smoke streaming out in a long gray line
Belched from the engine's panting stack,
Just empties coming back?

I HAVE, and to me those empties seem
Like dreams I used to dream
Of a girl, or money, or maybe fame.
My dreams have all returned the same,
Swinging along the home-bound track,
Just empties coming back.

—The Railroad Trainman.



KEEP a sharp eye on your expenses, no matter how unimportant they may appear. Small amounts wasted soon run away with an alarming proportion of your income; small amounts saved and lodged in a Savings Account grow rapidly into a very comfortable sum.

Every shilling you rescue and put away to work for you gives you more to spend when the time comes, as assuredly it will, to spend for real needs.

NOW IS THE TIME TO SAVE
 THAT YOU MAY SPEND WHEN YOU **MUST**

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OF VICTORIA

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 400 AGENCIES

H.O., ELIZABETH ST., MELBOURNE

ALEX. COOCH, J.P.
 General Manager

RAIL USERS SAY—

Satisfactory Arrangements for Special Trains

I HAVE been directed to request that you will convey to all concerned with the running of the special train to and from Echuca in connection with the annual conference of the Australian Natives Association, the sincerest thanks of this Association for the efficient and capable administration in connection therewith, and also for the many acts of kindness shown by your staff both at Melbourne and Echuca and intermediate stations. It is desired that special thanks be accorded to Mr. J. A. Russell who arranged many matters in connection with the train running for us, also the stationmaster and manager of the refreshment rooms at Bendigo, and Mr. Campbell of the refreshment service who was consulted on many matters.

It is recognised that the task of providing a sit down meal for such a large number of delegates at Bendigo was indeed a problem of some magnitude, but the whole of the arrangements worked admirably, and it is desired to convey a special word of appreciation to the Bendigo refreshment service. I might state that probably one of the greatest compliments which could have been paid to the service was that on the return journey the delegates were enabled to spend some hours in Bendigo, and about 170 of them returned to the station refreshment rooms for their evening meal, the reason being freely expressed that they did so on account of the excellent service afforded them on the journey to Echuca.

—Mr. S. H. Watson, General Secretary, Australian Natives Association, writing to the Superintendent of Passenger Train Service.

AT a meeting of the Shepparton district schools' committee, I was asked to write and thank you and your staff for the very able manner in which the train arrangements were carried out for our excursion to the Zoological Gardens, and to state that we have not had a complaint, and feel sure that the excursion is established as an annual event.

—Mr. W. Walters, hon. secretary, writing to the Superintendent of Passenger Train Service.

THE punctual and convenient train service, the courtesy of the railway officials and good feeling between patrons of the football specials and the railway officials, were commented upon

and appreciated by the delegates from the various football clubs at our annual meeting.

—Mr. Chas. L. Appleton, secretary, Central Gippsland Football Association, writing to the Superintendent of Passenger Train Service.

THE train arrangements for our school's excursion to Royal Park were very satisfactory, for which I thank you and, in addition, I wish to express appreciation of the assistance and courtesy rendered me by Mr. Clancy, S.M., Korumburra, and his assistants, Messrs. Potter and Sexton.

—Mr. W. J. Walker, hon. sec., school excursion, Korumburra, writing to the Superintendent of Passenger Train Service.

I HAVE to ask that you will be good enough to convey to all concerned in the running of the excursion train, which conveyed students of the Williamstown High School to Yallourn, our appreciation of the complete arrangements made for the comfort and safety of the students *en route*, and during the inspection of the works. The school is indebted specially to Mr. Rains, whose visit to the school caused the excursion to materialise; to Mr. Williams, who supervised the arrangements; and to the officer-in-charge of the refreshment rooms at Warragul, who was commended by the staff of the school for his considerate and abundant courtesy. The excursion was so successful that the students, many of whom take geology and industrial geography as their special course of study, are looking forward to a visit to another country centre early in 1930.

—Mr. W. Richards, head teacher, Williamstown High School, writing to the Superintendent of Passenger Train Service.

WOULD you kindly convey to those concerned the appreciation of this school for the arrangements made during our recent trip to Yallourn. Everything was most satisfactory, and the railway authorities are to be congratulated on the excellence of the organisation. I am especially grateful for the help Mr. Rains gave to us.

—Mr. James F. Hill, head master, Essendon High School, writing to the Superintendent of Passenger Train Service.

“WE ARE VERY ENTHUSIASTIC”

WE desire to place on record our appreciation of the assistance of the officers at Kyabram, Toolamba and Shepparton, in facilitating and expediting our various deliveries of fruit, cans, etc., during the processing season, which has just been completed. The same remarks apply in respect of supplies from Melbourne, and particularly to the supervision exercised by the District Superintendent at Seymour. We may state that towards the close of the season, owing to the exceptionally heavy pack, essential supplies had to be to hand daily, in order to meet processing requirements, and we are very enthusiastic at the able manner in which such transport was handled by your Department.

—Mr. R. H. Gent, Managing Director, Kyabram Co-operative Fruit Preserving Co., Ltd., Queen-street, Melbourne, writing to the Chairman of Railways Commissioners.

APPRECIATIVE FAREWELL

ON my leaving this district, I would esteem it a great favor if you would kindly convey to the whole of the staff my very grateful thanks for the very kind and thoughtful way in which they have always treated me during my stay of nearly 18 years in the district. They have at all times done their utmost to assist me, and have been the means of enabling me to carry out my duties under the very best conditions. I am indeed sorry to be going away from such a fine body of men.

—Mr. Archie Parsons, Department of Public Works, Maryborough, writing to the District Superintendent.

WE are all very apt to complain of shortcomings and imaginary discourtesies that we receive on the railways from the staff, and forget only too often to show our appreciation of the many benefits that we receive from your railways. I think I would be an ingrate, were I not to thank your staff, through you, for the great kindness extended to me on my recent visit to Mildura. I wish particularly to thank the stationmaster at Mildura (Mr. Jones) and the conductor between Malmesbury and St. Arnaud (Mr. Duke) for they did all in their power to lighten my difficulties under blindness. Their attention to me was not influenced in any way by the hope of reward, which was refused in all cases where proffered. It is such treatment as I received which makes travelling by rail a pleasure and not a labor.

—Mr. Kenneth Sutherland, Glenmore-crescent-Black Rock, writing to the Chairman of Railways Commissioners.

I HAVE much pleasure in bringing under your notice the courteous and considerate treatment received by myself and family, whilst travelling recently to Cowes, on my annual holidays. My special thanks are due to Mr. Page, stationmaster at Wahgunyah, and likewise to every railway employee with whom I came in contact *en route*, all being only too willing to assist. I feel that you should know that when I purchased my tickets, I not only purchased the right to make a train journey, but I also purchased service in its best sense, which means

EULOGY OF MT. BUFFALO NATIONAL PARK

AS a recent visitor to the Chalet, Mt. Buffalo National Park, I am taking the liberty of writing to you and giving, after a stay of seven weeks, my impressions of the place. As far as the Chalet itself is concerned, it would be difficult indeed to find a more comfortable or better managed resort either in the mountains or at the seaside. Its commodious lounge, its cosy well-furnished drawing room, its snug smoking room, and general air of roominess make it most attractive to one requiring a restful holiday. The splendid ballroom, good billiard and ping pong tables, lend themselves most admirably to the entertainment of its guests, and I know of no place in Victoria outside the city that has such unique attractions. The bathrooms and conveniences are quite up to date and well kept, and the hot water service really excellent. The mountain air is most exhilarating and makes the blood course through the body like new wine. There was generally a difference of 20 degrees between the dry bulb thermometer at the Chalet and that in Melbourne. Every prospect pleases, the beauty spots are many, and an added attraction is the facility one has in getting to these through the medium of a motor, ponies, etc. (provided by the management), and easy walking tours accompanied by competent guides. The management is beyond all praise, and the kindness, attention and consideration visitors receive at the hands of Mr. and Mrs. Brown makes a stay at the Chalet one of continued delight. I trust you have not been bored with all this, but I felt one had a duty to perform in making known to you how those who visit the Chalet (and I am voicing the opinion of all those to whom I have spoken) recognise and appreciate the efforts of those who are endeavoring to make Victoria's beauty spots known to the public.

—Dr. H. Friedman, Menzies Hotel, Melbourne, writing to the Chairman of Railways Commissioners.

YOUNG CAMPERS HELPED

ON behalf of our young men's movement, I wish to thank you for your unflinching courtesy to our campers during our last Easter camp. We appreciate very much your efforts in helping us in the efficient organisation of our camp.

—Mr. W. R. McLeish, org. sec., Presbyterian Young Men's Association, writing to the Stationmaster, Mornington.

Good Service IS Appreciated—

everything.

—Mr. J. Blake, Corowa, writing to the Chairman of Railways Commissioners.

THE honorary secretary of the Victorian Postal Institute choir, which recently visited Sydney, has asked me to express to you his appreciation of the admirable arrangements made by your Department for the transport of the members. The choir travelled during the Easter period, when traffic is at its height, but notwithstanding this, were comfortably accommodated, and well looked after. Both in the administrative offices before departure, and on the journey, every courtesy was extended to the Institute representatives, and I have been asked to mention particularly the efficiency of the refreshment room arrangements at Seymour.

—Mr. E. Parkinson, Victorian Postal Institute, writing to the Chairman of Railways Commissioners.

PLEASE accept our very sincere thanks for your courtesy in advising us regarding parcels, a/c Footscray service station. We have been in touch with these friends and trust the goods will have been rendered ere you receive this letter. Appreciating the service you have rendered us.

—Messrs. A. G. Healing, 167-173 Franklin-street, Melbourne, C1., writing to the Stationmaster, Footscray.



TO HOTEL AND BOARDINGHOUSE KEEPERS, PROGRESS ASSOCIATIONS, HOUSE AGENTS, ETC.

The V.R. Magazine is sent each month to 30,000 railway homes. Of this number there are 1,200 railwaymen on leave for an average of a fortnight at any time of the year with free passes over the whole State railways systems. It therefore offers an unparalleled medium for making known holiday resorts, accommodation, etc. For rates and fuller particulars, write the Advertising Manager, Victorian Railways, Spencer-street Station Buildings, or 'Phone C6414.

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Hotel Value

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QUEENSLAND

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Tariff £3/3/- Weekly

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Public Tennis Court - Swimming - Nice Walks

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One of the many charming waterfalls in the Grampians

How Many Times?

HOW many times have you promised someone near and dear that you would, for a mutual purpose, save your money - - - - - ?

HOW many times have you promised yourself that the next big opportunity would find you prepared - - ?

HOW many times have you admitted the wisdom of saving habits and then left the other fellow to do the saving - - - - - ?

DOES it mean anything to you that in Australia there are several million other fellows steadily saving their spare cash and beating you to the big opportunity - - - - - ?

Take a Savings Account into partnership—
profit is assured

Commonwealth Savings Bank of Australia

(Guaranteed by the Commonwealth Government)

Aerial Efficiency

Continued from page 34

acetone, and the cardboard removed, leaving the wire practically wound "on air."

In the same way, losses between turns of wire may occur if each turn is placed close against its neighbor, separated only by the cotton or silk covering of the wire. A very slightly spaced winding will avoid these losses.

In order to get down to a simple analogy, I have, in writing this article accepted the current flowing in the aerial circuit as consisting of a number of individual electrons, all travelling in the same direction and subject to congestion or crowding where resistance is met.

Actually the electrical impulses broadcast are received in wave-trains, or bunches, following so quickly upon one another as to appear continuous. They travel the full length of the aerial-earth system, surging from aerial to earth and then from earth to aerial many times until they die out owing to resistance mainly. This is alternating current and of course cannot "bank up," but actually uses itself up in the generation of heat wherever resistance is met. In the case of wireless, the amount of current is so small that the heat generated could not be measured.

It will be appreciated, however, that although the analogy is not strictly correct, it is near enough for simple explanation and practical results.

RADIO NEWS

FOLLOWING is the V.R.I. Wireless Club syllabus for June—

- Tuesday, June 3: Preparing gear for field day.
- Thursday, 5th: General meeting. New members enrolled.
- Monday, 9th: Field day at Selby.
- Tuesday, 10th: Workshop night.
- Thursday, 12th: Special lecture. New members enrolled.
- Tuesday, 17th: Television experiments.
- Thursday, 19th: Technical committee only.
- Tuesday, 24th: Workshop night. Beginners.
- Thursday, 26th: General committee only.

GOODS SHEDS AMBULANCE COMPETITION

THE third annual local competition of the Melbourne Goods ambulance organisation was won by No. 7 team (K. Maclellan, leader, A. Blair, E. Adkins and C. Bishop, members, F. Lambert, patient), with a total of 166 points out of a possible 200. No. 5 team was second (157 points) and No. 6 third (148 points).

Eight teams, all consisting of members of the goods sheds staff, competed for the awards which were: 1st, a silver cup for each member of the winning team; 2nd, guinea trophy for each member; 3rd, a silver medal for each member.

ACCEPTED RAILWAY TENDERS

FOLLOWING contracts have recently been let by the Railways department to the tenderers mentioned:—

Cast steel bogie transformers, Bradford, Kendall Ltd.; cast steel boosters, Vickers-Commonwealth Steel Products Ltd.; micro copper plates, Royle and Co.; bridge beams, E. T. Brunt, J. A. Neal, P. Martens; trimming leather, J. Kennon and Sons Pty. Ltd.; Howe and Co. Pty. Ltd.; shop roller shutters, Wormald Bros. Ltd.; shop fronts and tiling, The Federal Plate Glass Manufacturing and Insurance Co. Pty. Ltd.

Sport

Continued from page 39

K. J. Long, J. C. Williams. Press Correspondent: A. R. Newell.

The annual report showed the year to be a most successful one, the club winning the "C" grade pennant in the interclub contests, several challenge relay races, third place in the junior five miles teams' race, and several members winning open handicaps. The cross-country season has commenced and an even more successful year is being looked forward to. The first run was held on May 3, the 880-yards run-in being won by E. J. Jones and the run-in on May 10 being won by P. Curwood.

Pack runs are held from the Institute every Wednesday at 7.45 p.m., and on Saturday afternoons. Railwaymen interested in this branch of sport are cordially invited to join up with the club, and are asked to communicate with the secretary from whom all particulars may be obtained.

The next club dance will be held at the Institute on June 26. Tickets (1/11) obtainable from members.

Multum in Parvo—

A good experiment is to place some money in your pocket and some in the bank and see which lasts the longer.

There is no young man or grown man living who cannot do more than he thinks he can.—Henry Ford.

One reason only a few recognise opportunity is because it is disguised as hard work.

Nothing can bring you peace but yourself; nothing can bring you peace but the triumph of principle.

—Emerson.

LET US Test YOUR Eyes

To ascertain whether or not YOU need Glasses



Railway Employees' Optical Benefits

Messrs. Coles & Garrard have arranged that all Railway Employees and their families are to be included in their Special Benefit Plan. Have your eyes tested by these well-known opticians, who will allow you 20% discount.

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(Five doors from Elizabeth Street)

England's "Trains that Never Sleep"

ENGLAND has its famous night flyers, albeit they are not as well-known as the "Flying Scotsman" and the "Royal Scot." These are the trains that leave London at nightfall and greet the dawn among the hills of the Scottish highlands—the "Royal Highlander," and the "Night Scot" from Euston, the "Aberdonian," the "Highlandman" and the "Night Scotsman" from King's Cross.

About midnight at the London termini, sailors, delaying their shore leave to the very last minute, assemble in large numbers bound for ships lying at Plymouth, Cardiff, Bristol, Sheerness, Chatham, Southampton and so on.

The "Hook Continental" and the "Antwerp Continental" from Liverpool-street, the "Irish Mail" and the "Ulsterman" from Euston, the "Isle of Man Boat Express" from Paddington, and the Continental Express from Waterloo to Paris, via Havre, and from Victoria, via Newhaven, are all trains of the night.



The "Nugget" tin opens with a twist!

Men and women who realize that appearance counts always have well-polished shoes.

Did YOU "Nugget" your shoes this morning?

"NUGGET" Shoe Polish

Forgotten Roads

Continued from page 28

wire is pinned to the ground by logs, but, generally, it is in fair repair and easily followed.

Nearing Fuiton's Creek the track zig zags down a steep slope into the valley and is readily discernible. Here again nature has triumphed, for all that remains of the township is a scattered heap of bricks that formed the hotel chimney, and these are fast being overgrown. So narrow is the valley that the old bridge spanned the creek from one hillside to the other, no approaches being possible.

After a steep four-mile climb, the track joins the Springs road that connected Walhalla with the Mt. Useful diggings. The distance from there to Walhalla is, perhaps, sixteen miles, though it may seem longer, the last five or six retracing the course of the outward journey along the Aberfeldy Road.

As the tour nears an end, one's thoughts cannot help but dwell on the enterprise and hardihood of those early prospectors who crossed these hills and delved into the deep creek valleys in search of gold, establishing here and there in the wilderness the tiny townships one has passed through. But even though the bush claim again for its own the sites of Donnelly's and Fulton's Creeks and blot out all trace of man's handiwork, their names will preserve the record of the golden wealth they gave to the State—wherever men talk gold at least—as Byron wished of his own achievements when he wrote:

*My epitaph shall be my name alone.
Oh! May no other fame my deeds repay.
That only that shall single out the spot
By that remembered or with that forgot.*

CANADIAN PACIFIC EARNED 11.15 P.C. ON ITS COMMON

LAST year was a profitable one for the Canadian Pacific Railway. Earnings equalled 11.15 per cent. on the common stock, despite the short crop and grain tieup.

St. James Street—the Wall Street of Canada—regards the results as "highly satisfactory to the shareholders." Profits in 1928 equalled 14.99 per cent.

The C.P.'s net earnings from railroad operations were £8,628,900, but it also collected a revenue of £3,046,444 from outside investments, making its total profits approximately £11,675,000.

ANSWERS TO CORRESPONDENTS

T.J.H. (Ballarat): Promising and interesting. Will probably use next month. J.L.C. (Richmond): Thanks, but the engine has already been described and illustrated in the Magazine. M.T.W.: As space permits. W.J.H. (Frankston): Print rather blurred. Will use if practicable. Thanks for the storyette, too.

By the streets of "by and bye" one arrives at the house of "never."

Wheel Centres Axles - Tyres

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TRAMWAYS

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Books and New Books

Thumbnail Reviews by J. D. MICHIE

The Mammon of Righteousness.—By P. C. Wren. This book is a distant departure from anything that P. C. Wren has written before, and probably is the best work he has put into a novel. There is no doubt of the gripping quality of the story, and there is every expectation that, with *The Mammon of Righteousness*, P. C. Wren will again command a wide appeal to readers as he commanded them with that wonderfully interesting book *Beau Geste*. (Our copy through Robertson and Mullens). The year 1930 has so far been a "Wren" year for cheap editions of *Beau Geste*, *Beau Sabreur* and *Beau Ideal* are all now available at half-a-crown, and library cheap editions of *Beau Geste*, *Beau Ideal*, *Beau Sabreur*, *Good Gestes* are, too, available at 3/6.

The Canine King, The Working Sheep Dog.—By James L. Moore (Robertson and Mullens). Among dog men in Australia the name of Mr. Moore is widely known as a breeder of border collies and kelpies. He is recognised as an authority on these dogs, and his life in the back-blocks of Australia for some years, where he has learnt to know a good

dog and a good horse, has well equipped him to write in an interesting way on the habits, breeding and training of sheep dogs. The ordinary dog lover will find excellent advice on the best methods of bringing up a pup. Included also are a wealth of incidents and little-known facts that are bound to excite attention.

Harden's Escape.—By Harold Bindloss. Lieutenant Harden, released at the Armistice from a German prison hospital, finds himself suspected of deserting in face of the enemy. His distress is exploited by two non-coms. from his battalion, who try to make him their accomplice in the drug traffic they carry on at a London night club. Harden's fashionable relations, afraid of his disgracing them, send him to a private asylum, from which he escapes. Helped by a Canadian Sergeant whom he had met in France, and with the connivance of his half-sister and a girl who had engaged to marry him, he gets away to Saskatchewan. What happens there must be left to Mr. Bindloss to tell in one of the most attractive novels he has written.

Truant Happiness.—By E. Maria Albanesi. Angela meets her husband by a chance accident, and embarks upon what may be called an "adventure marriage." Derry's follies in the past are wiped out when his happiness with Angela changes his whole life, and it is good to read of the great and overpowering love that grows between them. Derry is an intrepid aviator, and after the marriage when he has to return to France, Angela has her trial, but though happiness plays truant occasionally in Angela's life, it comes to stay eventually.

The Hand of Doom.—By J. M. Walsh. Marcus Grennell, an international "fence," is found murdered after stealing a valuable mummified hand from Crammond, a collector. This hand has an inscription on it which means "The Hand will seek you out." Other similar murders take place and in each case the hand is found near the body, which bears finger marks on the throat.

Wholly set up and printed in Australia at the Victorian Railways Printing Works, Launceston Street, North Melbourne, for the Publishers—The Victorian Railways Commissioners.

RAILWAYMEN

Exposed to All Kinds of Weather

HEENZO IS A NECESSITY

HAIL, rain, wind or sunshine, it makes no difference to the men employed on the out-door jobs in the Railway Department—they have their job to do, and they do it despite all kinds of weather. But exposure to sudden climatic changes often brings coughs, colds, influenza, bronchitis, and other chest and throat ailments. The goodness of **Heenzo** as a remedy for such ailments is proved by the fact that it is a favourite cough remedy in the homes of most Railway folk. **Heenzo** is popular for two reasons: firstly, its efficiency; secondly, its economy, for a two-shilling bottle of concentrated **Heenzo**, when added to sweetened water (according to the easy directions supplied), makes a family supply equal to eight ordinary-sized bottles of cough and influenza remedies that would cost up to £1. **Heenzo** is equally good for young and old, and can be given to even the youngest baby without fear of upsetting the digestion.

In cases where a large supply of cough remedy is not wanted, **Heenzo** may be used in its concentrated form, straight from the original bottle, as per directions supplied. This method is generally known as the bachelors' way of taking **Heenzo**.

Heenzo is the standard cough remedy in many hospitals—used by South Pole Explorers, and carried by Sir Alan Cobham in his flight from England to Australia. Order **Heenzo** from your chemist or storekeeper.

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BIGGER LOADS

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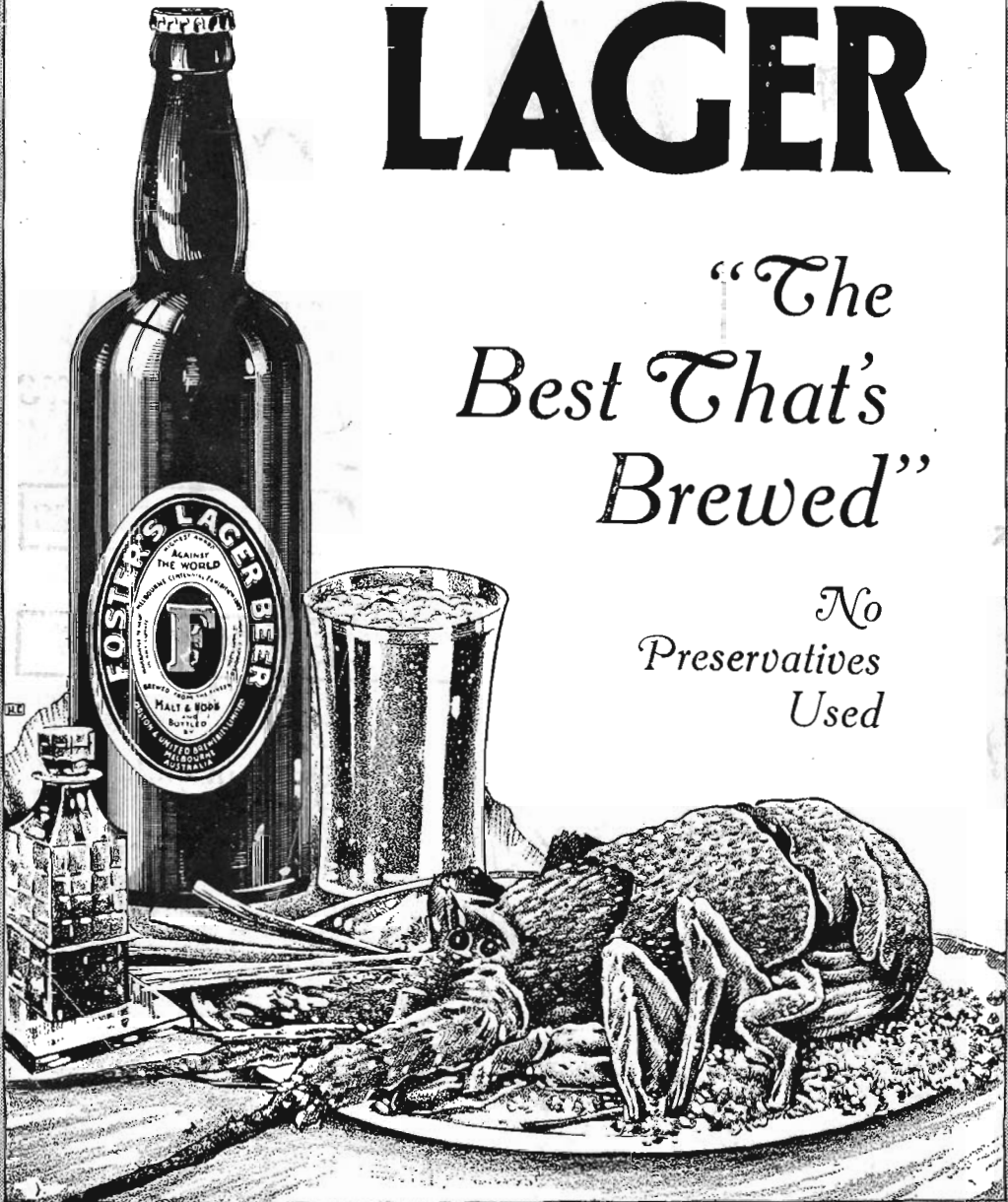
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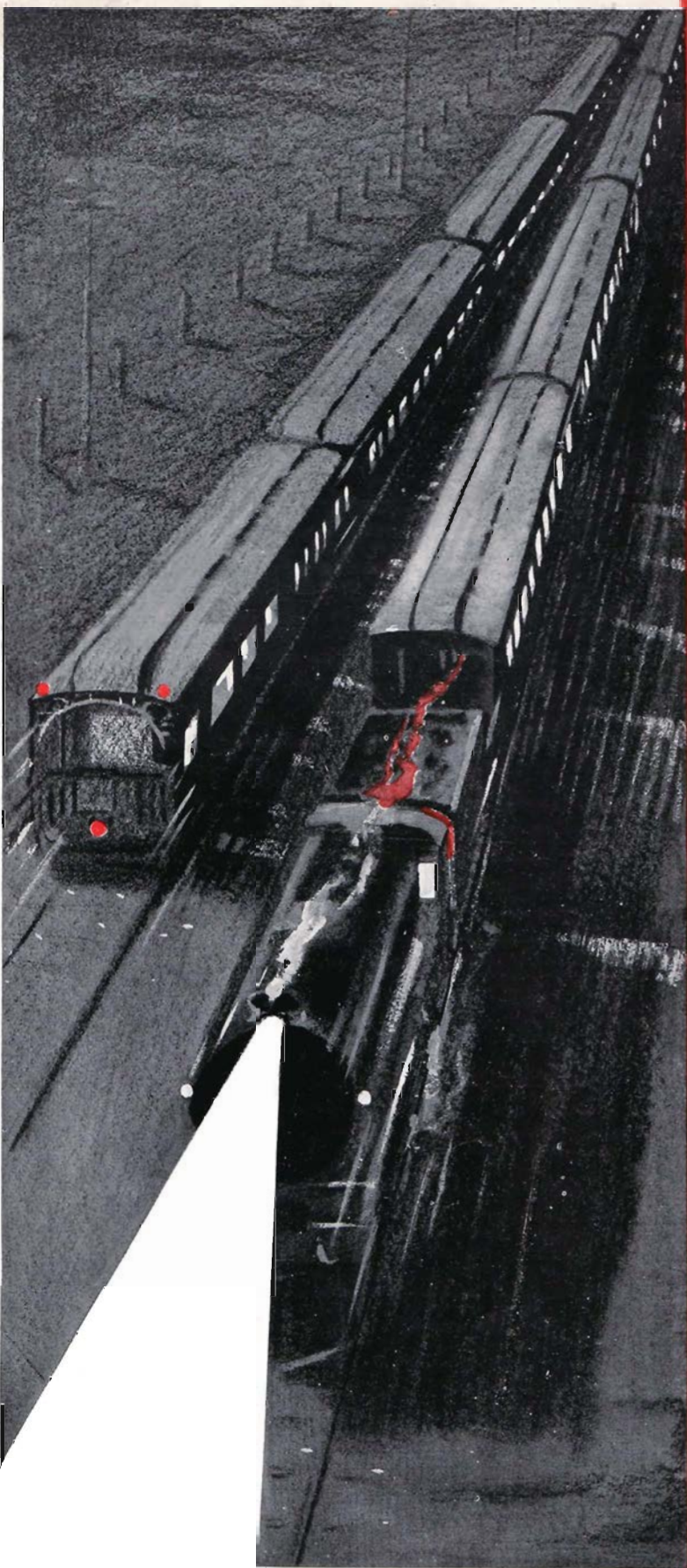
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A. Mitchell Jones



The
**VICTORIAN
RAILWAYS
MAGAZINE**

6^d
JULY 1930

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for TRANSMISSION by
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The One-shilling -a-Day Budget Buying Plan—

Puts the Finest Clothing within the reach of men who ordinarily find it inconvenient to make a single payment of, say, £8 or £9 at one time. Men accustomed to purchasing homes or furniture on Deferred Payment will find this plan of utmost convenience in purchasing Fine Clothing.

Now I Can
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This Newly Established Charge Service permits railwaymen to purchase clothing on the following basis :

- For £6/6/- Suits or Overcoats—
You pay £1/12/- at time of purchase and 1/- a day
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You pay £1/17/- at time of purchase and 1/- a day
 - For £8/8/- Suits or Overcoats—
You pay £2/2/- at time of purchase and 1/- a day
 - For £9/9/- Suits or Overcoats—
You pay £2/7/- at time of purchase and 1/- a day
- Payments to be made Weekly or Fortnightly

Nowhere in Melbourne can you get such excellent values for your money. This is accounted for by the fact that our upstairs location, which saves us at least £60 a week in rent alone, enables us to offer clients a saving of 20 per cent. on all their purchases. If you cannot call, write for patterns and full particulars.

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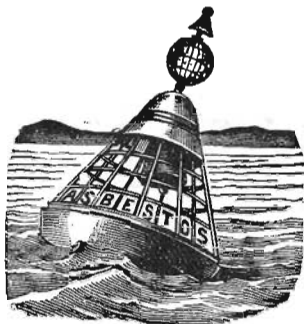
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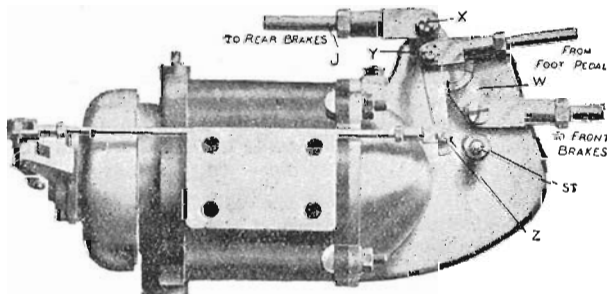
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For Motor Cars, Buses, Commercial Motor Vehicles, Trailers

High
Braking Power
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Extreme Flexibility
with Minimum
Physical Exertion



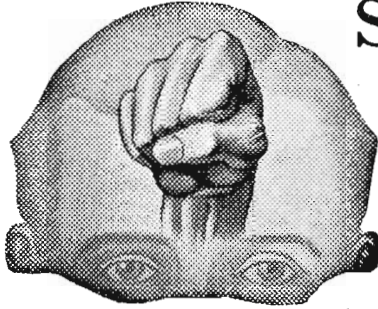
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Scientific Training of Mind, Memory and Personality

FOR years we have been asking pupils and inquirers to test themselves with the following and four other questions. In our advertisements the formula has usually been: "Can you say 'Yes' to these questions?"

The Test Questions :

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| <ol style="list-style-type: none"> 1. Have you great Organising Power ? 2. Have you Directive Power ? 4. Do people come to you for Valuable Ideas ? 5. Are you a good reasoner ? 6. Do you remain calm and unflurried amidst crowding worries ? 7. Can you master difficult subjects easily ? 9. Have you a Strong Will ? 10. Do you think logically ? 11. Are you a good and persuasive talker ? 12. Can you sell goods ? 13. Can you convince people who are doubtful, or even hostile ? 14. Do you decide quickly and rightly ? 15. Are you in demand as a speaker or orator ? 16. Can you rapidly master difficult facts ? | <ol style="list-style-type: none"> 18. Do you remember everything important you read ? 19. Can you remember details as well as main principles ? 20. Is your memory perfect ? 21. Can you concentrate your brain on one thing for a long time ? 22. Can you remember long series of facts, figures and dates ? 24. Have you a head for statistics ? 25. Have you a good memory for faces ? 26. Can you work hard without suffering from brain fag ? 27. Do you take everything in at a glance ? 28. Are you earning a larger income than last year ? 29. Are you successful ? |
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267

Safety - Health - Betterment

SAFETY FIRST IDEAS

IT has been decided by the National Safety Council of Australia to hold another poster competition. Prizes are offered for the best suggestions for posters as follow :—

The best idea for pictorial poster £1 prize, for second best idea 10/-; first prize for the best idea for Letter-press or slogan poster 10/-, second prize 5/-.

Send ideas in to the National Safety Council of Australia, 60 Market-street, Melbourne, C1., to reach the office not later than July 31.

BENEFIT BY YOUR IDEAS

THE following awards were made during May for adopted suggestions :—

Total Amount ... £75
Highest Award ... £11

The number of suggestions received during May was 207.

Arrangements still exist for the placing of adopted suggestions of particular merit before the railways of the various States and also the Commonwealth and New Zealand Railways.

JULY SUGGESTIONS DRIVE

THE subject chosen for the 31st Suggestions Drive, which will be held during July, is :—

“Improvements in station facilities.”

Suggestions should be submitted to the Betterment and Publicity Board in the usual way. Suggestions on any other subject will, of course, also be accepted.

THE DAY'S WORK

USE well the moment; what the hour
Brings for thy use is in thy power;
And what thou best canst understand

Is just the thing lies nearest to thy hand.

Art thou little, do that little well,
and for thy comfort know

The biggest man can do his biggest work no better than just so.

Like the star
That shines afar,
Without haste
And without rest,

Let each man wheel with steady sway

'Round the task that rules the day,
And do his best.

—Goethe.

IS THERE A MONKEY IN YOUR WORKSHOP?

A MONKEY is an amusing little fellow in his native haunts or in the zoo. In a workshop he is just a plain nuisance.

The monkey has the reputation of being the original practical joker. In the jungle one of his playful tricks is bouncing coconuts off his playmates. Maybe man didn't descend from the ape, but the fellow who gets his greatest amusement out of horseplay hasn't developed very far from the tree-climbing state.

Boxing, wrestling and similar sports are fine for working off excess pep in the gymnasium or recreation ground, but not on the stairways or in factory aisles around machines. The way to develop a good throwing arm is to practise with a baseball where there is no danger of breaking windows or heads, not by heaving nuts, bolts, oily waste, and other ammunition at an unsuspecting fellow worker who is trying to keep his mind on the job.

While we're on the subject of jokes and jokers, there is another kind of humor that is out of place at work. If you have a story that's just too good to keep, save it for lunch hour or the washroom. Don't spring it on a man who is working at a job that needs all



his attention, or on a motoring companion who is trying to steer his bus through heavy traffic. Something is liable to happen if he is polite enough to listen attentively and try to work at the same time.

LIFTING HEAVY OBJECTS

RECENTLY a case came under notice where an employee sustained painful injuries through adopting improperly applied methods when lifting a heavy case.

Lifting heavy objects is always attended by the possibility of strains, sprains and hernia, due to over-exertion, and bruises and fractures resulting from falling objects.

Such work should be performed carefully and without hurrying, raising the object gradually without jerking.

The following position is recommended for lifting :—The back is straight, the legs are bent, the feet are directly under the shoulders, for in this position the powerful muscles of the legs are brought into play and the weaker muscles of the body spared.

“Do not try to do more than you can” is a good rule to remember in regard to lifting and carrying. Get someone else to help you or make more trips, and you will save time in the end.

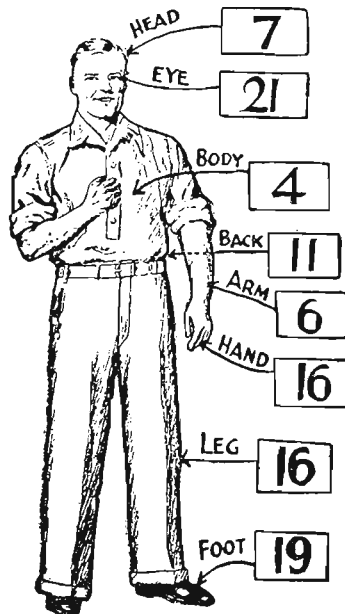


Diagram showing personal injuries sustained by employees during May. These accounted for 100 "lost time" accidents compared with 108 for the previous month.

It isn't so very important how far you have gone, but it is tremendously important that you should be headed in the right direction.

MacRobertson

"TIP TOP"

TOFFEE

6d. and 1s.
Cartons

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"Now take our tip," said
Tip and Top,
"(This hint is well worth
dropping)
You'll take one taste and
never stop,
For 'TIP TOP' Toffee's
topping!"

Sold at all Railway Refreshment
Rooms and Kiosks

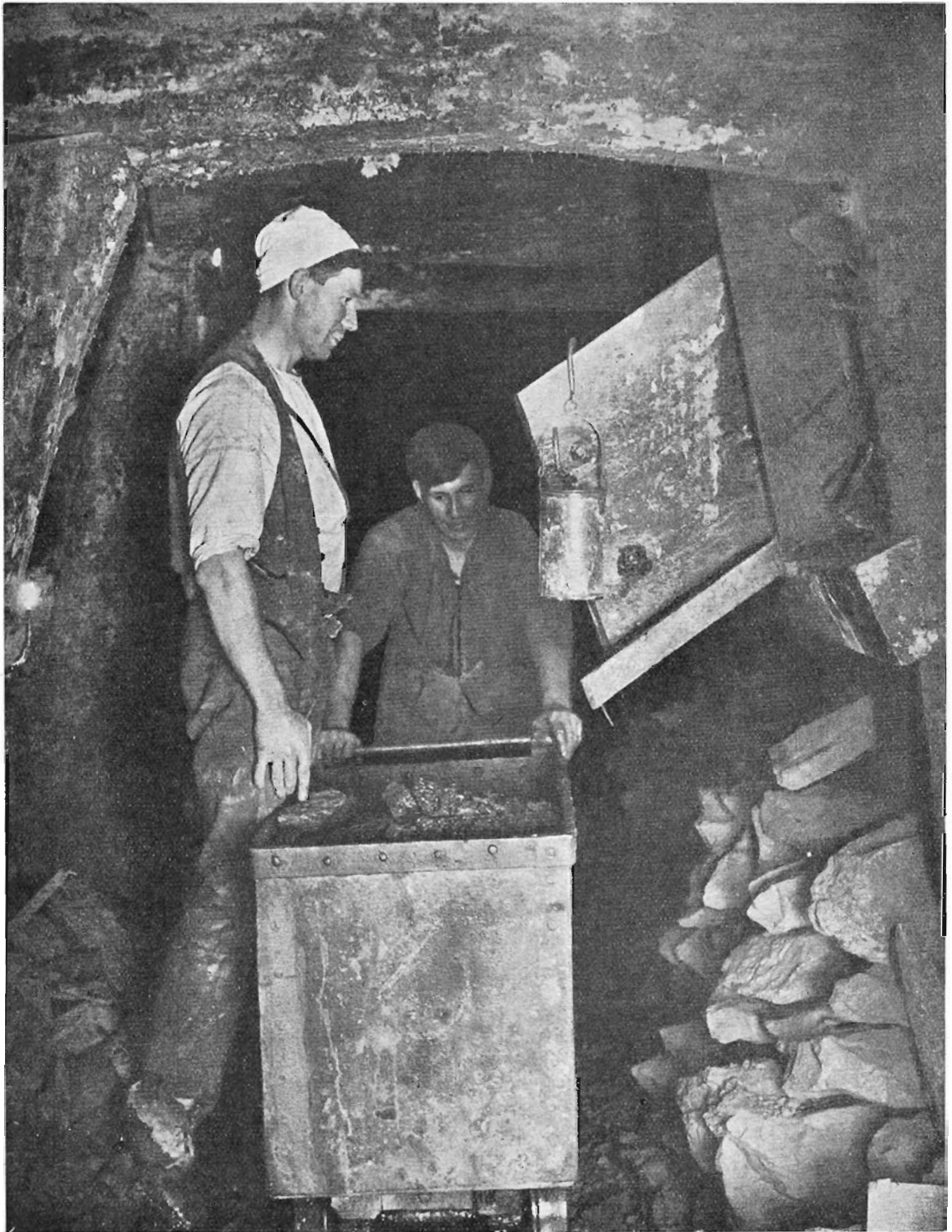


Photo.—A. L. Reid

Under Below—At 1200 Feet

Gold-bearing quartz being shot into a hand truck in a Bendigo mine. The truck is pushed along rails to the cage, which raises the quartz to the surface for crushing.

UNDER BELOW

By C.H.Cheong



AND so we went underground. Down to the depths where the mythical Pluto governs his kingdom.

Here, with his wife, Persephone, the god of the lower world was believed to control the vast mineral wealth which was hidden from the prying eyes of earthly folk. Hidden, at least, until such time as man could rid himself of superstitions and his reluctance to explore this golden realm and brave the fear of dire penalties which, rumor had it, were in store for trespassers.

Gradually he overcame those fears and sought the mineral wealth of the lower world. Geological research suggested the sites and man dug feverishly for precious gold. Then, with the settling of new colonies, came exploration for new gold fields. The chance discovery of gold in farflung corners of the empire proved the extent of Pluto's holdings.

* * *

Following Colorado's lead, Victoria's newly-found gold fields relayed their call to the world's adventurers. Came rush after rush of men who, intoxicated with the dreams of easily won wealth and caught in the raging fever of gold lust, left peaceful employment to join the throngs hastening to the gold fields.

Eventually Bendigo—known then as Sandhurst—staged a triumphant pageant. Drawn from the farthest corners of the world, miners stepping from the ship's gangway at Melbourne set a compass course towards the north and soon honeycombed Bendigo with their shafts.

The romance of Bendigo is written in the annals of gold-mining history, and there is still romance in sight, for gold is being won in sufficient quantity to hope for further and perhaps greater discovery.

The Red, White and Blue mine, within a short distance of the city, has been operating over a period of 68 years and is the oldest mine now



Going down in the cage

working on this gold field.

With the aid of three shafts, the management is carefully searching the saddle formations peculiar to the country for the quartz spurs which have so prolifically borne rich deposits

of the mineral. Already they have relieved Pluto's demesne of the equivalent of £970,000 in gold.

Winding plants, crushing batteries and air compressing plants supply the means of extracting the ore

And so, I repeat, we went underground clad in overalls, close-fitting "Peter Pan" hats and bluchers, and armed with a naked light burning brightly from a carbide cylinder.

We took final leave of the blue sky, the peaceful scrub country, the nearby city, and stepped into the tiny lift. The mine manager called it a "cage," but I didn't like to correct him. Overhead, two great facsimiles of cart wheels revolved slowly, the lift shuddered, and the bottom promptly fell out of terra firma.

* * *

At about 500 ft. I had sufficiently recovered command of myself to recognise the levels as we shot past. Small timbered dugouts they appeared, from which tunnels led away to nowhere. Water was dripping, a drop fell on my light and it immediately left off being a light.

Then we stopped, the manager opened a pair of rusty iron gates and we stepped out. "No. 6 level" he said briefly.

In this ante-room, as it were, we adjusted the lights. I gazed around the cavern where, their bases sunk in red clay in convenient crevices, candles burned steadfastly and lighted the entrance to the tunnel.

We tramped along in the mine manager's wake, breathing the air of down-below an atmosphere neither musty nor dank, but saturated with the indescribable touch, taste or smell—call it what you will—of subterranean depths.

Our eyes gradually accustomed themselves to the under-world. Still more candles, staggered along the wall, heralded a turn eastward. Then we came to a hole in the ground. Nothing more or less—merely a hole in the floor of the tunnel.

The mine manager stepped on an invisible ladder and disappeared from

sight. I followed suit, then came the photographer and, behind him again, the underground manager.

It was after a fumbling descent of some 25 feet in pitch black darkness that I first noticed something hot and stinging drop on my face and harden quickly. When this happened a second, a third and a fourth time, I paused to examine and, if possible, to remedy the evil. I then discovered that the drops were candlegrease, dripping from the light held by the man above me.

I remained a restive but helpless target for a further 40 feet of leg exercise on the ladders and breathed a pious prayer of relief when we reached the bottom.

Another walk of some 40 yards brought us to a bend in the tunnel where two men were operating a rock drill. Into a great, roughly formed, "V" shaped saddle of gleaming white quartz, the drill slowly forced its way. Driven by means of compressed air supplied from the engine-room, the drill painstakingly prepared the way for the insertion of the charge and fuse which would blast the quartz.

One man controlled the machine whilst his companion hosed the section with water, to keep the drill from becoming overheated . . .

We retraced our steps and caught the lift. It was on the tip of my tongue to reprove the second allusion to "the cage," but I refrained.

I had no fear now of descending. My mining experience stood me in good stead and we dropped to No. 8 level, some 1,000 feet below the surface.

Here the seepage was more pronounced, and water literally oozed from the main shaft.

Out of the darkness an eerie rumbling preceded a hand truck which, laden with quartz, was being pushed along a miniature railway line. The human locomotive turned it on a steel floor, backed it and shunted the truck into the waiting cage. He pulled the lever and away it went.

We followed the mine manager around the underground labyrinth. Occasionally he warned us of a hidden shaft and we side-stepped hastily.

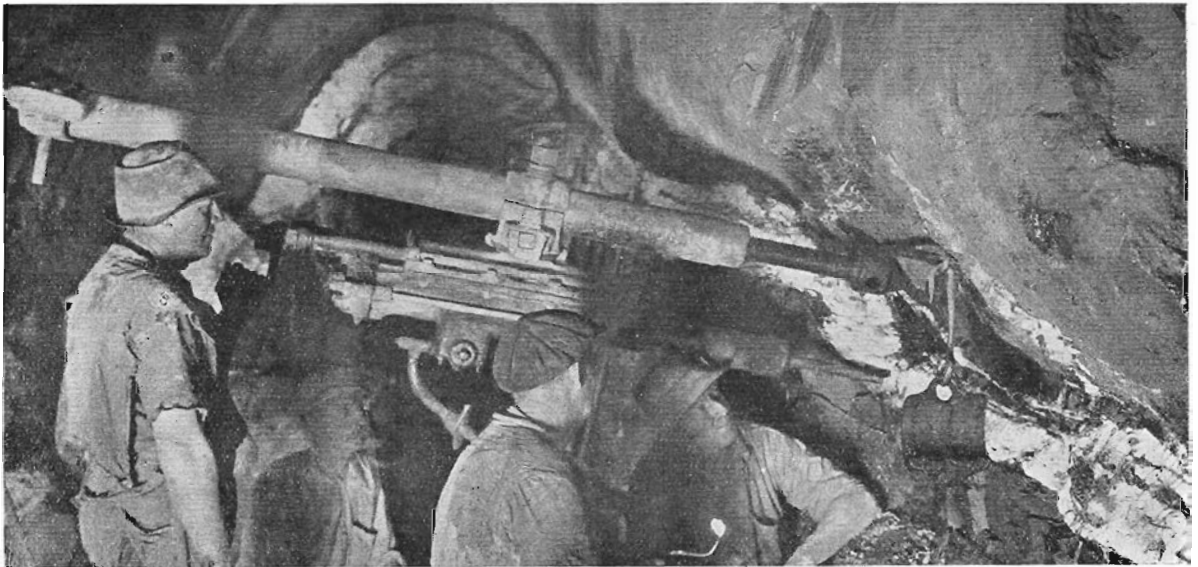
Then another saddle came into view.

Two legs of quartz shot to the east and west. Glistening crystals and brilliant specks of mica caught the tiny rays of the lamp. Mundic, too, threw back gleams of light.

The manager pointed to a speck of gold. This was the trail along which the miners rode hotfoot. This specimen might lead to others, which again might cluster near richer deposits still.

They never know, in mining, what they will stumble upon next. At one stage in the history of the mine, when the first saddle was reached, the authorities reasoned that this was the finish. No more gold could be expected. And now they're on the third saddle and are hopeful of going still further. Chance, as ever, plays a large part in the discovery of gold . . .

We came up almost reluctantly. Maybe the fever touched us, maybe it was the novelty. At any rate, we emerged half regretfully from Pluto's garden into the bright sunlight to see his flowers being dropped into waiting drays . . . gold-bearing quartz, off to the crushing.



Miners rock-drilling the "leg" of a quartz saddle in search for gold.

Through Service on Hudson Bay Line Delayed

THE Hudson Bay railway will not be open for general business for some time.

Regular train services will operate between the Pas and Herchmer (mileage 412), but beyond this point passengers will not be carried unless by special permit.

This precaution has been taken by the management of the Canadian National, operating the road, owing to the lack of accommodation at Churchill, the northern terminal.

Hon. T. A. Crerar, Minister of

Railways, states that work in connection with the Port of Churchill is proceeding as expeditiously as possible. There were difficulties in the way, he pointed out, chiefly on account of the fact that work on the harbor could be carried on only five months in the year. Churchill would not be open this year for general settlement, he stated.

The minister added that a number of large industrial concerns intend making Churchill a base for the distribution of their products in the prairies.

Mr. Crerar took a peep into the

future and predicted that some day there would be a line west from Churchill, through the Rocky Mountains to the head of the Portland Canal, which would give a direct route from Liverpool to the Far East.

The oldest passenger railway engine still in active service on the Southern Railways of England, is the Ryde, built in 1864 for the Isle of Wight Railway, and still running between Brading and Bembridge. It has run over 1,500,000 miles.

PUTTING *the* WORLD on the SCALES

*HUGH RICHARDS
discusses a
Weighty Subject*

SOME 200 years ago, an elderly, stoutish and respectable-looking citizen might have been observed lying flat on his stomach on the edge of a tremendous cliff in South America.

He was squinting earnestly along a plumb line which he had dropped over the edge of the chasm and his lips were moving as though in prayer. With his eyes glued to the end of the plumb line, he took no more notice of the icy wind which swept up from the rocky depths of the wild valley below than he did of the drifting sleet which was fast soaking the more prominent portions of his recumbent figure.

As a matter of fact, he was trying to weigh the world. And that has always been a task requiring sustained concentration.

The man's name was Bouguer, the cliff's was Mt. Chimborazo, and the occasion was science's first determined attempt to put the world on the scales. It is true that the earnest pioneer's attempt was not a triumph of precise calculation—he assessed the weight of the world at nearly double its actual tonnage—but, at any rate, he blazed the trail along which the world has since rolled lumberingly into an ac-

credited and reasonably well-balanced pair of scales.

HOWEVER, the statement that a man could even attempt to weigh the world with a plumb line probably demands a little explanation. The layman will be inclined to urge that many harmless citizens have been incarcerated in high-walled asylums for talking far less irrationally.

The explanation is that science finds the weight of the world by calculating how hard it can pull. There are difficulties in the way of adjusting a suitably designed pair of scales beneath the spinning globe, even supposing that its break-neck marathon race around the sun at some 62,000 m.p.h. could be halted while the weighing was performed.

Science, therefore, seeks an estimate of the mass of the earth by measuring the gravitative pull which it exerts on other bodies.

Isaac Newton—remembered by schoolboys as the man who stood

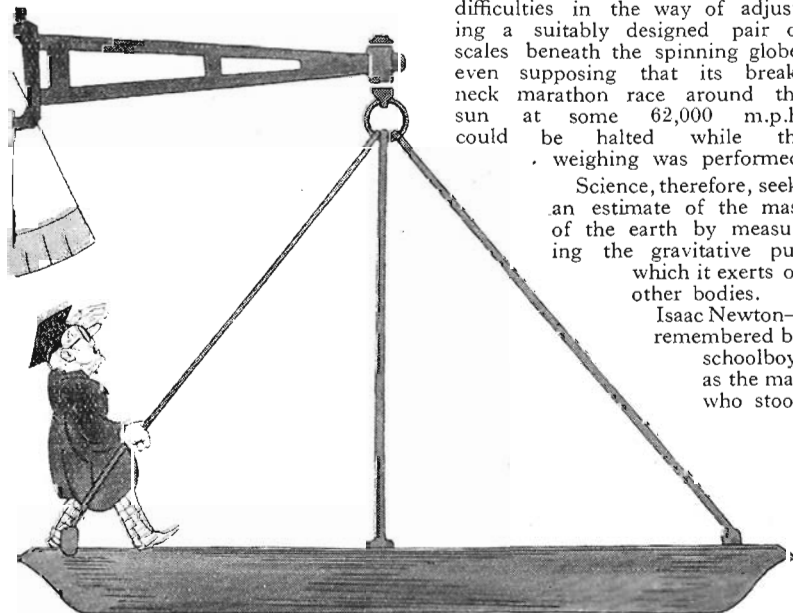
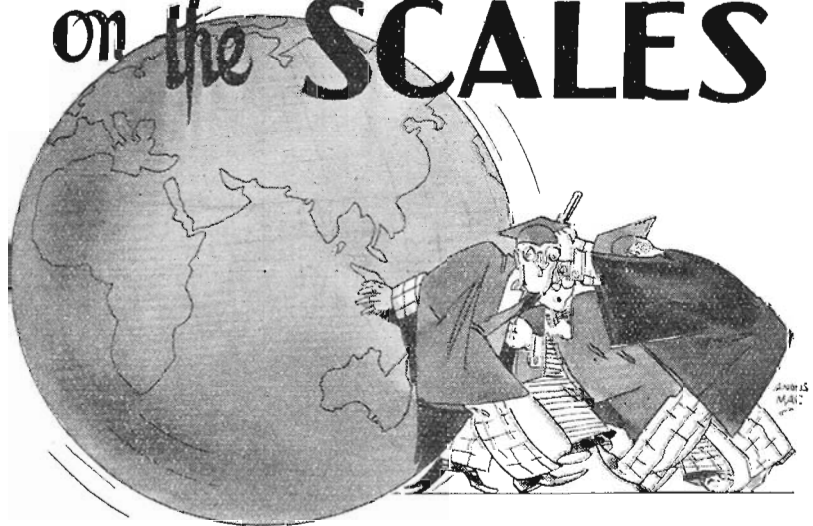
under trees waiting for apples to fall on his head—preceded the worthy Bouguer by a couple of decades and, by his statement of the law of gravitation, made it clear that the weight of any body was a measurement of the attraction between that body and the earth. Which implies that, were the world twice as heavy as it is, the average 12-stone man of today would weigh 24 stone without any increase in bulk.

So, given an exact determination of the force of gravitation, the mass of the world can be discovered

ENTER, accordingly, M. Pierre Bouguer with his plumb line. Said M. Bouguer: "If the earth, as a mass, is pulling everything towards its centre, surely a mountain must be pulling everything near it towards one side. If, therefore, I drop this plumb line over the edge of this cliff, the angle of deflection from a perpendicular line with the centre of the earth will represent the pull of the mountain."

The reasoning was correct. But the measuring wasn't. The angle of deflection was, of course, infinitesimal, the conditions of work atrocious. Putting it simply, Bouguer came to the conclusion that the stuff the earth is made of was more than four times as heavy cubic foot for cubic foot, as the stuff Mt. Chimborazo is made of. This figure, as has been said, would actually provide enough tonnage for two worlds

Then along came a couple of astronomers who essayed to weigh the world by measuring the beat of a pendulum—first, on the surface of the earth, later



in the depths of a mine. Mother Earth's pull being the cause of the pendulum's swing, it was argued that the closer the pendulum was taken to the centre of the globe, the slower the swing of the pendulum would be, as part of the mass that had been pulling the pendulum downward would then be above it.

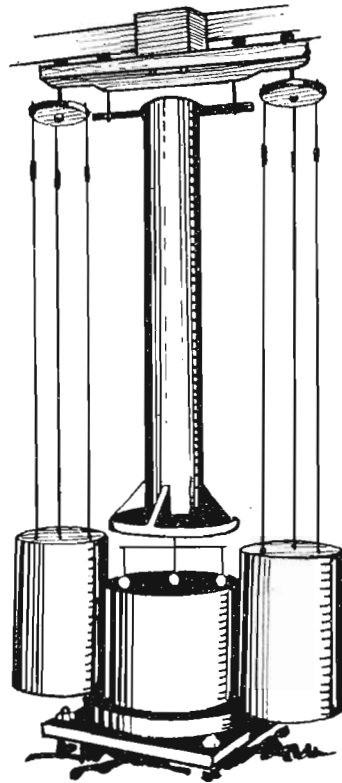
THE results of these experiments were reasonably successful, but the most satisfactory estimate of the world's pull and weight was finally determined on the torsion balance designed by the English clergyman called Mitchell and developed by the eccentric scientist Henry Cavendish, in the middle of the 19th century.

The torsion balance is a light horizontal rod, suspended by a fine wire and weighted at each end with a small two-ounce metallic ball. It is lowered into a vacuum, and an eight-inch, 140 lb. cylinder is suspended at each side, as near as possible to each of the metallic balls on the rod.

There is a gravitational attraction between each cylinder and each ball, and carefully determined adjustments of the cylinders swing the rod and alter the position of the two-ounce balls in sympathy with the movements of the cylinders. By measuring the difference in time of the swing, the force of attraction between a cylinder and a ball of known weight is calculated.

It is then a comparatively simple task to calculate the force of attraction between the earth and a body on its surface. And so the weight of the world is determined.

That discovery of the trifling—but none the less definite—force of attraction between cylinder and ball has, in fact, been the penny which has found the world's weight on the weighing machine of science . . .



A sketch of the torsion balance by means of which the weight of the world has recently been redetermined. Experiments were carried out to measure the gravitational attraction between each of the two cylinders and each of the two end balls. Arguing on the lines explained in this article, the experimenters were then able, by a simple sum in proportion, to answer the question: "If two bodies of that weight attract each other to that extent, what must be the mass of the earth to exert the attraction that it does upon a body at its surface?"

Cavendish, after experimenting with his torsion balance, decided that the weight of the world, cubic foot for

cubic foot, was not quite $5\frac{1}{2}$ times the weight of water.

Now Dr. Paul R. Heyl, an impassive, bespectacled physicist in the United States Bureau of Standards, has taken his torsion balance into the depths of an underground constant-temperature room and has achieved even greater accuracy than Cavendish.

He assesses the weight of the earth at a tonnage which is 5'522 times the weight of the globe of water of the same size. (Cavendish's figure was 5'448).

And that weight is estimated to be a trifle over six septillion tons—6,000,000,000,000,000,000,000 . . . six followed by 21 noughts!

THIS total is too stupendous to mean anything to most people, but a reference by Dr. Heyl will give a sketchy impression of the terrific mass of the earth. The professor points out that, if all the people on earth migrated to the moon with all their horses, cattle and live stock, the change in the mass of the earth would be imperceptible—less than one part in a million million.

Or, considered from another point of view, if one prodigious heap of 250 Pacific locomotives was placed 100 feet away from another heap of the same size and weight, the two mountains of engine-power would attract each other with a force of no more than 45 lb., while the mighty pull of the earth, exerted from a point 4,000 miles away in the heart of the globe, would be attracting each heap with a force of 50,000 tons! . . .

And if anyone is inclined to doubt these figures or to question Dr. Heyl's revised calculation of the weight of the world, he can go and weigh the thing for himself. After all, it's always hanging around somewhere.

Adventure of Stout Traveller and "Son"

ASHTON STEVENS, in his delightful "Column or Less" in the *Chicago Herald-Examiner*, tells a new sleeping car story—if there is such a thing.

It is about Sam Raymond, who was a well known county treasurer and weighed, heavily speaking, a ton, and his friend, Jim Eccles, who was controller of the currency and no larger than a jockey in fair training. There was only one section left on the crowded train that brought them home from New York and they tossed a coin for the lower berth. Little Jim won; and big Sam, with the power of two porters, was hoisted into the upper.

A stoutish and middle-aged woman entered the car at Buffalo, and the sleepless Sam heard her tell the porter that she would stand up all night

rather than wait for a later train. Sam projected his head through the green curtains and addressed her politely and sympathetically. She looked like a mother, Sam said; and she admitted she was the mother of six.

"I'm a father myself," said Sam, "my youngest son is sleeping in the lower berth. He's only a little fellow . . . and if you wouldn't mind piling in with him?"

"Not at all, and thank you for your kindness!" And the good woman straightway sat down on the edge of the berth, and presently Sam heard her shoes drop and herself roll in beside the sleeping Jim. He heard Jim's head hit the bottom of the upper berth as he jumped from his sleep, crying, "What the hell?" He heard the woman speak soothingly. "Sssh,

my little man, your father said—" and he heard Jim's "Get to the devil out of here!" and his unrepeatable opinion of him that had been called his father.

And then Sam rolled over as best could a man of his size in an upper berth, and was strangely happy.

NEW SWISS ELECTRIC LOCO.

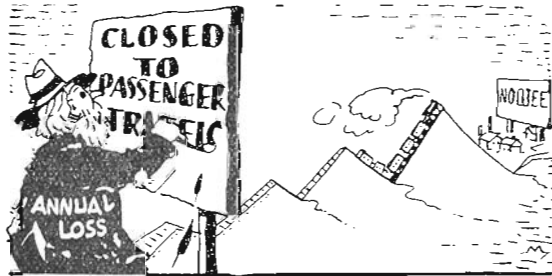
WHAT is stated to be the largest electric locomotive yet built in Europe has been ordered by the Swiss Federal Railways for use on the St. Gothard line.

The locomotive will weigh 230 tons, of which 153 tons will be available for adhesion on the severe mountain inclines. Sixteen separate motors, producing a total of 7,200 h.p., will propel the engine over the steep railway track.

Things We Are Talking About

THAT the Noojee spur line, which has been operated at a considerable loss for some years past, will shortly be closed to regular passenger traffic, was announced by the Railways Commissioners last month. Traffic on the line is not sufficient to warrant the

FOR GOODS TRAFFIC ONLY handling of goods and passenger business separately, and the mixed trains have therefore to perform shunting and other station work *en route*. This necessarily increases the disparity between the railway schedule and the possible running time on the



... the Noojee spur line ... will shortly be closed to regular passenger traffic.

considerably shorter road route. Moreover, several of the settlements along the line are more conveniently served by road than by rail, and it is unlikely that there will be any increase in railway traffic until the timber industry recovers from the set-back which it received after the disastrous 1926 bushfires. The train service will accordingly be confined to the minimum number of trips necessary to clear the goods traffic (possibly not more than three goods trains per week) and tenders are being invited for the right to operate a motor service in conjunction with the Department for the conveyance of passengers between Warragul and Noojee by road. The successful tenderer will operate two through trips daily, supplemented as necessary on market days.

THE ninth of last month was a red-letter anniversary in the railway world. It was the birthday of the "father of the locomotive," George Stephenson, who was born near Newcastle, on June 9, 1781, and who died on August 12, 1848. The 25th of

FATHER OF THE LOCOMOTIVE

this month, it so happens, will be the 116th anniversary of the test run of Stephenson's "Blucher" on a one-in-450 grade on the Killings-

worth railway, when the engine toiled along at four miles an hour in front of eight loaded trucks of a total weight of 30 tons. The most important result of this historic test was Stephenson's inspiration concerning the steam exhaust, the forerunner of the modern blast pipe. He decided to carry the escape of the steam from the cylinders into the smoke stack, so doubling the capacity of his boiler.

FIERCE opposition to Stephenson's ideas came from many influential quarters. It was declared that, if railways were built, cows would be prevented from grazing and hens from laying, that poison from the engines

OPPOSITION AND RIDICULE

would kill birds and prevent the preservation of pheasants and foxes, that the air would be polluted with clouds of smoke and homes near the line burned by fire from the engine chimneys, that horses would become extinct and oats and hay unsaleable, that boilers would burst and blow passengers to atoms, and that the weight of the locomotive itself would

prevent the train from moving. But neither opposition nor ridicule could daunt the determined Stephenson and, at the Rainhill trials, near Liverpool, his famous "Rocket," attaining a speed of 35 miles an hour, won the £500 prize offered for the best locomotive for operation on the Liverpool-Manchester line.

THE "Back to Central Australia" movement has definitely set in. The first of the series of winter tours, arranged by the Australian Railways Commissioners, to the "back o' beyond" was fully booked, and vacancies in the second touring party were filling rapidly, when the Magazine slipped into this month's red-and-black jacket.

WINTER TOURS IN CENTRAL AUSTRALIA

The special camping equipment which has been provided, includes canvas bathrooms and mess room, electric light, portable shower baths, a wireless set and a gramophone, and ladies can now be accommodated on the tours. Among those who have taken the opportunity of enjoying the sparkling winter sunshine, crisp clear air, and strange primitive scenery of the interior, are the Governor of South Australia (Sir Alexander Hore-Ruthven) and the Governor of Victoria and Lady Somers.

MR. ARTHUR H. O'CONNOR has left for San Francisco to represent the Australian National Travel Association in America. He will make contact with all travel agencies throughout America and

TRAVEL AMBASSADOR IN AMERICA

Canada with a view to encouraging travel to Australia; he will visit the principal cities of the two countries and, from the platform, and through the press, will describe Australia's potentialities and attractions for tourists and investors; and he will interview



... he will keep Australia in the collective eye of America and Canada.

tourist agencies and railway companies, deliver addresses and distribute Australian posters and general Australian tourist literature. In a word, he will keep Australia in the collective eye of America and Canada, and act as ambassador of travel to the Commonwealth.

IN two reports issued last month, the Parliamentary Standing Committee on Railways confirmed its recommendation that 9½ miles of railway track be constructed between Meringur and Morkalla, and rejected for the time being the proposal to abolish the Yallourn cockspur by a

MORKALLA, "YES," YALLOURN, "NO"

diversion of the existing main line between Morwell and Moe. Concerning the latter proposal, the Committee considered that, until there was a substantial advance in the tonnage of briquettes forwarded

by rail, the deviation proposal should not be further investigated." It was felt, however, that that time might not long be deferred, and the recommendation was accordingly designated a "progress report," so that the matter may be revived again when anticipations are realised. In recommending the construction of the Meringur-Morkalla line, the Committee stipulated that only £20,000 of the total estimated cost of £49,020 for line and rolling stock shall be interest-bearing. The Developmental Railways Account will benevolently advance the line a free gift of £29,020.



It was like a League of Nations

IN Mr. Clapp's mail last month, there was an interesting letter from Francis Douglas O'Brien, formerly a civil engineer in the Victorian works branch of the Commonwealth Works and Railways Department, who was presented with several letters of introduction by the Chairman when leaving in search of experience in structural engineering overseas, some five years ago. The young Australian is now on the staff of the Electric Management and Engineering Corporation of New York, a firm which handles large power house installations. He has, however, just returned from a year's railroad building in Persia. A European syndicate and an American syndicate, took over the construction of a railway between the Persian Gulf and the Caspian Sea, but, after some 150 miles of track had been laid, financial negotiations broke down, and the work followed suit. "Much of the interior of Persia," writes Mr. O'Brien, "is an extraordinarily rugged wilderness of appalling mountains . . . just a mass of gorges, canyons, bare rock and generally impossible country. In fact, some of our engineers who have travelled widely proclaim some sections of Persia to be among the most difficult railroad propositions in the world. I have traversed the Canadian Rockies and, for my part, would say that the Rockies look easy country compared with some parts of the Persian highlands. In one stretch of 120 miles our trial locations showed about 30 miles of tunnels, over a length of 50 miles of track. One of our men suggested that we bring over some subway experts."

ON THE JOB IN PERSIA

AS structural engineer, Mr. O'Brien had his official headquarters at Ahwaz, a mud-housed settlement some 80 miles from the head of the Persian Gulf. He points out that the material which his staff handled included Westralian jarrah, Oregon timber, Russian rails, French and German rolling stock, and English heavy steel, and he sketches an interesting pen picture of a harassed engineer directing a cosmopolitan crowd of Americans, Britishers, Poles, Armenians, Russians, Germans, French, Persians, Arabs, Syrians, Indians, and a few unclassified personalities. "It was," he observes, "like a League of Nations." With the cessation of work, the wandering Australian returned to New York by a circuitous route through southern Russia, Constantinople, Asia Minor, Syria and Egypt, and thence by boat via Colombo, Singapore, Shanghai and Japan to Vancouver. He is inclined to think that the Persian railroad will never be completed.

THAT renowned photographer, traveller and author, Mr. E. O. Hoppe, visited Mt. Buffalo National Park last month and, during a four-day stay at The Chalet, took scores and scores of pictures with the first natural color camera of its kind that has ever been used on Buffalo's heights.

FAMOUS PHOTOGRAPHER AT MT. BUFFALO

This camera captures natural colors for each negative and reproduces them directly on the resultant print. As the prints can be developed only overseas, Mr. Hoppe will be unable to appraise the results of his skilful scenery-stalking until he returns to England at the beginning of next year. Included in his collection of pictures are some panoramic snow scenes around Mt. St. Bernard and Mt. Hotham. "I have seen no scenery anywhere in the world to surpass the grandeur of Mt. Buffalo," he declared. "And I have never been so spoiled in my life as I was at The Chalet."

VICTORIA'S Better Farming train is well in the news these days. The cableman sends word that there is a strong movement on foot in England, at the present time, to model a train on the lines of the famous Victorian caravan and send it on tours of the rural districts of England and Scotland. The Ministry of Agriculture and the various farmers' societies and railway companies are discussing the project, which is "very favorably regarded in all quarters." Germany, too, has recently asked for photographs and full information concerning the Victorian Better Farming train. Agriculture in Germany, as in England, is in a parlous condition at the present time, and the German Ministry of Agriculture is contemplating the establishment of a train which will also be modelled on Victorian lines.

ENGLAND AND GERMANY LOOK TO VICTORIA

Getting the Business—5

IN the past, we've heard of new business that has arrived in the shape of passenger revenue and goods revenue, as a result of special efforts by enterprising railmen.

This month, the new business appears in a humbler role—that of the railway timetable folder. A well known relieving stationmaster has made a practice of pushing threepenny timetable sales at every station which he visits, and his success has been remarkable in its consistency.

To take one typical instance, during a recent 12-day stay at an average suburban station, he was instrumental in selling no fewer than 50 country and 303 suburban folders by the simple expedient of displaying the folders near the booking window and, as the opportunity presented itself, tactfully suggesting that the threepenny outlay would be a wise investment.

As he says himself, it's not so much the revenue that's involved in the additional sales as it is the potential advertising value of a railway timetable in the home.

—R.H.J.

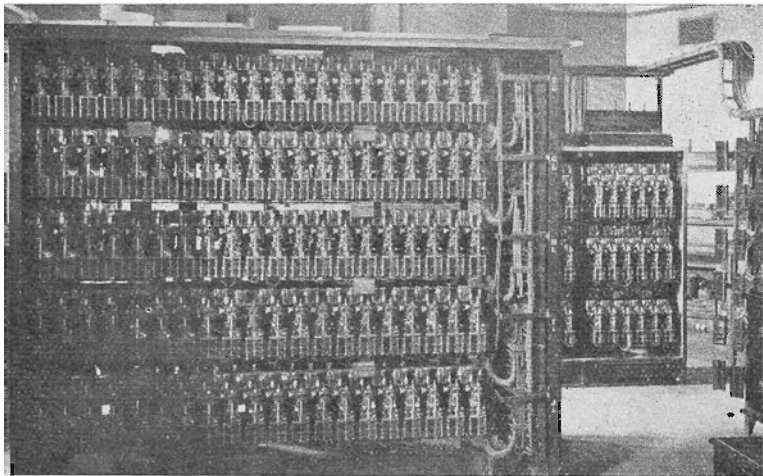
The Power Behind the 'Phone

By
A. MacLaren
Asst. Engineer

THE power behind the 'phone is a power that is too often overlooked.

Like the work of the man behind the scenes, the influence of the familiar telephone is seldom appreciated at its true value. Both are generally taken for granted.

Today, however farsighted administration the world over recognises that, in any large undertaking, a comprehensive telephone service, intelligently used, can be of paramount importance in saving time and correspondence.



The nerve centre of the Victorian Railways automatic telephone system—the head office exchange showing selectors, connectors and portion of main distributing frames



F the many things which perform their responsible duty without any ostentation, there is perhaps no more "modest violet" than the telephone and telegraph system generally. In the Victorian Railways there are 422

Selector telephones in use on the train control systems, 445 telegraph instruments, 1557 telephones in use on station service and signal box service lines, 324 harmonic telephones in the metropolitan area, approximately 1200 automatic telephones, and 16,500 miles of telephone lines, spreading themselves to the far corners of the State, each silently awaiting its opportunity to be utilised in the performance of its allotted task in the general scheme of service.

Before the regime of the present administration, the telephone had not been developed to the state where it played such an important part in railway organisation as it does today, but with the realisation of its importance and with the necessary financial encouragement, the telephone system has developed until at the present time it compares favorably with that of any other railway either here or abroad.

In 1922, the first installation of selector telephones, for train control purposes, was completed between Dandenong and Warragul, and consisted of 14 telephones terminating on a control table at Dandenong. Since then selector installation has proceeded rapidly, according to a definite plan, and today control centres are established at Spencer-street (two), Flinders-

street, Geelong, Bendigo, Maryborough, Ararat and Seymour.

The type of apparatus in use is what is known as the Western Electric A.C. train despatching telephone system, and consists of calling keys, apparatus case, and main battery at the control station, and a selector set and telephone at the wayside station. This equipment enables the train despatcher to quickly and reliably call selectively any one of a large number of wayside stations on the same telephone line without producing a signal at any other station.

Codes for Keys

Each calling key is set to a code which corresponds to the code setting of the selector of one particular station. The basis of the code is that the selectors operate on a total of 17 steps, and are actuated not by successive impulses, but by three sets of successive impulses (such as 3-8-6 or 5-9-3). The code wheel of the selector is so made that code pins can be inserted for any code, the third code pin being a permanent one. By this arrangement of codes it is possible to get 78 suitable combinations.

This code setting will be readily understood from an example. Assume the despatcher to be calling a station whose code is 3-8-6. On his operating the calling key, a first series of three impulses is sent out to line per medium of the apparatus case. All the selectors on the line are stepped around in synchronism, and are all advanced three steps. Then, during an interval of approximately one second, all selectors, excepting those having a code pin on the third position, are

returned to normal.

The next succession of eight reversing impulses is sent out, all selectors again stepping in synchronism, and, with the exception of those having a code pin at the 8th or 11th position, all are returned to normal during the long interval.

The third series of reversing impulses (six in number) will again step all selectors around for six steps, and all selectors not then engaged on a code pin are returned to normal.

Notwithstanding that several selectors may now be held on the first and second code pin, it is only possible for the one with the 3-8-6 code setting to have advanced the full 17 steps, and, as this third code pin is in the local bell circuit, the bell is rung for approximately two seconds. An audible "ring-back" tone is heard at the despatcher's end, which gives a positive indication to him that the station has been called, and, since the ring-back is operated by the bell hammer, the ring-back indicates that the bell is actually ringing.

After the ringing period of two seconds, the calling key gives out one impulse which returns all selectors on the line to normal in readiness for the next call.

When the call is answered, the speaker's voice is reproduced in a loud-speaker on the control table, thus obviating the necessity for the use of headphones. The room occupied by the train despatchers has been acoustically treated on ceiling and walls, and this very effectively eliminates echoes and other distracting noises.

The harmonic ringing telephone system, although quite common and

extensively used in America, is comparatively little used in Australia, and in that respect the Victorian Railways board is novel. The method employed is that of tuned ringers, which, when adjusted, will respond only to the frequency for which they have been tuned.

The frequencies used in our harmonic system are 30, 42, 54 and 66 cycles and, by this means, it is possible to have four telephones on each line and, if the ringers are properly adjusted, when a particular frequency is applied to the line, the corresponding bell only will ring.

Every station and signal box in the metropolitan area is connected, and the enormous savings in line costs

with an aggregate of 3000 extension telephones, working in conjunction with the harmonic and automatic exchanges, and by means of which the service given by these exchanges is greatly increased. Switchboards, such as those at Newport workshops, Melbourne goods sheds and Melbourne yard provide for up to 100 lines and, as well as giving a local service, are used extensively for extending automatic and harmonic calls.

In addition, provision is made at Melbourne yard for extending calls from the various suburban station service lines. These station service lines terminate in the Metropolitan Superintendent's office, Flinders-street, and are used extensively in conjunc-

tion with the suburban train control, having been installed in 1913. In 1925, when this exchange handled 16,000 calls per day, an average of 48 calls per line per day, it was probably the busiest exchange in the world, but since the dictograph systems have been installed in the various branches, the calling rate has dropped to 30 calls per line per day. An automatic call can be completed in three seconds, but the dictograph provides an even more direct means of communication and has now become an almost indispensable part of the office equipment.

There are 130 dictograph instruments in the various branches, averaging 20 connections to each, and whilst intercommunication is provided, the head of the branch and other executives have a right of way at all times. The Commissioners' system links up the heads and sub-heads of the various branches, and these lines have right of way over all other calls.

The telephone and telegraph systems are so interwoven as to be inseparable, particularly is this so where the lines are arranged for simultaneous telephony and telegraphy, and although to a large extent the telephone has superseded the telegraph, the field of the latter is still very extensive, and its scope still unlimited.

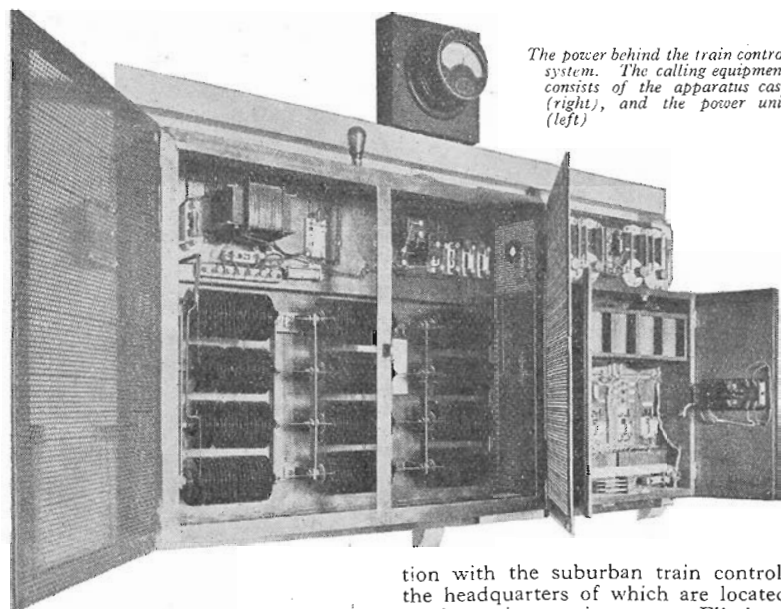
Saving the Wire

On almost all of our long telephone lines in the country, the telegraph is superimposed on the telephone lines. This means that, by using only two line wires, such as would be required for the telephone alone, and by the judicious insertion of repeating coils, it is possible to operate the telegraph over the telephone without causing any interruption.

A clear saving of line wire is evident, and its application is so extensive that No. 69 Morse line (for example) is superimposed the whole way from Melbourne to Adelaide. Carrier wave systems permit of several channels of communication over one pair of wires, but up to date this application has not been found necessary by this Department.

As the telephone system has expanded and made inroads into the business of the telegraph, a large number of telegraph stations have ceased to function as such and their instruments have been withdrawn. Their business is now done by telephone and, to provide for this contingency, the telegraph organisation has been modified. One result has been the institution of the "telephonogram," and its use has become so extensive that the telephone attendants in the telegraph office deal with no fewer than 1200 "telephonograms" per day.

In a normal year the telegraphic business of the Department amounts



The power behind the train control system. The calling equipment consists of the apparatus case (right), and the power unit (left)

tion with the suburban train control, the headquarters of which are located at the train running room, Flinders-street.

can be imagined, when it is considered that one line suffices for four stations—for example: Frankston (144x), Frankston Signal Box (144w), Seaford (144j) and Cheltenham (144y)—instead of four lines which would otherwise be required. Similarly with Bendigo, Castlemaine and Kyneton and other long lines.

Other great advances in the expedition of business are the trunk line connections to Bendigo, Castlemaine, Ballarat, Werribee, Geelong, and other stations, which have forever destroyed the isolation enjoyed (?) by these centres for so long.

Although the Harmonic system was only installed in 1927, the long-felt want which it is fulfilling is amply illustrated by the fact that 2500 calls per day were handled in November, 1927, increasing up to 3500 per day in May, 1929, and now at times the telephone attendants handle as many as 330 calls per half-hour at peak periods.

Scattered throughout the State are 120 manually operated switchboards,

Another notable advance in the march of progress is the recent installation of an automatic telephone exchange at Geelong. This exchange, which is a product of the British General Electric Co., can cater for 100 local lines, and is entirely automatic, inasmuch as it is normally unattended. All faults or failures are indicated in the telegraph office some distance away, also whether the trouble requires urgent attention or is of less serious nature.

Another automatic exchange is installed at Jolimont substation, and is reserved exclusively for use in connection with the suburban electrification, and is therefore known as the power automatic (or P.A.) exchange. This also provides for 100 lines and is totally independent of all other installations in the Department.

Perhaps the most universally used and best known is the automatic exchange, which is located on the 4th floor of head office. As far as automatic equipment is concerned, this

Down To The Sea in—Trains!

THE nearest mainland railroad to the islands previously stopped at Miami, a distance of about 45 miles from the coast. For this reason, Miami was chosen as the terminus for the new line.

The preliminary work of drawing plans and deciding upon certain details was completed without unusual incident, and work was commenced in May, 1905.

No serious obstacles were encountered for the first 28 miles. For the next 17, matters did not look so promising. Here the railroad had to cross the treacherous swamp known as the Everglades. The soft muddy ground was covered with a tangled mass of tropical vegetation and, in places, the railroad builders had to cross water, ranging in depth from a few inches to several feet. The whole territory was infested with mosquitoes, together with poisonous snakes and huge constrictors, that squeezed their prey to death. Then, too, scores of alligators lived in the waters.

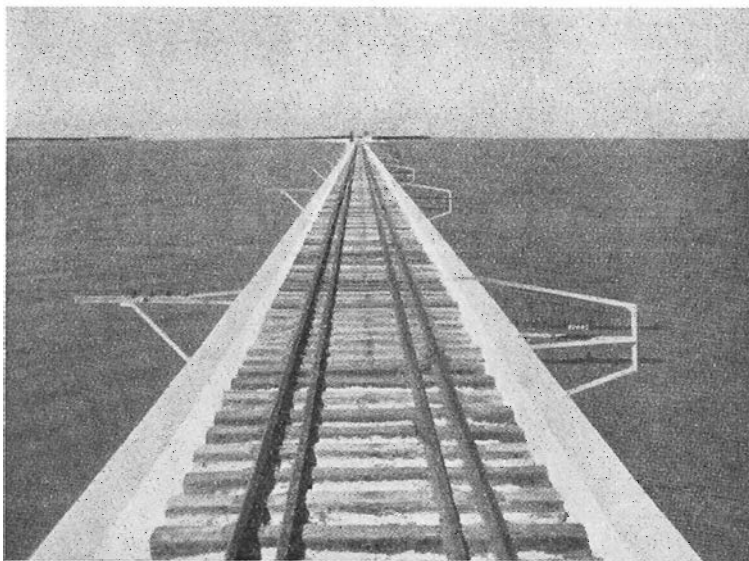
Bridging the Swamp

Despite all, the men were courageous, and began to establish the firm foundations needed to carry the new line. A wide ditch, 2 ft. 6 in. deep, was dug on either side of the proposed embankment. Water quickly filled these trenches, which made possible the use of a dredge that resembled a flat-bottomed barge with a crane. The crane, strong and sturdy, methodically dipped its bucket into the soft mud and carried its load of wet soil, shrubs and roots to the embankment.

In this manner, a mound of earth, which eventually stretched across the swamp, slowly took form. However, so saturated with water was the material thus raised that it took considerable time to dry, and each layer had to dry before the next could be put on. To combat this obstacle, two dredges, one on each side, were used so that one layer had a chance to dry before the next was laid.

Some of the roughest of men comprised the gang of 3,000 negroes and white men that were employed. Even though work was hard, dangerous, and at times unhealthy, the men were well paid for their services, and were well fed. Every precaution was taken to guard their health. When ill, medical attention was available. A special hospital at Miami treated some 4,000 patients during the period of construction.

Strict rules and regulations were a part of each camp. No intoxicating liquors of any kind were permitted (this, of course, was in pre-Volstead days), and the men in charge were keen



A section of the Florida East Coast railway that literally spans the ocean

STRETCHING south of Florida is a chain of islands, the most southerly of which is Key West.

The idea of connecting these islands with the mainland by building a railway across the open ocean on a series of viaducts was conceived some 20 years ago by a Henry M. Flagler, who was interested in the development of Florida.

The tremendous difficulties which were encountered and overcome during the construction of this unique railroad are graphically described in this article which we reproduce by courtesy of *The Octagon*.

to see that these laws were enforced without exception. They well knew what havoc an outbreak would play if control was lost.

At last the swamp was conquered and the men were ready to tackle the task of linking together the various islands. In this group there were 47 islands, varying in length from a few hundred yards to six miles, while the water varied in depth up to 40 feet.

Wherever possible, the engineers tried to shorten the distances between islands by building embankments. These fill-ins stretched out from either shore, and some of the channels, especially the waters separating Key Largo and Long Key, were crossed in this way. Of course, this idea could only be carried out in a few instances. In the majority of cases, viaducts or bridges carried the line.

The longest viaduct is situated between Long Key and Grassy Key. It is two miles long and, as are all the other ten, it is made of concrete.

It has 186 arches and carries the line 31 feet above water. Some time was taken to construct and handle the material that went into this one con-

necting link. There were used 286,000 barrels of cement, 177,000 cubic yards of crushed rock, 105,000 cubic yards of sand, 612,000 feet of piling, 5,700 tons of steel, and 260,000 feet of timber.

In carrying on this work, boats were a necessity, for not only did barges and rafts provide a platform from which the men could work, but they also transported most of the materials. Crushed stone, alone, was conveyed on 80 tramp steamers. Other boats were of various sizes and types, the fleet consisting of three tugboats, eight stern-wheel, shallow draught steamers, (similar to those on the Mississippi), 30 gasoline launches, 14 house boats (each having a capacity for 144 men), eight workboats (equipped with cranes and concrete mixers), three floating pile drivers, a floating engineer's workshop, and over 100 barges and lighters. No expense was spared in supplying the men with the necessary equipment to do their difficult work.

The problem of securing solid piers to carry the heavy arches was overcome by the use of coffer-dams. A coffer-dam is an enclosure sunk into a lake, river or shallow part of the sea from

which water can be drained, leaving a dry surface on which men can work. In this particular case a large box-shaped enclosure, without top or bottom, was sunk into place. The upper edge extended far enough above water to prevent an inflow. The six miles of viaducts, together with ten steel bridges to provide a wider space for certain currents, were constructed in this manner.

The methods of railroad construction on the islands were practically the same as on mainland. In one instance, on Key Largo, a body of water, over $1\frac{1}{2}$ miles wide and six feet deep was encountered. The bottom of this lake

from the ravaging elements wherever they could.

Boats, which were safely anchored in the harbor a few hours before, were snapped from their moorings and swept to sea by the terrific wind.

So quickly did this calamity fall upon the men, that not one of the 145 on House Boat No. 4 had time to scramble to shore. They were helplessly tossed about in this boiling water, finally finding themselves cast upon the back of Florida reef. When the boat hit, some tried to find protection in the hold while others, with more presence of mind, sought refuge on the windward side to escape the falling timbers.

that although he heard several ships pass him in the night, he was unable to attract their attention.

On a working barge containing a cement mixer and an electric light plant, one man was carried to sea. He immediately went to work to stoke his boilers so that his lights would not go out. In the twilight, helpless men stood on the shore, watching the blazing light, and to their dismay saw the boat disappear into the sea.

In another instance, a man sailing out into the Atlantic on a sinking barge unbolted a large wooden water tank from the deck. Floating off in this improvised life-boat, he had the



Knight's Key bridge, which crosses the open sea for distance of seven miles

was of a spongy peat. Here again, two dredges were used to build an embankment which kept the men busily engaged for 15 months. At intervals dredges were called into service on other islands. More than once, rails were laid and the dredges were temporarily equipped with wheels. In several places, crushed coral and sand made up the roadbed.

One of the most devastating blows that nature inflicted upon this battle for a railroad was a severe hurricane. This occurred when the Long Key viaduct was half completed. The piers which were already firmly established withstood the sudden attack, but other parts of the enterprise did not fare so well. Hundreds of valuable timber structures, such as moulds, scaffolding and coffer-dams were torn from their positions and, in some cases, literally hurled away.

Entire camps on the islands were completely obliterated. Terror-stricken men, as they saw the shelter torn away from over their heads, sought refuge

One of the engineers who was lost could have been saved had he not gone down into the hold to restore courage in the men who were afraid to face the storm.

Two men jumped on a barge which they dimly saw through the spray as it whirled by. Over a week later these two men, nearly dead from lack of food and water, were picked up far out at sea.

From the same houseboat, 87 men were finally rescued, after floating about on tables, boxes, trunks and other materials. The Italian steamer *Jenny* landed 44 at Key West. The British steamer *Alton* rescued 26, and dropped them off at Savannah. Other men were found who were widely scattered over the earth. Some were landed at Galveston, Mobile, Newport, Liverpool, London and Buenos Aires.

Of course, a great many lives were lost. On one houseboat, not a man was saved. On another only one man survived and floated for three days on a couple of planks before he was picked up. By that time he had become blinded by the salt water, so

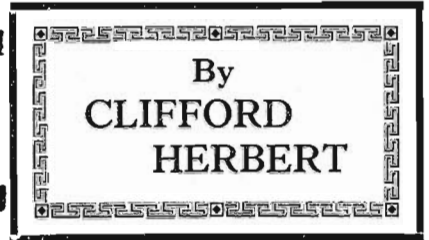
good fortune to keep it upright until it reached the coast of Nassau.

The hurricane stopped as quickly as it came, and the construction gang did their utmost to repair damages and finish the line. In January 1905, 10 construction camps were in operation. By October 1906, 20 more camps had been added and work was under way all along the line.

In January of the following year the first passenger train passed over the rails from Miami to Knight's Key, 109 miles from Miami and 47 miles from the ultimate destination—Key West.

Knight's Point was made a temporary terminus while a large harbor was under construction at Key West which is only 90 miles from Havana.

Whether the dream of the builder in making this a leading port of the world ever materialises, the completion of the Florida East Coast Railway stands as a monument to a group of men who did not go out seeking adventure, but won a fierce struggle as part of their daily work.



HERE in the civilised world today do you not find the flappers clutching their chubbies, the ladies their millitaires, and the gentlemen their crook-handled umbrellas? Where, indeed, one might ask; for the putting by of umbrellas for a rainy day has developed from the idiosyncrasy of an early strong-willed pioneer of the 18th century to a universal custom, which has become one of the most sensible additions to mankind's countless contributions to personal comfort in the long history of sartorial fashion.

The First Umbrella

Not content with umbrellas for protection from the rain, we even have umbrellas, resplendent with all the colors of the rainbow, for protection from the sun on our beaches.

It is on record that the first Englishman to resort to the use of an umbrella was Jonas Hanway, a traveller in Persia, who copied the idea from countries which he visited. Returning to England he had perforce to run the derisive gauntlet of the hackney coachmen of the period who promptly seized the opportunity of inciting contemporaries

THE world over, it's a strange train that doesn't carry at least one forgotten umbrella.

And it's possible that at least those railwaymen who annually retrieve armfuls of umbrellas from carriage seats and racks may be interested in the identity of the man who introduced the idea of roof-carrying in the rain.

And this is how they make umbrellas, too.



The beginning of an umbrella. The cutter runs his knife round a template on the cloth

then set about improving the frame, and his steel framework was, in principle, the same as that employed today.

This combination of steel and alpaca produced an umbrella of balanced lightness and strength, whilst the appearance was so changed for the better as to make its predecessor seem ludicrous.

Grasping the opportunity of still further developing the industry and improving wherever possible the various features, umbrella makers lost little time in experimenting with different styles and shapes of portable roofs. Handles became more appropriately shaped, and gradually the umbrella took on the elegant appearance of the article which is so frequently borrowed, so seldom returned, and so universally forgotten by railway travellers today

For Every Occasion

Victorian umbrellas are made in a wide range at the broly factory of Messrs. Lord and Kingston in Melbourne. The variety is practically unlimited, ranging from the gold mounted autocrat to the plain utility model built for solid service. There is, in fact, an umbrella for every occasion.

There's no gainsaying the popularity of the chubbies—those indispensable and handsome umbrellas peculiar to the fair sex and obtainable in colors



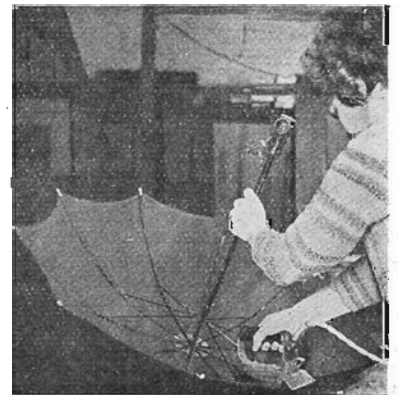
Tying in the seams of the sections of cloth against the ribs

to ridicule this new article of protection from the elements.

Living down the derision, Hanway slowly succeeded in popularising the use of the umbrella to such an extent as to make it practically indispensable.

The early type of gamp was by no means the handsome ornamental umbrella of later years. With heavy ribs of whalebone or cane and covering materials of oiled silk or cotton, the ungainly contrivance must certainly have presented a weird sight. Once folded, the material was liable to stick, and considerable patience and, at times, brute strength were required to reopen the umbrella.

Gingham superseded the original covering, but was in turn discarded for alpaca. Samuel Fox, having in mind the successful change of covering,



The presser stretches the material of the umbrella, ensuring a good fit



... he had, perforce, to run the derisive gauntlet of the hackney coachmen of the period...

to tone with all frockings. Thousands of them—literally—pack the store-rooms and flaunt their colors before their more sedate crook-handled and militaire kindred.

Multitudes of colored composition, handles of intriguing designs, and many of beautifully polished timber rear stately heads from folded black silk covers in many shapes... one might say in *all* shapes. It is certainly a far call from this store to Jonas Hanway.

The anatomical construction of a female umbrella is formed by ten or twelve ribs—any deviation from this is for the sake of novelty, and supplies the freak in gamps.

Gentlemen's, on the other hand, are larger in size and the ribs may number anything up to 16; this depends on

the use to which they are put.

After the handle is selected, it is mounted with one of the many silver or nickel tips available and, if it is a gentleman's standard size of 25 inches, this measurement is marked on the stick.

A diminutive circular saw cuts the slots for the two springs. The springs fit into these slots, which allow for their depression so that the umbrella may be unfolded or folded as required.

There is an insistence on the fact that these springs be driven right through the stick and clamped on the other side. Then the loose-fitting runner of brass is slipped on the stick and a brass notch rivetted to the tapered end.

The stretcher of the frame is wired to the runner and the notch attached to the main section of the frame.

The cutter, with his strawboard template, runs a razor-edged knife through a light thickness of silk, silk-mixture or cotton cloth, and rushes the material to a deft-fingered girl, who, after machining it, sews the cover to the frame.

The umbrella is then ironed and left to cool and stretch before being carefully scrutinised for possible defects.

The resultant neat, elegant and supremely serviceable article would certainly arch the eyebrows of the worthy Jonas Hanway, staggering under the weight of his Robinson Crusoe-like umbrella.

Russians Like Third Class Travel

THE following extract on railway transport in Russia is taken from an article in the *British Russian Gazette*—

"Not that there is any element of special discomfort, to say nothing of danger, in travelling on Russian railroads. Whatever else in Russia may be late in starting (and concerts, meetings and appointments usually are), the trains depart on scheduled time, without even a moment's leeway, and arrive with a very good average of punctuality, if one takes into account the liability of the country to floods in spring and blizzards in winter. The Russian *wagonlit* cars are roomier than those of Europe, because of the

wider gauge used on the Russian railroads; the *myaghi* or 'soft' second-class cars, so called in distinction from the 'hard' third-class, are somewhat stuffer, but leave no cause for serious complaint on the score of cleanliness or comfort.

"The third-class car, made up of compartments for six, with upper and utmost berths in the shape of wooden projections, is apt to be rather odorous, crowded and heavily encumbered with the goods of the passengers, because Russians, for some reason, are much given to travelling by this cheaper conveyance, and usually take with them a vast amount of luggage, not

in trunks and suitcases, but in sacks and boxes of all sizes and shapes.

"The dining-car is a Western importation, which is usually to be found only on the longest runs of the most important lines; but it is always possible to buy a great variety of provender, ranging from roast pigs to sunflower seeds (Russia's substitute for peanuts and chewing gum), from peasants at the wayside stations. The rush for hot water for tea at each station (from time immemorial the Russian railroad lines have provided taps at every stop of any size) is something that makes all passengers on the Russian train kin."

LINES from Other LINES

"PAY YOUR FARE," SAYS THE BIBLE

EDWARD H. GREEN'S mother's heart glowed with pride when she could say that her Ned was the youngest railway president in the United States, says John T. Flynn in the *Mentor Magazine*. So far he has done only what she made possible for him.

His mother's eyes were never off his operations, and occasionally she intervened with one of her characteristic gestures. In those days railroad officials were constantly pestered for passes. Giving free rides on her railroad tortured the soul of Hetty Green. And so she had prepared a little card and, whenever anyone asked for a pass, he received one of these little cards. It read:

Monday: "Thou shalt not pass." Numbers XX., 18.

Tuesday: "Suffer not a man to pass." Judges III., 28.

Wednesday: "The wicked shall no more pass." Nahum I., 15.

Thursday: "This generation shall not pass." Mark XIII., 30.

Friday: "By a perpetual decree it cannot pass." Jeremiah V., 22.

Saturday: "None shall pass." Isaiah XXIV., 10.

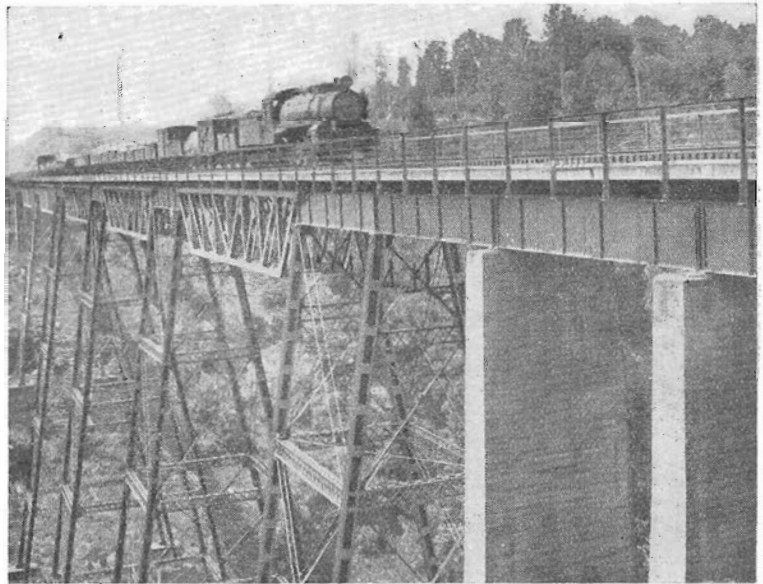
Sunday: "So he paid the fare thereof and went." Jonah I., 3.

SOVIET GOVERNMENT BUILDS 1,700-MILE ROAD

OVER deserts, plains and mountains once traversed by Alexander the Great and Tamerlane the Conqueror, the Soviet government of Russia has completed construction of a modern 1,700-mile railroad, connecting the present Central Asia railroad at Aris, Uzbekistan, with the great Trans-Siberian railway at Novosibirsk.

The new road changes the whole face of middle Asia and transforms Kazakstan, the largest autonomous republic within the Soviet federation, into a region of great potential economic significance.

This is believed to be the greatest single mechanical achievement of the Communist government since it came into power 12 years ago. The road cost £20,000,000 and its construction occupied four years.



Goods train crossing the Makatote viaduct, North Island main trunk line, New Zealand.

Windmill Operates Railway Signals

THE winds that sweep over the treeless prairies to the east of the Rocky Mountains are being harnessed to help in operating limited trains that speed across these plains.

At Culbertson, Montana, has been erected a special windmill that picks the electric power from the air and uses it for the operation of railway box signals. By means of this windmill electric current is supplied for a distance of 10 miles in one direction and 16 miles in the other. Other windmills will soon operate all of the automatic box signals between Wolf Point, Montana and Williston, North Dakota.

For hundreds of miles along the Great Northern the box signals are maintained by electricity. In many cases this electricity is furnished by primary batteries energized by expensive chemicals. It is believed that this new method will reduce expenses and prove simpler to maintain.

Riding the Blizzards

This special type of windmill has been thoroughly tested on the windy prairies of Dakota. It has ridden safely through terrific blizzards that have levelled many other windmills.

In adapting the turbine idea to the signal system, it was necessary to develop a special alternating current generator delivering 60-cycle current. It is simple to generate direct current by wind turbines, but to generate alternating current is much more difficult. There has been trouble in keeping the speed nearly enough constant. Now, however, a special governor has made this practicable and successful.

The governor system also regulates

the area exposed to the wind in storm. This furling of blades is accomplished by a centrifugal governor located in the wheel. Under this system the blades of the wheel turbine are automatically changed in regard to the area exposed to the wind.

A unique drive connects the generator to the wind turbine. The wheel is 14½ feet in diameter, and over the periphery is mounted a belt sheave. This takes a waterproof belt which travels over the generator pulley, over an idler, and back to the sheave. The generator is located directly below the wind wheel.

The drive is very silent and flexible; the wheel can generate in very light winds. From the five collector rings is obtained a 220-volt alternating current and 325-volt direct current.

Railroad electricians throughout the United States are wondering whether this pioneer installation will mark the beginning of extensive use of wind power for commercial purposes.

FOR SOLITARY TRAVELLERS

A NEW and more attractive type of passenger car, to seat 43 persons instead of the usual 68 to 70, has been ordered by the Chesapeake and Ohio railroad. The new coaches will have double seats on one side of the aisle and single seats on the other. This will provide roomier seats, wider aisles and more space for hand baggage. The seats will be specially upholstered and of the swivel type.

The cars were ordered on the theory that a proportion of the passengers travelling alone prefer a seat to themselves.

Cow-Catcher Catches Owl

RECENT mention of "ferocious wild beasts and birds" captured on American railroads has moved L.C. Riley of Ontario, a signalman on the Toronto, Hamilton and Buffalo Railway, to tell of the capture of "Bosco, the Snake-Eater," on the Grand Trunk about 15 years ago.

"A Grand Trunk passenger train, known locally as 'Old Granny,' had stopped to enter a siding at Canfield Junction," he writes. "Alex. Grey, the brakeman, was opening the switch when he noticed a small owl caught in the engine's cow-catcher.

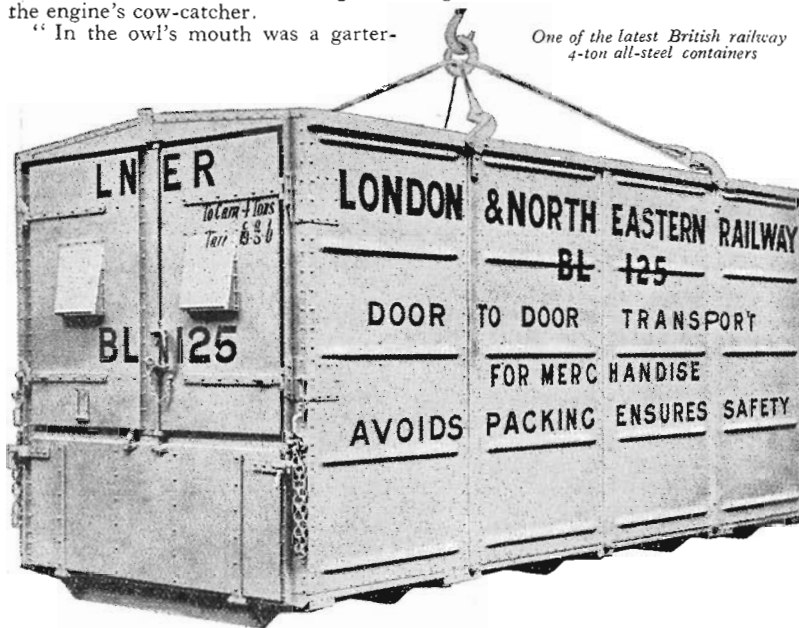
"In the owl's mouth was a garter-

snake. It had been partly swallowed—head first—and about eight inches was still hanging from the bird's mouth.

"The owl was stunned, but not badly hurt. We took it in the baggage car and pulled the still wriggling snake—16 inches long—from its mouth. When the owl recovered, we set it at liberty.

"The whole affair took place on a summer afternoon when the sun was shining brightly, which seems to blast the theory that owls hunt only at night."

One of the latest British railway 4-ton all-steel containers



Picturesque Names for Japanese Trains

IT is proposed to adopt names for some of the principal mail and express trains on the Japanese Government Railways, with the idea that, to quote the *Japan Advertiser*, they will "give more personality to the trains," and be "more to the taste of the times." Names with a real Japanese flavor are likely to be used.

It is suggested that "first and second-class express trains and the ordinary first and second-class trains will be called by such names as *Tsubame*, or the Swallow; *Sakura*, or the Cherry; *Fuji*, or Mt. Fuji, instead of train No. 1, No. 2, or whatever other number such train may have at present."

Other suggestions are: *Hikari*, or Light; *Kaze*, or Wind; *Hibari*, or Sparrow; and the like.

The final decision is, however, to be put to a general vote of railway officials.

The *Japan Advertiser* further states

that the authorities are said to be desirous of having such names in couplets as far as possible, such as the plum and cherry, or the pine and bamboo, and others of a similar nature.

"The adoption of this plan in the naming of trains by such names as the 'Swallow Train,' the 'Bamboo Train,' or the 'Pine Train,' is thought to be a great novelty as well as to be democratic."

Special names may also be adopted for trains concerned with the traffic of particular localities. It was suggested that all trains should be so named, but it was decided that for the time being only certain trains should be thus designated, though the practice may be extended.

It is proposed to place the name boards prominently at the rear of the "designation car" of each train, "so the people may know."

News of the Netherlands Railways

GROSS revenues of the Netherlands railways were greater in 1929 than in 1928, despite the fact that the receipts of the latter year were augmented by an increase in passenger traffic during the Olympic games.

Because of the great network of inland waterways, the receipts from passenger traffic have always been a large part of the total railway revenues. In 1928 passenger business accounted for 48.3 per cent. of the gross. In contrast to the experience of railways in many other parts of the world, the passenger traffic of these Netherland lines has been increasing, thus indicating that the growing use of automobiles has not yet cut seriously into railway revenues.

The influence of this highway competition (W. J. Niermeyer points out in the *Railway Age*) is partly mitigated by the extension of electrification which has caused many passengers to return to the railways. Also, the railways have themselves organised motor coach and motor truck services, but legal conditions attending these highway operations makes their development at the present quite difficult.

Large Equipment Orders

Because of the favorable operating results of the past two years, it has been possible to place large orders for new equipment, including a number of heavy locomotives and additional freight cars. These will be built during the year.

During 1929 a new light railway was opened in the Province of Groningen, and two new lines are projected for completion in 1930.

Electrification is in progress between Amsterdam and Alkmaar. Because of the rapid development of Amsterdam and Rotterdam the railway administration has decided to remodel its facilities in these centres and plans have now been completed for these projects.

Signalling has been extended with experiments with automatic block system being conducted on two sections of the line. These automatic block signals have produced such satisfactory results that they will be installed on several other lines.

Furthermore, increased traffic during the year has made necessary some double tracking.

In conclusion, it might be stated that the outlook for 1930 is favorable and that the Netherlands railways are not yet greatly concerned with the competition of the automobile.

—♦♦—
The South Indian Railway Company has placed a large order with the English Electric Company for the rolling stock required for the electrification of the Madras suburban services.

REPRESENTATIVE RAILROADIERS

By R. H. Junior

No. 34—Passenger Guard Bill Holt

Caricature by Angus Mac

IT would seem that there is some strange compelling fascination about a green flag, a silver whistle, a few tons of parcels and the four walls of a railway van.

So many railmen are content to spend and finish lifetime careers with the first grasped in their hands, the second held to their lips, the third massed around them as one conglomerate brown-papered mountain, and the fourth vibrating ceaselessly over racing wheels, that no other explanation of each man's preference for the guard's bright-buttoned blue coat suggests itself.

Exempli gratia, there is the stout assurance of Passenger Guard William Thomas Holt—about to retire after four consecutive decades in a guard's uniform—that, if he had his time over again, he would unhesitatingly select the walls of a van as the travelling boundaries of his day-to-day existence.

And yet he started work as a saddlery apprentice, only slinging his hat into the railway employment ring after five years of trade apprenticeship. He was born at Ballarat, put in his preliminary apprenticeship at Berwick and started as a porter at Maryborough on February 8, 1886.

Stationmaster Franks was his first chief, and he had his first taste of railroading in the goods shed, where Goods Foreman Bill Southey exercised a benevolent suzerainty.

Those were the golden boom days of Maryborough. A platform staff of 14 was kept busy at the big station, and Bill Holt varied his share of the platform and goods shed work with regular excursions into the station yard, where, under the hoarse and gesticulatory direction of Yardman Jack Semmens, he was initiated into the cabbalism of shunting and train marshalling.

Altogether, Bill Holt had 12 months at Maryborough, followed by a further six months at Carisbrook. Then came transfer to Bairnsdale, where the jovial Joseph Woodcock, with advice and instruction, helped him to close his fist on a green flag. At Sale—this was in 1890—District Traffic Superintendent Moore put the young aspirant for goods guard honors through his paces and, after three solid hours of hot interroga-



and ready response, Porter Holt emerged as Guard Holt.

Next year, inevitably, Bill gravitated to the Melbourne Yard—the spot where every Victorian goods guard finds himself at some time or another. The first goods train he took out of the Yard was the 4.10 a.m. Newport, which in those days pushed through all the work in the Newport yard, clearing, marshalling, and squaring up generally.

That first trip introduced him to a long term of running experience from the Yard. He ran trains to every district in the State, north, south, east and west; he handled every class of freight, from a vanload of pigs to a vanload of gold; he had his share of the winter trips on the 2.10 a.m. Bendigo paper trains, when it was some-

times necessary on the cold runs to wrap benumbed feet in sacking and clasp chilled hands around the van lamp; and he mopped away gills of perspiration from the crimsoned Holt countenance on the blazing hot summer runs into the north-east and into the Stawell section.

He had six years at Wallan and another six in suburban vans, and finally in 1920, received his appointment as passenger guard, celebrating the occasion by taking his flag, his kit and himself into the crowded van of the 6.15 a.m. north-eastern train for his first run as qualified passenger man. For some time that remained his usual run, to be supplanted in 1924 by the beginning of a regular three-year term on the swaying van floor of

the Sydney Limited. . . .

Perhaps the secret of Bill Holt's success as a guard has been his unflinching imperturbability. He has never stopped his train at the wayside station of Indecision nor developed a mental hot-box under the most stupendous land-slides of parcels, crates, mail bags, bicycles, trunks and protesting dogs. He knew what he had to do, he knew how to do it, and he always did it . . . effortlessly and phlegmatically.

And that success which he has made of the job right through possibly explains to some extent his whole-hearted bias in favor of a guard's work. The mysterious attraction of flag, whistle, parcels and van walls, already suggested, providing, of course, the rest of the explanation.

Locomotive Examination for Mileage Run

By T. J. Hingston

THE railway locomotive leads a harassed existence. It is a mobile power plant with a tremendous output, and economical railway working demands that it be out working as much as possible.

And while it is in the depot, opportunity is taken to effect any necessary adjustments. That is, in addition to the periodic overhauls of its vital parts—overhauls that are as exhaustive as they are regular.

Let a young railwayman describe the series of very thorough and very systematic examinations which every Victorian locomotive undergoes.

A RAILWAY service bears a characteristic resemblance to that small but useful object known as a watch. To the casual eye, a watch is merely a figured face, from the centre of which project two hands, which serve to denote the time of day.

That, however, is not all. There must be some force to impel the movements of the hands, and so there are the numerous wheels and springs that form the "works" of the watch. Without the "works," the watch would, of course, be useless in the capacity for which it was constructed.

So it is with a railway service. Beneath the outside "face" of the railway—namely, the part that exposes itself to public view—the "wheels and springs" work silently and unobtrusively, yet, without them, a railway could not possibly function as a smooth-working organisation.

One of the least conspicuous—although one of the most important—of the inner workings of a railway service is the maintenance of its locomotives. Locomotive maintenance is an essential element of any railway service. It is my intention briefly to review the system of locomotive examination observed in Victoria, and

in most other progressive countries.

The examination of locomotives is performed on a mileage basis; that is, the frequency of inspection of the parts to be examined is determined by the mileage run by the locomotive. In order to achieve this end, it is necessary to keep an efficient check upon the trips run by the locomotives. Each depot is allotted a certain number of locomotives, consistent with traffic requirements in its particular district, and each depot is responsible for the maintenance of its locomotives.

How It Is Done

Let us now take one of these locomotives, place ourselves at the depot at which it is stationed and trace the examinations that will be performed upon it.

Let us presume that the mileage of the engine is zero—that it has just arrived from the workshops after a "thorough" overhaul. On the first day, the engine would be placed on a selected trip—usually a short goods train job—in order, as it were, to "break in" the engine, and allow all bearings to "face" themselves. If it performs its work creditably on this trip, it is placed in regular running.

The mileage run by the engine is recorded at the depot.

If the engine happens to be at another depot on any day, as is very often the case, that depot must advise the home depot of the trips and accumulated mileage of the engine whilst running there temporarily. A progressive record of the engine mileage is thus kept on a form scheduled as Form R.S. 234A.

When the 1,000 mile mark is almost reached, the engine is due for an "A" examination. The depot foreman will then, at the first opportunity, arrange to effect an examination of the wheels, tyres, axles, flange lubricators and injector strainers of the locomotive concerned. If any attention is necessary, he has it effected.

The fitter records this work on his time-sheet, which is passed on to the leading hand fitter and the depot foreman for certification, and thence to the clerk whose duty it is to keep a record of engine examinations. The latter enters the examination on an R.S. 235D form, together with the mileage of the engine to date, the date of examination, the name of the mechanic who performed the examination, and the result of such examination.

The engine is given an "A" examination at every 1,000 miles.

When its mileage reaches 2,000, it is due for an "AB" examination, that is, an "A" examination, as outlined above, and a "B" examination, which embraces the following parts:—Boiler, fire-box, safety plugs, elements, spark and ash arresters, ashpan and slides, smoke-box, gangway chains, damper gear, crank axles, bogie centre castings, injectors and brake shaft. The procedure in this case is precisely similar to that obtaining in the case of the "A" examination.

At 3,000 miles, the engine is due for another "A" examination, at 4,000 miles for another "AB" examination, at 5,000 miles for another "A" examination, and so on.

At mileage 8,000, an "ABC" examination is due. It is then necessary to effect an "AB" examination, together with an examination of the following parts which come under the "C" heading—piston or slide valves and release cocks, piston heads and rings, bye-pass compression and vacuum valves, gauge glass test cocks, safety valves and pressure gauges, lubricators and pipes, side rods, connecting rods, big and little ends—in a word, all the motion gear of the engine, as well as the Westinghouse brake.

At 16,000 miles, the engine is due for still a further class of examination, "D." The "ABC" examination is, of course, coupled with this examination. The parts covered by the "D" examination are—W.H. pump, air strainer, brake cylinders, buffer beams, king pins, intermediate draw-

gear, draw bars, copper circulating pipes, speed recorders, screw jacks, springs and spring hangers. In addition, the wheels are dropped and weights tested.

An "E" examination is due at 24,000 miles, and this is again coupled with an "ABC" examination. The "E" examination includes the cleaning of tanks, examination of "Superior" blowers and stripping of axles.

Thus, it will be seen that an "A" examination is performed at every 1,000 miles, a "B" examination at every 2,000 miles, a "C" examination at every 8,000 miles, a "D" examination at every 16,000 miles and an "E" examination at every 24,000 miles.

It should be noted that, in the case of the "B" examination, engines running in excess of 2,000 miles monthly have their fire-box and safety plugs examined monthly, whilst for engines whose monthly mileage is below 2,000, these parts are examined every six weeks.

In the case of an engine being transferred from one depot to another, the R.S. 235D form is sent to the depot to which the engine is transferred; and thus the staff at that depot knows exactly how the engine is placed in regard to examinations.

It is hardly necessary to add that locomotive maintenance is a costly as well as most essential item in railway expenditure, but of course locomotive examination represents only a small portion of this cost when compared to the actual maintenance work performed on the locomotives.

But that is another story!

Bailiffs Seize Rolling Stock

"RAILWAY patrons in England," says the *Railway Gazette*, "are accustomed as of right to grumble at many little inconveniences, but we wonder what would happen if, on leaving their suburban homes and stepping into the 8.45, respectable season-ticket holders found a man in possession, and even themselves and their personal impedimenta perhaps liable to be attached.

"Yet this is what happened recently (except that so far no passengers have been seized) in that land of surprises, the United States. At Miami, in Florida, the sheriff, it is reported, found himself with a confiscated passenger train, two locomotives and other miscellaneous property of the Atlantic Coast line on his hands, following their seizure on a writ of attachment, after the railway company had failed to comply with an order to pay 40,000 dollars in rates. It so happened that the train carried no passengers when seized, else we do not know what would have been their plight, whether in American law they

could be held to have been escheated; but there are still possibilities, since it appears that the authorities have planned to seize five other trains if the railway fails to pay the levy.

"Moreover, under the law, the sheriff is entitled to dispose of the seized property to the highest bidder. Here is evidently an opportunity to acquire some bargains. We are used to hearing of some remarkable lots in railway lost property sales at home, but we do not think the auctioneer has ever had to knock down full-grown trains.

"We admire the spirited protest, if it is intended as such, of the railway company against the burden of high rates, but we hesitate to recommend our own railway companies, however sorely pressed, to follow them in the role of conscientious objectors."

Since the Illinois Central Railroad electrified its suburban lines in Chicago in 1926, the rate of increase in its passenger business on those lines has more than quadrupled.

Luxury Railway Travel for Fish

THE versatility to be found at the famous Pullman car works has existed for a half-century, but in all that time it is doubtful if anything so technical as the *Nautilus* was built. This is the car that is to be used for transporting fish to the John G. Shedd Aquarium, in Grant Park, on the lake front of Chicago, and at this writing it is about to make its first trip to Florida for piscatorial specimens. Fish cars have been built for federal and state commissions, but nothing approaching the completeness of the *Nautilus* can be found.

Literally speaking, the car is filled with living accommodations. There is one section that will house six men, with kitchen adjoining. This is necessary, but the space exclusively devoted to some 2,000 live fish is of major importance, since the car was built for them. And that these finny travellers may fully appreciate Pullman comfort, it is necessary that the *Nautilus* carry 4,500 American gallons of water, or some 37,000 pounds!

Present facilities are for specimens of five feet length, such as the jewfish, the gigantic seabass found off Florida's coasts. If larger fish are obtained suitable tanks will be built for them.

Give Them Air

The car is 82 ft. 11½ in. long, and the tank room occupies 54 ft. 9¼ in. of this. On each side of the car are eight removable tanks of five feet length and above them are removable shelves which hold 10 cans on each side.

A filter with pump above and pump below is in each corner of the room, and two large overhead tanks are at one end and one at the other. An air compressor and an air pressure tank furnish air to the various tanks.

Connecting the large tanks and the filters are lead troughs into which the tank water overflows and which convey it to the filters. After the water from the large tanks has been filtered and passed into the sump it is pumped into the overhead tanks called aerators.

Air from the compressor is continuously forced through these tanks so as to freshen the water which afterwards, by gravity, flows back to the large tanks.

Air lines are also run from the compressor along both sides of the car, and hose with fine outlets are extended into each tank, permitting a continuous passage of air through the water.

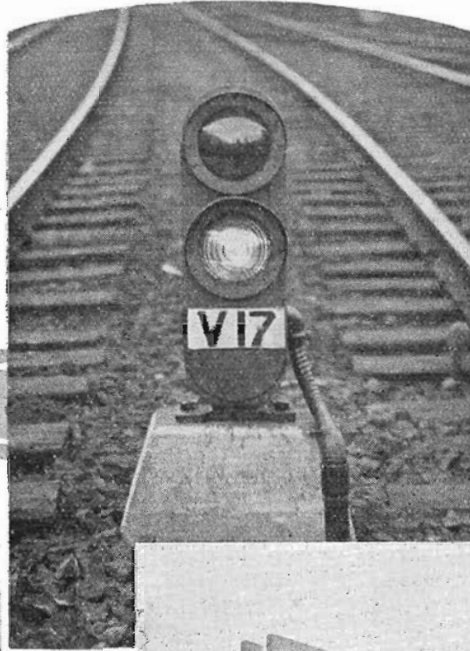
One filter is provided with cooler coils, to be used when cold water fish are being transported.

A small raising truck, which slides underneath the large tanks, is used for moving them in and out of the car. In addition an overhead crane, running lengthwise of the car and provided with a cross carriage, is used for moving the smaller cars that rest upon the movable shelves.

The Month



Above : Mr. A. H. O'Connor left Melbourne to represent the Australian National Travel Association in America.



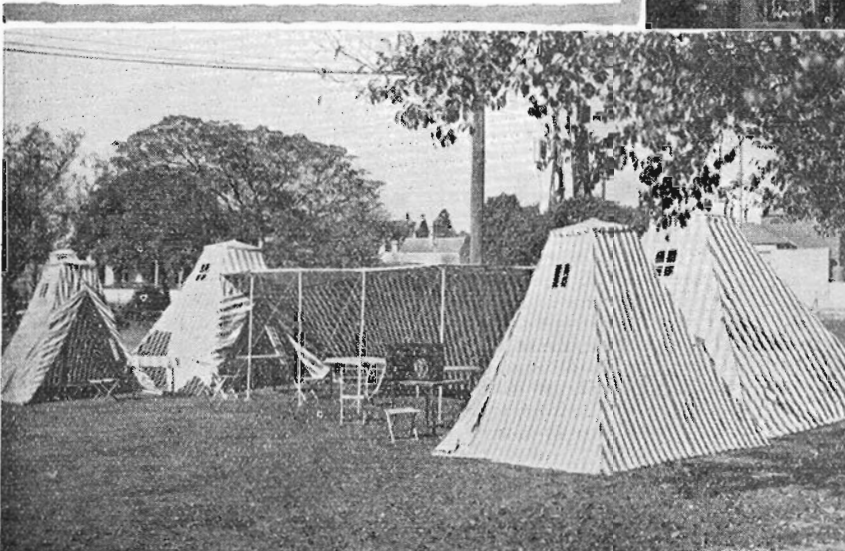
Top Right : The Footscray yard has been equipped with this dwarf light signal, the first of its kind to be installed in Victoria.



Far Right (centre) : 23-ton anvil block for drop hammer, recently cast at Newport.



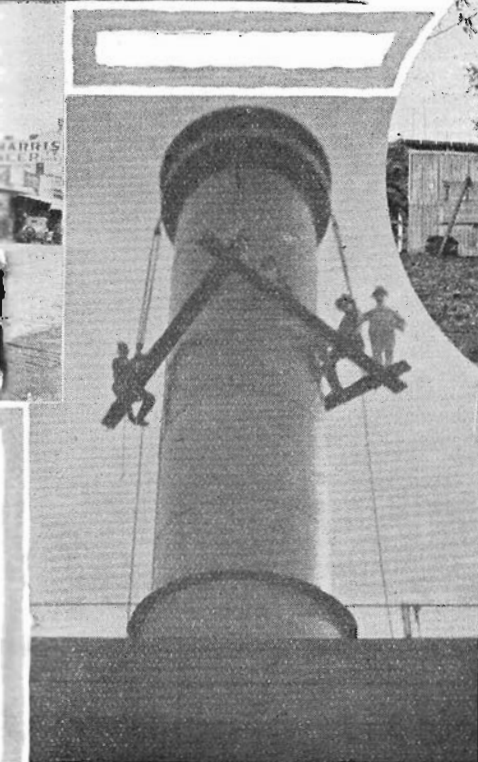
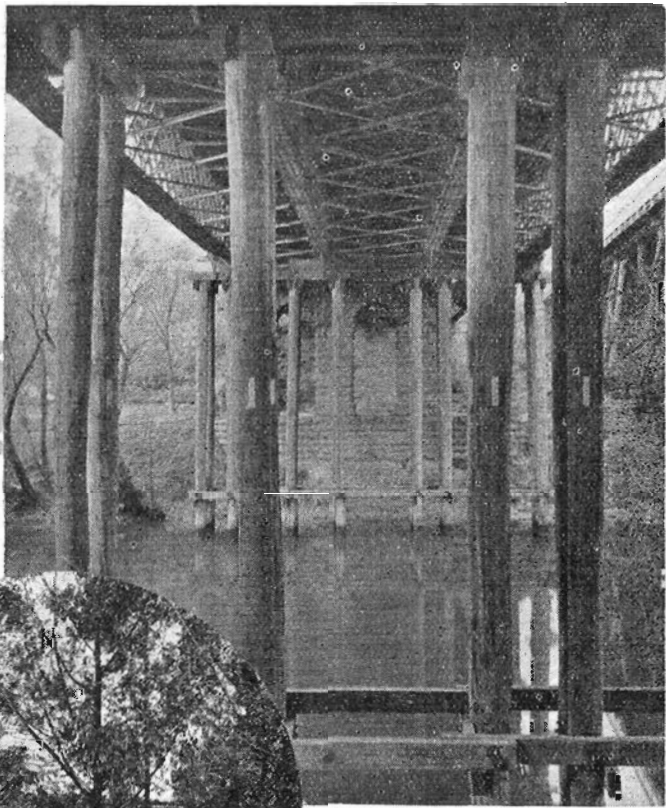
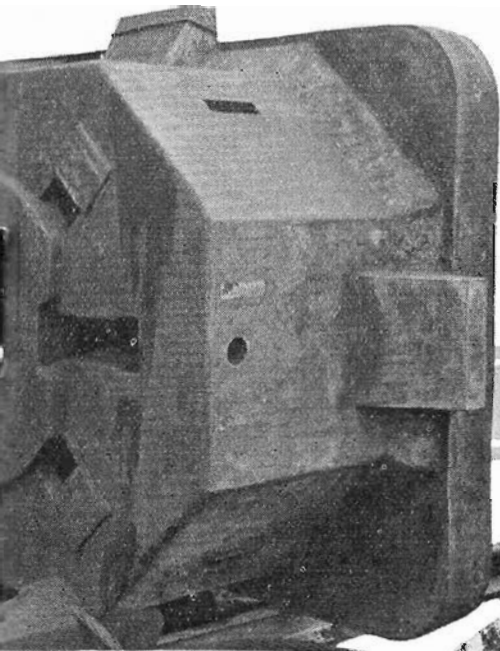
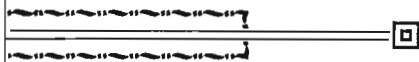
Above : A new terrace of railway-built shops, now fully occupied, at Footscray.



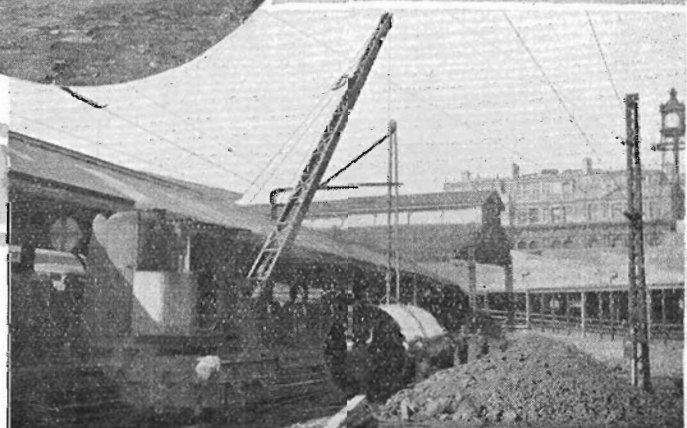
Left : Type of camping equipment which is being used for the accommodation of Central Australian tourists.

Right : Painters at work on the smoke stack of the Newport power house.

in Picture



Above: The Hawthorn Bridge which is being renewed by Railways Construction branch, whose plant depot is shown in circle on left. Below: Underground bowser for petrol-electric rail motors being lowered into position at Spencer Street



PUTTING ON THE BRAKES

"In Extreme Danger, Stop the Train by pulling the chain in this direction. Penalty for misuse £20."

By S. C. Weetman

HOW often when travelling by country trains in Victoria have you seen this brief notice prominently displayed just below where a few inches of fine chain dangles between the ends of pipes attached to the side of the carriage above the windows? And how often have you wondered what would happen if you disregarded the £20 penalty and pulled the chain so temptingly displayed to see if this really did stop the train?

Without doubt every traveller has felt this urge at some time or another, but very few, fortunately, have ever bothered to find out "how it works." The following article sets out the principle of the brakes on modern railway vehicles used in Victoria.

BRIEFLY the brake system—the Westinghouse air brake—consists of a steam pump connected to an air compressor on the locomotive, an iron pipe (known as the train pipe) running beneath the floor from end to end of carriages, van and locomotive, and a brake cylinder under each vehicle of the train. All vehicles are connected by means of flexible hosepipes to maintain the continuity of the brake air line, i.e., the train pipe.

Other essential fittings on the locomotive are the main reservoir which stores the air received under pressure from the compressor and the driver's brake valve, which controls the air to the brake system. In addition, carried under each vehicle is the auxiliary reservoir, which is supplied with air from the train pipe through the triple valve.

Traffic Cop for Compressed Air

The triple valve is probably the most important fitting of the Westinghouse brake system. Its principal functions are to control the rate of flow of compressed air from the train pipe to the auxiliary reservoir, when the latter is being charged after the brakes have been applied and are ready to be released, to connect the brake cylinder to this air reservoir when the brakes are being applied, and to allow the air to exhaust from the brake cylinder to the atmosphere to release the brakes.

The brake is applied by operating the driver's brake valve to allow some of the air to escape and so reduce the air pressure in the train pipe. This automatically causes all the triple valves to operate, permitting some of the compressed air stored in the auxiliary reservoir under each vehicle to pass to the brake cylinders. Inside the brake cylinder is a piston connected through a system of rodding and levers to the brake shoes. This piston is forced outwards by the air admitted to the brake cylinder and, acting on the brake rigging, it presses the brake blocks firmly against the wheels.

Subsequently the brake is released by means of the driver's brake valve, which restores the air pressure in the train pipe. This causes the triple valves to close the communication between the auxiliary reservoirs and brake cylinders, at the same time uncovering a port to recharge the auxiliary reservoirs from the train pipe, and a further port from each brake cylinder to the atmosphere through which the compressed air escapes from the cylinders. A spring in the brake cylinder can then push back the piston and withdraw the brake blocks from the wheels.

Usually the brake is applied by the driver, or in cases of emergency by the guard—each guard's van being fitted with a cock connected to the train pipe—but a break-away or rupture of a hose coupling or other accident causing an escape of air from the train pipe also immediately applies the brake automatically and with full power.

When Danger is "Extreme"—

Which brings us to the way in which the emergency chain operates. The chain runs from end to end of the carriages, and when pulled, a partial application of the brakes occurs by the release of portion of the air from the train pipe. The falling pressure in the train pipe is registered by a pressure gauge in the locomotive cab and this—and the fact that the brakes are operating—indicates to the driver that something is amiss. His duty then is to stop the train immediately so that the reason for the application of the brakes can be determined.

The train crew can readily ascertain the portion of the train from which the brakes were applied. A small disc, turned by the pulling of the chain, enables the carriage to be readily located whilst the actual compartment is known by the slack of the chain which hangs down. Incidentally, chain is used so that the slack cannot be pushed back into the pipe.

It was recorded in the Magazine recently that an Englishman, passenger

by a train scheduled to traverse the St. Gothard tunnel, Switzerland, was fascinated by the idea of using the alarm signal provided. To safeguard himself, he inquired of the train crew the penalty for misuse of the signal and learned that it was 25 francs. Subsequently, when in the middle of the tunnel, he operated the alarm signal, causing the train to stop suddenly. On the arrival of the railwaymen seeking the cause of the trouble, they were nonplussed to find the Englishman nonchalantly handing over 25 francs with the remark that he just wanted to know if the brakes were functioning correctly.

Apart from the fact that the unnecessary stopping of trains in this manner is a senseless proceeding, the consideration that the penalty in Victoria is fixed at £20 is sufficient to prevent the casual use of the communication chain.

Danish Railway Progress

THE Danish government railroads are now contemplating big improvement plans, included in which is the electrification of the Copenhagen suburban routes (writes Arthur L. Stead, in the *Santa Fe Magazine*).

The fastest passenger trains in Denmark are those on the important route between Copenhagen and Masnedo, the ferry terminal on the trunk road to Germany. On this section speeds of 45 miles an hour are daily scheduled.

Similar track equipment is employed in Denmark to that favored in Germany. The rail joints are supported by coupled ties, two ties being bolted together one under each rail end. This gives a rather harder joint, but it greatly saves wear on rail ends. The rails rest on bedplates, and are secured to the ties by heavy screws.

Railway Outposts— No. 26

HEYFIELD

HEYFIELD, 121½ miles from Melbourne, is located in Gippsland on the northern loop line connecting Traralgon with Stratford Junction. The station is surrounded by some of the finest mixed farming country in Victoria, and a wide variety of loading is despatched by rail each year.

Wheat-growing forms one of the principal district activities and yielded 25,000 bags of grain for rail transport last season. A few trucks of chaff, oats and barley were despatched, while considerable quantities of barley were also grown for the use of local pig-raisers.

—And Pigs!

Pigs, incidentally, form an important portion of the livestock traffic from the station. There are saleyards in the station grounds, and regular sales of pigs, sheep and cattle are held. In all 192 trucks of stock were despatched and 110 trucks received last year, the revenue from this source being £1,705. In addition, no fewer than 1,328 pigs were loaded into passing "pick-up" trucks, the revenue for which was not reflected in the Heyfield figures.



Operating Porter, A. W. Maude, of Heyfield

Dairying is another district activity which is a constant source of wealth to the local people, and which provides regular loading for the railways. There is a butter factory in the town and 9,311 boxes of butter were forwarded by rail last year. As the factory obtains all its boxes from Melbourne, the

railway revenue receives a double benefit from the factory's activities.

Local farmers and graziers find the rabbit a pest, but it is a pest which has its compensations for the railways. During the eight months ending with May this year, no fewer than 65,000 pairs of rabbits were railed from Heyfield, and there is still no shortage apparent.

Other sources of goods revenue are the carriage of about 500 tons of beet to Maffra for processing at the beet sugar factory and the transport of 768 bales and 140 bags of wool, representing 106 tons of loading and yielding £307 in revenue. There is a firewood sawmill in the station yard, and about five trucks of wood are despatched weekly.

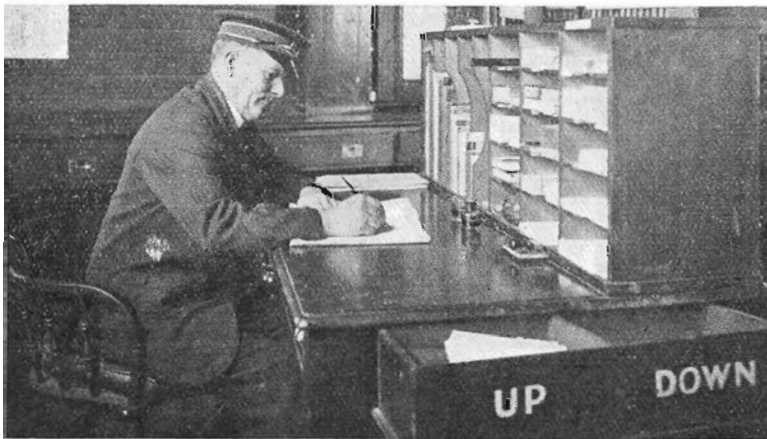
A total of 4,442 tons of goods was sent away from Heyfield for the twelve months, and a revenue of £3,153 secured. A further 1,644 tons of general goods, including about 275 tons of manure, were received during the same time, the charges for this traffic being £2,420. Passenger traffic netted £1,236—4,336 tickets being issued. In addition, parcels with £291 and miscellaneous receipts with £146 contributed materially to the station's revenue.

The Hidden Lake

The mountains to the north of the railway include Mt. Wellington, 5,600 feet above sea level, and the hidden lake, Tali Karng, which has become the goal of an increasing number of walking parties. There are also many other tourist attractions, and the local tourist association is endeavoring, by the provision of shelter huts and other facilities, to popularise the district. The Glenmaggie Weir, well stocked with trout, is easily reached from Heyfield, while there is also good fishing in district streams.

The station is in the charge of Stationmaster J. M. L. Twiss, a capable officer, popular with the railway users and with his colleagues alike. He was transferred to Heyfield in December last after eight years at Picola, and marked his debut in the district by seeing the station gain first place in his district for ticket collection during January.

With the able assistance of Operating Porter A. W. Maude, he has succeeded in so pleasing the district people that although competitive motor vehicles operate through the town and have the advantage of an excellent road to Melbourne, every local business man continues to use the railway exclusively. —S.C.W.



Stationmaster J. M. L. Twiss in the office

Rail Electrification Goes Ahead

EIGHTEEN railroads in the United States, which formerly operated entirely by steam, now operate electrically on about 4,300 miles of track, according to a survey of railroad electrification by the Copper and Brass Research Association.

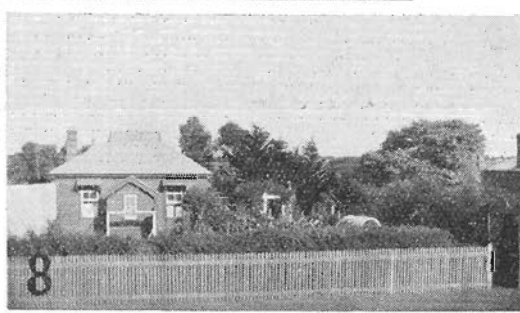
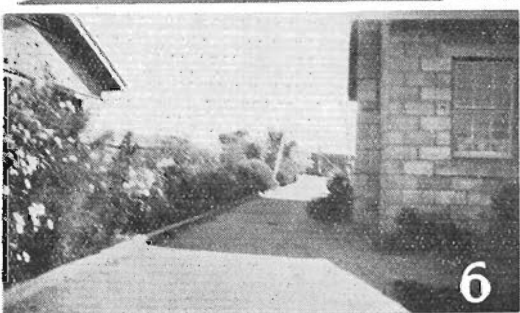
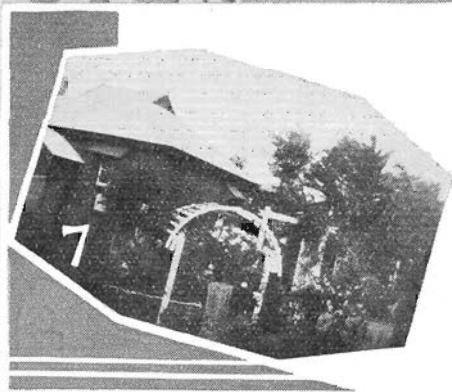
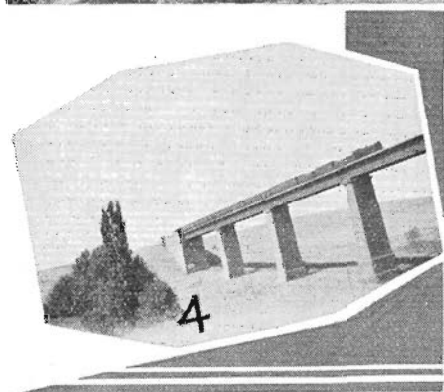
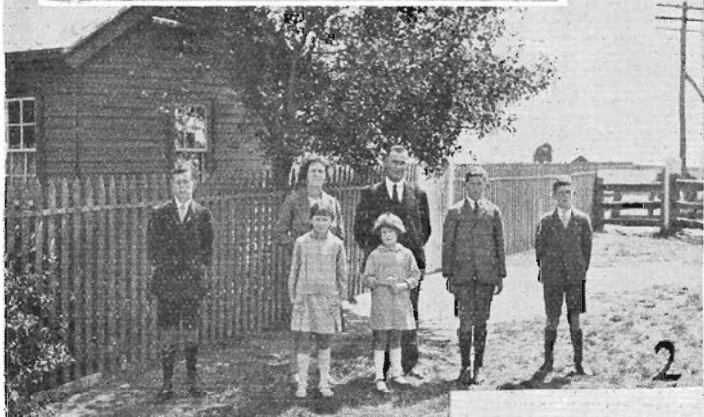
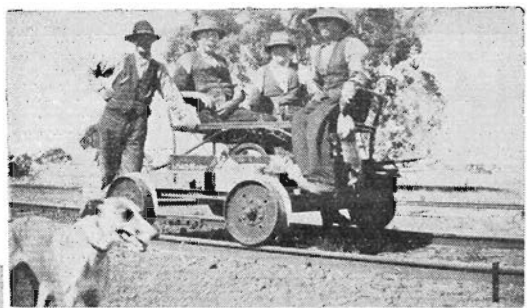
This electrification represents about

1,900 miles of route, while of the 4,300 miles of track approximately 3,150 miles are in main lines.

In this electrified territory the railroads have in service 465 electric locomotives and 2,750 multiple-unit cars for passenger service. Of these cars, 2,150 are motor cars and the rest are trailers.

Snaps Round The System

Sent in by Contributors



1.—Ganger W. Rook and Repairers Kenna, McDonald and Upton, of Hamilton. 2.—Optg. Porter Wicking and his family at Kilmore. 3.—“All clear ahead!” for the Sydney Limited. 4.—Train crossing Taradale viaduct (Photo, J. R. Herbert). 5.—Miss Doolan and Miss Jackson, of the Institute staff, snapped while on leave, with a group of the Beech Forest staff. 6.—Corner of Ganger P. J. Boswyer’s departmental garden at Robinvale, which won first prize in the Korong Vale district. 7 and 8.—Views of Train Examiner J. F. Walker’s prize-winning garden at his Cressy departmental residence.

The Romance of an Australian Industry

WAY back in '62, with indomitable spirit and well founded faith in our young growing country, the founders and a handful of employees established the now flourishing industry of John Zevenboom & Co., brush and broom manufacturers.

Many were the obstacles to be overcome, both by the directors of the business and employees. In the initial stages, distribution presented many difficulties, and one of the present employees relates how 40 years ago he tramped the city laden with brooms and brushes, and earned the name of "Zevenboom's donkey." Intense competition with the imported articles was met by straining every nerve to produce a better article, and Zevenboom won.

Today an endless array of:—

Paint Brushes, Clothes Brushes, Scrubbing Brushes, Hair Brushes, Nail Brushes, Shaving Brushes, Pot Brushes, Boot Brushes, Dandy Brushes, Straw Brooms, Yard Brooms, Hair and Stable Brooms

are turned out by the thousands every day, and despatched to stores in all parts of the Commonwealth. There they are selected by the discriminating housewife and tradesman who know that a "LION BRAND" brush or broom stamped with the name JOHN ZEVENBOOM & Co. represents the highest in quality, and gives the longest service.

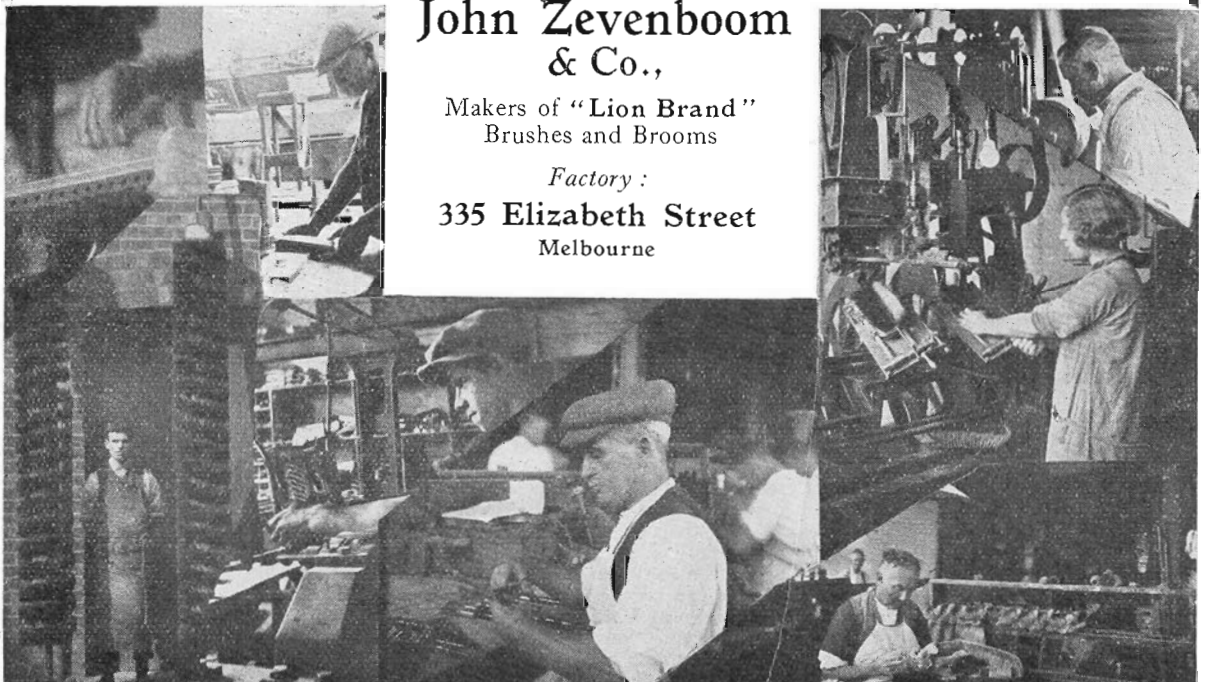
MAKE SURE YOU ASK FOR A ZEVENBOOM "LION BRAND" BRUSH

John Zevenboom & Co.,

Makers of "Lion Brand"
Brushes and Brooms

Factory:

**335 Elizabeth Street
Melbourne**



Railwaymen of the Month

Man of Flowers

TRAIN Examiner J. F. Walker of Cressy gets such remarkable results with the watering can and garden-spade that it is popularly supposed in his neighborhood that his continual stooping during his daily avocations gives him an advantage in the garden over non-railway gardeners. Anyhow, whatever the explanation, he has during three years exhibiting at autumn and spring flower shows at Lismore, Derrinallum, Rokewood and Cressy, won 68 first prizes and 43 seconds with his magnificent blooms; in addition, that is, to several championships for gladioli, dahlias and roses.

Forty-fourth

THIS month sees Mr. M. J. Brennan a quarter of the way into his 44th year on the job. He started railroading at St. Kilda in April, 1887, and has been vigorously chasing work in different parts of the state ever since. He was chief clerk in the Maryborough district superintendent's office for three years and, ever having a penchant for figuring, was subsequently appointed the transportation branch's statistical officer. When the Powers division was formed, to audit goods and live stock freight accounts, to check and analyse payrolls and costings, and to compile locomotive train, car, truck and ton mileage statistics, the directorship automatically passed to Mr. Brennan. His battery of semi-human figure-pulping machinery comprises 27 punching machines, seven sorters and nine printing tabulators.



Father of Automatic Signalling

WITH only three years to go to complete a half-century of active railroading, Chief Engineer of Signals and Telegraphs, F. M. Calcutt, father of automatic signalling in Victoria, has retired. He commenced a few years experience in the drawing office of the Engineer-in-Chief's branch of the Railways department in September, 1883, and was later transferred to field work, taking part in surveys for proposed lines. In 1893 he was transferred to construction work on new railways built under the "butty gang" principle, being in full charge of construc-



Mr. F. M. Calcutt, who has retired from the position of Chief Engineer of Signals and Telegraphs, was associated with railway signal work in Victoria for 26 years.

tion for several years. On this work ceasing temporarily in 1904, he migrated to the Way and Works branch (signalling division), to be appointed Engineer of Signals a year later. In 1910, control of the safe working instruments was transferred from the then Telegraph branch, and the Signal division was constituted a separate branch in 1922, assuming control of all signalling and safe working equipment, telegraphs and telephones, etc. In 1913, Mr. Calcutt visited Great Britain, America and the Continent for the purposes of reporting on the latest developments in automatic signalling on electric railways and, as a result of his recommendations, the complete system, now in use on our busy suburban lines, was installed. At the time of his retirement he was administering a staff of 1,200, and the operations of several fully equipped workshops. Mr. Calcutt was elected a corporate member of the Institution of Civil Engineers (London) in 1913, and was for many years honorary secretary to the Victorian advisory committee of the Institution.

Rival to Alex. Peacock

A PAIR of motoring gloves, a fountain pen, a gold medal and a wallet of notes comprised the very handsome presentation made to popular Stationmaster E. O'Loughlin, by residents of the Illowa district, on the occasion of his recent transfer from that station, after a term of four years, to Ebdon. Speakers at the crowded farewell, which was tendered Mr. and Mrs. O'Loughlin, in the local hall, stressed the fact that the stationmaster cheerfully smiled his way through every difficulty that confronted him. As one speaker put it, the district was not only going to miss the S.M.'s service and courtesy, but also his "hearty laugh that can sometimes be heard half-a-mile away."

One Consignment of Romance

ROMANCE was an important consignment dealt with at the Melbourne Goods perishable shed last month, addressed clearly to one of the most popular members of the staff, Bill Muir, a son of the late Roadmaster Jack Muir. On behalf of the Staff, Mr. J. ("Soldier") Russell, assistant officer-in-charge of the shed, presented Bill with a cheque as a wedding gift. In his cheerful response, Bill invited all present to call at his home and sample the comestibles which would be served on the dinner set which the cheque would assist in purchasing.

July Birthdays

OF the railwaymen who will be celebrating the passing of a further mile post during the month, there are two who will receive congratulations for the last time as railwaymen. Both Chief Engineer of Signals and Telegraphs F. M. Calcutt and Way and Works Engineer Edmund Adderley, who attain the retiring age on the 17th and 19th of the month respectively, will in future count the candles on their birthday cakes in the capacity of private citizens. Others who qualify for good wishes during July are:—

Superintendent of Passenger Train Services H. Cooke and Storeman-in-charge J. H. Main, of Maryborough Loco., on the first; Block and Signal Inspector A. E. Colson, Goods Agent W.N. Wortley, and Guard J. M. Wright of Dimboola, on the third; ex-Chairman C. H. Holmes of the Betterment and Publicity Board, Manager W. T. McConnell of the Government Tourist Bureau, and Road Foreman H. H. Charman of Hamilton, on the ninth; Senior Chemist W. S. Macartney of Newport Laboratory, on the 12th; Block and Signal Inspector A. W. Murfitt, on the 13th; Driver F. Chamberlain of Maryborough, on the 14th; Guard Harry Lee of the Melbourne Yard, on the 16th; Foreman J. J. Landrigan of North Melbourne Loco., on the 17th; Bill Witherspoon, of Room 10, on the 18th; Outdoor Stores Superintendent H. Sergeant, on the 19th; Senior Foreman Alf. Jukes of Melbourne Goods and Yard Supervisor John Baker of Geelong, on the 20th; Jim Clarke, driver of the Better Farming Train, on the 21st; Secretary's Chief Clerk Vic. Letcher, on the 22nd; Driver-in-charge T. H. Fitch of Warracknabeal, on the 26th; Superintending Engineer C. Fethney, on the 28th; Traffic Inspector C. Baldock and Chris. Madigan of North Melbourne Loco. on the 29th; and Electrical Engineer J. W. L. Varey on the 31st.

Another Gone

MAGAZINE-writer Cliff Cheong took a holiday last month to keep an appointment in a

Continued on page 32



Senior Foreman A. E. Jukes.

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South Yarra church, with deliberate and premeditated matrimonial intentions. Married members of the staff congratulated him and single members sympathised with him at a little farewell scene, when a presentation was made. Naturally, some extra-special "copy" is looked for from him on his return.

Happy Returns to Sir Thomas

ON the 24th of this month, Sir Thomas Tait, for more than seven years Chairman of the Victorian Railways Commissioners, will celebrate his 66th birthday at his home in Montreal, and Vic-



torian railwaymen will unite in a sincere expression of good wishes to the old chief of their system. Sir Thomas was born at Melbourne—but it was the Melbourne in Canada—and he was the son of the late Sir Melbourne Tait, ex-Chief Justice of the Superior Court of Quebec. His railway service commenced in 1880, when he entered the Grand Trunk Company at the age of 16. He gradually worked his way through varied positions of responsibility, and in 1901 was appointed to the equivalent of the Victorian position of general superintendent of transportation. He was appointed Chairman of Commissioners in Victoria in 1903, and returned to Canada after a very successful 7½-years term of office. Since his return to Canada he has been associated with many industrial and financial enterprises in the Dominion and, *inter alia*, is president of the Canadian Salt and Minto Coal companies and director of many important corporations. Many happy returns, Sir Thomas!

91 Not Out

AND many happy returns, too, to retired stationmaster John Minogue, who celebrated his 91st birthday last month—on the second. His four children, 19 grandchildren and 22 great-grand children attended his birthday party at his home in McKinnon. The old pioneer was born in county Clare in 1839 and came to Melbourne in 1857. He was in turn grocer's assistant, miner, quarryman and railwayman. He saw a good deal of New Zealand before he came back to Victoria to follow the iron trail.

New Record

EIGHTEEN-YEAR-OLD Frank Lambert of the Melbourne goods "A" book-keeper's office, has put up a fine record in obtaining his telegraph certificate in one day under six weeks. From the time he began to study at the Institute, he never let a day pass without getting in a bit of practice in the class room. His aptitude, and perseverance, combined with the encouragement of his



instructor, got him past the post on his 41st day after joining the class. The usual time for the course is six months.

A Few Words of Gossip

On promotion and transfer to head office, Mr. Roy Ogilvie of the Ballarat district train running staff was presented with a silver entree dish.

During the month, Traffic Inspector R. S. Phillips, of Bendigo, was transferred to the metropolitan district. On this occasion the opportunity was taken by his many friends to present him with a couple of Barling pipes, and to wish him every success in his new position.

Concluded on page 46

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QUALITY-SERVICE & PRICES
stand unchallenged

QUALITY
 "MALVERN STAR" superiority is based on Quality. Guaranteed all-steel construction with the finest expert craftsmanship and perfection of detail have made the Malvern Star Standard of Quality and Value.

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“Aerio’s” Wireless Notes

What's in a Valve?



THE development and manufacture of the modern valve is described in this month's interesting article by "Aerio."

IN the year 1880, by one of those coincidences which we so often find in science and discovery, Fleming in England and Edison in America, who had noticed that the glass envelope of an electric light lamp became blackened or discolored after use, were conducting investigations into the cause of this phenomena.

These investigations led to the development of the thermionic valve which Fleming patented in 1904, consisting of a glass envelope containing a stout filament with a metal cylinder surrounding the filament—which, by the way, was of the carbon type in those days, the metal filament not then having been developed. The metal cylinder comprised the plate which governed the emission of electrons from the filament.

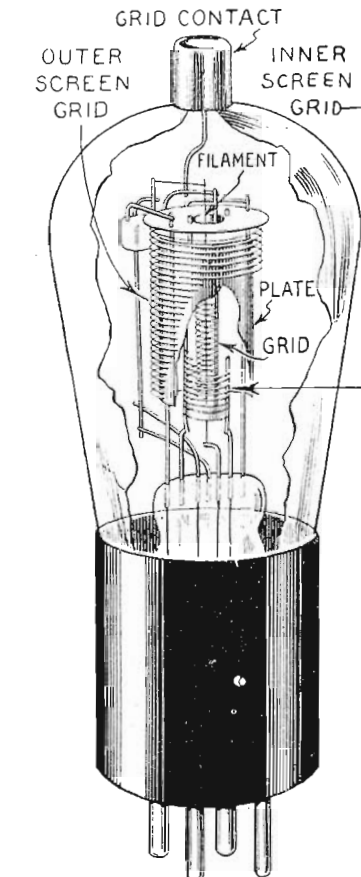
Diode and Audion

The modern Diode, or two-element valve, differs from this early type only in the respect that the filaments are metallic instead of "carbon" and that modern evacuating methods allow a much "harder" vacuum to be obtained, permitting the application of higher potentials to the plate. The unilateral conductivity phenomena exhibited by such a tube accounts for the generalised name "valve" now universally accepted.

It was in 1906 that DeForest in America introduced a third element in the form of a perforated metal plate or "grid" which was interposed between filament and plate, and was found to give definite control over the electron current which, with a positive plate, would normally flow from filament to plate.

DeForest called his valve the Audion, and it certainly revolutionised communication, both in telephony and radio telephony. Audions were advertised at five dollars each and were "guaranteed to increase the range of your receiver 100 per cent." These valves were gas filled and employed tantalum for their filaments.

Owing to the softness of these early types of valves (due to the presence of ionizing gas), instability in operation was found. Used as a detector, the valve would at first require about 20 volts on the plate but, after being in use for an hour, this would have to be increased, and during a night's reception the voltage required might vary from



The relative positions of the elements in the 222-type screen-grid tube.

20 volts to 50 or 60 volts on the plate. It was not until improvements in manufacturing methods made harder valves possible that consistent results were achieved.

The Marconi Company in England, in conjunction with the Osram Valve Works, manufactured a range of hard or high vacuum valves which overcame this instability and permitted the valve to be employed in a general purpose role for amplification of both high and audible frequencies.

Anode voltages up to 60 volts in valves pumped to values approaching one micron were being used in early experiments of the Marconi Company, and later, in 1922, valves were made by that company with various impedance

values which allowed choice of valves for special purposes.

America followed with the historic 201 class of valve, and these greedy old veterans still find favor with numerous amateur experimenters the world over, for, although hopelessly outclassed by modern valves, this old type has the reputation of standing up to the severe ill treatment which they naturally get in an amateur experimenter's shack.

Manufacturing methods have improved out of sight during the last decade, and we will review now the modern methods adopted for mass production of the valve which is by far the leader in the manufacturing field of precision instruments. It must be skilfully produced and is the work of both physicist and mechanic.

In its manufacture the valve is largely the result of the assembly of a considerable number of elements whose values are individually predetermined in the laboratory. For instance there are approximately 75 separate parts in the assembly of the modern indirectly-heated A.C. valve, and it is of course important that each and every one of these be exactly identical.

Assembling Process

The first process in assembly is to take the various elements which pass through the stem, or glass support, and mount them on a jig which holds them in their correct position. The stem is then heated and moulded into shape by dies, care being taken to allow slow cooling. Special wire, having the same co-efficient of expansion as glass, is used for electrical connection through the glass pinch so as to avoid cracking under variable temperature. The supporting elements are usually of nickel.

The pinch is now passed on to an operator whose duty it is to mount and spot weld the various elements into place. This duty is sometimes divided, and considerable skill is required in placing in position such electrodes as the grid or cathode-heater assembly.

There is a peculiar coincidence that the number of valves rejected in manufacture approaches the square of the number of elements within the valve, and as the tendency is towards increased number of elements, the price of valves consequently remains fairly high in spite of the fact that modern methods and machinery permit

of their mass production.

The process of sealing the flange on to the stem is done automatically, gas jets being used to soften and melt the glass units together.

The valve is now ready for exhausting and capping. Various types of exhausting pumps are used by the various manufacturers, but generally a motor-driven pump is used for initial exhaustion which lasts about one minute. The valve is then passed on to a mercury pump, during which operation the glass wall of the valve is "baked" to de-gasify the tube.

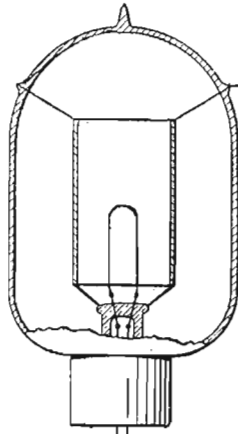
Any Air ?

Tests are now carried out to determine whether any air remains in the valve and, if not, another operator lowers a coil of heavy copper busbar over the tube. This coil has a strong high-frequency field which brings the elements within the tube to a red heat, due to the eddy current effect.

This drives off any gas or air molecules, and a further application of the eddy-current coil, made while the filament voltage is raised about fifty per cent. above normal, heats a small electrode inside the valve on which has been placed during manu-

something like 5,000 per hour. This machine is set to limits which operate relays and rejects (at the same time destroying) all valves with such faults as incomplete evacuation, low emission, high or low plate current, or imperfectly assembled elements.

Valve-life tests are made from each



Copy of the patent specification drawing of the first two-electrode valve, patented by Professor Fleming.

batch of valves manufactured, and seasoning drums seem to be universal. Vibrators are now used to test for microphonic valves.

Perhaps there is nothing more confusing than the various valve nomenclatures adopted by valve manufacturers.

The makers' aim should be to evolve a code which would convey to the layman in the first place the purpose for which a valve is designed, and, secondly, some technical information concerning the valve in question.

The Osram Code

In the code used by the Osram people, the first letter, or letters, signify the duty of the valve, such as P for power, L for low frequency, S for screen-grid, etc. Following these letters are found numerals which indicate the filament consumption, such as P625, indicating a 6-volt power valve consuming .25 ampere; or L410, indicating 4-volt low frequency valve consuming .1 of an ampere.

Other manufacturers sometimes indicate the amplification constant of the valve instead of its filament characteristics, an instance of which is the Philips B406, a semi-power valve with 4-volt filament and amplification factor of 6; or A409, indicating a general purpose 4-volt valve with amplification factor of 9.

An effort is, however, now being made by the British Valve Manufacturers' Association to standardise these codes.

Another direction in which standardisation might well be adopted is in the capping (or base) of valves.

In England and on the Continent what is known as the French valve cap is used, whilst in America only the UX or square-setting pin caps are used. This is unfortunate as it does not permit any interchange of valve types, although the English have now been manufacturing, for some time, valves suitable for UX base.

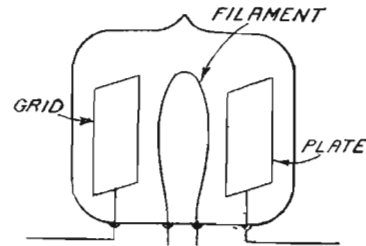
Australian set manufacturers usually use sockets suitable for UY American cap where indirectly-heated valves are to be employed, whereas what is known as Cap 0 is standard in England and on the Continent.

Filament Voltages

Varying filament voltages employed by the various valve manufacturers are also confusing and are becoming serious in the new A.C. valves. The B.V.M.A. in England have agreed on 4 volts for A.C. valves, whereas in America 2½ volts have been adopted.

RADIO NEWS

FOLLOWING is the V.R.I. wireless club syllabus for July:—
 Tuesday, 1st ... Workshop and experiments.
 Thursday, 3rd ... Annual meeting and election of office bearers.
 Tuesday, 8th ... Beginners and workshop night.
 Thursday, 10th ... Special lecture. Mr. T. Cullinan of "Radiokes"



The first three-electrode valve of Lee de Forest.

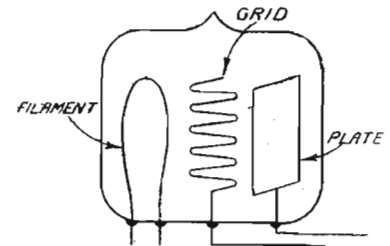
facture what is known as a "getter," usually consisting of a small strip of magnesium, similar to that used in photography.

This getter, when subject to the increased temperature applied, flashes up, causing a miniature explosion within the tube which combines with any trace of oxygen left, the vapor from which deposits itself on the inside wall of the valve giving the customary silvered effect.

Sometimes phosphorus, arsenic, sulphur, or powdered metallic thorium are used as getters.

The valve is now capped or based with a special cement applied at a temperature of 300 degrees Fahrenheit, and the valve finally goes through a schedule of rigorous tests, through which it must pass before being released for sale.

Some manufacturers still use the method of testing by hand, but the larger manufacturers have installed automatic test machines which speed up testing from 200 valves per hour to



A modified Lee de Forest three-electrode valve.

will speak on Loftin White Amplifiers.
 Tuesday, 15th ... Television experiments.
 Thursday, 17th ... Technical committee only.
 Tuesday, 22nd ... Junk sale and exchange.
 Thursday, 24th ... General committee only.
 Tuesday, 29th ... Workshop. New members enrolled.
 Thursday, 31st ... Beginners' night and demonstration.

One Way to Improve Stock

"And how much would you say this colt was worth?" asked the American railroad claim agent of the farmer.


"Not a cent less than 500 dollars!" emphatically declared that sturdy son of the soil.

"Pedigreed stock, I suppose?" "Well, no," the bereaved admitted reluctantly. "But you could never judge a colt like that by its parents."

"No," the agent agreed dryly. "I've often noticed how crossing it with a locomotive will improve a breed."

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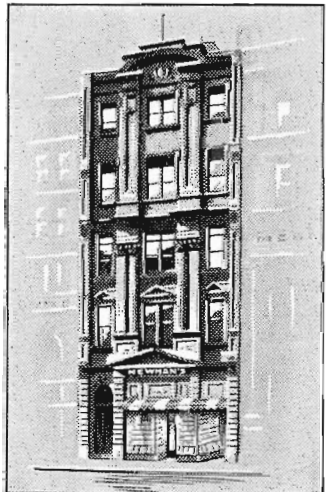










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 9,284 — 18ct gold, 3 diamonds, £10/10-	 9,297 — 3 diam'd ring, 18ct. gold, platinum settings, £27/10/-	 9,391 — 18ct. gold, platinum settings, 9 diamonds, £22/10/-	 9,329 — 18ct. gold, 5 diamonds, platinum settings, £17/10/-

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Milady's Page

BY
NANETTE

Pyjamas and Dressing Gowns—

Choose Your Own Colors



Lawless Ladies in N.Y. Puzzle the Sociologists

RICHARD C. PATTERSON, commissioner of correction of the city of New York, reports that the number of female prisoners in city institutions has more than doubled in the last 10 years. In 1920, he said, there were 1,150 women inmates, and in 1929 there were 2,391.

On the men's side, the proportion of increase was much smaller.

Mr. Patterson refused to offer any ready-made explanation of the increase of women prisoners. It might be due to greater freedom, he said, and it might mean nothing but greater activity on the part of the police.

"It is all in the realm of pure speculation," he said, "and will continue to be until we have a central clearing house of information about the social and other forces which bring offenders into conflict with the law."

PYJAMAS haven't by any means superseded the voluminous nightgowns of former days, but they have so many devotees that a word or two on the subject may be of some value.

Night attire is not the least important of apparel, and its selection should be—and certainly is—worth a little contemplation. Nothing is so tiring, peculiar though it may sound, than to don pyjamas that one has bought as a passing fancy and later thoroughly hated.

Most pyjamas are dainty, so there's not much need to worry on that score. It boils down, therefore, to the age-old controversy of color combination. There's no definite rule governing the colors one should wear, and it doesn't say, because one dark girl wears a blue sleeping suit, that that color will blend with another brunette.

My advice is to choose your own colors, regardless of suggestions as to what shades you should wear. Every girl knows what color, to her idea, suits her best, and the extension of this to pyjamas leaves one in a perfectly happy and tranquil state of mind.

The delightful pyjama suit shown on this page is fugi silk and may be had in any shade. The jumper top is applied with contrasting colors, and the pantaloons have applied cuffs. This sleeping suit is tailor finished.

NO wardrobe is complete without a warm, cosy dressing gown or jacket, and the season's robes are both beautiful and sensible. Ripple cloth dressing gowns are on show, as are padded silk, and dainty shetland wool with swansdown trimmings. These are all very nice and very serviceable.

Fine knitted wool and ripple cloth dressing jackets may be obtained in a variety of colors which range over saxe, rose and cardinal.

The gown illustrated is a lovely floral crepe de chene creation with a long stole collar, and is tied at the side.



MOST WOMEN WORK IN FRANCE ; —LEAST IN SPAIN

SPAIN leads the world with the least number of women working for wages according to comparative statistics gathered by a German fact-finding bureau. Only 10 per cent. of the Spanish women are gainfully employed.

More women work in France than any other nation. Between 50 and 55 per cent. of that country's female population are wage-earners.

Finland follows close with 48 per cent., while Germany has 43 per cent.

Other countries are : Switzerland, 31 per cent. ; Italy, 29 per cent. ; England, 26 per cent., and the United States, 17 per cent.

—Models Selected by Nanette at George

The Winter Menu—

Suggestions by an Expert

WINTER is here, and the prospects, we are told, are for a hard winter because of trade depression, wool clips, and things which seem very remote from the housewife. But there is one bright spot—the market stalls and suburban shops are laden with fresh fruit and vegetables of good quality at a moderate cost, and nutrition authorities tell us that fresh fruit and vegetables and milk are daily necessities for well balanced meals.

Planning three meals a day three hundred and sixty five days in the year may be a very interesting game or may result in a deadly monotony of dishes. Busy housewives find it convenient to serve a substantial two-course meal consisting of meat and pudding or soup and meat rather than a three course meal.

The recipes given below may be of assistance to the housewife in her endeavor to serve "something new." They have been specially prepared by Miss Ruth Evans, Inspector of Domestic Arts, Education Department, for the Victorian Railways Magazine.

Vegetable Puree Soup

IN these soups the flavor of one vegetable usually predominates, and from it the soup usually takes its name. Other vegetables are added for flavor. Vegetables suitable and in season at present are artichokes, leeks, potatoes, cauliflowers, celery. Proportions—1 lb. vegetables (including onions and other flavoring vegetables), 1½ pints stock, ½ pint milk, 2 level tablespoons flour, salt and pepper.

Water may be used instead of stock in which case a mutton shank or bacon bone is usually cooked with the vegetables. Prepare vegetables and cut up roughly. Put into the saucepan with stock or water and mutton shank.



Housewives of tomorrow learning the culinary art at the North Fitzroy state school's cookery classes

Add pepper and salt. Bring to the boil and simmer till tender. Rub through a sieve or collander. Blend the flour with a little of the milk, add the remainder of the milk and pour puree and milk into saucepan. Stir till boiling. Serve very hot.

Gerard Steak

INGREDIENTS:—2 lb. good stewing steak, 1 teaspoon salt, shake of pepper, grated nutmeg, 1 level tablespoon flour, 1 teaspoon sugar, 1 teaspoon vinegar, 2 teaspoons Worcester sauce, 1 tablespoon tomato sauce, 1-2 cups water.

Mix flour, salt, pepper, sugar and nutmeg together and rub on the steak. Place in closed baking dish. Mix wet ingredients together and pour over and round the steak. Bake in a moderate oven for two hours. Lift steak on to a hot dish and pour gravy round.

Baked Cauliflower

NEXT time cauliflower is included in the menu, cook twice the quantity and put half away for use next day and serve it this

way:

Make a sauce as follows:—Melt a level tablespoon of dripping or butter in a saucepan, stir in 2 level tablespoons of flour and blend well. Add half a pint of cold milk or half milk and half cauliflower water and stir till boiling. Grease a pie dish and sprinkle it with breadcrumbs. Break the cauliflower into small pieces and put a layer into the pie dish. Cover with sauce and sprinkle with a little grated cheese. Continue in this way until the pie dish is full (the top layer should be sauce sprinkled with breadcrumbs and cheese). Put two or three small lumps of butter on top and put into a quick oven to reheat and brown.

Apple Charlotte

(A quickly made substitute for apple pie). **C**OOKING apples are delicious at present, and they are very plentiful. Try this method of serving them—

Ingredients:—2 lb. cooking apples, 2-4

Concluded on page 46

CONVINCING EVIDENCE !

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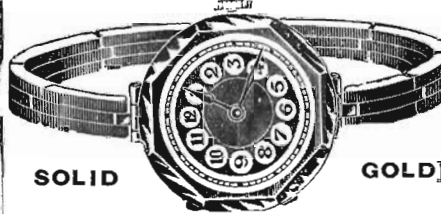
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Railwaymen in Sport

Coburg Leads in Railway Football

THE Railways Association received a letter from the secretary of the South Australian Railways Institute regarding the proposed match at Adelaide at the end of the season. The president and secretary of the club and the secretary of the Institute propose to visit Melbourne next month to confer with the local association to finalise arrangements.

There is every prospect of the match coming off. We can select a strong team provided senior players are not debarred from participating, and a good round of hospitality is promised.

The Coburg Line team at present heads the list and looks like going through the season undefeated. However, the Eastern Lines and one or two others are strengthening their teams and hope to push them very hard yet.

Coburg intend to challenge the Wednesday League team at the end of the season to settle the Railways championship. Such a game would create wonderful interest amongst railway supporters generally, and a large crowd would see it. It would be a good thing if it came off.

Some of the teams are complaining of the action of League teams preventing their players from taking part in this Association, and a deputation is to wait on the Commissioners in regard to the matter.

Points scored by the different teams in the race for the premiership are :

Team	Pld.	W.	L.	Pts for	Pts agst.	Pr. Pts.
Coburg	5	5	—	306	169	20
Car & Wagon	5	3	2	234	198	12
Reservoir-Heidelberg	5	3	2	215	200	12
Loco.	5	2	3	183	215	8
Eastern Lines	5	2	3	219	293	8
Jol.-Melb. Yd.	5	—	5	133	215	—

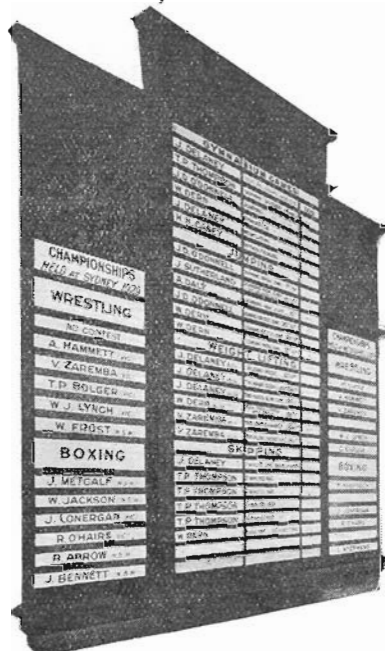
Reservoir-Heidelberg received one walk-over from Loco.

INSTITUTE GYM. COMPETITIONS

COMPETITIONS will be held in skipping, jumping, physical exercises and gymnastics at the Institute in July, and intending competitors are requested to enrol in the V.R.I. gymnasium classes without delay in order to be eligible to compete in these events.

THE Bendigo Cricket Association held a function recently to signalise the closing of the year, which was made a very happy occasion. The Railway team were premiers and received congratulations from the representatives of other clubs.

By REG. HUNT



Honor board outside the Institute gymnasium which shows names of holders of railway sporting championships

Leading Railway Association Goal-kickers

FOLLOWING were the leading goal-kickers in the Victorian Railways Football Association at June 11:—

- McInnes (Loco.) ... 11
- Smith (C. & W.) ... 10
- Caldow (Cob.) ... 7
- Valentine (Cob.) ... 7

Then follow Mackerill (Cob.) and Waterhouse (Jol. Yard), 6 goals; Edmonds (Jol. Yard) 5 goals; Flynn (Cob.), Coomber (Eastern Lines) and Biddington (Loco.), 4; and Treloar (Cob.), Miller (Loco.), Cleary (Reservoir), Neeson (C. and W.), Donaldson (Jol. Yard), Trotman (Reservoir) and Hartigan (Cob.), 3.

'GRATTERS TO DAVE (AND THE SON, TOO)

DAVE HILLHOUSE of the Flinders-street booking staff is being inundated with congratulations on his son's inclusion in the Australian Empire Games team which left for Canada last month. Dave's heir is sportsmaster at the Mentone Grammar School, and has been running for some time past with the University.

Wednesday League Team's Hopes

THE Railway team has been defeated in two of its last three matches, but team building is a slow process and success cannot be attained at once. When the young players gain the necessary experience and confidence, improvement will be shown.

Mr. Clifford, the secretary, is still optimistic and writes: "We will have a big say in the finish. Men yet to come in are Bolger (Richmond), Richardson (South Melbourne), Crapper (Melbourne), Bolt (North Melbourne), Sarsfield (Essendon) and Stanway. When they are included we will have a team quite equal to that of 1928 and 1929, and will take a lot of beating."

The results of the matches are:—

May 21.—Yellow Cabs 10-9, Railways 6-10. A very hard game, and injuries to Sharp and Russell had a lot to do with the railway defeat. Best railway players were Wells, Sarsfield, Crellin, Semmens, Stanway and Morelli.

May 28.—Railways beat Press by 12-17 to 6-9. A very easy game and win. Best players were Gough, Sarsfield, Baker, Noseda, Wood and Miles.

June 4.—Post and Telegraph won by 12-9 to 7-10. A fine, fast, clean game, won in the last quarter, when the P. and T. got 7 goals to 2. They ran all over us in that term and thoroughly deserved their win. Best players: Semmens, Wells, Baker, Russell, Wood, Noseda and Sharp.

RAILWAY CLUB FOR BOXERS AND WRESTLERS

A WELL-ATTENDED meeting of amateur railway boxers and wrestlers was held on Wednesday, June 11, and officials were appointed *pro tem* to draw up rules and get an Institute boxing and wrestling club into working order.

Mr. Galbraith, vice-president of the Victorian Amateur Boxing and Wrestling Association, and Mr. Wakeling, honorary secretary, were present and gave encouraging speeches in favor of the formation of a club.

The objects of the club are to foster the sports of amateur boxing, wrestling and physical culture, particularly among members of the Institute, and to promote interclub competitions so that members will be given an opportunity of comparing their ability with the best men connected with these sports.

The following officials were appointed:—

Mr. R. McClelland, president; Mr. W. J. Lynch, honorary secretary; committee, Messrs. Delaney, Donnet, Goodall, Hagg, O'Haire, Sullivan, Zaremba, Munro and Turner.

All those interested in this club are requested to communicate with W. J. Lynch, Secretary's branch, Spencer-street.

Since He Was 10—



KEN Donald, oldest inhabitant of head office's historic "room 1," has been associated with the management and direction of football and cricket for more years than he likes to recall. His first secretarial appointment was conferred on him at the age of 10, when, in association

with Harry Brereton, present secretary of the V.C.A., he assumed office as secretary of Port Melbourne state school's football and cricket team. And he hasn't been out of the game since then.

He was assistant secretary of the Victorian Football Association for 21 years, retiring last year only to succumb to the cajolements of the Brighton football club, where he is now treasurer and member of the selection and grounds management committee.

On the cricket side, he was one of the two founders and first life member of the North Suburban Cricket Association, the largest of its kind in Australia (94 clubs played last season). He represented the Association on the Victorian Junior Cricket Union for nine years, was on the executive for eight years, and, with the exception of the years during which he was on service abroad, has been president since 1915.

At the present time he is a delegate to the Brighton District Cricket Association.

ON THE RUN

THE cross-country season of the Institute harriers shows promise of being a record one. Several promising recruits have joined up and are showing excellent form, whilst the other members are showing form early with a view to carrying off all the open events. The secretary, Mr. E. J. Jones, will be pleased to supply any particulars of the club's activities to railwaymen who wish to join up with this club.

The club dances, which are held at the Institute on the last Thursday of each month, are proving to be immensely popular, and a good time is assured for anyone who wishes to support the club by patronising these functions.

FOOTBALL NEWS FROM HEIDELBERG-RESERVOIR

Mr. Reg. Bowman, secretary of the new Heidelberg-Reservoir team is very pleased with the team's efforts to date, and writes to me as follows:—

The newly formed Reservoir-Heidelberg team, although having lost two matches, is still optimistic of being one of the teams to contest the final game. The membership is very enthusiastic, and it will not be the fault of the management or individual members, if the club is not successful both on and off the field.

We are desirous of seeing the season out without assistance from any player outside of our two-line territory, and up to the present

have not played one player from outside. Our territory is the smallest allotted to any club, which speaks volumes for the chances of a bigger association in the future if the present big amalgamation of lines can be broken up.

It is pleasing to see senior players of the type of Jimmy Crowe and Dan Wheelahan taking a live interest in the club. Dan's brother Martin shows all promise of eclipsing his brother's brilliancy.

Other good players and club workers are Dominquez, Power, T. and J. Kennedy, and J. Robertson. In Mr. A. Hughes of Alphington, we have an untiring and energetic worker who, in conjunction with Messrs. Steel and Jackson, has done a great deal for the club.

The club held a smoke social in the Masonic Hall on Friday, June 6. Everyone had a good night, and it was so successful that it is anticipated that a bigger hall will be required, to hold the crowd at the next one. It is hoped to hold one every fortnight, and in this way hold the members together socially, this being the first aim of the club when formed.

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UP COUNTRY



Consignment of Gold

The train which left Warracknabeal at 10.40 on a Friday morning last month carried unusual and valuable freight in the shape of a consignment of golden sovereigns to the value of £5161. The gold was consigned by the Warracknabeal branch of the Union Bank of Australia to the Melbourne office, and was under the care of an armed escort in charge of Special Inquiry Officer Cross. Similar consignments were also forwarded from Minyip and Rupanyup on the same day.

Bright Prospects

The season's prospects in the north are now very bright, following upon the heavy rain which fell during the month of May. Until, however, the grass has had an opportunity of growing sufficiently, it will be necessary for large quantities of fodder to be forwarded over the northern lines to permit of the hand-feeding of the livestock. The necessity for this costly procedure, however, should soon disappear.

On the Ball

The football season is now in full swing in the Bendigo district, and the special trains which are being run every Saturday are well patronised by the supporters of the clubs and others. The teams are very evenly matched, and already there is considerable interest as to who will be premiers for the year.

Record Harvest

The prospects for next season's harvest still remain bright in the Maryborough district in spite of the lack of rain. If estimates recently compiled are fulfilled, 1,205,000 acres, yielding 18,000,000 bushels of wheat, will be under crop, and previous records will be broken.

Ararat's Fruit

An unusually large quantity of fruit has been sent in to the Ararat depot station this year for transport to Melbourne chiefly for the export trade. Motor trucks have been running daily to the orchards, and up to date 30,250 cases have been brought in.

Novel Signal Layout

At Eaglehawk a new signal-box has just been opened for traffic, and, together with the lengthened roads in the yard, will assist materially with the handling of the heavy wheat traffic which is confidently expected next season. A novelty in this layout is the double-wire arrangement instead of the ordinary rodding connection between the levers and the points and lock bars.

Water Failing

The water position at Maryborough is still acute as Evansford reservoir has received little benefit from the last rainfall.

NOTHING TO CROW ABOUT
AT Natte Yallock, not far from Maryborough, a wood-cutter felled a large tree and found a china egg in a hollow limb. There is no house within two miles of the spot, and it is presumed that a crow seized the egg under the impression that it was genuine hen-fruit. On discovering that the egg was not what it seemed, the crow apparently abandoned it with disgust in the hollow tree.

Fruit Records

All previous records were eclipsed during the past fruit season when a total of 1,423,370 cases, aggregating 36,635 tons, was railed from fruit stations in the Goulburn Valley district, compared with 1,179,877 cases (29,498 tons) for the previous year. In addition, the canneries at Shepparton, Mooroopna and Kyabram dealt with over half a million cases.

Bendigo's Competitions

The Bendigo musical and elocutionary competitions were held during the month of May, and as usual attracted a large number of entrants from all over the State. The standard throughout was very high, and the judge had considerable difficulty in many instances in finally choosing the winner. Many local competitors were successful. These competitions attracted a large number of visitors to Bendigo.

Jack Frost on the Job

Throughout the Goulburn Valley the prospects have been looking very bright, but the advent of very heavy frosts will retard the growth of crops and pastures generally. Owing to the generally parched condition of the country preceding the May rains, the moisture has been very rapidly absorbed and conditions are drier than could be wished for at this period of the year. Recent showers have only been very light and followed by cold weather.

Useful Rains

The season's prospects in the south-west have been enhanced by the useful showers recently.

Longerenong College Report

At a meeting of the Council of Agricultural Education last month, a report from the principal of Longerenong College said that, compared with the yield for the county of Borung, which immediately surrounds Longerenong, the college yield last harvest was a record, almost two and a half times as much as the previous record was two years earlier. Before that the best comparative results were those of the 1923-24 season. The poor results of the 1928-29 season could possibly be accounted for, Mr. Woodgate thought, by a succession of heavy frosts at the beginning of November. The crops of the surrounding district, sown on the whole a little later, were possibly not at the critical stage when the frosts occurred. The average yield for the college for the past ten years had exceeded that of the Borung county by 11·8 bushels an acre.

Lambing Satisfactory

Lambing on the whole has been fairly satisfactory, and a good yield of wool seems assured so far as the Geelong district is concerned.

New Railway Line

Work has been commenced on the construction of a railway line between Meringur and Morkalla—a distance of about 10 miles. This line will cost approximately £45,000 to build.

New British "Wonder" Locomotive

REPRESENTATIVES of British and foreign railways are paying special visits to Leeds to inspect a new geared oil locomotive which has just been completed for the Junin Railway in Chile.

Described as a "wonder" engine, it is the biggest of its kind ever made in this country. It is expected that its introduction in Chile, where lack of

water and coal creates a difficult railway problem, will lead to a big development in locomotive manufacture and possibly the creation of a new industry in Leeds.

The new engine is to be shipped in one piece.

Its main features are a five-ton gear-box (giving four speeds forward and four reverse), the absence of vibration,

and low working costs, which are under 3s. an hour.

Each of the three funnels of the new Canadian Pacific Railway Coy.'s liner, *Empress of Britain*, now under construction on the Clyde, has a long diameter of 35 feet, which would afford running space, as well as ample clearance for three standard-gauge railway coaches.



PIONEERS

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JOTTINGS from The INSTITUTE

News of the Old Brigade

THE monthly afternoon meeting of the "good old has-beens" was very largely attended on Thursday, June 5, and a considerable amount of necessary business was transacted. Several new members were elected, various financial matters discussed and reports read and received.

It was reported that accidents had befallen two old and highly esteemed members, and the meeting showed its sympathy by asking the secretary to forward to each of them a letter expressing hopes for a good recovery and an early return to the happy reunion of the Retired Railwaymen's Club.

Nomination of officers for the ensuing year, which commences on July 3, were lodged, and the election will be held on that Thursday afternoon.

Members are asked to remember the monthly dances of the club, which are held at the Institute on the third Thursday of each month, and at no time to forget that the first Thursday in February is available for no other purpose than the club's annual bay trip to Queenscliff. —A.A.

"The Whole Town's Talking"

THE Institute dramatic company will present the three-act farce "The Whole Town's Talking," by John Emerson and Anita Loos, on Saturday, July 19, in the V.R.I. hall.

The play is produced by Miss Adeline Strain, instructress in elocution and dramatic art at the Institute. Miss Strain has been fortunate in securing the services of Agnes Casey, Alice Best, Marjorie McLeod, Geo. Cockerill and W. P. Carr for the production.

At the recent Bendigo Musical and Elocutionary Competitions, Miss Strain was successful in gaining first place in several events, her main successes being the humorous character sketch (which was written by Miss Strain herself) the Australian recital and the Shakespearean dialogue.

November Exams. Ahead

STUDENTS of the Victorian Railway Institute educational classes and correspondence courses are reminded that valuable prizes will be awarded to those students who gain the highest number of marks in the educational examinations to be held in November.

All students are eligible to sit for examination, but only those who have attended at least 30 weeks with an attendance of not less than 45 per cent. at oral classes, and correspondence course students who have completed not less than 75 per cent. of the papers set for the respective courses, and who gain not less than 75 per cent. of the



Miss Addie Strain, talented Institute instructress, who won several prizes at the recent Bendigo musical and elocutionary competition

total marks obtainable at the examination, will be considered in the allotment of prizes.

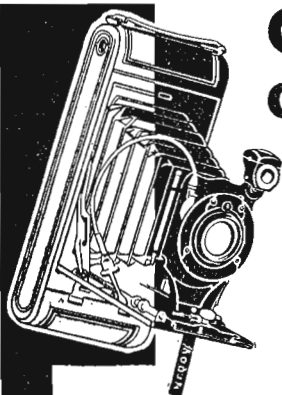
Prizes are allotted for the following subjects: English, Bookkeeping, shorthand, Typewriting, Engine Working and Westinghouse Brake, Railway Construction and Maintenance, Safe Working, Station Accounts and Management and Internal Combustion Engine Mechanics.

"He" or "She"

THE old controversy as to the gender of a locomotive has been revised through the efforts of the Northern Pacific to secure a suitable name for its new class of simple Mallet freight engines, by far the largest in the world.

When the problem was referred to a group of college professors and other philologists, the unsuitability of a feminine designation was pointed out.

The verdict was almost unanimously in favor of "he" instead of the traditional "she."



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RAIL USERS SAY—

SERVICE THAT WILL BE REMEMBERED

I WOULD like to bring under the notice of the Railways Commissioners the appreciation of the "Back to Maryborough" committee for the assistance and courtesy shown me on the occasion of the running of the special trains which brought the home-comers back to their old town. The officers of your Department at Maryborough and the staff on duty at Castlemaine on this particular night did all in their power to make my task as easy one, and I will always remember with a certain amount of pride and satisfaction the treatment which was accorded me.

—Mr. F. R. Blackburne, organising secretary, Back to Maryborough committee, writing to the District Superintendent, Maryborough.

SUCCESSFUL SCHOOL EXCURSION

IN connection with the recent school children's excursion from Alexandra to St. Kilda, I may state that this was our first guaranteed train from this district, and the result was very satisfactory. We wish to express our appreciation of the courtesy and the service extended by your Department, and the excellent carriages provided; also to those officials in charge of the train, which arrived at Flinders-street well on time schedule. We specially desire to thank your stationmaster, head porter and staff at Alexandra who were very obliging and did all they could to meet the convenience of the excursionists.

—J. A. Baker, secretary, school excursion, Alexandra, writing to Editor of Magazine.

RECOVERY OF LOST PROPERTY

ALTHOUGH I have delayed writing to you in the following connection, my thanks for the services rendered by various officials of your Department are none the less sincere. On a recent Thursday evening, I travelled to Birchip by a special train. At Maryborough I alighted to obtain refreshments and, on returning to the carriage I discovered that an elderly lady (who had occupied the same carriage from the city) and whose destination was Maryborough, had left her suit case in the carriage. I endeavored to get in touch with a porter and handed him the suit case, obtaining his assurance that the case would be handed to the rightful owner on application. It was not until we had left Maryborough for some minutes that I discovered that my suit case was missing, presumably taken by the lady in mistake for hers. As I had foolishly neither locked nor labelled my case I was rather concerned. At Bet Bet I hurriedly explained the situation to the official there, and asked him if he would 'phone Maryborough with

We Believe—

1. We believe in the Department whom we are representing, also in the management we work with, and our ability to get results.
2. We believe in working, not weeping; in boosting, not knocking; also in the pleasure of our job.
3. We believe that a man gets what he goes after, that one deed done today is worth two deeds done tomorrow.
4. We believe that no man is down and out until he has lost faith in himself.
5. We believe in today and the work we are doing; in tomorrow and the work we hope to do, and in the sure reward the future holds.
6. We believe in being courteous, civil and obliging, in good cheer, in friendship, and in honest competition.
7. We believe that there is something doing, something for every man ready to do it.
8. We believe we are ready now.

—M. T. White, Stationmaster, Peshurst.

instructions to have the case forwarded to me at Birchip by the next train, if possible. I was mistakenly under the impression that the official did not fully grasp the situation; consequently at Dunolly I searched for a porter with the view to repeating the instructions. I was, however, unable to give a due explanation before the train left. At Bealiba a telegram from Maryborough was received by the conductor on the train, the contents to the effect that my case would be forwarded me the next day and delivered to me. For this I was very relieved, more especially when I received my case as stated, perfectly in order. I would like to express my appreciation of the services rendered by the officials concerned and for the Department's efficiency, especially as the incident took place at one of their busiest times of the year.

—(Miss) E. Carr, National Bank of Australasia, North Melbourne, writing to the Editor of the Magazine.

SATISFACTORY STOCK HANDLING

JUST a few lines in reference to the nine J trucks of sheep I had railed from Korumburra. I must congratulate the railways with the splendid run through to Thyra. Out of 847 sheep, I lost one, which I consider deserves comment.

—Mr. Thos. J. Tomlinson, Thyra-road, via Moama, writing to the Live Stock Agent.

"THE MOST EFFICIENT ATTENTION"

WE desire to express our appreciation to the officer-in-charge of your goods shed for the efficient and courteous manner in which he attended to the consignment of about 140 tons of chaff to Closer Settlement Board Settlers.

It is a pleasure to state that all trucks were loaded with proper quantities as requested, and all vouchers returned to us promptly after chaff was loaded. It has been our experience during the past three years to receive the most efficient attention to all consignment instructions especially from stationmasters and their staff throughout the western district of Victoria, and we purpose writing direct to the Secretary for Railways on this subject. Your Chairman's slogan "Help us to help you" has been thoroughly carried out at your station. —Messrs. E. R. Haynes Pty. Ltd., 110 King-street, Melbourne, writing to the Stationmaster, Warrnambool.

It Is Not Easy

To apologize—
To begin again—
To admit error—
To be unselfish—
To take advice—
To be charitable—
To be considerate—
To keep on trying—
To think and then act—
To profit by mistakes—
To forgive and forget—
To shoulder a deserved blame.

—But It Always Pays.

WINNOWNED WISDOM—

Anything that has been done in the same way for the past five years needs an investigation or change.

—Percy S. Straus.

It is never too late to mend, but it's just as well not to have to.

You cannot win without sacrifice.—

—Charles Buxton.

When success turns a man's head, he faces failure.—Forbes Magazine.

YOU CAN'T AFFORD TO

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TO HOTEL AND BOARDINGHOUSE KEEPERS, PROGRESS ASSOCIATIONS, HOUSE AGENTS, ETC.

The V.R. Magazine is sent each month to 30,000 railway homes. Of this number there are 1,200 railwaymen on leave for an average of a fortnight at any time of the year with free passes over the whole State railway systems. It therefore offers an unparalleled medium for making known holiday resorts, accommodation, etc. For rates and fuller particulars write the Advertising Manager, Victorian Railways, Spencer-street Station Buildings, or 'phone C6414

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THE almost general need for economy in personal expenditure has been the means of diverting guests from more expensive hotels to The Victoria Palace. The Victoria is patronised by an ever growing clientele which recognises the superiority of its modern accommodation, and substantially lower charges than they have hitherto paid at other leading hotels. Great improvements have been made for the comfort and entertainment of guests. Its splendid service and the excellence of its varied dining facilities, together with its central location make The Victoria an outstanding landmark in hotel value for the discerning traveller. Single rooms, 5/- to 7/6; double rooms, 8/- to 14/-. Private bathroom accommodation is available in the new East Wing at 2/6 per day. Meals are extra and optional.

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A study in black and white at Mt. Buffalo National Park

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The Pounds will
take care of
YOU

THE greater number of our people are wage and salary earners who can look only to thrift to establish a competence in later life. For them there is no better means than the *Savings Account*.

THE less you earn the greater the necessity for saving, and regular deposits, no matter how small, will build a banking account at a surprising rate. Don't be ashamed of saving pennies—they soon make pounds.

BRANCHES of the Commonwealth Savings Bank are to be found in the principal towns, and every Post Office is an Agency.

Commonwealth Savings Bank of Australia

(Guaranteed by the
Commonwealth Government)

Personal

Continued from page 32

Stationmaster H. W. Harley of Korong Vale, who joined the Department on April 30, 1887, has retired. During his 43 years of service, he made a host of friends all round the State.

After 40 years service, Repairer H. Wallace of Ballarat, has retired. A complete smoker's outfit was presented to him.

Dimboola railwaymen last month farewelled Roadmaster Nolan of Ballarat, who has gone on transfer to Oakleigh. Travelling rug and gold mounted pipe for himself and an umbrella for his wife accompanied the staff's good wishes.

Last Mile Post

JAMES LYSAGHT

GENERAL regret has been expressed by staffs of the various branches of the Department and of railway users, particularly at Geelong, at the news of the death of Mr. James Lysaght who, only a comparatively short time ago, retired from the service, after having held the position of Stationmaster at Geelong for a number of years.

ANDREW WILLIAMS

MR. ANDREW WILLIAMS has died at Maryborough at the age of 79. Familiarly known as "Chummy" Williams, he joined the service in 1877, and retired as a driver about 20 years ago.

His funeral was attended by a large number of railwaymen, including Depot Foreman R. Dawson and Stationmaster Gleeson.

Winter Menu

Continued from page 37

ounces sugar, $\frac{1}{2}$ cup water, cloves and lemon rind, slices of stale bread, 2 ounces butter or fresh clarified fat.

Peel apples thinly and cut in thick slices. Cook till tender with water, cloves, lemon rind and sugar, stirring occasionally. Melt butter, dip in slices of bread and line a pie dish with it, avoiding holes and putting the buttered sides down. Mash apples smoothly and pour into the dish. Cover with more bread dipped into butter putting oiled side up. Bake in a quick oven till bread is browned. Turn on to hot dish. Sprinkle with sugar and cinamon.

GOLDEN GRAIN

A good way to relieve the monotony of a job is to think of ways of improving it.

No man is free who is not master of himself.

If you don't like your job, don't worry about it; someone else will soon have it.

A NARROW SQUEAK!

AN engine-cleaner stationed at one of the engine sheds in Scotland had a most alarming experience recently. After a squad of cleaners had finished cleaning an engine, this youth was in the act of stooping down to take a scotch from under the wheel of the engine he had been assisting to clean, when the peak of his cap touched part of the engine framing and shifted the cap on his head. The cleaner involuntarily threw up his head to prevent the cap from falling, his head going between the buffers of the engine he had been cleaning and one standing next to it in the shed.

At that moment, the engine standing next to the one he had been cleaning was moved slightly forward, with the result that the cleaner's head was held fast between the buffers of the two engines, and it was necessary to move one of the engines away before his head could be liberated.

Yet, as the result of this, only a slight bruise was received. Had the engine moved a fraction of an inch further forward, it must have meant instantaneous death.

COUNTRY NEWS

THE billiard and snooker team from the Maryborough branch of the V.R.I. are leading in the second round of the season's tourney for the interclub's championship and silver shield. The Institute team has held the shield two years in succession and bids fair to nail it to the wall this year.

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Railway Reconstruction in The Soviet

REORGANISATION and expansion of the Soviet Union railway system along American lines is being planned, and a delegation of Soviet railroad experts is at the present time inspecting the different American railroad systems. They commenced their tour at the invitation of the Pennsylvanian railroad, and hope to cover other systems before they leave.

"The technical achievements of the American railroads have aroused the greatest interest in the Soviet Union," the leader of the delegation stated. "We are interested in studying American rolling stock, particularly the modern types of locomotives, and operating methods. The growth of railway traffic in the Soviet Union necessitates the introduction of modern locomotives and cars on our lines, and the delegation will concern itself primarily with the problems involved in supplying our railways with such equipment.

"In the past eight years the Soviet authorities have succeeded in recon-

structing the Soviet railway system from its broken-down condition at the end of the world and civil wars to a level considerably in advance of the pre-war state. Last year, Soviet railways carried 62 per cent. more freight than in 1913 and 13 per cent. more passengers. . . . The operation of Soviet railways last year not only broke all previous records but also exceeded the programme set for the year. This year it is expected that a 20-22 per cent. gain will be recorded in the operations of Soviet railways."

ROYAL DRIVER REPRIMANDED

KING BORIS of Bulgaria, in overalls, and with his brother, Prince Cyril, on the footplate, drove the Varna express to Pleven, but arrived two minutes late. The divisional superintendent (according to the *British United Press*), did not recognise him, and "harshly demanded an explanation of the delay," which King Boris patiently explained and then signed the customary driver's report.

It was only then that the superintendent recognised him.

Power Behind the 'Phone

Continued from page 14.

to somewhere in the vicinity of 8,500,000 telegrams and, notwithstanding the inroads of the telephone and the sub-normal times being experienced at present, there are 7000 telegrams per day passing through the Spencer-street telegraph office.

A "Toye" telegraph repeater has recently been installed at Dimboola, which enables Spencer-street and Adelaide to work direct. A repeater is also installed at Juneo so that now there is direct telegraph communication with Adelaide and Sydney.

The advent of the rectifier, so widely used for wireless purposes, has also changed some of the telegraph characteristics, and where possible, copper oxide rectifiers are being substituted for batteries, both local and main. This also applies to the selector train control where all main batteries, which range from 200 to 300 volts, and were originally composed of 20 ampere hour cells, have been replaced by rectifiers.

The telephone and telegraph system is maintained by a staff of mechanics attached to the telephone and telegraph maintenance depot, Spencer-street, as well as by a small maintenance staff located at various depots throughout the State, and elaborate facilities have been provided by means of which telegraph and telephone lines radiating from Spencer-street can be quickly tested and faults located, so that delays are reduced to the minimum.



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Books and New Books

Thumbnail Reviews by J. D. MICHIE

The Town of Tombarel.—By W. J. Locke. Mr. Locke here shows all his customary felicity of style, his gentleness and suavity and his tenderness for romance. The hero of these short stories, so cunningly linked that they seem all to be as one, is the Mayor of Creille, that high medieval town up on the crags behind the Riviera Coast. Tombarel, with his massive Provencal head, his grand manners, his soft heart, is a fit subject for Mr. Locke's pen. His first story, of the father who threw the man who slandered his son down the hillside into a vast abyss, is one of the most striking of the series, though the sentimentally inclined will prefer "A Snowflake from Picardy," which tells of one of Tombarel's early loves.

Fighting Caravans.—By Zane Grey. Fighting Caravans, for sheer thrilling interest, is probably the most exciting story Zane Grey has written. Here is the raw, primitive west of the early American pioneers. Great caravans of freighters sweep over prairies infested with hostile Indians. War-whoops, shouts, the crash of guns. Amazing,

electric, brave and bloody days that actually existed. Days drenched with the blood of fearless men who gambled their lives for love, for adventure, for gold. Leaving the field of cowboy fiction he has drawn on the actual diary of an old freighter. The tale is startling in its vividness.

Traveller's Rest.—By Mrs. Henry Dudeney. Most of the people in Mrs. Dudeney's new novel have admittedly a streak of madness in them, or at all events may be classed as mentally abnormal, which gives rather a nightmarish quality to her story oddly at variance with its calm English setting of Southern downland. Clara Fountain, to be sure, is meant to represent a rock of sanity in a turbulent sea, yet even she, despite her inherent coolness and craving for peace, thinks and acts in a manner not free from eccentricity. Mrs. Dudeney, as usual, writes glowingly and compellingly.

Hunting and Hunted.—By Dorothea Conyers. Once more, in this volume of Stories, the talented author of "The Strayings of Sandy," writes of the hunting-field she knows and

loves so well. In her gay descriptions she catches the spirit not only of the red-coated huntsman but also of the hounds, and especially the hunted. Her foxes are real foxes that enjoy the chase as much as the hounds or men.

Secret Places.—By Joan Sutherland. Ambition for personal distinction and advancement had been the loadstone of Feodor Stair's life, until adversity brought its softening and refining influence. Thus, when his hour came, honor and chivalry forbade him clear himself by accusing a woman; and, offering no defence, he voluntarily bore her guilt and its consequences.

Morley Darville.—By Stephen McKenna. Morley Darville, clever, shrewd, and a writer of rising repute, strives to free himself from the shackles of early associations and the narrow outlook of a suburban home. A brilliant study of a brilliant young man. Stephen McKenna, in this work, maintains his reputation for being a clever story-teller.

Wholly set up and printed in Australia at the Victorian Railways Printing Works, Launceston, North Melbourne, for the Publishers—The Victorian Railways Commissioners.

RAILWAYMEN

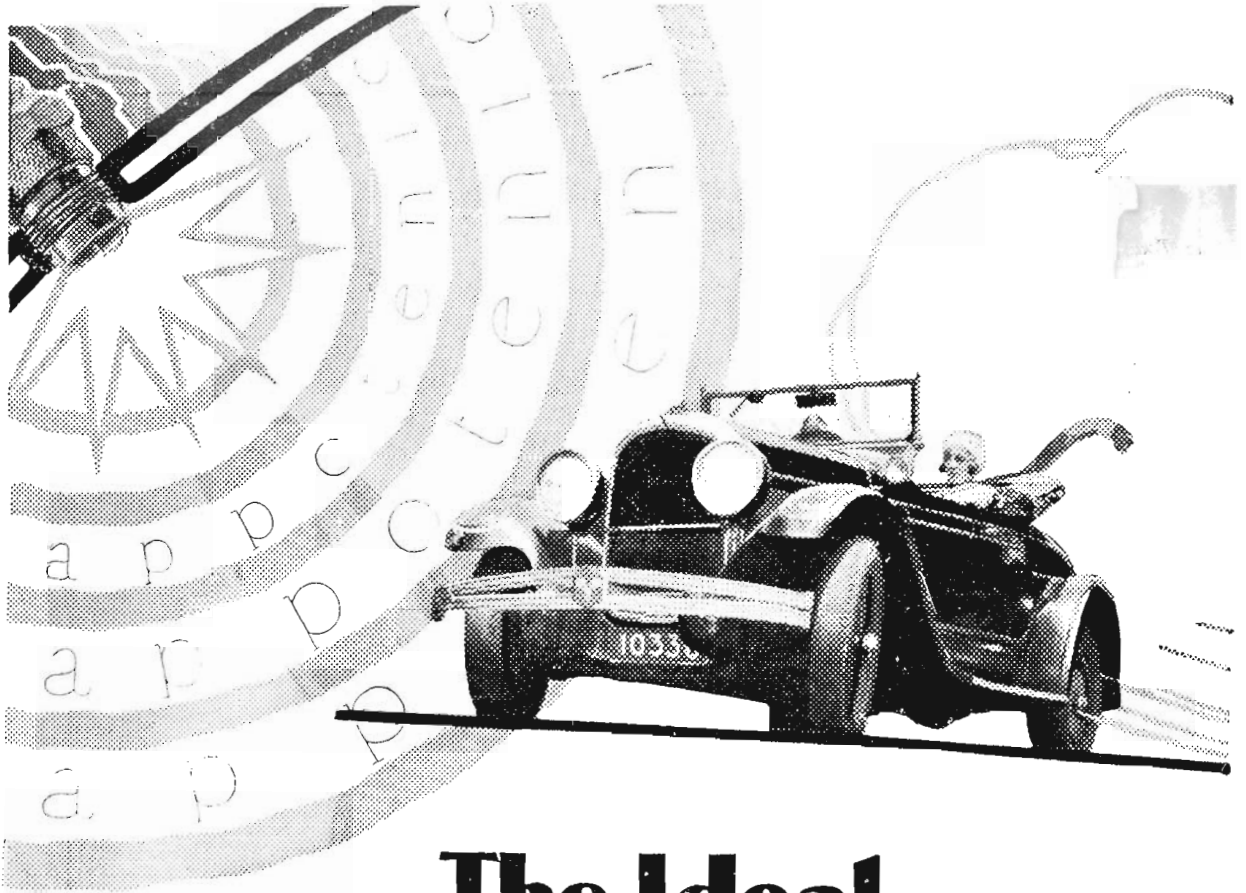
Exposed to All Kinds of Weather

HEENZO IS A NECESSITY

HAIL, rain, wind or sunshine, it makes no difference to the men employed on the out-door jobs in the Railway Department—they have their job to do, and they do it despite all kinds of weather. But exposure to sudden climatic changes often brings coughs, colds, influenza, bronchitis, and other chest and throat ailments. The goodness of **Heenzo** as a remedy for such ailments is proved by the fact that it is a favorite cough remedy in the homes of most Railway folk. **Heenzo** is popular for two reasons: firstly, its efficiency; secondly, its economy, for a two-shilling bottle of concentrated **Heenzo**, when added to sweetened water (according to the easy directions supplied), makes a family supply equal to eight ordinary-sized bottles of cough and influenza remedies that would cost up to £1. **Heenzo** is equally good for young and old, and can be given to even the youngest baby without fear of upsetting the digestion.

In cases where a large supply of cough remedy is not wanted, **Heenzo** may be used in its concentrated form, straight from the original bottle, as per directions supplied. This method is generally known as the bachelors' way of taking **Heenzo**.

Heenzo is the standard cough remedy in many hospitals—used by South Pole Explorers, and carried by Sir Alan Cobham in his flight from England to Australia. Order **Heenzo** from your chemist or storekeeper.



The Ideal □ □ □ Knock-Proof Spirit

**** appotenic Plume gives
that "added power"**



Any motorist eager to get the best in pace and power from his car will find many hints on how to do it from "The Connoisseur"—a valuable treatise recently published on Motor Spirit. Write any of our branches for your copy. If you have a motoring friend who you think would appreciate a copy, send your card with particulars and we will post him (or her) one also.

PLUME

**** appotenic
*Motor Spirit***

**** means "added Power"**

FOSTERS LAGER



**Most
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No Preservatives Used



The
Victorian
RAILWAYS
MAGAZINE

AUGUST 1930

6^d

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TRANSMISSION by
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Wonderful!

The One-shilling -a-Day Budget Buying Plan—

Puts the Finest Clothing within the reach of men who ordinarily find it inconvenient to make a single payment of, say, £8 or £9 at one time. Men accustomed to purchasing homes or furniture on Deferred Payment will find this plan of utmost convenience in purchasing Fine Clothing.

Now I Can
Dress Well
on One Shil-
ling a day



This Newly Established Charge Service permits railwaymen to purchase clothing on the following basis :

For £6/6/- Suits or Overcoats—

You pay £1/12/- at time of purchase and 1/- a day

For £7/7/- Suits or Overcoats—

You pay £1/17/- at time of purchase and 1/- a day

For £8/8/- Suits or Overcoats—

You pay £2/2/- at time of purchase and 1/- a day

For £9/9/- Suits or Overcoats—

You pay £2/7/- at time of purchase and 1/- a day

Payments to be made Weekly or Fortnightly

NOWHERE in Melbourne can you get such excellent values for your money. This is accounted for by the fact that our upstairs location, which saves us at least £60 a week in rent alone, enables us to offer clients a saving of 20 per cent. on all their purchases. If you cannot call, write for patterns and full particulars.

COUNTRY CLIENTS

Be as Well Dressed as Your City Friends

Write us today for our free book of samples and self-measurement form with full instructions how to measure—just take your own measurements and post to us. We'll do the rest. Try it—costs you nothing—just a post card. Get the free samples and prices anyway, and also our handsome booklet "How to Dress Well on a Shilling a Day." You will learn something interesting about dressing well and saving money.

Country Clients Please Post Coupon

Kindly send me patterns of your suitings

Name.....

Address.....

NOTE.—Please indicate shade and price
V.R.M.

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Railwaymen"*

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(Corner Collins Street)

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INCREASED
EFFICIENCY
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LONGER
LIFE

Branches at
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LOOK
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THE BELLS

Run Smoothly on Reefer - the Packing

"Reefer" gives long and efficient service and functions without attention. Asbestos proofed cloth and anti-friction metals of Admiralty quality, skilfully combined, provide the maximum metal bearing surface to the rod with the minimum of friction without corresponding increase of weight.

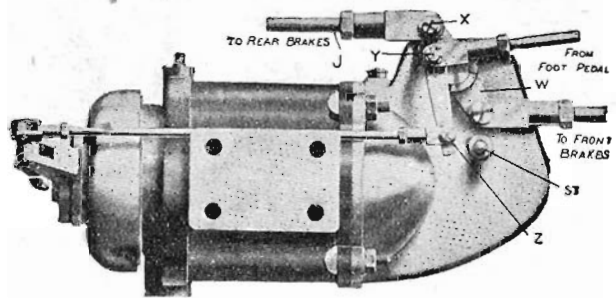
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For Motor Cars, Buses, Commercial Motor Vehicles, Trailers

High
Braking Power
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Extreme Flexibility
with Minimum
Physical Exertion



Effective Brakes
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necessary for
safe
transportation

The Westinghouse Vacuum Servo Brake can be readily applied at quite moderate cost to motor vehicles of all types. We shall be pleased to supply full particulars on receipt of information concerning make and type of vehicle.

The Westinghouse Brake Co. of Australasia Ltd.

Concord West. N.S.W.—Victorian Office, "Chancery House," 485 Bourke-st., Melbourne

Pelmanism, Personality and Promotion



KNOWLEDGE and skill will, in normal times and circumstances, secure for their possessor a comfortable livelihood, but if promotion is to be quick and emoluments great, knowledge and skill must be supplemented by something else.

That something else is personality, the strengthening of useful characteristics which are peculiar to the individual himself. Unlike knowledge and skill, personality is not acquired only from books, observation and conversation, or by doing faithfully the allotted day's work. The energy, force and power of attraction which are integral parts of personality are above, beyond and outside the common knowledge contained in books and available to anyone and everyone; they go hand-in-hand with the cultivation of certain definite qualities which become part of the man himself and mark him out as an individual, a personality.

Pelmanism's concern is with the development of these qualities, not so much separately but as a whole, each in concord with the others, so that, amongst other things, concentration is made easier by quickened perceptions, natural energy enormously increased by interest, and prompt decision justified by soundness of judgment; so that, in fact, the individual is a complete unit with his personal attributes and forces working harmoniously, freely and without conscious effort. Amongst these attributes and qualities are—

- | | | | | |
|---------------|-----------------|-----------------|-----------------|--------|
| Concentration | Initiative | Self-possession | Prompt Decision | Energy |
| Observation | Self-confidence | Sound Judgment | Will Power | |

and a Memory that Does Not Forget.

NO matter what position you hold in the service, Pelmanism will help you to increase your exact knowledge, to make the best use of that knowledge and, most important of all, to develop your personality so that you are thought of not only as an officer but also as one who is of interest to his fellows, as one who is regarded with approval by his superiors, and with respect, and perhaps a little envy, by his juniors and contemporaries.

It is to your advantage to know what Pelmanism is and does. Let us send you a copy of "The Efficient Mind" which contains 76 pages of matter and illustrations of very great interest. Copies are sent post free and no obligation is implied. The Pelman Institute has no outside representatives, and all enquiries are regarded as confidential.

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CUT OUT OR COPY AND POST TO-DAY

To The Secretary, THE PELMAN INSTITUTE
32 Gloucester House, 396 Flinders-lane, Melbourne, C1
Please send your free book—"The Efficient Mind"

NAME

ADDRESS

268

Safety Health Betterment

August Suggestions Drive

THE subject chosen for the 32nd Suggestions Drive, which will be held during August, is:—
Locomotive gear, including fittings, lubrication, etc.

Suggestions should be submitted to the Betterment and Publicity Board in the usual way. Suggestions on any other subject will, of course, also be accepted.

Benefit by Your Ideas

THE following awards were made during June for adopted suggestions:—

Total amount ... £54
Highest award ... £19

The number of suggestions received during June was 170.

Arrangements still exist for the placing of adopted suggestions of particular merit before the railways of the various States, and also the Commonwealth and New Zealand railways.

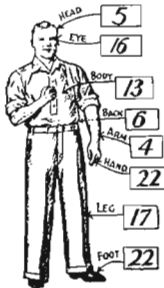


Diagram showing personal injuries sustained by employees during June. These accounted for 105 "lost-time" accidents compared with 100 for the previous month

The Latest Model

A PROUD father, with an automotive turn of mind, announces the arrival of a newborn son, as follows:—

"Weight 8 pounds, 7 ounces; wheel base, 21 inches; lighting equipment, bright blue head lamps with automatic dimmers; frame well balanced, strong, flexible, well reinforced; body, rubber mounting for safety, well insulated, will not rattle or squeak; finish, shell pink; horn, high frequency vibrator type—loudest when fuel tank is empty; top, well rounded front and back, golden glint covering; fuel, gravity feed, 4-ounce tank, centrally located; clutch, easy slip type, positive release, improves with age; circulating system, self-cooling, water-jacket self-contained; special equipment, kiddy-koop, safety pins, Q-tips, talcum and many other standard extras."

Smiles are cheaper than electric lights, but they make the home much brighter.

Clothing for Safety

By F. H. Elam, in "The Octagon"

PROBABLY everyone realises in some measure the important place that clothing holds in the minds of mankind irrespective of race or station in life.

There is practically universal acceptance of the thought that clothing should be suited to the occasion, be it social, ceremonial and formal, or on the athletic field and in the realm of sports.

In lines of special endeavor we find that considerable thought is given to proper clothing for special groups such as soldiers, aviators, athletes, sportsmen and hunters. It is questionable, however, if people in industry are giving the subject of working clothing the amount of careful consideration that its importance warrants. The large number of accidents where clothing caused the accident or was a material contributing cause seems to warrant this conclusion.

Loose Sleeve: Lost Arm

The difficulty seems to be that the clothing purchased for social use is too often worn to work when it is unsuitable for work and is frequently positively dangerous. Men will wear shoes that do not provide adequate protection to the feet from known hazards of hot metal and sand or from punctures from nails and metal chips.

Loose sleeves and cloth gloves are worn by operators of moving machinery which, if caught by the moving parts, will cause the loss of an arm and even death.

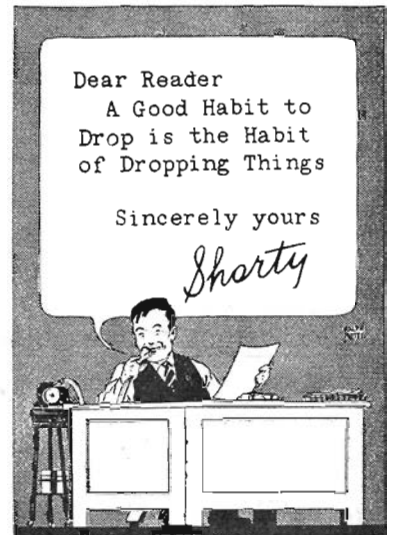
Workmen frequently protect their clothes by the use of aprons, and aprons made of leather and canvas of proper design and that can be quickly removed are recognised means of protecting clothing.

When, however, unsuitable materials, such as sacks, are converted into aprons, they are nearly always dangerous, because of lack of proper shape, proper methods of fastening and unfit material. A gunnysack apron is a dangerous fire hazard, and when fastened to a workman by a piece of wire, as is frequently done, is really a flirtation with death.

Overalls and jumpers are usually purchased oversize to allow for shrinking, with the result that excess arm and leg length is turned up and the garments worn until they are washed, if ever, during which interval the

wearer has taken to himself handicap to free movements and has given his body hostage to danger and death. How much better for safety and comfort it would be to have a garment fully shrunk and properly altered to length before wearing!

Since it is the accepted thing to



choose carefully clothing for times of leisure, why not be sensible and give as much or more thought to the more important subject of safe clothing for work?

Worth Bearing in Mind

No one who has done his best has failed.—Henry M. Daves.

A particularly good workman always seems to have a particularly good job.

Making money is vegetable gardening; making friends, flower gardening.—Forbes.

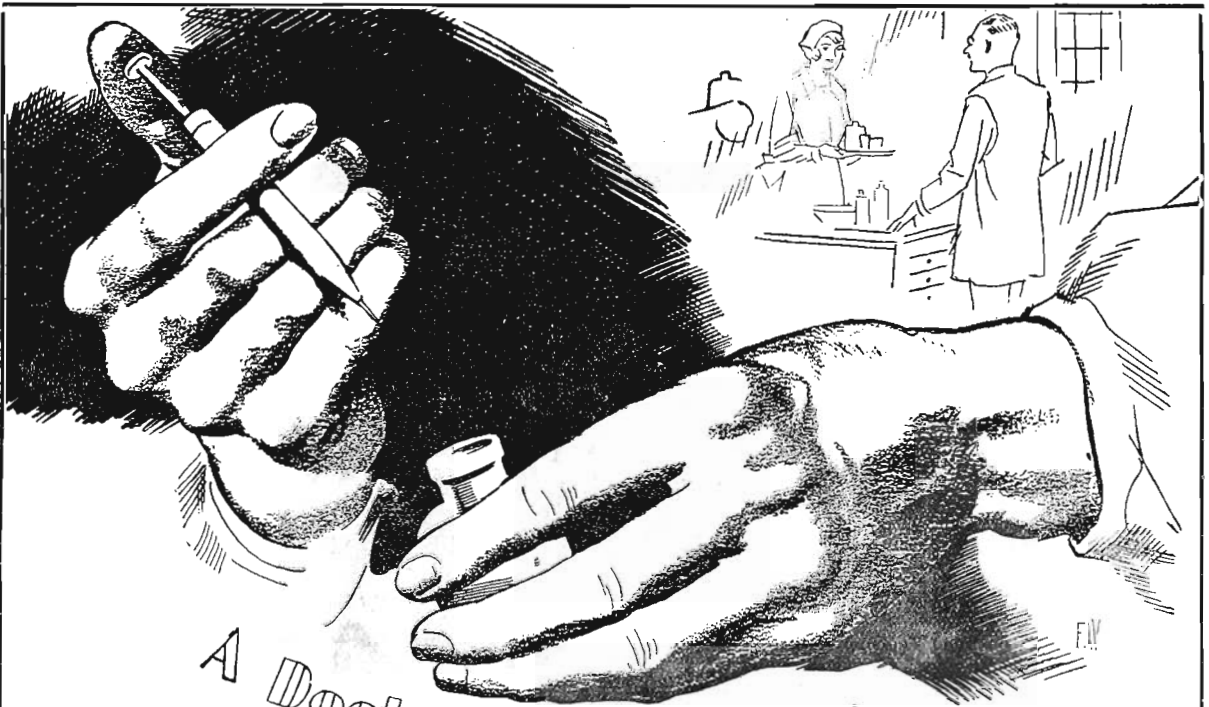
A machine can only work for you—a man can work with you.

Responsibilities gravitate to those who can shoulder them.—Elbert Hubbard.

Happiness is not perfected until it is shared.

A good personal appearance is better than a letter of recommendation.

Carefulness never caused an accident.



A Doctor comments ..

“The Germicidal Properties of Clever Mary Tablet Appeal to Me Very Strongly”

“Definitely Germicidal”
 says well-known Bacteriologist
“... I find that the CLEVER MARY ANTISEPTIC TABLET gives a nice, soft lather, has excellent cleansing properties, and gives off a pleasant aromatic odour. It has a definite ANTISEPTIC and GERMICIDAL action. I therefore recommend it as an ANTISEPTIC soap.”

(Signed).....
 (Signed original may be inspected at Head Office of The Paget Co.)

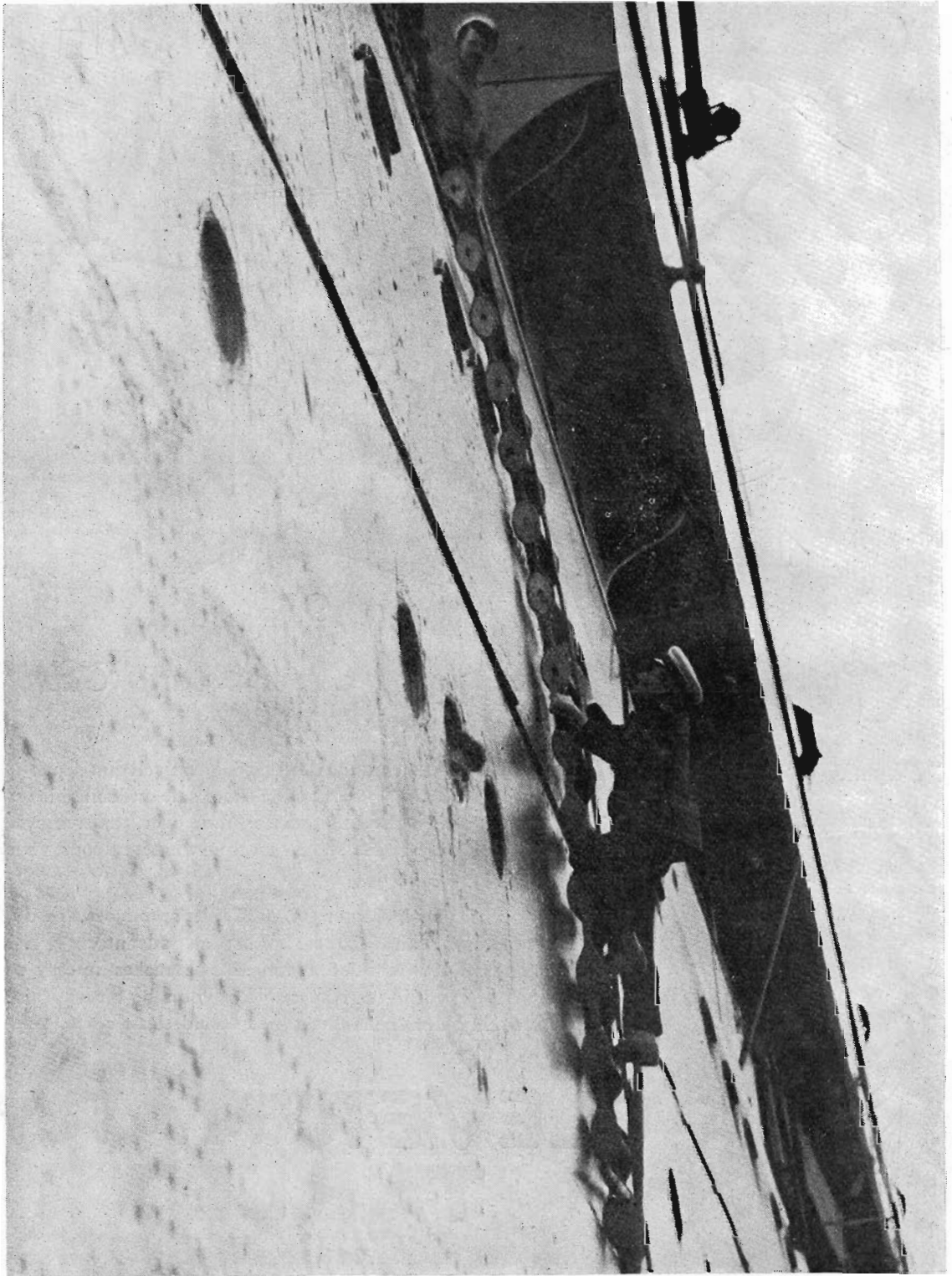
HERE is a hand-cleansing tablet that is positively antiseptic—at a nominal price. Germicidal—and safe and suitable for every-day family use. A cleanser, moreover, that removes speedily and thoroughly paint, stains, grease—whatever soils your hands.

In salt water or fresh Clever Mary Tablet produces, easily, a pleasant-smelling, foamy lather. What an advantage when you're travelling. It's rounded oblong shape makes it easy to grip and to use. Try it in your home. Let yours be the satisfaction of introducing this marvellous new hand-cleanser to your family circle.



**CLEVER MARY
 TABLET**
Antiseptic

MADE BY THE PAGET MANUFACTURING CO., LTD.



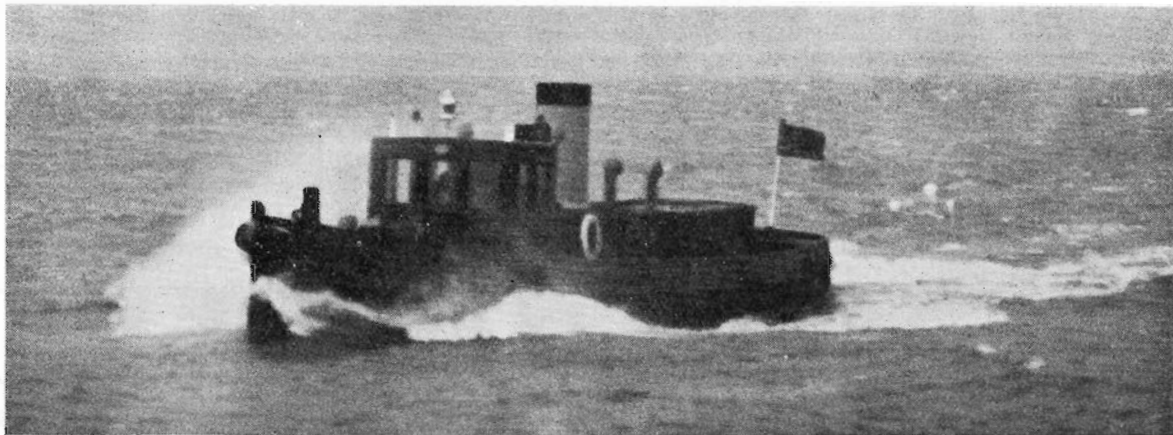
Photo—A. Aldred

The Customs Inspector Comes Aboard

H.M. Customs launch meets every vessel that enters the Heads, and the boarding inspector mounts the Jacob's ladder to examine the ship's passengers, cargo and crew before the vessel berths

PRESENT DAY CUSTOMS

By C. H. Cheong



H.M. Customs launch cuts through the grey waters of Port Phillip Bay to intercept an incoming passenger liner from London



A STRONG sou-westerly whistled along Williamstown's foreshore and deserted streets. Old buildings loomed out of the pre-dawn darkness.

The salted air tingled the blood. Around the corner two balls of fire glared fixedly from the footpath—ah, only a marauding cat. Another corner, then a light, strangely out of place in this darkness, proclaimed the Customs House.

Inside, the gesticulating hands of a mute wall clock drew attention to the hour—five . . . and as cold as the interior of an Eskimo's ice chest.

Away in the blackness an engine chugged rhythmically. Regularly came the surge of the waves on the shore, a long-drawn sweep as they retreated and a rush as they swept in again.

* * *

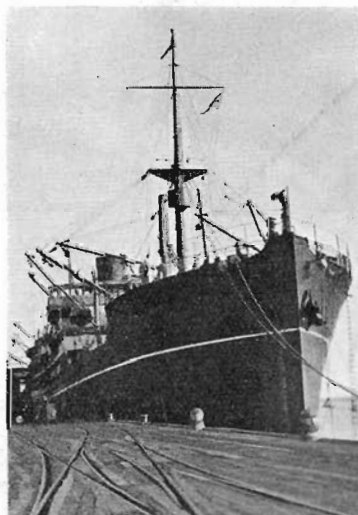
The boarding inspector and one of his officers strode on to the pier. Lights from H.M. Customs launch guided them to its gangway.

A bell tinkled sharply in the engine-room. The boat backed slowly. Again the bell rang and the engines raced to swing her out and on. The master headed into the open bay and the launch nosed through a channel where bobbing red-lit buoys lined the course.

A trim craft, this launch. Gaily fluttering from the pole astern, the Australian ensign, with the "H.M. Customs" insignia, was the centre of a focused spot light—authority to board

any craft cruising in Australian waters.

Down the bay at 10 knots, the bow of the launch threw aside the spray from a choppy sea. Steamers, motor ships, sailing vessels, tugs and dredges—their red, green and white lights twinkling—



Where sea and rail meet at Prince's-pier. Dried fruit, checked by the Customs officials, is being transhipped from railway trucks to the holds of an overseas ship.

rode at anchor or slowly passed down the river.

Darkness fled before the rays of the rising sun and out of the disappearing gloom rose the steel bows of an ocean leviathan plying 'twixt London, Melbourne and Sydney.

The launch chugged alongside and

there was a quick spring from her heaving rail to the Jacob's ladder. A sharp climb, a heave of the shoulders as the deck was reached, and the Customs were aboard.

The master of the ship exchanged courtesies with his visitors, and conducted them to the purser's office. Here the boarding inspector checked the clearance, which includes the declaration of the ship's dutiable stores.

* * *

"From the time an overseas boat enters the first Australian port until the time she leaves the last," he whispered an aside, "the stores are subject to our Customs duty."

Even tobacco carried by the crew is included, with the exception of the half-pound allowance.

There was the statement of the possessions and personal effects of the crew, there was the passenger list, and other lists whose detailed information remains solely the property of Customs. An hour cleared the boat.

As a fussy tug slewed the ship to its berth at Prince's Pier, there were signs of activity ashore. Early risers waited to greet returning friends. Relatives waved to their kindred. The gangways went down, a steady stream of passengers trod them to the Customs Office to have their luggage cleared. In common with all such travellers, the one ambition of each and every passenger was to have his or her belongings checked first.

Porters staggered down the gangways, threaded their way through the human forest and dumped cabin trunks at the direction of bustling owners.

A special Customs staff received the form signed by the proprietors and proprietresses of luggage, ascertained the contents of the trunks and cases and, with deft strokes of chalk, labelled it "passed" by Customs.

Freed from their obligations, passengers hurried down the stairs to waiting electric trains and were sped away.

Railway trucks clanked to the wharf-side. Tiny motor tractors shunted them into position. Out of the ship swung slings of cargo, mails and merchandise. Another section of the Customs staff scrutinised the goods with keen eyes

The Customs launch chugged alongside the pier. Aboard again, the inspector spoke to the master, "Pile light, George," and in a wide sweep the motor boat skirted the liner and headed south for the travel-stained merchantman lying wearily at anchor off Williamstown.

"She's from India," the inspector stated, "with bales of bags for the harvest." The musty smell of jute hung heavily everywhere. Swarthy, thin-legged men in comical caps pattered around barefooted. Docile and agreeable, they formed a not too straight line under the direction of their bo'sun and bo'sun's mate, when lined up for inspection. Their oily black heads and bright scanty costumes made a picturesque parade . . . a glimpse of India broken only by the square-shouldered figure of the Australian Customs official.

* * *

Then there was mild consternation. Forty firemen listed and only 39 present. The bo'sun harangued his crew, they gibbered back at him and, with scowls that boded ill for any dissenters, he mouthed a stream of his mother tongue vehemently.

There was more head shaking among the assemblage, excited pointings aloft, mild protestations of ignorance until a human monkey swarmed up a ladder, dived into a door and returned with a sleepy-eyed, blue-dungareed engineer, a little more than four feet tall, who had evidently been taking advantage of the now silent engines to enjoy his siesta.

The check proceeded. The tallies corresponded. The crew were allowed ashore. Our Customs retreated to the launch.

At Williamstown there was a ship out of Chile, the captain of which stoutly maintained that the first local rain for 15 years had fallen just a day before his ship left home. She was loaded with nitrates and carried a lascar crew. At the next berth, the Antarctic conquerer *Discovery* lay up for overhaul.

Across the bay a motor ship, at one of the port's five bulk spirit installations, discharged her cargo of bulk petrol under the supervision of the boarding inspector. The five bulk

spirit installations shared in the distribution.

The inspector sketched his other duties on the return trip. They included the enforcement of the immigration restriction act which places upon the official's shoulders the responsibility of determining whether the migratory passenger is a fit and proper person to land, and of satisfying himself that the new arrival will not become an economic burden on the State. Unless qualifying evidence is forthcoming, the ship is responsible for returning the passenger to his or her own country.

The Point Lonsdale lighthouse-keeper advises the Customs Department if there is a call from an incoming boat for a doctor, and the launch takes the medico out to meet the ship.

Cargo comes under the jurisdiction of the Customs man, and stowaways are another problem, while any live stock brought in must be examined by the veterinary officer. The boarding inspector accounts for and checks all cows, horses, dogs and such animals.

He deals with a cosmopolitan type—five or six ships of different nationalities may have his flag flutter at their sides in the one day. And he is responsible, too, for the prevention of smuggling, making extensive cruises of the waterfront to protect Customs duties.

"We never refuse to board any ship," one of his officers said. "No matter how dense the fog or how rough the sea, our unwritten law is to clear the ship."

Evidently a custom of Customs.



The Customs officer lines up and checks the colored crew of an Indianman

Heavier Rails Are Being Used

MORE than three-fourths of all the rail tonnage produced last year was in the 100-pound section or heavier, according to the American Iron and Steel Institute.

For the seventh consecutive year, the production of rails with a weight per yard of 100-pound and over exceeded 1,000,000 tons. The use of such rail has more than tripled in the past decade.

The principal method utilised by railway management to produce more economical operation is by increasing the amount of tonnage moved in a single train. This means larger and more powerful locomotives and bigger and more heavily loaded cars, plus more cars in each train. To provide a track which will stand up under the constant operation of such trains and which can be economically maintained, heavier

rails and more ballast are required.

Steel rails produced in 1929 totalled 2,722,138 tons, of which 1,233,599 weighed between 100 and 120 pounds, and 834,605 tons weighed 120 pounds and over. The ratio of rail weighing 100 pounds and over, namely 75.9 per cent., compared with 72.6 per cent. in 1928; with 68.8 per cent. in 1927, and with 39 per cent. in 1921.

It is significant that the production of steel rails in the 120-pound class and over has been showing a consistent growth during the past three years. The production of this class of rails in 1927 totalled 617,000 tons. This increased to 718,000 in 1928, and to more than 834,000 in 1929.

These figures constitute striking evidence of the development of heavier rail for heavier traffic.

Stationmastering at Spencer St.

By J. C. Johnston

SOMETHING of the incident and variety that constitute the hundred-and-one duties of the Spencer-street stationmaster are here outlined by one of the senior stationmasters at that terminal.

He describes entertainingly a typical day in his life.

COMING on duty at 16 a.m., the stationmaster's first move is to release the two-ton door of the strong-room and make available the contents of the vault to his booking clerks and the other employees handling money. The early departure country trains then command his immediate attention. He is required to supervise the despatch work entailed.

Some members of the staff have been on duty during the night. For instance, parcels received after the departure of evening trains are loaded into the vans of the morning trains in anticipation of further loading in the morning. Van stowers work during the night on these and other incidental duties about the station, the loading being completed by the first of the morning staff to report for duty. Newspapers and perishable goods arrive in considerable volume for these early morning trains.

Consider, now, the extent of the staff work involved in train departures from main terminals. Firstly, the stationmaster ascertains the tally of passengers from the ticket collector on the barrier gate. Then he proceeds along the platform and assures himself that there is sufficient room and that all are comfortably accommodated. Overcrowding necessitates the addition of extra carriages, and it is always left to the stationmaster to decide what provision should be made for any late rush.

When the train is marshalled, a train examiner locks the regulator of the engine, thus making it impossible for the driver to move the train. The train examiner examines each vehicle, tests the brakes and reports their

condition to the driver and the coupler-up. The latter also receives reports of the inspections made by the examining electrician and carbuilder.

Finally the coupler-up passes this collective information to the stationmaster. This happens on an average 31 times daily at Spencer-street—i.e., with the departure of each country train.

The stationmaster must also give an eye to the loading in vans of perishable and other freights. Newport workshops supply 14 bags of sawdust daily to help snugly pack the perishable goods.

The stationmaster is responsible for the completeness of the train equipment and examines the van for first aid and other apparatus. The supplying of towels, drinking glasses, powdered soap and so on must also be attended to before the train departs, and the stationmaster must ascertain that this has been done. He must also make sure that the guard has correctly displayed on the rear of the van the white tail disc, which indicates to signalmen and others along the route that the train is complete.

On an average, each week-day, 350 trolley loads of parcels feed 22 outward bound trains and the stationmaster delegates this work to the different stowers and sees that the work is carried through carefully and expeditiously.

It is interesting to know that there



are 200 trolleys at Spencer-street, which are all oiled at least once a week.

The correct loading of the vans of outgoing country trains is a matter for experts in packing, who, at the same time, require to have a detailed knowledge of the order and lay-out of stations to be passed through *en route*. Obviously it would be impossible for the guard to sort out parcels and luggage for the various stations as he travels along. To avoid this necessity, and to economise in van space, van stowers, specialists in their line of work, so load the vans that, when parcels consigned to one station have been removed, those for the following station will be readily accessible.

Attention must also be given to the fact that unloading at some stations will take place from one side of the van, and at others from the opposite side, and the van stower must exercise foresight in loading the van accordingly.

The main concourse requires sweeping six times a day and, while this involves little actual supervision, it is instanced to show the variety of work under control. In addition to the expanse of the concourse, there are four suburban and 10 country platforms to be kept clean and orderly.

45,000 Suburban Passengers Daily

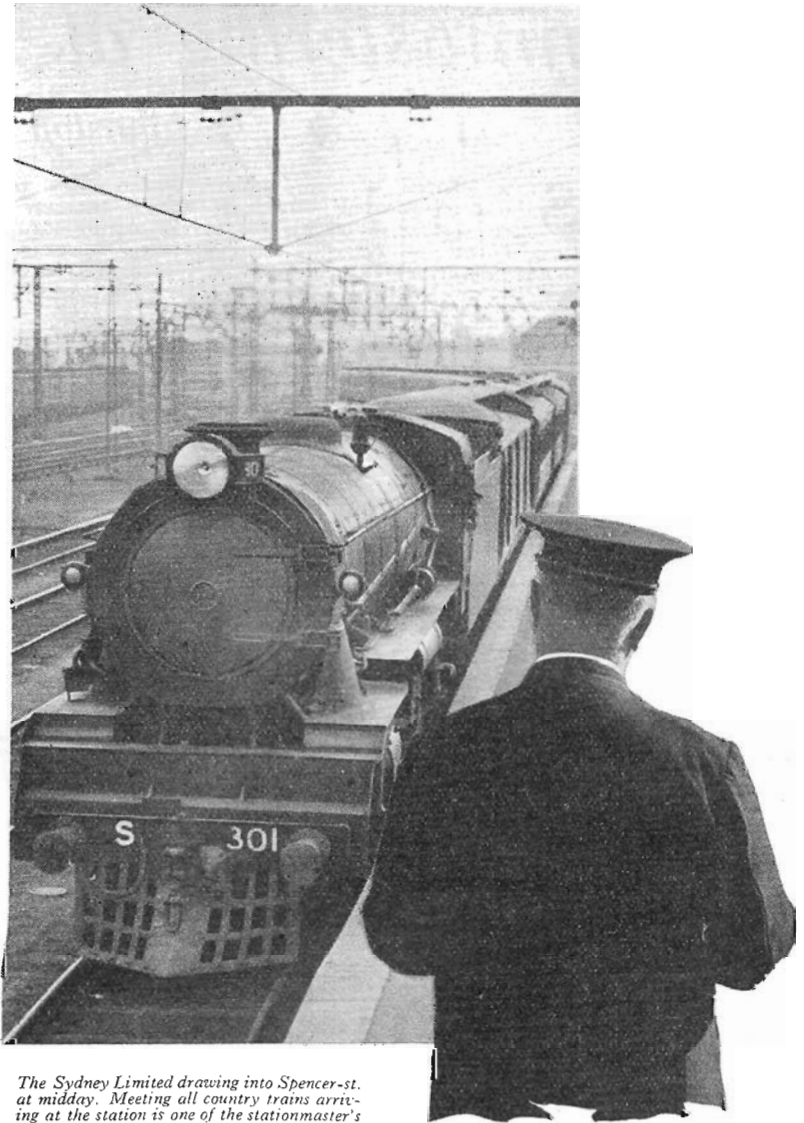
Down on special platforms, two men load and lash and cover motor cars—work which must necessarily be done very carefully. Horses, too, are loaded at these platforms, and their transportation in horse boxes is supervised closely.

The suburban platforms, of course, also require daily inspection. On each platform, an indicator porter and an assistant porter are permanently located, but these men are assisted in peak periods and when station cleaning is in progress. On an average, approximately 45,000 passengers pass through the suburban barriers at Spencer-street each day.

Eight parcels coaches run daily between Flinders-street and Spencer-street stations with Melbourne's parcels. Including skins, rabbits, fish, milk, merchandise and samples, the inwards parcels office handles approximately 59,000 packages each month. The revenue from this source is in the vicinity of £6,000 per month, which, after all, isn't bad production for 10 clerks and 12 porters under an officer-in-charge.

Situated at the rear of the stationmaster's office is the commercial travellers' locker room. Here travellers returning to Melbourne for the week-end may deposit their samples until departure on the following Monday morning. The Department is anxious to meet every reasonable requirement of these travelling customers, and this installation is typical of its attitude.

Meeting all country trains arriving



The Sydney Limited drawing into Spencer-st. at midday. Meeting all country trains arriving at the station is one of the stationmaster's responsibilities

at Spencer-street is another of the stationmaster's responsibilities. Twelve men unload the vans of the Sydney Limited, discharge the checked luggage and either deliver it direct to the passengers or place it in the cloak room until it is claimed. The prompt clearance of the van allows the shunting to be expedited and releases the train crew and engine power.

Each day, an average of 2,600 bags of mails are handled, and this volume of traffic is considerably increased when overseas mails are being despatched, an additional 1,500 bags then being handled.

Then there is the supply of horse boxes to be arranged. Spencer-street is the depot for horse boxes, and has to meet all demands for this class of accommodation.

Passenger guards for all country

trains from both Spencer-street and Flinders-street are supplied from the former station. Conductors, including sleeping car conductors for the Adelaide express trains, are supplied to practically every country train leaving Spencer-street.

In his office, the stationmaster checks and signs and, *inter alia*, computes the following day's engine power which he determines in accordance with the tonnage to be hauled. This advice must reach the locomotive depot 24 hours in advance.

Finally, as a commissioner for taking affidavits, he finds still further demands on his time in attending to the requirements of passengers and others wishing to make sworn declarations.

It's all in the day's work, however, and everything is eventually fitted in as the day passes.

Things We Are Talking About

DEFINITE figures are not yet available of the final working results of last financial year. The annual report is taking shape as we go to press. A survey of the decline in freight traffic during the 10 months, July to April inclusive, however, gives an interesting indication of the different classes of loading which had been hit hardest, over that period, by depression and competition. The total falling-off in railway freight traffic for the period, compared with the corresponding period in 1928-29, was

WHERE THE REVENUE DROPPED



The annual report is taking shape . . .

648,201 tons and £647,844. The comparative records are :

	Freight tonnage	Revenue
July '28—April '29 ...	6,432,394	£4,651,383
July '29—April '30 ...	5,784,193	£4,003,539

Wheat traffic declined from more than a million tons to less than half-a-million, the revenue for the period under review (£260,994) being little more than one-third of the 1928-29 figure. Wool slumped from 102,576 tons and £285,795 in the 10 months to 86,680 tons and £239,099; and "smalls" dropped from 124,493 tons and £377,401 to 116,595 tons and £330,824. Export wine was worth only £625 in freight; the year before it was more than three times as much. Butter averaged a decrease of 200 tons and £340 for each of the 10 months. Cream, milk, eggs, honey and cheese, lumped together, made a better showing—29,851 tons and £40,470, compared with 29,994 tons and £40,521 for the same period in 1928-29. Revenue from fertilisers declined from £118,326 to £112,170.

SIGNIFICANTLY, on the other hand, there were appreciable increases in some of the bulky *non-competitive* classes of loading handled during the 10 months under review. Coal and coke jumped from 388,938 tons in 1928-29 to 409,854 tons in 1929-30, firewood and briquettes from 509,391 tons to 574,575 tons, stone and gravel from 205,891 tons to 347,615 tons, hay, straw and chaff from 207,802 tons to 282,439 tons. Consider the approximate average advances in revenue for those classes of loading for each of the 10 months last year, compared with 1928-29 :

Coal and coke ...	£390	each month
Firewood and briquettes ...	£3450	" "
Stone and gravel ...	£4240	" "
Hay, straw and chaff ...	£4680	" "

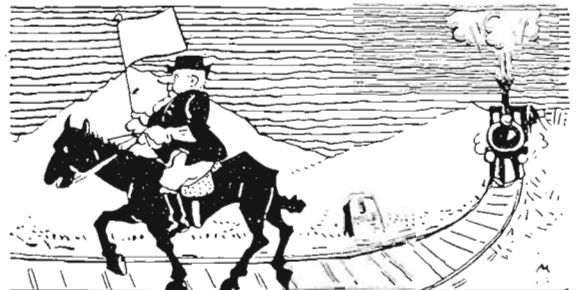
Traffic in unseasoned hardwood timber increased from 232,300 tons to 235,541 tons, but the revenue fell off by more than £2,000. Conversely, while there was a 2,000 ton decrease in the tonnage of frozen meat and rabbits, the revenue increased from £6,367 to £7,756.

LIVE stock figures make a better showing over the 10-month period—£648,860 in 1929-30, compared with £577,006 in 1928-29. During each of the 10 months last year, there was an average increase, over the year before, of 74 tons of live pig, 23 tons of calf, 1,332 tons of horse and 7,164 tons of sheep. Cattle alone fell off—numerically, that is. An average decrease of 21 tons of live cow and bull for each month was recorded, the revenue difference being £154,530 last year and £168,223 in 1928-29.

LIVE STOCK INCREASED

A COUPLE of interesting jobs carried through by the Signal and Telegraph branch last month were the introduction of double wire signalling at Eaglehawk, and the substitution of a new 55-lever apparatus for interlocking mechanism at Box Hill. At Box Hill the lower quadrant manually operated signals were replaced by three-aspect color light signals and power dwarfs. The Eaglehawk installation consists of a 30-lever double wire interlocking apparatus, 22 of which are operating signals and four operating points. At the down end of the Eaglehawk yard, 1260 feet away from the signal cabin, there is a delta crossover which is operated by two levers, each lever operating two pairs of points and two lockbars.

SIGNAL CHANGES



. . . That stoutish man with the white flag . . .

TALKING about signalling, Mr. W. Forrest of the Signal and Telegraph branch, interestingly surveyed the development of railway signalling practice in an address at a recent fortnightly meeting of the Society of Railway Students of Transport at the Institute. He harked back to the humble forefather of the modern sophisticated family of automatic signals, track circuits, remote control and interlocking—that stoutish man with the white flag on the horse who rode along the track in front of George Stephenson's steam train in 1825. It is not clear whether the object of this mobile signal post was to indicate a clear track for the engine or to warn sightseers of its approach, but it must nevertheless be set down as the very first of railway signals. By 1834 white horse and flag had been superseded by a fixed signal, which took the form of a basket that was raised or lowered on a tall mast. This, in turn, was followed by other signals of different shapes—triangular, round and square—culminating in 1841 in a design of semaphore very similar to that used mechanically at the present time.

HOW SIGNALS EVOLVED

DESCRIBING advances in signalling practice which had been made overseas, Mr. Forrest mentioned the introduction and elaboration of the train control system in America, which is a development of that in use in the Melbourne suburban area. Track circuits are

used throughout the routes so equipped and signals are controlled by the movement of the trains. Indications of the condition of the track are given in the cab of the engine itself, and frequently signals, as Victorians know them, are not erected alongside the track.

OUTLINE OF TRAIN CONTROL

The driver's indications are operated by mechanism on the engine which is influenced by the track circuit in the same way as Victoria's automatic signals are. Ingenious devices ensure that the brakes will be immediately applied when the train travels at too great a speed for safety.

STRIKING evidence of the influence of herd testing on butter fat production was forthcoming in Gippsland when the Better Farming train made its 31st tour last month. The progress and value of the herd testing movement is more marked in Gippsland than in any other district in the State, and some remarkable results have been achieved. Six years ago the original herd testing associations in Gippsland tested 6,744 cows, whose average production was 179 lb. of butter fat. In 1929, the average of those associations had

HERD TESTING—MORE BUTTER FAT

risen to 268 lb. per cow for 5,410 cows. There was, in other words, an increase of 110 tons of butter fat with 1,334 fewer cows. The progressive worth of herd testing may be further illustrated by a comparison of two associations—one at Boolarra, where testing has been in operation for seven years, the other at Casterton, where it has been in operation for only one year. At Boolarra, 458 cows produced 128,698 lb. of butter fat; at Casterton, 441 cows produced 73,647 lb. The point needs no laboring.



THE first year's work of the Australian National Travel Association is reviewed in the recently issued report of the Board of Control. Twelve months of solid organisation has placed the Association in the happy position of being able immediately to push ahead with a vigorous advertising policy in Great Britain, the United States of America and Canada. Representatives (Messrs. H. C. Fenton and A. H. O'Connor) have been established in

A.N.T.A.'S FIRST REPORT

London and San Francisco; contact has been made with some 2,500 travel-selling agents throughout the English-speaking world, whose replies indicate a ready willingness to co-operate and handle the Association's propaganda; and the following publicity matter has been printed and is now in process of world-wide circulation:

Folder entitled "Australia—A Place in the Sun" ...	1,100,000 copies
Booklet entitled "Talking Points on Australia" (with the co-operation of shipping companies, this booklet is being issued to all Australians travelling overseas and to visitors returning to their homeland) ...	100,000 "
"Australia's Pleasure Programme," featuring the year's events in Australia ...	80,000 "
"Tours in Australia" booklet (printed for circulation to all travel agents and for distribution to incoming ships) ...	100,000 "
Posters ...	45,000 "
Photographs ...	2,000 "

SINCE the Australian National Travel Association was first mooted, the Board of Control points out, "and subsequent to its actual formation, significant developments have taken place. Large overseas travel and transportation concerns are either establishing or extending their representation in Australia; travel authorities of other countries are making surveys of Australia's attractions which they are confident will appeal to overseas tourists; shipping services are improving, a notable feature being two new luxury liners which are in process of construction by the Matson Line for the Australian run, whilst new liners on the British side, both in operation and under construction, have amplified an already excellent service. In addition, the British shipping lines are affording improved third-class accommodation on their ships operating to Australia, which it is anticipated will still further develop travel. It is obvious that Australia is being brought closer to the outside world by transport and publicity."

SIGNIFICANT DEVELOPMENTS

MR. HAROLD W. CLAPP, speaking as chairman of the Board of Control, had something interesting to say on the subject at the meeting of the Sydney committee recently. "The tourist's money," he emphasised, "enriches the whole of the community. He consumes the product of the man on the land. He purchases goods that are manufactured here. His requirements in goods and service create more employment. He may find the country to his liking for the establishment of industries, or he may become a citizen of Australia. And he is also a powerful aid in stimulating our overseas trade." And those are facts which should be kept steadily in mind, more especially while Australia is languishing in her present condition of economic depression.

EVERYBODY MUST BENEFIT

Getting The Business—6

A RAILWAYMAN, as we have seen before, doesn't have to be a Transportation branch man to be able to help Transportation branch revenue.

Let's consider another example. This railwayman belonged to the Signal and Telegraph branch. Word came to his ears of the proposal of a city firm to run a number of guests by motor coaches from the city to attend the opening of a new country factory.

He "brought the matter under notice," an officer waited on the firm's manager and the result was that a special train was run instead of motor coaches.

That's what swells railway revenue.

—R.H.J.

Sydney Harbor Bridge

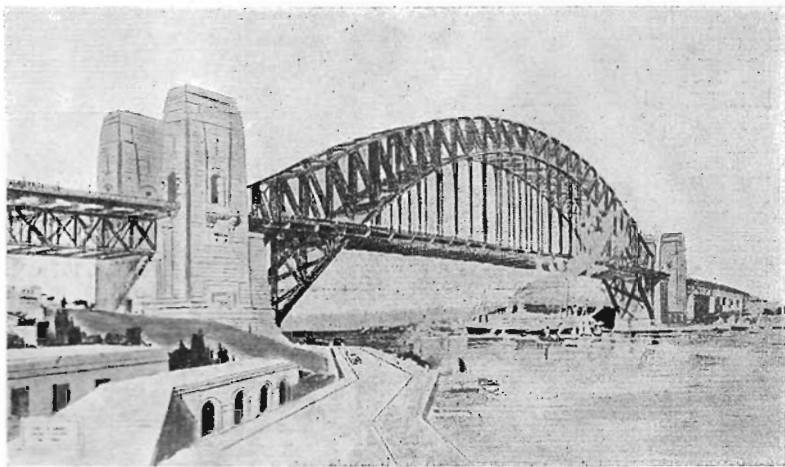
Some Hard Facts—

AT the Jolimont lecture hall last month, Mr. F. W. Trotter, manager of the Australian Iron and Steel Company Limited, described the method of erection of the main arch of the great Sydney harbor bridge.

Some of the facts and figures which he quoted are detailed below. Apart from their topical interest, they constitute a very convenient reference for those who may not be acquainted with the magnitude of the construction work.

THE contract price for the bridge was £4,217,721/11/10, complete to the last penny.

The bridge is a two-hinged steel arch of 1,650 feet span between bearings and 2798 ft. 6 in. centres. The maximum height of the crown of the arch is 437 ft. 6 in. above high water or spring tide, with 172 ft. 6 in. headway for shipping. The tops of the



The Sydney harbor bridge as it will appear on completion in 1931

pylons are 285 ft. above mean sea level.

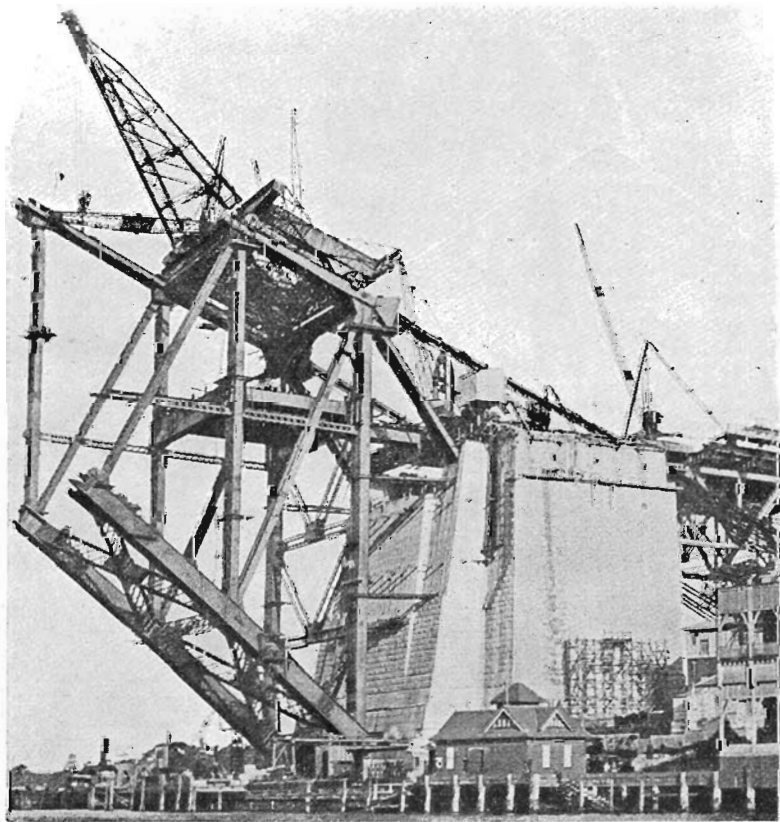
The southern approach consists of one span of 238 ft. and four spans of 174 ft. 6 in.; and the northern ap-

proach consists of five spans of Warren deck type trusses on a radius of 1,423 ft.

One 57 ft. roadway, four electric railway tracks and two 10 ft. footways will cross the great bridge.

The total weight of each main bearing equals 296 tons, and two concrete skew-backs, each 90 ft. by 40 ft., have been sunk 40 ft. into rock for the abutments.

The load on the concrete at the base of the bearings equals 800 lb. to the



Construction work in progress on the huge bridge

There's Weight In It—

FIFTY thousand tons of steel are being used in the construction of the approach and main spans of the Sydney harbor bridge.

Other quantities of material used are—

Concrete for pylons and piers	116,700 cu. yds.
Concrete in Retaining wall	7,430 cu. yds.
Granite dimension stone	20,200 cu. yds.
Steel reinforcing	1,300,000 lb.

More than 101,000 cubic yards of rock and 35,000 cubic yards of earth were excavated for the abutments of the huge structure.

square inch, and the load on the foundation rock 15 tons to the square inch. Foundations throughout are of Hawkesbury sandstone.

Anchorage tunnels on both sides of the harbor have been driven at an inclination of 45 degrees into the rock for a distance of 132 feet.

The plant which is being used for the construction work includes two creeper cranes of 122 tons capacity, with a floating plant of three 400-ton steamers, one 140-ton steel pontoon and one 70-ton timber pontoon.

A special wharf was built for the berthing of stone-carrying ships.

New Zealand Farmers See Victoria



Scenes on the Reso tour made by New Zealand farmers last month. 1.—The chairman of the party (Mr. McIntosh) thanks Captain Baker for his round-up of kangaroos at Colac. 2.—The Resonians at Yallourn. 3.—Inspecting stock at Major Ramsay's Mooleric station. 4 and 7.—In the snow at Mt. Buffalo National Park. 5.—Prize-winning Clydesdales at the stud of Mr. Amos Dickens, Coroua. 6.—The party outside the Cororoake butter factory. 8.—Cr. Hancock, shire president, welcomes the visitors to Colac. 9.—Fine Polwarths at Mr. Dennis' station, Warncoort.



EVERY railway station in Victoria is visited regularly by small, large and medium consignments of biscuit-tins bearing the Swallow and Ariell labels. This thriving secondary industry has grown from the foundations laid in 1858 by Thomas Swallow, who was subsequently partnered in the enterprise by T. N. Ariell. Their output in those days was restricted to ships' biscuits baked in a small oven.

IMAGINE 180 different varieties of biscuits, not 180 different varieties, but 180 different varieties of biscuits. Remarkable—but a fact.

Swallow and Ariell's of Port Melbourne are responsible. They are the guilty firm which causes housewives to ponder, while their husbands' dinners burn, on their choice of biscuits for afternoon tea, for lunches, for supper, for . . . the slightest provocation.

They pamper the lady of the house by offering the 180 varieties. It's a moot point whether or not she could decide between two different biscuits . . . 180 never!

Biscuits for He-Men

Pilot biscuits are the largest, and incidentally the hardest, line made. They measure four inches square, and have been known to break after a succession of savage bites with strong teeth. They're not afternoon tea biscuits certainly, but the quantity consumed by crews of sea-going boats leaves the impression that he-men, at any rate, relish the struggle involved

This machine converts a three-foot wide ribbon of dough into a batch of biscuits ready for the oven.

On the top roller are the remnants of the dough ribbon from which the biscuits were stamped.

in digesting them.

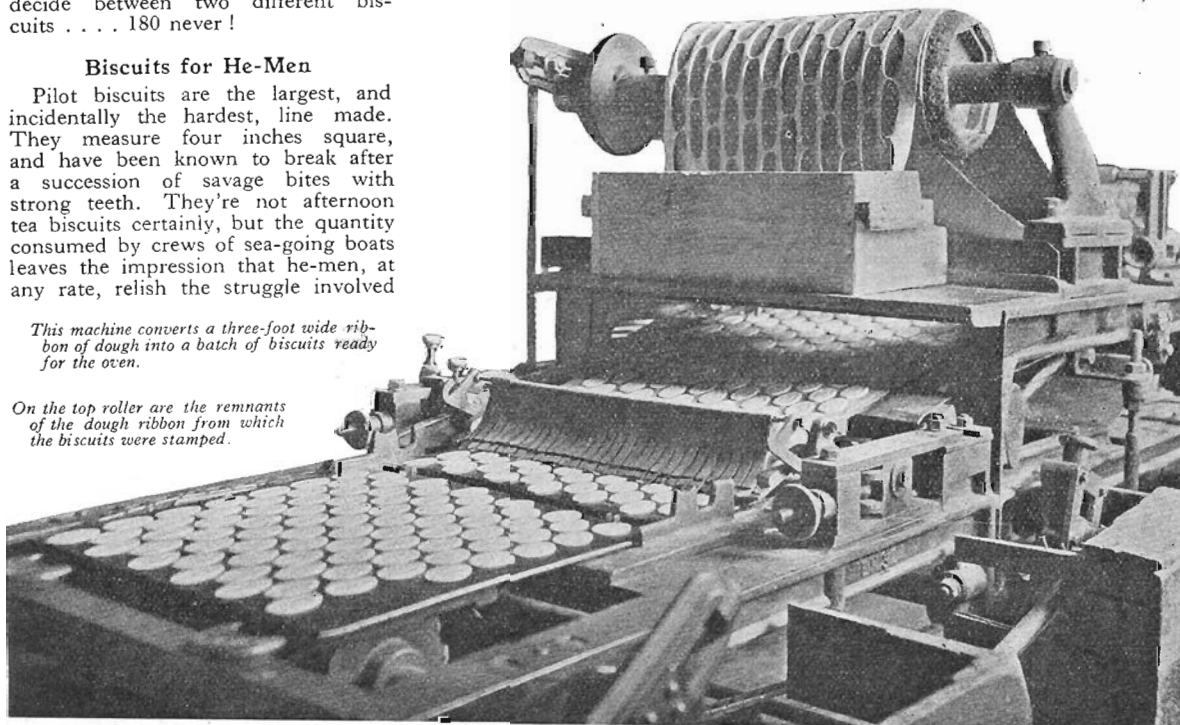
There's an appetising aroma pervading Port Melbourne where old salts meander up and down the shore. They have a habit of sniffing audibly, nodding to a raised square tank on whose sides poise white swallows in graceful flight, and jerking out such fragmentary sentences as "Makin' gingernuts terday," or "Smells like uneda."

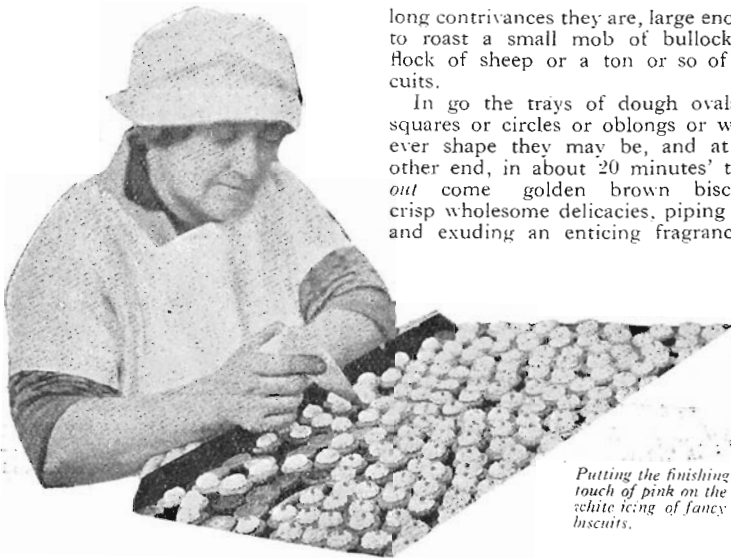
Nearly every person in Port Melbourne has a relation or relations employed at Swallow & Ariell's. Swallows are Port Melbourne and Port Melbourne is Swallows, and the result

of their co-ordination is the daily tonnage of wholesale and tasty biscuits packed for city, country and export sales.

It's a fascination to watch the bakers at work. A half-ton of embryonic biscuit is thrashed by whirling beaters in a huge vat—a sticky yellow mass of dough.

When the correct consistency is reached, the dough is subjected to severe man - handling. White - clad, muscular males knead it, double it, treat it with inhuman ferocity and push it through what is, to all intents and purposes, a large-sized mangle.

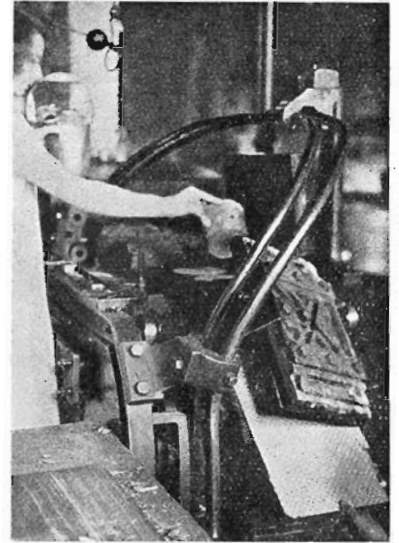




Putting the finishing touch of pink on the white icing of fancy biscuits.

afternoon tea wafers of more negotiable size.

Then there's the chocolate covering for yet another variety. Machinery does the work here. Rocks of chocolate are piled on the bench like so much coal, color excepted, and are reduced to liquid in the melting pot. From this the liquid flows over the biscuits and solidifies . . . another batch of another biscuit to join its 179 brethren probing the corners of the State *via* the Victorian railways.



On this combined machine-and-oven, wafers are both mixed and baked. The finished article can be seen in the lower right hand corner.

A blanket of dough emerges but, before it has time to utter "Swallow and Ariell," it is doubled again and remangled. Other rollers carry on the good work and concentrate the blanket into a three-foot wide runner, which is advanced by the endless chain system to the stampers.

These stampers cut the biscuit to the desired shape and at the same time imprint the trade mark. Cleanly cut and spaced, the uncooked biscuits pass to the ovens, whilst the residue is diverted and travels back—a dough netting—to be stamped again.

The ovens are heated by means of electricity, gas and coke. Great ob-

Different ovens specialise in different biscuits. Uneda is cooked always in the same oven, ginger nuts and milk arrowroots likewise.

In a well-lit room upstairs are biscuit artists who wield icing and cones instead of brushes and paints. They hand-paint the iced biscuits with variegated flowers or designs. Their quick deft touches are a revelation.

Another staff cuts and spreads wafer biscuits. They spread a wafer sheet, approximately two feet square, with filling, complete the sandwich with a top layer and run the outside wafer on to a row of tiny circular saws, which reduce it to a couple of dozen

Soviet Railway Construction Activity

ONE of the biggest railroad engineering projects of the century was completed recently when steel met steel on the Turksib railroad. This modern 1700-mile railroad has been built by the Soviet Union government railroad in record time, to connect the present Central Asia railroad at Aris, Uzbekistan, with the Trans-Siberian railway at Novosibirsk.

The railroad was built in four years at a cost of £24,000,000, and it opens up a huge region of Asia which has great economic possibilities.

The Turksib railroad was built entirely by Soviet labor under the direction of Bill Shatoff, an American. About 500,000 native workmen were employed and 200,000 camels were used to transport the material for the railroad over the sandy wastes of Kazakstan.

All the railroad equipment, locomotives, passenger coaches and freight cars are of Soviet manufacture, according to Associated Press.

The railroad was finished a year and a half ahead of schedule, which was considered a remarkable engineering feat.

The Soviet government is now planning to build another railway from Saratof in the Black Earth region to Milerova in North Caucasus, a distance of 430 miles. It is also undertaking the big job of reorganising the country's whole railway system, with the aid of American advisers. President Ralph Budd, of the Great Northern Railway, has been selected as the chief adviser, due partly to the fact that the topography of much of the Soviet Union is comparable to that of the area served by the Great Northern in America, and climatic conditions are similar in many respects; and partly because Budd is experienced in applying American railroad standards to foreign conditions, having formerly been chosen to rebuild the Panama railway. Budd is accompanied in this work by W. R. Wood, mechanical engineer of the Great Northern.

The use of narrow gauge railways for the transportation of material from the mines and factories to the main line is one interesting phase of the reorganisation program, according to the *New York Times*. By this method

it is expected that the roads can be built more quickly and cheaply. Derricks at junctions of the lines will transfer the loads by lifting the bodies of the narrow-gauge cars and depositing them on the big cars.

The Soviets expect to have 6,000 miles of this type of railway in operation within three years.

Granite Sleepers

THE hundredth anniversary of the granting of the charter to the Boston and Lowell railroad, now part of the Boston and Maine, celebrated at Lowell, Massachusetts, recently, recalled the interesting facts that the road's first rails were laid on granite sleepers, and that trains were stopped every ten miles for the purpose of examining the wheels and other parts of the locomotive's running gear.

The first engines arrived in 1834. They were shipped from England in response to an order to Robert Stephenson and Company to "send out two of your best locomotive engines."

Not a Miracle Man, but—

By John Carlyle



SLIPPERS and fireside have no appeal for John J. Bernet, despite his 61 years. One of the outstanding figures in American railroading, he is now working towards achievements that promise to dwarf even the formidable array already to his credit.

John Carlyle tells something of those accomplishments and of the guiding principle that made them possible in this article which we reprint by courtesy of *Nation's Business*.

HE is 61 years old and more railroad men are talking about him than about any other man in America. He has done things they thought impossible. Not miracles, because John J. Bernet does not deal in miracles.

But if the voting population of the United States had been asked to take part in a plebiscite on this question: "Resolved, that a regular railroad can be made out of the old Nickel Plate Railway," the total vote would have stood this way:

Yes—John J. Bernet and two young men from Cleveland, Ohio.

No—Every one else.

That was just 13 years ago. He had had an honorable and noteworthy record in various operating positions on the New York Central. He had become a vice president, and some people thought he might aspire to the presidency in time.

It was a history to be proud of for a man who began railroading as a tele-

graph operator—or for anyone else. But it was something of a submerged and unknown history.

Tomorrow he may be the head of the new fourth system which the I.C.C. has been asked to authorise in the East. Yesterday he was president of the Erie. The Erie used to be like the cousin who lives in the attic when company comes.

He made the Erie over as he had made over the Nickel Plate. Today he is the head of the Chesapeake and Ohio, the Hocking Valley and the Pere Marquette Railways. With the Erie and the Nickel Plate and others, they will total approximately 12,000 miles of road over which he will be the head, if and when the new fourth system is authorised.

All this was done under the financial leadership of two young men from Cleveland who had never been connected with railroading before they bought the old Nickel Plate road.

Done with limited capital as large

ventures are thought of today, their railroads paid for themselves as they were rebuilt. The Van Sweringens, the two young men, are the largest individual owners of railroads in the world today because of the increase in the value of their own properties.

Bernet does not talk about money. So far as I can see he does not think about money. Neither do the Van Sweringens.

They appreciate money and its value, of course. But to them the job is the big thing. Bernet has been happy as operating head of the Van Sweringens because they found for him the hardest job of railroading in the land.

The Van Sweringens have been happy because the job has been expanding before them daily. They had no thought of a fourth great eastern system when they bought the Nickel Plate. It became inevitable, in their eyes, because the logic of the situation

calls for it. They have been going where the job led them. Let's get back to Bernet.

He told a story. I had been trying to get him to show me why he had been successful. He couldn't do it. He isn't the kind of a man who can cock back on the hind legs of his chair and talk about himself.

"Railroad executives are not as hard-boiled as they used to be," he said. "Some of 'em were pretty tough."

"The human touch has come into railroading. The railroader and the customer can meet in amity now. Bernet's idea has always been that the customer's wants should very largely be the railroad's wants.



HE told the story. His eyes twinkled behind the big glasses. He ran his fingers through his stubby graying hair.

The rent of a customer's coal bin had been increased from one dollar a year to 50 dollars. He came charging down to the stationmaster.

"I'll see the president," he swore. "I'll not put up with this outrage. I'll—"

"There's the president now," said the stationmaster. "Just getting out of his office car."

I saw that president as clearly as Bernet did. A gardenia in his button-hole. Spats on his ankles. A fine malacca cane swinging. A perfectly creased hat a-cock on one side of his head. An armor-plated look in his eye.

"He's too busy now," said the customer, backing off. "He's too busy now."

Bernet pointed out that if that customer is still alive he is still sore. Whereas if he had been able to fight it out on a man-to-man basis with the president no bitterness would have been left, no matter what the decision. Bernet fights it out that way, but he uses facts instead of hard words.

This is a hit-or-miss story. I'm not trying to tell the story of a man's life. Only to show why he is a sort of a miracle man among railroaders. When he was only an operating official on the New York Central—solely responsible for seeing that trains got here and there on time—a customer asked that the road share the £1,800 cost of building a new siding.

That seemed fair to Bernet, and when a thing seems fair he plays the hunch. He had as much authority to promise the railroad's co-operation as he had to rewrite a presidential message, but he promised. Then he went to his chief.

"You've got to sell this to the directors," said he.

His chief hit the ceiling. He would support Bernet this time, he said, but he must never do it again. That was

contrary to all discipline and this and that.

A little later another customer had an option and 24 hours in which to exercise it, and he would only do it if the road would join him in building a £5,800 spur. It meant more business for the road, more business for the customer, easier car handling, economies all round. Bernet had no more authority than he had before, but he promised the spur.

And the customer got it. He's that sort. All for the road. But all for the customer, too, because what's good for the one is good for two.

I've said that he rehabilitated the Nickel Plate. Let's have some figures. That road was bought by the Van Sweringens of Cleveland—O.P. and M.J.—in 1916.

The Nickel Plate at that time was a standing joke. It had been built to sell to the New York Central, and when William Vanderbilt regarded his purchase he said: "The thing cost as much as though it had been nickelled."

That was the only good thing ever said of the Nickel Plate.



THE Van Sweringens hired Bernet in 1916 to run it. In 1920, he had practically doubled the road's operating revenue. The revenue train loads had been increased from an average of 355 tons to 771 tons. The Nickel Plate became the high speed freight carrier of the West. The earnings per freight train mile in 1915 had been less than two dollars, and in 1919 they were more than six dollars, while traffic expenses had been cut practically in half.

Any railroader will tell you that's a miracle. But that isn't all. In that time he had practically rebuilt the road.

When he became president of the Erie, he found that the company had accumulated 1,300 locomotives. They were 83 types for which repairs must be carried in stock.

He junked 467 engines right away, rebuilt 115 others and bought 150 new ones that could haul more cars more cheaply. He saved in repair costs £620,000 a year on locomotives alone. The same process saved the Erie a million dollars a year on freight car repairs. He found the road had £2,700,000 worth of spare parts and such on hand.

"Cut it to £900,000," he ordered.

It could not be done, but it was done. Eight million dollars released from the warehouse can do a pile of work in a year.

When he became president he called his 200 traffic men together.

"I want ten million dollars' worth of new business," he said. "You men have got to get it. No alibis. That's all."

The Erie gained 40 per cent. in freight revenue under his management.

The one important thing in Bernet's life is—"Get it done. Get it done right."

"My father," he said once, "belonged to a guild. That's what it taught me."

The future of railroading looks bright to him. Maybe black spots in it here and there, but they will be lighted out presently. We're learning fast nowadays.

He isn't afraid of road competition. Presently the farmers will discover that they have paid the cost of the roads the big cars have torn up. Then the cars will have to pay their share of the taxes.

During the war he demanded permission to lay new rails on the Nickel Plate. The Government said no. "We are," said the Government, though not in those terms, "trying to make a record for something or other. No new rails."

"I'll get 'em," said Bernet, "and I'll lay 'em. The roadbed isn't safe."

"Tell your drivers to run slow," said the Government.

"Slow, your grandmother's gray cat," said John J. Bernet. "We've got to move freight. If you stop me laying those rails and there is a wreck, and any one is killed, I'll put it right up to you. I'll let the world know."

He laid the rails.

Wherever he has gone he has spent money for more speed. He has realigned tracks, bought larger engines, longer cars, longer sidings. Cars must be more fully laden and move faster.



TO get these things done he must have men who are in direct touch.

He believes in centralisation because of its manifest economies. A great system can do things better and more cheaply than can a number of distantly related roads.

But he would not centralise too far.

Tonight John J. Bernet is probably sleeping in his office car. He has been doing that ever since he had one. He gets home to Cleveland as often as he can, but he sleeps quite as well in the car.

In 13 years 10,000 miles of railroad have not merely been assembled, but the roads which make it up have been built up, recreated, given speed and stability and strength. There is already a dividend on the Erie's preferred stock, after a quarter of a century of sloth. The Nickel Plate, Pere Marquette and the Chesapeake & Ohio are top-notchers. The Hocking Valley earned last year at an almost unprecedented rate. Something great has been made.

But it was following the job that did it. It wasn't the money they were after. With Bernet and the Van Sweringens it is the job that counts.

LINES from other LINES

A Station in a Tunnel

WITH the holing through of the Apennine Tunnel, Italy has virtually completed a great engineering task that was interrupted by the war, and that has for its object the shortening of the rail run between Bologna and Florence—that is, northern and southern Italy.

It has involved the excavating, with the aid of substantially 2,000,000 pounds of dynamite, of approximately 1,950,000 cubic yards of rock and the building of 553,250 cubic yards of wall or tunnel lining. Considerable difficulty was encountered along the line because of shifting clay and exceptionally large quantities of water and gas.

The new tunnel is 11.5 miles long, and, therefore, shorter than the Simpson Tunnel through the Alps; but, as the latter accommodates but one track, the new underground route has the distinction of being the world's longest double-track tunnel. The stretch is free of curves, and the steepest grade is just slightly more than $\frac{1}{2}$ of 1 per cent.

An unusual feature of the tunnel is a station midway between the portals. This station is 500 feet long and has two sidings within spur tunnels.

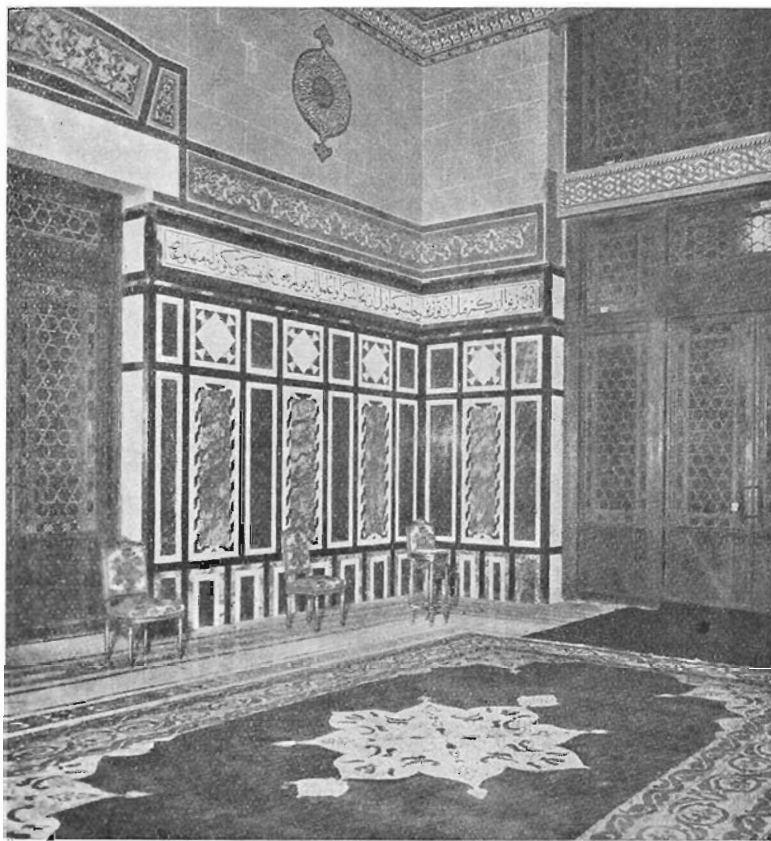
Two Berths for Price of One and a Half

THE upper-berth in a standard sleeping car on the Canadian Pacific Railway is now available to a traveller holding the lower-berth of the same section for the price of the lower and half the price of the upper-berth.

Formerly it was necessary for a passenger to buy a complete section, lower and upper-berth, paying the combined charges for both, if the privilege of having an unoccupied berth overhead was desired.

When two berths are sold under the new arrangement, the upper berth will not be let down, and the occupant, besides having more room for dressing and more freedom of movement generally, will have the right to use extra mattresses, pillows and blankets.

When sold at the reduced prices, the upper berths will not be available for sleeping purposes, and sections will, consequently, not be sold at these rates if both berths are to be occupied.



This is the special entrance to the Alexandria railway station which is used exclusively by His Majesty the King of Egypt

Railway Dog on the Staff

THERE are any number of dogs who "hang around" railroads, but what is believed to be the first instance of a dog being regularly employed by a railroad has been disclosed by an amateur historian searching through ancient records of the old Fitchburg system, now part of the Boston and Maine railroad.

According to the records, the dog was carried on the rolls as an "assistant watchman" at a passenger station, and his licence names the Fitchburg railroad as his owner.

One Train a Year

IF a prospective passenger for the train that runs between Olney and Roade on a section of the old Stratford-on-Avon and Midland Junction railway (England) misses connections and decides to take the next train, he has a long wait before him—just one year.

Only one passenger train a year is operated over this stretch of track. It makes one round trip each Easter Monday, and its passage is quite an event to the villages through which it passes.

WATCH FOR THIS NEW FEATURE!

COMMENCING next month, this Magazine will begin the publication of a series of exclusive photographs of the principal express trains and station terminals in the modern world of railways.

Railroad organisations and companies the world over have kindly co-operated to supply the Magazine with a most comprehensive collection of railway pictures which every railwayman will want to see, to compare and to keep.

"Cats is—Cat"

WITH a further contribution to the "Pigs is Pigs" story, the Pacific Electric Railroad last month entered the limelight. Baggage package No. 13535 introduced the matter, the waybill calling for "one cat" sent from Vallejo to Los Angeles, via the Steamship Harvard and Pacific Electric to Los Angeles.

When the baggage arrived, Baggage Agent Woolsey at Sixth and Los Angeles Streets, found that the crate contained not one, but five cats, four of them brand new 1930 models. Whether to charge fee or fees was the problem of Agent Woolsey.

Tariff not providing to the contrary, he decided to rule that "cats is cat," and let it go at that.

Rail-road 'Bus-train

A NEW type of coach which, after travelling on a railroad track, can take to the highway and transport its passengers to remote districts, is to be built by the London, Midland and Scottish Railway. The first experimental run will be made during the summer.

The coaches, each with accommodation for 50 passengers, will be used only on branch lines. Travellers will be able to book from a town on the main line right to the village doorstep.

The new rail-omnibuses will be fitted with the usual flanged wheels for travelling on the railway, and will also have a contrivance by which pneumatic tyre wheels can be adjusted without delay.

AND THAT'S THAT!

THE colored stationmaster at a small station on the Nigerian Railway had occasion to report rough shunting by a driver, and this is what he wrote to the District Traffic Superintendent:—

"Sir,—I wish to complain of the way Driver Momo performs his shunting duties.

"This driver is not in favor of the pointsman's flag nor will he vield the shunter's signal, but remains murmuring within himself. When I tell him this is usual order, he furiously charge the wagon with gravity of his ill-will to do so, until contents, palm pots, reduced to entire emptiness.

"If pointsman Ojo had not been more active than smartness, wagon would have run to point of derailment. As a hero, he dashed to the points.

"The driver is prouiding of his furious driving that people may say, 'Oh, it is driver Jack,' as the case may be. 'Oh, he can drive serious, we praise him.'

"I trust the Traffic Manager will kindle some warm instructions in the bosom of this driver."

The sale at public auction of the Savannah and Atlanta railway has been ordered by a federal court. The sale was set for June 2, and the lowest price fixed at £200,000. The road has been in the hands of a receiver for several years. At present it reaches from Savannah to Camak, but it is planned to extend it eventually to Atlanta.

Driver and Firemen Enter Red Hot Firebox

A REMARKABLE example of bravery and quick thinking has been rewarded recently in the citation of Enginedriver H. J. Storey, Brookmere (British Columbia), and Fireman A. Fulkerson, Penticton, for 10 merit marks, Canadian Pacific Railway recognition of conspicuous merit.

These two men while driving engine No. 570 at Hope, B.C., found grates dislodged from the grate carrier. Though the engine was under a full head of steam, they dumped the fire and, taking turns in the task, entered the red-hot fire box and worked until they replaced the grates and connected up all operating rods.

Only a few inches from the scorching sides of the firebox, they found the heat intense, and one man would replace the other after a minute's work.

They brought their train to destination only a few minutes behind scheduled time, saving a serious delay.

"Stop Press" Wires

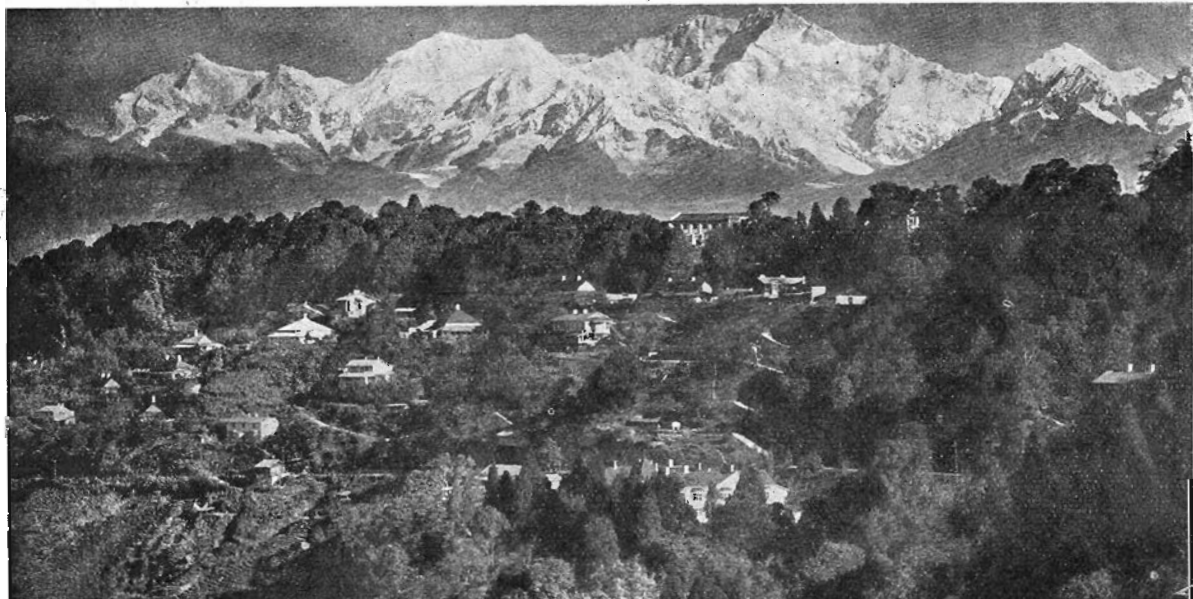
AN English paper tells this one: The superintendent of a certain railway is very officious in insisting that stationmasters send word immediately, no delays tolerated, of all accidents in their neighborhood.

Recently he received a wire:

"Man fell from platform in front of moving train. Will wire details later."

Five minutes ticked by, then came another telegram:

"Everything O.K. Nobody hurt. Engine was going backward."



Darjeeling, the famous tourist and health resort in the shadow of the snow-capped Himalaya Mountains. A narrow-gauge mountain railway climbs and winds for 51 miles from the level plains to the bracing air of the "land of snows."

REPRESENTATIVE RAILROADIERS

By R. H. Junior

Caricature by Angus Mac

No. 35

Goods Agent W. N. WORTLEY

ALMOST every important commercial house in Victoria knows William Newton Wortley. North, south, east and west, he has met Victoria's business men, talked with them, advised them, helped to solve their business problems.

He has maintained that close personal contact with the business world during the 33 years in which he has moulded and shaped the world's first railway system of "nominated days of loading." He was associated with the earliest introduction of the system, and today, as goods agent, he watches its efficient operation throughout the State, acts as commercial link between railway users and railwaymen and, generally, keeps a finger on the pulse of railway goods and parcels transport.

He was chief clerk in the Melbourne goods sheds when the new system was introduced, and he had won experience of a kind there which does not fall to the lot of many railwaymen. He was the right man in the right place when the idea of a system of freight handling which set aside specified days of the week for the exclusive loading and despatch of goods for specified stations, was propounded, discussed and definitely adopted.

It seems an obvious sort of an arrangement now that it is in general, successful and familiar operation. But, then, so does every adopted idea of merit. And merit is the hallmark of the nominated days of loading system. Under its selective operation, the percentage of loaded trucks forwarded direct to destination has jumped and is still jumping, the average load per truck has kept on mounting, claims for loss, damage and pillage have sagged at the knees, the timekeeping of mixed trains has improved out of sight, bulked consignments have provided consignors with lower rates, and goods received for despatch to any station within a radius of 200 miles on any nominated day reach their destination punctually on the morrow.

The while, placidly and untiringly, William Wortley, shrewd and affable, tightens up here, loosens there, lubri-



cates tactfully somewhere else, and gradually fashions the system to suit both the Department and the rail user . . .

There was a time, though, when he was more interested in blackboards than in railway trucks, when a history book came more readily to his hand than a timetable. For he started work as a school-teacher, and a pedagogical year or two at the Clifton Hill school preceded his appearance at Clunes station as a junior clerk in August 1886. He moved along to Maryborough after six months or so.

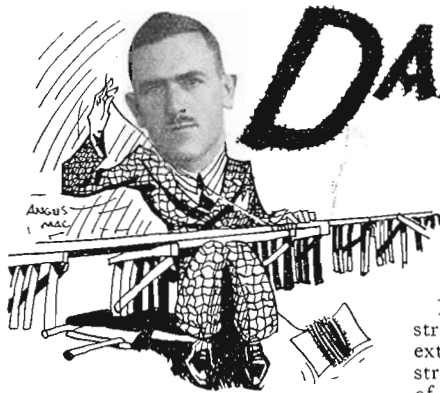
In those days he was a prominent footballer, but his superior officers at Maryborough at the time frowned on football-playing railwaymen. Consequently, to avoid the possibility of

transfer to Donald (then the Maryborough railwayman's Siberia), he was compelled to indulge his guilty passion for his favorite game under an assumed name . . . W. N. Wortley alias J. Partie.

By 1887 he had, precociously, taken charge of the goods shed at Maryborough, where he reigned for another six-months period. Then he came south to Hawthorn's ancient wooden office, put in some time in the suburbs and gravitated to the Melbourne goods depot to make the acquaintance of that stern old disciplinarian, H. W. Cauty, the man with whom he was destined to collaborate at the goods sheds in the organisation of the existing railway goods delivery system.

W.W. dug in at the goods sheds in 1893. He worked under eight different goods superintendents—R. Lockhead, H. W. Cauty, J. Reade, C. H. Barber, J. Conlan, F. P. T. Moloney, T. R. L. Sexton and Reliever J. Fitzpatrick—and filled practically every position in the sheds during his 27 years stay.

And he left then only because he was needed to watch from a more central position in head office the lusty growth of the knicker-bockered loading system. For wherever, whenever and however the exigencies of that system lead it, there most assuredly will W. N. Wortley also be found, ceaselessly overhauling, continually examining, eternally improving.



DARNING A BRIDGE

by Bert Ford

IMAGINE, therefore, Bridge Engineer Hill seated comfortably by the river-side at South Geelong. The Breakwater bridge which carries the main south-western railway over the Barwon lies across his knees. At his side a workbasket of piles, poles, planks, needles and a thimble, awaits the patching.

ENGINEER Hill glances up the line. The "Flier" hurtles into sight. The darning hastily replaces his bridge, the train thunders over it and the engineer picks up his bridge and resumes the patching. Under and over and through he weaves his new timber with the old.

Anon he gazes along the track to see a goods train approaching. Again he sighs as he replaces the structure in position. Then there's more darning . . . which would be all very well if it could be done.

Worse than Construction

When a 55-year-old timber trestle bridge requires strengthening without interference to train running, it demands a little more thought and preliminary planning than are usually associated with constructive bridge building.

In 1901, just 26 years after construction, the bridge was subjected to extensive renewals of the superstructure, and later, with the advent of heavier axle loads, steel beams supplanted timber and extra mid-span prop piers were added. The spans over the breakwater and main river course were unaltered. They are plate girder spans of 32 feet.

Deterioration of some of the original timbers which had already been under notice recently called for a more minute examination, and decay was discovered to be setting up in the original piles, whilst the latterly increased speed and loads made it necessary to consider drastic alterations to the bridge.



Dist. Engineer E. B. Slater, of Geelong

Here then was a simple problem—it remained but to build a new bridge side by side with the old one and, at a favorable opportunity, to switch the running across . . . indeed a simple operation. The cost of this job, however, hovered in the vicinity of £14,000, and an alternative and necessarily cheaper scheme was accordingly desirable.

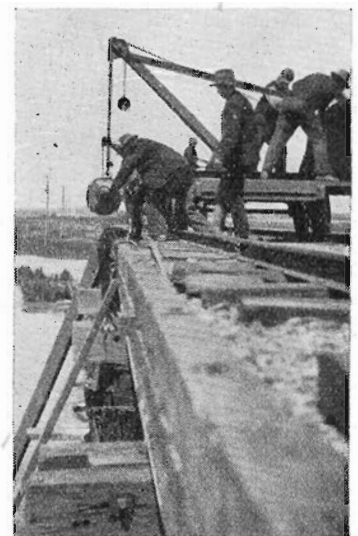
Temporary relief took the shape of a distributing rail on the deck which altered the lines of loading. With an eye to economy, the Chief Engineer directed a close and searching investi-

gation of the possibility of recon-ditioning.

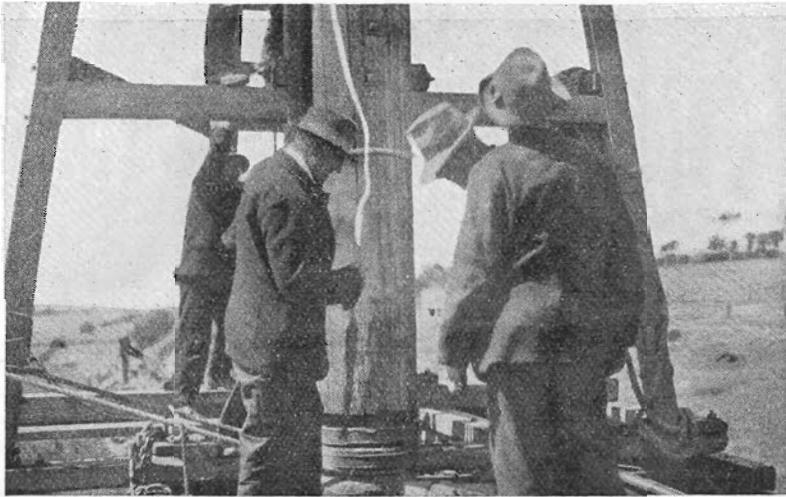
The result was that his engineer proposed to alter the design and to provide a structure to cope successfully with present requirements, allowing incidentally for yet heavier future loading, should it be necessary.

His main difficulty, he contended, was the execution of repairs without impeding the traffic, which, by the way, is particularly heavy.

Approximately 80 piles, each 45 to 50 feet long, had to be driven through the decking of the bridge and, as the



Lowering piles into position preparatory to driving



Works Ganger Treves and his men on the job during the pile-driving operations

maximum margin of time between the passage of scheduled trains (exclusive of specials) was only four hours, the movement of machinery along the track and the placing of each pile in position had to be expedited considerably.

In addition to pile-driving, the existing girders had to be realigned, piers braced, and concrete work provided at abutments. The organisation and estimation did not allow for any interruption and, in the six months of darning and patching, there has not been a single hitch.

The staff of the District Engineer Geelong, has included a selected gang of proved bridge men under Works Ganger Treves, and this team has, in the six months, converted the ailing structure into a bridge capable of serving all requirements for many years ahead—and costing only £3,000.

◇ ◇ ◇

Bridge Engineer Hill will arise next month from the riverside, and will pick the splintery threads from his overalls. "That darned bridge," he'll say, "will carry anything."

A Machine That Makes Lightning Bolts

MILLION-VOLT bolts of lightning struck repeatedly recently in East Pittsburgh, U.S.A., despite the fact that the United States Weather Bureau reported no such atmospheric disturbances. The lightning crashed harmlessly, however, and proved instructive to approximately 400 electrical engineers.

The lightning was artificial, and it came from one of the world's first 1,000,000 volt portable surge generators built and used by the Westinghouse Electric Company for studying the effect of high voltage surges on electric transmission lines. Mounted on a rubber-tired trailer, this generator can be moved to any part of the country to flash its tamed lightning. Hitherto surges of such size have been possible only in laboratories.

Located in the yard between two buildings in East Pittsburg, the generator crashed its bolts through the air several times for the enlightenment of the visiting engineers. Members of the Westinghouse staff explained the operation of the equipment, of the testing devices, and told of the new lightning arrester which has been developed by the company.

The lightning generator looked like an ordinary truck trailer, but when it was prepared for action a long bridge was pushed out the rear end. On this were hung big can-like objects. These were the condensers which developed the terrific energy which was to be discharged.

The first trick the generator was made to do was to show how a million-volt surge would jump across a huge suspension insulator such as is seen hanging from the steel towers of a power transmission line. The long, vicious-looking arc jumped across this impediment just as easily as a spark jumps from a screw driver when the spark plugs in the family conveyance are being tested.

Then the engineers placed one of the new arresters in parallel with the insulator. This time the arrester absorbed the lightning and passed it off to the ground, preventing a flash-over of the insulators. The arrester, it was explained, is made of a porous ceramic material which permits the lightning current to pass through just as water goes through a sponge. As soon as the excess surge of the lightning has been diverted, the arrester re-

Making Accidents Difficult

A FLASHING beam of light, reflected back to a locomotive from a mirror on the signal post, is the latest protection for railways. The new device is being tried out on the German state railways between Berlin and Munich.

From a small searchlight on the front of the locomotive, a narrow beam of light is thrown upward all the time the locomotive is in operation. A ring of light-sensitive cells is located around the searchlight lens.

When the train comes to a signal post, the mirror on the post reflects the light back to one of the cells. This starts an electric current, which makes a visible signal in the engine cab, and remains until the engine-driver acts on it, or, if he does not respond promptly, the train is stopped automatically.

Movement of the mirror on the post determines which cell receives the reflected light, and the signal given the engine-driver.

Semaphore Signalling Abolished

SEMAPHORE signalling is to be entirely abolished on the Central Railroad of New Jersey between Matawan and Atlantic Highlands. The company has installed a cab signal system at a cost of £17,300.

Color light wayside signals are to be used at the head blocks of passing sidings, but without intermediate wayside automatic signals.

fuses to let the regular power of the transmission line to escape.

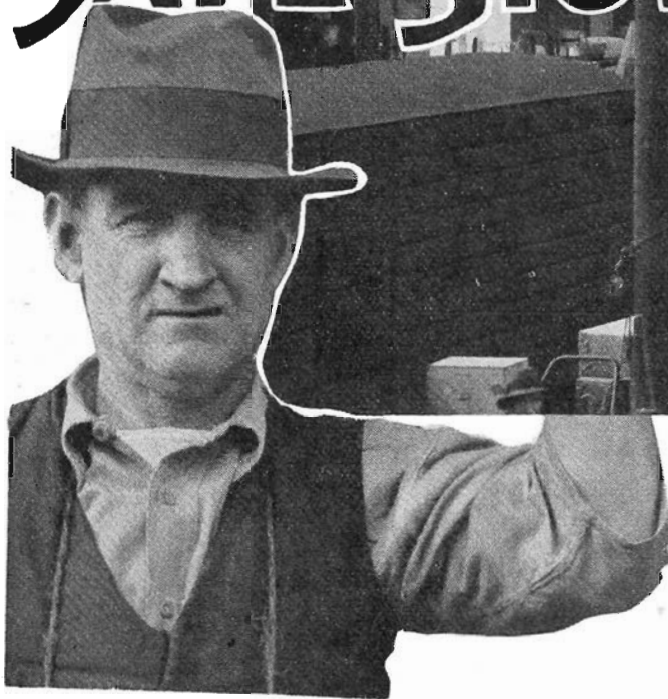
One of the most spectacular stunts was the sending of a surge along a miniature transmission line. This formed aureoles of brilliance along the wire where the excess power was escaping into the atmosphere. This phenomena, called corona, was familiar to sailors of the sailing vessel period, the rings of luminous electricity playing among the masts and spars of ships at sea. The saltwater tradition had it that the fire was of supernatural origin.

The final stunt was to send a surge of lightning into a 40-foot length of fine wire, burning it into nothing in a blazing display of pyrotechnics.

New Wheels Mean Less Noise

A NEW form of wheel centre for rolling-stock is being tested by the London "Underground" railways. The centre, which is made up of layers of wood, each comprising six or more sectors of a circle, is claimed by the inventor, a Mr. Lang, considerably to reduce running noise.

SAFE STOWING *make*



Peter Fahey

JACK LENNOX, the oldest stower in the Melbourne goods sheds, paused in the act of loading perishable freight into a louvre truck. Thirteen years' experience have made Jack an authority on stowing, and his summing-up of the position is a tribute to the sustained interest of a railwayman in his job.

He threw a new light on a little known phase of railway working. He attacked the furniture stowing problem with Scotch pertinacity. Furniture was the most fragile goods he had to stow. He repeated that. Furniture, too, was the most deceptive freight he had to load. True, cement troughs and cast iron copper stands had their drawbacks, when considered from this angle, but furniture—Jack Lennox shook his head decidedly—"unpacked furniture was the very devil."

Some types of modern style furniture with ornate legs were apt to shift against neighboring goods, unless carefully lashed, and the pressure caused could snap off the fragile legs like carrots.

Furniture, Jack decided, should always be loaded on its back with the legs in the air. Whenever possible, it should be loaded "on its own."

Furniture, it seems, will set, as a load, without doing any damage.

The veteran stower dropped a hint about packing furniture. He reasoned that, if manufacturers would but take the trouble to strap the legs of furniture with light laths, there would be a better foundation for railway stowers to work on in their endeavor to secure the loading safely. Furniture claims would then be conspicuous only by their absence.

TOM PAXTON was stacking boxes of tinned foods in an open truck, and it didn't take him very long to get into his stride. He has only been stowing for two years, but if there happened to be an academy for van stowing, a cap and gown would certainly come his way.

He strongly supported Jack Lennox's remarks about furniture as the railway stowers' most exacting problem. The first essential in stowing, he claimed, was to make quite certain that the goods received were in first-class order. This, he contended, safeguarded departmental interests.

Then he judged his load and stowed accordingly. Furniture requires plenty of packing—hessian, shavings and the like—and where necessary it must be lashed.



To

How? Why?

HOW best can railway loading
sibility of damage in tra
WHICH freight needs the most
WHAT precautions in handling
to railwaymen as secur

*Those three questions were put to three experts
month, by a Magazine representative. They
probably be of interest to the army of railwaymen
the handling of freight.*

By W. W.

... for SAFE DELIVERY



Paxton

"I always load furniture as though it were my own," is a remark that explains the Paxton viewpoint.

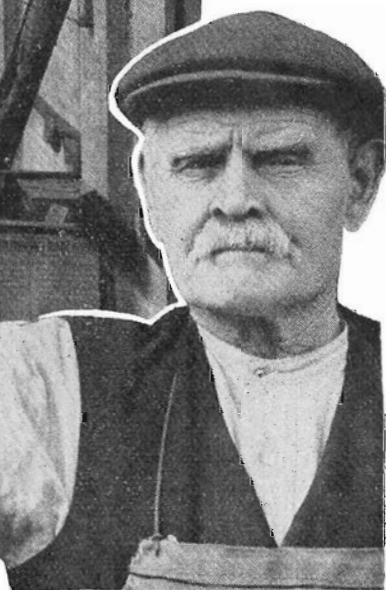
The most fragile goods to load, Tom thought, were furniture and cement troughs; while glass doors and window sashes were to him the most deceptive because they *looked* strong enough but—

Cement troughs were the most difficult to load because in no circumstances could they be loaded unframed with other goods, as the slightest redistribution of the load in transit could be attended with disastrous results to the troughs.

Tom Paxton thinks that the present system of lashing goods is admirable, but he warns against having the ropes too tight. There must be some flexibility, he reasons, and the stower's judgment must determine the extent. His ideal fore-and-aft lashing takes the rope across the truck, back, then with a half-hitch in the centre, finally secures it to the ends of the truck.

PETER FAHEY came out of his louvre to thrash the matter out. He thought well before he spoke, and when he did he carried conviction there and then.

"See that the freight is in good order first," was his commencement.



Jack Lennox

Then, when it was stowed, he believed it should be securely lashed fore and aft—especially machinery frames.

Peter always gives a special eye to sewing machines and chaff-cutters; their cast-iron frames and parts require that they receive careful attention. Lashing, of course, made a difference, but the wheels of ploughs and similar implements, while suitable and quite strong enough for their work, are such that they should not be jarred or bumped when being transported. Sewing machines might be suitable for some things, but never make careful travellers.

Among the strange freights in Peter Fahey's 13 years of stowing, were the smallest pony and the smallest bullock in the world. Peter stowed these "goods" in the centre of the truck between cyclone gates, bottled beer and boxes of boots on one side and cases of machinery and linoleum rolls, on the other.

The four-footed "goods" were, of course, in crates.

Peter Fahey had a parting thought. He offered the opinion that, while quick handling was desirable, it was obviously folly to sacrifice safe handling for unprofitable speed.

...ch? What?

...e secured to minimise the pos-
...it?
...reful stowing?
...nd loading can be recommended
...against claims?

...nced stowers in the Melbourne goods sheds, last
...plies—necessarily brief though they are—will
...men engaged, occasionally or continuously, in
...and awkward freight.

Wellington

Railway Outposts

No. 27

Trentham

STRETCHING across central Victoria, from the Bungaree district almost to the main Melbourne-Bendigo railway line, is a wonderfully fertile strip of red volcanic soil comprising what is probably the most important potato district in the State. On the eastern edge and located on the line joining Woodend and Daylesford, at a distance of 63½ miles from Melbourne, is the 8th class station of Trentham.

All of the transport needs of this prosperous district are met by the railways and, in consequence, the station staff—Stationmaster W. J. Russell and his assistant Operating Porter H. Waterman—are kept fully occupied from one year's end to the next.

Chiefly Potatoes

Naturally, potatoes form the principal source of the railway goods traffic. The loading commences to arrive in April, and so prolific has been the yield this season that, by the middle of last month, no fewer than 36,000 bags of potatoes had been railed from Trentham.

Fern Hill, Bullarto and Lyonville, adjoining stations which are supervised by the Trentham S.M., also derive the bulk of their goods revenue from the loading of potatoes, the quantities railed each year from these stations aggregating a similar total to that of Trentham.

During the first three months of the year, before the potato loading is commenced, the despatch of grain keeps the station staff busy. Each



Trentham Outpost. Inset: Stationmaster W. J. Russell and Operating Porter H. Waterman

year, about 900 acres of wheat and 1,200 acres of oats are planted, yielding some 5,000 and 7,000 bags respectively for transport by rail.

Adjoining the station yard is a sawmill which brings to the railways an average of two trucks of timber weekly. Mills are also operated at Lyonville and Bullarto. Another forest product which probably figures in the traffic at very few Victorian railway stations is crude eucalyptus oil which is despatched in drums holding about 4½ cwt. An average of from five to six of these drums is despatched from Trentham each week.

Flourishing Secondary Industry

The principal secondary industry in the district is the well-known works of Trehwella Bros., known throughout Australia, in New Zealand, in the East Indies, and also in England for its jacks and stump pullers. Incidentally, considerable numbers of track jacks for different Australian railways have been produced by this organisation which gives constant employment to some 60 men.

Livestock traffic despatched from the station for the past twelve months amounted to 82 trucks of sheep, eight

of cattle, three of horses and one of pigs. Inwards traffic was responsible for 39 trucks of sheep, eight of cattle and four of horses reaching Trentham, the revenue derived from outwards and inwards stock traffic being £461. The inwards traffic mostly consists of store stock railed to the district to be fattened for market.

In all, 7,028 tons of goods were despatched from Trentham during the past 12 months, and a further 2,375 tons were received, the revenue being £4,269 and £2,136 respectively. Parcels traffic netted a further £255, and miscellaneous receipts £157.

Popular With Tourists

From its position on the crest of the Dividing Range at a height of 2,264 feet above sea level, and with the fine Trentham Falls and picnic grounds but a mile distant from the station, the district is becoming increasingly popular with tourists, particularly walking parties. The normal passenger traffic also remains steady. In consequence, 4,605 passengers purchased tickets from the local station last year, paying £1,313 in fares. The revenues from all sources from Lyonville, Bullarto and Fern Hill during the same period were £1,231, £2,238 and £4,653 respectively.

Station beautification has for many years past been a feature at Trentham. A fine plantation of cypresses and similar trees has been established, and during the 14 years of its existence it has secured for the station eleven first and one second prize and one "highly commended." This is a record of which the staff are deservedly proud.

The S.M. and his assistant are well known and well liked throughout the district, and this popularity, coupled with the satisfactory service given to the local residents, has prevented road competition from making itself felt. One motor operator conducted a service for two or three months, but was forced to retire to other fields when patronage was withdrawn from him because of his inability to carry timber at the same rate as that quoted by the railways.—S.C.W.



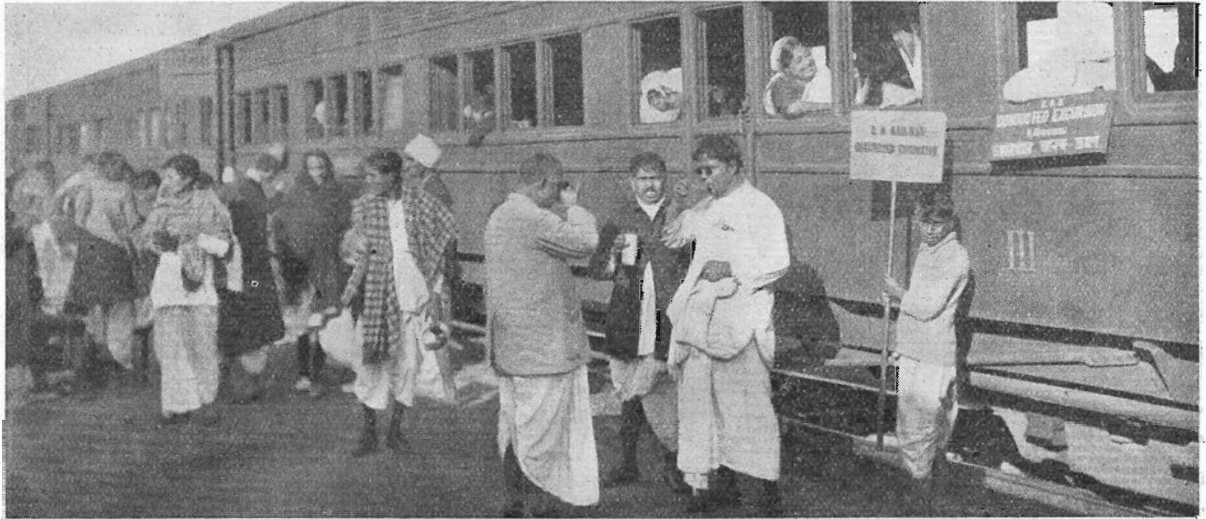
Snow transforms the Trentham railway garden into a suitable scene for an old English Christmas postcard

Railway Contrasts in India

By Chas. Travis, M. Inst. T.,

Assoc. Editor "The Railway Gazette"

(For The "Victorian Railways Magazine")



A halt for refreshments by an excursion party travelling by rail in India. A 12-rupee ticket for this excursion (18/-) buys 900 miles of railway travel, with two steamer trips and five meals thrown in as free incidentals.

AS the Special Commissioner of *The Railway Gazette*, who recently made an extended tour on the railways of India and other Eastern countries, I was very interested in the admirably-displayed article "Pen Pictures of Railway Travel in the East," published in the March issue of the *Victorian Railways Magazine*.

The reproduction of the photograph of the Victoria Terminus of the Great Indian Peninsula Railway in Bombay was very striking indeed, and it might interest Victorian railwaymen to know that a very large volume of traffic is handled there, both by electrified and steam-operated services.

Gradients in The Ghats

Electric working now extends to Poona, 119 miles south-east, and Igatpuri, 85 miles north-east, of the capital city, special advantages being gained thereby in the working over the Ghat sections, where there are long gradients of 1 in 30.

During my stay in India, I had the pleasure of being present at the ceremony held in connection with the completion of the tunnels on the Bhor Ghat realignment works, the tunnels being officially declared open by Sir Austen Hadow, then Chief Commissioner of Indian Railways. A special feature in connection with the ceremony was that a large number of guests were entertained to dinner in

the heart of the longest tunnel, some 200 feet below ground, the whole of the arrangements being carried out by the management of the Taj Mahal Hotel, Bombay, some 70 miles distant.

A true Eastern note was added to the proceedings by the variety and splendor of the garlands, decorated archways and the like provided in honor of the ceremony.

The Indians have a great habit of decorating both animate and inanimate things. Along with several railway officers I attended a school prize-giving demonstration at the New Golden Rock colony of the South Indian Railways, and was truly embarrassed when at the close I was garlanded with roses.

Flowers in The Workshops

On special days, too, the benches and tools in the various workshops are festooned with colored papers and flowers, and it would be unthinkable for any important passenger to leave a place without accepting garlands as a tribute. This, incidentally, is in keeping with the customs of the South Sea Islands.

India, inevitably presents great contrasts, and those accustomed only to conditions in Australia—where I travelled thousands of miles in 1924—would find a visit to that part of our Eastern empire a most refreshing experience.

Their best trains, as in Australia, are good. The "Imperial Indian Mail," the "Frontier Mail" and others are quite first class, but the transition to the lower scale is very much wider than in Australia. There are, apart from the de luxe trains, four classes of travel in India. These are I, II, Inter. and III, and a typical scene in a third class coach was illustrated in the previous article in the *Magazine*.

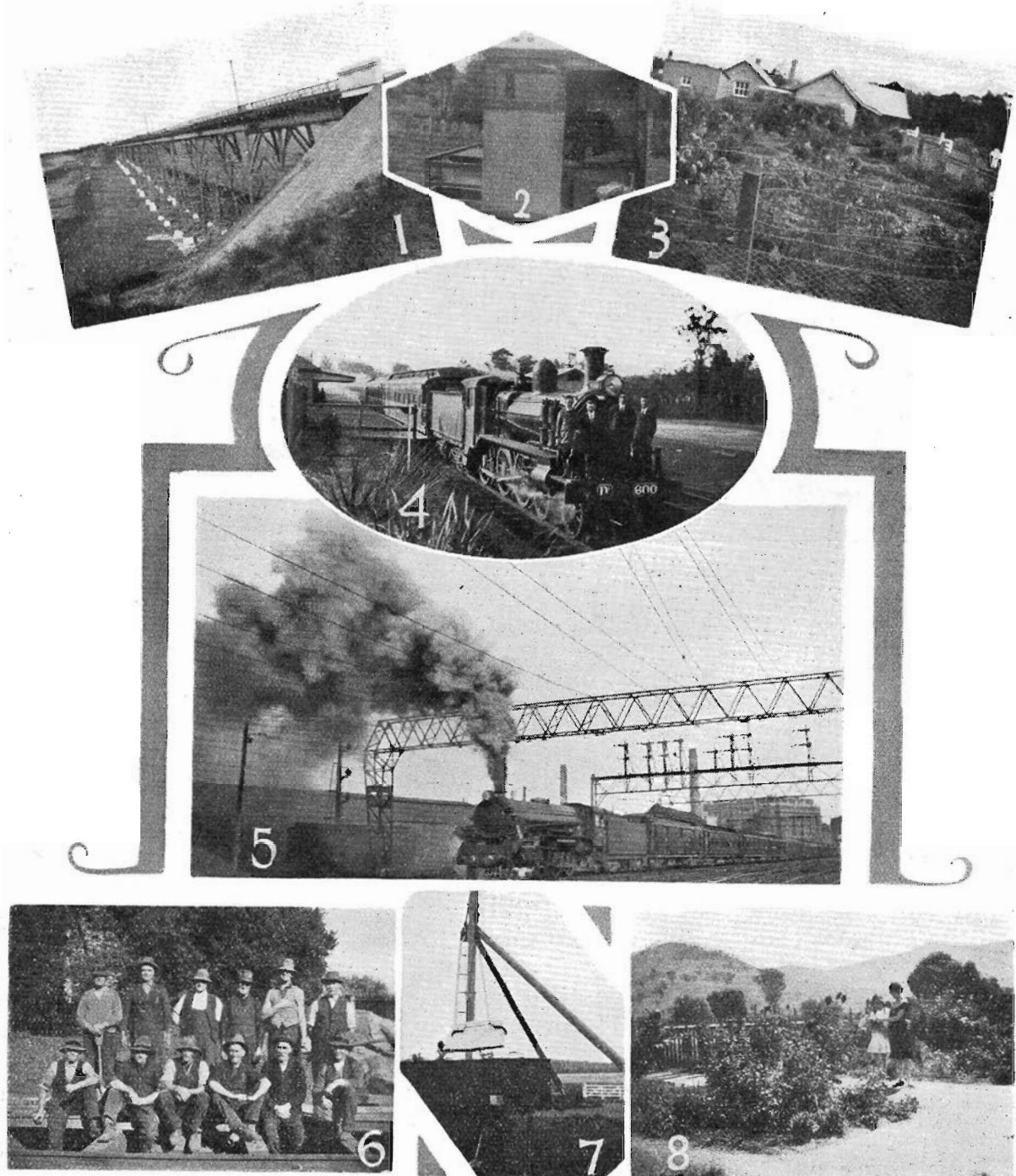
Bargains in Travel

Travel is, however, very cheap, third-class passengers being conveyed several miles for one penny. Third class excursions are run at a ridiculously low rate. For instance, the Kamakshyn excursion, a scene on which is given in the accompanying illustration, costs Rs. 12 (18s. 0d.) per passenger, and comprises 900 miles rail travel, two steamer trips and five meals. Just imagine that! Less than one penny for every four miles of travel, and two steamer trips and five meals thrown in free.

The fastest daily train in India is the "Frontier Mail," Bombay, Baroda and Central India Railway, which covers the 865 miles between Bombay and Delhi in 23 hrs. 35 mins., an average of 38 m.p.h. This is known as "The Scarlet Arrow" route, and it is claimed for this train, that it has never been late.

SNAPS ROUND THE SYSTEM

◇ ◇ ◇ Sent in by CONTRIBUTORS



1.—Moonee Ponds viaduct (S. C. Weetman). 2.—"The smallest passenger train in Victoria," the little rail motor which runs between Thorpdale and Moe and accommodates six passengers (Miss Shirley Fraser). 3.—Section of Ganger W. H. Sullivan's departmental garden at Milltown, which has won five first and one second prizes in succession in the Geelong district. 4.—Commissioners' special at Yallourn (R. L. Forster). 5.—A fine study of the Sydney Limited leaving Spencer-street (J. C. M. Rolland). 6.—Gang working on new ash pit at Gisborne (A. K. Lobley). 7.—Loading marble at Tynong for the Shrine of Remembrance (F. Burge). 8.—Stationmaster G. W. Farley's neat departmental garden at Tallangatta

Railwaymen of the Month

Lives on the Roof

STOCKMAN GEORGE FITZGERALD, whose home is in the fastnesses of Shannon Vale, more than 30 miles north of Omeo, is not a railwayman, but he is as well known to trail riders over the Bogong high plains as is any *bona fide* railman on the Tourist Bureau staff.

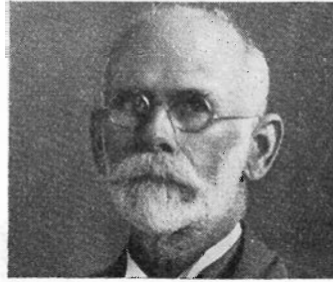
He acts as guide to the parties of trail riders who journey across the wind-swept roof of Victoria, and has spent half a century taking cattle to the high plains in summer and bringing them down to warmer climes in the winter. Last month 30 trail riders gave a dinner at the Oriental in George's honor, and wished him many years of life and happiness in his home on Victoria's roof. George's father first settled in the Omeo district in the early fifties, having been lured from America by the gold rush.

Uniform Gauge Authority

A DISTINGUISHED engineering career was terminated last month, when Engineer Edmund Adderley of the Way and Works branch retired after 31 years of railway service. He was an authority on the uniform gauge problem in Australia,



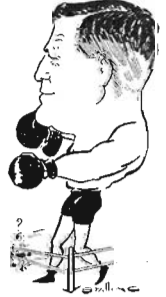
and was actively associated with the preparation of the reports dealing with this national matter at the time of the Royal Commission's enquiry. He laid the foundations of his pro-



fession with the firm of Robison Brothers of South Melbourne, and later proceeded to Switzerland, where he studied at the Zurich Polytechnic Institute for 2½ years. Before linking up with the railways on his return to Melbourne. Mr. Adderley acted as assistant engineer to the Kew borough council, and was engaged on defence engineering in the Public Works department. And, during the years of depression in the late nineties, he put in some time on the land near Thorpdale, where he developed a property. He came to the technical staff of the Way and Works branch late in 1898 and specialised on track design and allied work throughout his career. A wallet of notes was a farewell gift of his fellow railwaymen.

Will Comeback

ONE of the finest light-weights in Australian boxing history, Larry Copeland, boxing instructor at the Victorian Railways Institute for seven years, has decided to attempt a comeback. He had his first 20-round fight at Broken Hill when he was 16, and out of 68 bouts he has won 55 and been K.O.'d only once. He was A.I.F. champion and, although Fritz and Johnny Turk K.O.'d him twice, he won the championship of the 3rd and 4th divisions in France in 1917-18. He broke the world's skipping record by 16 turns at Port Pirie in July, 1919. He made 116 turns of the rope in 24 seconds. He fights under the name of Larry Foley.



More Time for Gardening

FORTY-SIX years ago, George Sayer entered the Department as a porter at Princes-bridge. Last month, after 20 years at Flinders-street, he left a vacancy for the position of head porter. George filled the roles of shunter and guard previous to his appointment at the "world's busiest station," and in the second capacity travelled the length and breadth of Victoria. Here's a good



Angus Mac. looks in at Geelong to find (from left) : Stationmaster H. H. Perry, Driver Dave Wilson, Works Foreman R. Roberts, Guard "Rowdy" Harvey, Officer-in-charge J. J. Lynch of the goods shed, Goods Foreman S. A. Taylor, Vic. Rose, secretary of the Institute football and cricket clubs, Electrical Fitter Charles Townley of the Signal and Telegraph Branch, and Repairer Alf. Paris.

chance for him, in his hours of retirement, to strengthen his weakness for the garden.

From Engine Cleaner

A REPRESENTATIVE gathering of railmen in the office of the Chief Mechanical Engineer said good-bye last month to Relieving District Rolling Superintendent William Groves, on his retirement from the service. He completed more than 44 years service and worked his way to the position of district officer after starting as engine-cleaner. He had the unique distinction of being retained beyond the statutory age for retirement in order to assist the Department in the Arbitration Court. Mr. Harris presented Mr. Groves with a handsome gold watch and a case of cutlery and toilet requisites for Mrs. Groves.



August Birthdays

TWO branch chiefs at Ballarat are one year older this month. District Engineer A. J. Ward has a birthday on the 17th and District Superintendent T. H. Maddern has one on the 23rd. Other railway celebrants during the month include:



Chief Architect
H. T. Stanley

District Engineer Evan Richard of Oakleigh, Tom Kennedy of Room 2, Traffic Inspector M. Lalor of Flinders-street and Depot Foreman J. McIvor of Bendigo, on the first; Alec. Wotherspoon of Room 1, Driver J. Lanagan of Geelong, Assistant Chief Accountant A. Williams and Jim Langley, who looks after rope-splicing and knotting at Spotswood, on the third; Driver L. W. Jackson of Bendigo, Assistant District Superintendent George Rogers of Geelong, Foreman A. E. Burns of the Melbourne Goods and Assistant Train Running Officer W. Ries of Seymour, on the fourth; Chief Architect H. T. Stanley, Driver A. Lewis of Traralgon and Travelling Audit Inspector Harry Henley, on the sixth; Signal and Telegraph Supervisor D. C. Beaumont of Bendigo, on the eighth; Chief Engineer of Way and Works J. M. Ashworth, on the 10th; Way and Works Engineer W. O. Brown, and Payrolls Officer Dan McCullagh, on the 12th; Senior Train Despatcher J. P. McKenna and Assistant Printing Officer Bill Houston, on the 14th; Rolling Stock Officer F. Rice of Bendigo, on the 15th; Signal and Telegraph Supervisor W. Ewin of Dandenong, Officer-in-charge Charles Corbett of the Melbourne Goods perishable shed, on the 16th; Guard George Walmsley, on the 17th; W. Hambridge of the Rolling Stock drawing office, on the 20th; Morgan Hayes of Room 9, Chief Train Despatcher A. H. Game of Geelong, Assistant Electrical Engineer Ralph Connolly and Travelling Audit Inspector P. G. T. Osborne, on the 21st; Block and Signal Inspector David Beddoe and Works Foreman D. Flynn of Bendigo, on the 23rd; Driver E. Fitzpatrick

of Wodonga, on the 24th; Special Officer R. G. Wishart, Manager Lindsay McClelland of the dining car depot and Conductor Bob Ick, on the 30th.

No. 1

RELIEVING Stationmaster D. Hodges, who has retired after 44 years service, had the distinction of holding No. 1 certificate, the first of its kind issued to Stationmasters. He had travelled the State extensively and was in the Box Hill district during the construction of the Ringwood-Ferntree Gully line

Discipline Representative

WITH the expiration of his final leave, Mr. J. F. Kerley, ex-Commissioners' representative on the board of discipline, looks back on more than 45 years of railway service. He commenced his career as a junior clerk in the Telegraph branch in March, 1885, and, after varied transportation experience, was appointed in 1925 to the position he has recently vacated. Eulogistic references to Mr. Kerley's work were made by the chairman, the employees' representative on the board and Mr. J. T. Hally, representing defending counsel, at an informal farewell to the popular board member. Mr. J. A. Baird succeeds Mr. Kerley.



Record Beaten

LAST month's record of 41 days for the winning of a telegraphy certificate has been lowered by Porter W. E. Bradby of Spencer-street, who commenced the course at the Institute telegraphy class on June 5, and qualified for the certificate on July 8—exactly one day under five weeks. This beats Frank Lambert's fine record by one week. The new record-holder—like every good pupil—modestly gives all the credit for his phenomenal performance to his instructor.



Early Retirements

TWO well-known and popular railmen have recently been forced into early retirement by ill-health. They are Stationmaster T. Cook of Shepparton and Assistant Stationmaster J. A. Tasker of Macedon

Last Mile Post

Henry William Luke Forster

MR. H. W. L. FORSTER, engineer in the Electrical branch, died on Sunday, July 13. He had a distinguished professional career and had been associated with the Railways department since 1913.

He was Commissioners' representative on the Victorian Railways Institute council for several years.

John Patrick

TRAGICALLY sudden was the death of Mr. John Patrick, retired metropolitan block and signal inspector.

Some 60 past and present railwaymen attended the funeral in the Brighton cemetery. Among the pall-bearers were Mr. A. E. Coulson, present metropolitan block and signal inspector, and retired Inspectors L. Stevens and C. Berry.

Alfred Edward Nener

GANGER A. E. NENER of Taradale died recently after a short illness.

He had 35 years of service in the department, and was in charge of the Taradale section for many years. He was 62 years old and leaves a widow, four daughters and a son, who is in the Transportation branch.

In his younger days he was captain of the Taradale football club and a fine 100 yards sprinter.

Stanley Frank Beer

THE sudden death of Stationmaster S. F. Beer of Windermere came as a great shock to his wide circle of railway friends.

He entered the service in 1913 and was only 39 years of age.

William Henry Grinter

RAILWAYMEN at the Manor quarry were shocked to learn of the untimely death of Quarry Foreman W. H. Grinter, last month.

Mr. Grinter opened the quarry and had had several years experience as roadmaster during his 30 years of service. A son is in the Brooklyn signal-box.

All the quarry men attended the funeral, the pall-bearers being Messrs. Goudie, Way, Norris, George, Lowne, Christie, Hynes and Coleman.

In Memory of Mr. McCraith

IN memory of Mr. McCraith, late stationmaster at Bendigo, several officers attended the Bendigo Base Hospital and presented a cot on behalf of the officers and employees of the Transportation branch.

"Aerio's" Wireless Notes

The

Linen Diaphragm Speaker

THIS is one of the most efficient loud-speakers it is possible to construct for ordinary amateur use, and will give most pleasing results with almost any receiver capable of giving loud-speaker output.

THE theory of the linen-diaphragm loud-speaker is really not very simple, but it can be explained as follows:—The instrument comprises two stretched square diaphragms of linen, of different sizes, drawn together at their centres and coated with a special varnish, forming a semi-stiff vibrating unit.

The larger diaphragm is essentially a reproducer of the lower frequencies, while the smaller one reproduces the middle and higher frequencies. As a point of interest, it has been proved definitely that in practice the low notes are brought out almost entirely by the larger diaphragm.

The particular merit of linen-diaphragm speakers is that they give a really astounding volume for an

ordinary commercial reed movement, and there is no jarring or undue accentuation over almost the whole musical scale.

material used must be very strong. Various materials have been tried, but the handkerchief linen gives the best tone and stands up well under tension.

The material should be cut to fit over the frames and tacked around the edge of each. Upholsterers' small tacks should be used for this and should be spaced fairly close together.

In order to prevent creases, which are fatal to good results, one side should be fastened, and the linen then stretched across to the opposite side and tacked down on that side. One most important point is to see that the threads of the linen are perpendicular and parallel to the sides of the frame. When the four sides of each diaphragm have been secured, the corners should be pulled tight, turned over and then tacked down.

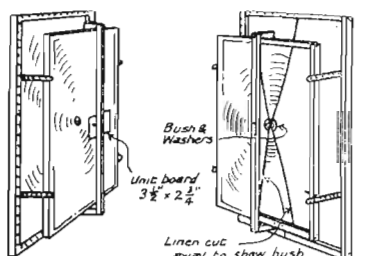
Finding the Centre

It is imperative to find the exact centre of each diaphragm, and this can be done by drawing two diagonal lines across the face of each. A sharp point, such as a gramophone needle, should then be used to force a hole in the diaphragms without breaking any of the threads, and in order to prevent these two holes enlarging themselves under the strain when the diaphragms are stretched, a button-hole stitch should be made round each. Perhaps the lady of the house will oblige!

The next operation is doping, and this is carried out with Celoid Household Lacquer in whatever color you desire the finished speaker to be. One coat should be applied to the surface of each diaphragm and allowed to dry.

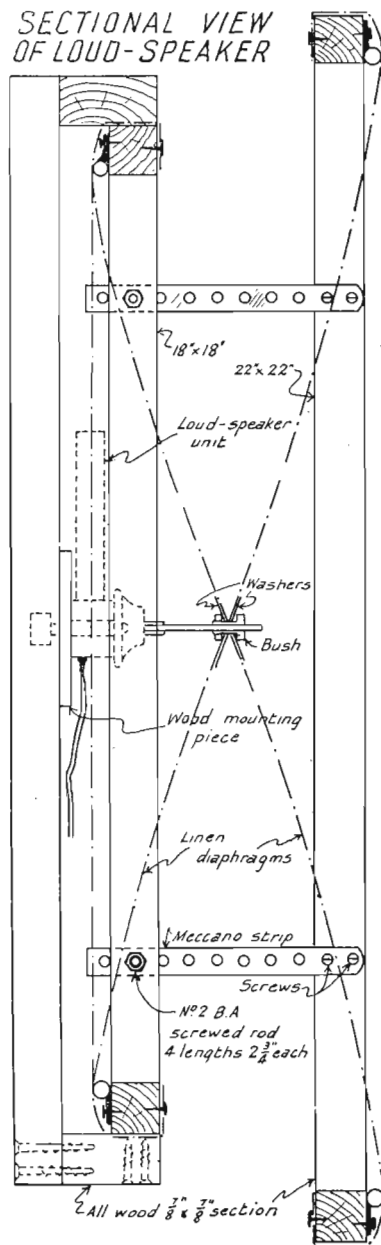
Having purchased a Blue Spot, Goodman, Amplion, or other type of unit, with which will be supplied a couple of cone-washers, the unit is placed aside for the time being. The larger frame is now placed face downwards on the table, and four lengths of Meccano strip are screwed to the inside of the frame. Four lengths of 2BA screwed rod are passed right through the framework of the smaller diaphragm so that they will engage with the holes in the Meccano strip fixed to the large diaphragm.

With the large diaphragm still face downwards on the table, place the



PERSPECTIVE VIEW OF SPEAKER UNIT

SECTIONAL VIEW OF LOUD-SPEAKER



smaller diaphragm over it, being supported by passing the four projecting rods through holes low down in the Meccano strips. No attempt should be made yet to stretch the diaphragms.

The cone washer should be passed through both diaphragms and screwed up tightly, care being taken that it is correctly assembled and that the centres of the diaphragms are not damaged by the passage of the cone washer. Then carefully stretch the two diaphragms apart by two holes on the strip, and apply a second coat of Celoid Lacquer.

It will, of course, be necessary to enlarge the holes in the Meccano strip in order to take the 2BA rod. The strips employed have 10 holes, being

cut off from larger strips, for the 10-hole size is not standard.

Now stretch the diaphragm up by the extent of another hole on each strip. Two holes are occupied by wood-screws at the end of the strip for fixing, and thus at this stage we have five clear holes between the wood screws and the 2BA rods. Apply yet another coat of dope, and while wet stretch the diaphragms apart to the fullest extent, this giving six clear holes on each strip, and allow to dry. Another coat may then be applied: this will have dried by the time the reed movement is mounted.

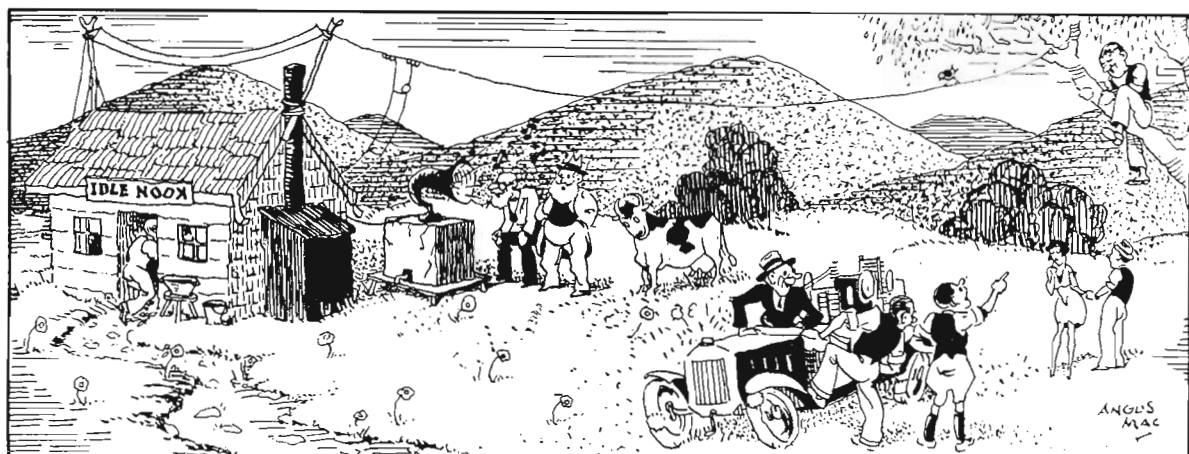
The reed movement is attached to a batten at the back of the small diaphragm. This batten is of $\frac{1}{4}$ -in. finish wood, and is separated from the

diaphragm itself by two short lengths of wood, to give a convenient clearance between the front of the reed mechanism and the back surface of the diaphragm. The movement should be mounted, the driving rod being passed through a hollow washer and firmly secured thereto.

In order to get the best results it is essential that the instruments should be enclosed in a baffle in order to prevent "spreading" of the low-frequency air disturbances at the edges of the diaphragms. In this particular instance a flat baffle is rather an impossible proposition for most people, since it would have to be of considerable dimensions. A baffle box can, however, be used and will improve the tonal range of reproduction.

RADIO AS A SPORT

WIRELESS v. THE KOOKABURRAS



This idyllic scene of wireless happiness in the gum-scented hills is described below with libellous detail by "Aerio"

A LIFE on the ocean waves has nothing on "Aerio's" radio rambles for sheer adventure. By car and rail a happy party consisting of members of the V.R.I. wireless club and readers of this Magazine congregated at the radio shack "Idyl-nook," Selby (Gembrook line) on a recent week-end and made local history.

Every tree on the estate now shudders at the word "aerial," and it is understood that even the kookaburras have left the district, heartbroken.

The accompanying illustration faithfully depicts the stern efforts made by this enthusiastic party in the interests of radio.

The aspirations of Beswicke to emulate the qualities of his ancestors by climbing to the heights of an adjacent tree from which to suspend an aerial, convinced all present that he had missed his avocation in life.

The attentions of Bill Richards in

the direction in which his natural bent lies will be seen from his attitude in regard to the YL, and induced the management to declare for him a half-holiday and permit him to wander in the shady dells wherein he might give full vent to his celebrated thesis on the wiles and ways of Hymen.

We might here record, for the benefit of those who do not already know, that the YL fell for it.

The attitude of Vince in the picture would indicate that he is deeply absorbed in the work on which Beswicke is employed. As a matter of fact he is declaiming that he saw the YL first and that Bill is a dirty dog.

Brennan is the club's greatest urger, and he will be seen urging Vince to try sarcasm on Richards in a futile attempt to make him blush. At the same time it will be observed that he is devoting considerable attention to the hip pocket of that worthy's riding breeches which doubtless contains

something interesting.

The figure disappearing into the doorway to investigate the causes of many strange happenings inside the palatial edifice is Norm Harris, whose short lecturette on "How to eliminate hum from socks" was listened to with rapt attention at the Speaker by Tom Ramsay and Jim Fogarty, accompanied by that stimulating potion in concrete form—Bovril.

Bill May's weakness for fish induced him to bring his sardine tin along, but unfortunately this so monopolised his attention as to render him entirely unfit for the more important work of setting up the station.

Mr. Higgs (or is it Maggs?) cannot be seen. As a matter of fact, he is behind the hill and has a bag with which all are familiar. The remainder of the party who cannot be seen are also behind the hill with Mr. Higgs

Concluded on page 47

After Influenza or other Illness,



MY
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TO
YOU!

TAKE—

A.B. TONIC WINE

Made from High-grade Malt Extract, Fine Old Wine, &c.



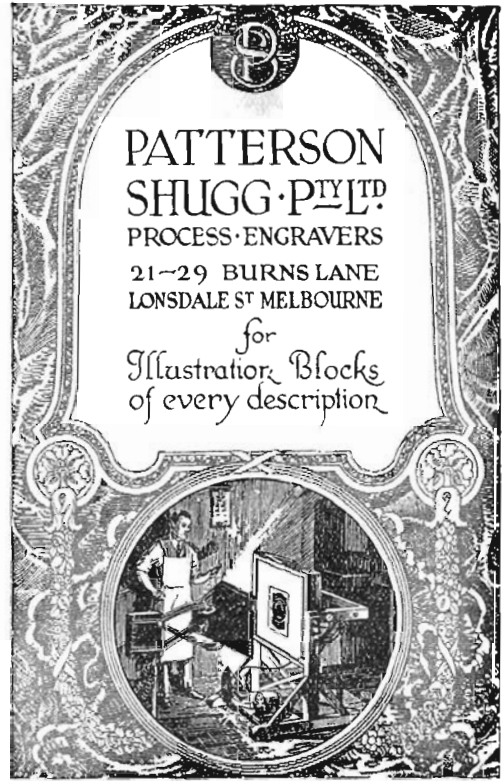
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9,112—Oblong Wrist Watch, 15 jewels, lever movement—9ct. gold, £4, £5 10 -, 18ct. gold, £8/10/-. Complete with silk band

CHOOSE from the fine range of Wristlet Watches available at Newman's. You can depend upon securing a watch that will give real satisfaction as a timekeeper, and is of exceptional quality and value for the money.



2,142—Ladies' Wrist Watch, fancy dial, 15-jewel movement, guaranteed timekeeper. 9ct. gold, 42/-; 15ct. gold, 75/-



F. A. Newman's
Established 1852



2,099—Octagonal Gold Wrist Watch, with expanding bangle, high-grade 15-jewelled movement. 9ct. gold, £6, £7 10 -, 15ct. gold, £8 10 -, £10



2,130—Gold Watch Bangle, 15-jewelled movement, fancy dial, 9ct. gold, £3/10/- £5; 15ct. gold, £5 15/-, £7/10/-

Pty. Ltd.

Note New Address, 289 COLLINS ST., Melbourne, C.1
One Door East from Elizabeth Street (W. McF.)

Milady's Page

BY
NANETTE

Fashions in Jewels



(Models selected at Newman's)

A charming set in jade—ear rings, necklet and shoulder brooch

MINERALOGICALLY allied to the famous New Zealand "greenstone," jade is proving one of the most popular stones for present day jewellery. Favored above all precious stones from time immemorial in the East, the green mineral has indeed enjoyed a long lived popularity.

The Mexicans at one time regarded jade with greater favor than the emerald, and were expert in carving the green stone into fanciful shapes for pendants, which could be worn as amulets to ward off evil influences.

This process of carving has passed out with the artists, for in Mexico it is now unknown.

The ancient Egyptians, too, coveted the jade and their supply probably came from Burma, China and Turkestan.

Ranging from a greenish white to a dark olive green, the jade is quite often mottled with both colors. The most favored shade of all is the apple green slightly translucent, the value depending not only on the color and freedom from flaws, but also upon the artistic detail in finish of the carvings.

Depicted on this page is a beautifully tinted jade set comprising ear rings, necklets and shoulder brooch.

ACCORDING to one of Melbourne's leading jewellers, the display of personal ornament is regulated by business prosperity.

He is of the opinion that the future does not hold many immediate changes in jewellery design. Small wristlet watches, he claims, are always in vogue and may be oblong or oval in shape, in platinum or white gold set with diamonds. Large shoulder brooches in geometrical designs, diamond set wristlets, and colored stones of the wearer's birth month are at present finding favor.

The long dresses are certainly influencing the length of jewellery which is being worn in proportion.

The revival of ear rings has lately been very marked, and to display these ornaments successfully the shape of the neck must be considered.

New Stones for Old

Long slender necks are admirably suited for the long swinging pendants, whilst the short neck requires the chubby type of ear rings.

There seems to be a tendency for people who have had genuine stones stored away to have them turned to advantage in the modern setting. Old brooches and clasps are being remodelled to new designs.

Certainly, if jewellery is to be worn, then one may as well have the real thing. While artificial jewellery is very attractive now and enjoys a wide popularity, the genuine article has the advantage of always keeping its good appearance, and can be cleaned up and remodelled at will.

Australian stones which are very much sought by overseas visitors, and yet almost disregarded locally, are the black opal and the sapphire.

A.B.C. of Domestic Economy

THE 1930 Syllabus of free evening lectures at the Emily McPherson College of Domestic Economy, includes three most interesting lectures during August. They are:—

August 6.—"Do We Progress? Home Life in Ancient Greece and Egypt." Miss J. S. Webb, M.A., History Department, Melbourne University. (Illustrated lecture).

August 13.—"Household Management—Hints on Planning of Time and Money Expenditure." Miss R. S. Chisholm, M.A., Principal.

August 20.—Lecture Demonstration on: (a) Children's Garments. Miss B. King, of the College Staff. (b) Animal Toys. Miss I. Harding-French, of the College Staff.

Controlling Those Nerves

By
Dr. C. O. Sappington

"NERVES" have been properly defined as a bad mental habit of letting emotions take the place of reason.

Nervousness is wasted energy.—Calmness is the rarest quality in human nature. Emerson speaks of the energy of repose. You have seen women who looked authoritative even when relaxed.

Some of the causes of increased irritability are:

1. The egotism and superiority complex.
2. Inability to adjust to changing

DO WOMEN WORK?

COUNTRY housewives work more than 62 hours a week, according to a survey conducted by the U. S. Bureau of Home Economics. City homemakers have it a little easier. They put in about 51 hours a week.

Figures on the country women were secured by keeping schedules on 2,000 rural wives.

The bureau is now gathering data on married graduates of the six leading women's colleges.

The other figures have concerned women in the industrial class, but information received from the city-dwelling college alumni is expected to throw light on the working hours of a group "whose social and economic status fall within the class usually considered as not having enough work to do in the house."

Time schedules have been sent to women in towns of more than 50,000 population where there are such things as bridge parties and other afternoon activities to attract the women from their homes.

conditions.

3. The worry habit.
4. The hurry habit.

If one is subject to "nerves" some suggestions may be of assistance:

Be sure your body is in proper condition. There is usually a physical basis for "nerves." Have your doctor look you over and give you advice.

Have a hobby—a hobby if properly pursued will give you hours of profit and keep your mind off yourself.

Remember that anger, grouches and strains on the patience cause changes in the body secretions and produce deleterious results.

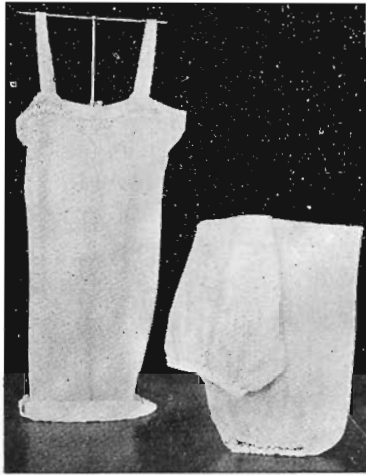
Life is a series of radiations. If you radiate calmness and courtesy, most people will reflect them back to you; if you talk savagely, such a procedure will be met in kind.

Most of our lives are spent in trying to influence others in some way. Can a mother expect to control children, if she cannot control herself?

WOOLLIES—

Australian Wool for Cosy Underwear

THE modern business girl hurrying to office these chill mornings is indeed thankful to the manufacturers of Shetland wool underwear.



—(Chosen from offerings at Georges)

Of light texture, soft, and as close fitting as silk, these garments are wonderfully warm while lacking the bulkiness of former woollen undies.

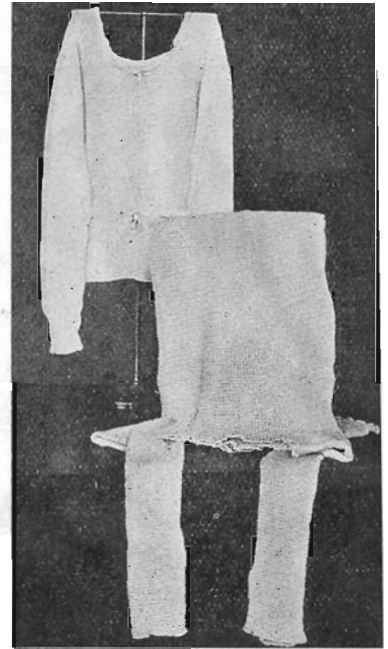
Even in this day of artificial heating, draughts are apt to creep in, and for the shop or office girl the cosy long sleeved vests with bloomers to match may be had in soft pretty shades.

For the evening, opera vests are dainty and in no way upset the fit of any frock. They lie snugly under even the tightly fitting ballroom creations of the present season.

And after the theatre or dance it is certainly comforting to slip into a warm Shetland wool nightgown or pyjamas.

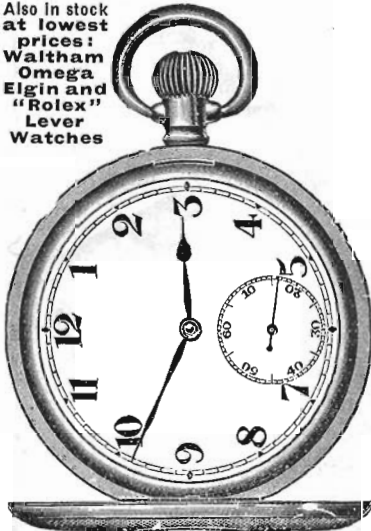
The outdoor girl—particularly the golfing girl—is catered for by the long sleeved "Spencers," which may be worn under a light-weight suit, and which allow of plenty of freedom for the swing.

Shetland wool garments keep their shape when washed, if squeezed dry and hung over the line. This obviates the "ears" which appear when they are pegged by the shoulders or waist-band.



ABOVE: Long-sleeved Spencers in Shetland wool for sports wear under a light-weight suit; and long sleeved sleeping vest in Shetland of very soft texture. LEFT: Pink Shetland wool vest with opera top (first of its kind to be made in Australia) and Shetland tights to match.

Also in stock at lowest prices: Waltham Omega Elgin and "Rolex" Lever Watches



The "Dela" Lever is famed for its accuracy. Fitted with 15 jewels, highly polished pinions and pivots, stem setting, and other constructional features. Obtainable in a solid silver or a 10-year warranted gold filled hunting Dennison case as desired. Five years written guarantee. Worth 55/- (In nickel or gun metal open face case 30/-)

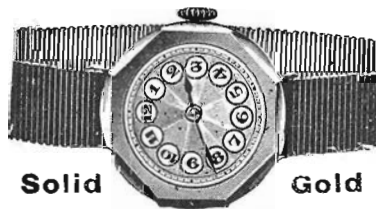
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Gent's Solid 9ct. Gold Curb Alberts: Full double pocket size; stamped on each link; fitted with two swivels and a bar. The size illustrated is sold at £3/10/-; others in 9ct. gold, £2, £2/10/-, £3, £4, £4/10/-, £5, £5/10/- to £6. In 15ct. gold, £4/5/-, £4/10/-, £5, £5/10/-, £6, £6/10/-, £7, £7/10/-, and £8 to £10. In solid silver, 8/6, 10/6, 12/6, 15/-, 17/6. 20/-



Solid Gold

Dainty 9ct. Gold Watch on a moire wristlet with a gold clasp. Fitted with a high-grade 15-jewelled Swiss lever movement which is guarant'd for five years. (Elsewhere 40/-). Others 35/-, 40/-, 50/-, 60/-, 70/- 30/- Write for a FREE 116 page Catalogue



Five Diamonds £10 (Elsewhere £15) Others £6/10/- to £6/0

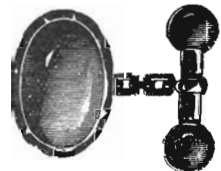


Four Diamonds £6/10/- (Shop price is £8) Others £12 to £40



Seven Diamonds £17/10/- Others £12 to £40

Our Diamond Ring Brochure (illustrating 200 designs) mailed free under a plain cover on request



Heavy 9ct. Gold Links with solid gold chains 20/- per pair (Elsewhere 25/- pair) Others from 8/- to 25/- Initials engraved free

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MELBOURNE



Railwaymen in Sport

(By REG. HUNT)

Railway Association Surprise

Coburg Defeated

A FEW weeks ago the premiership looked a certainty for the Coburg Line, but its unexpected defeat by Eastern Lines has altered the whole aspect. The latter team has got together a good even side and, with Yemm (Oakleigh) and Ryan (Hawthorn) playing regularly, will be hard to beat. However, Coburg was not at full

Leading Association Goal-kickers

Ryan (Eastern Lines) ...	21 goals
McInness (Loco.) ...	11 ..
Bowman (Reservoir) ...	11 ..
Smith (Car and Wagon) ...	10 ..
Caldow (Coburg) ...	10 ..
Vallentine (Coburg) ...	9 ..

McLoughlin (Reservoir) and Trotman (Reservoir), 7; Waterhouse (Jolimont Yard), Gillick (C. and W.), Coombes (E.L.) and Mackerill (Coburg), 6.

strength on this occasion, and is still confident.

It is very unfortunate that the Loco. team cannot see its way to meet its obligations each week, as it tends to decrease interest in the competition and at the same time may deprive it of a chance of again carrying off the pennant. It is a good side, as its showing against Eastern Lines on June 25 shows.

The proposed visit to Adelaide is creating interest, and regular matches between these states would be a fine thing for this association. Something definite will be announced towards the end of August.

How the Teams Stand

Team	W.	L.	Pts for	Pts agst.	Pr. Pts
Coburg ...	8	1	584	411	32
Car & Wagon ...	6	3	467	354	24
Reservoir ...	5	4	504	413	20
Eastern Lines ...	5	4	487	541	20
Loco. ...	2	7	235	277	8
Jolimont ...	1	8	310	629	4

Last Month's Results

The following are the results of the games played last month:—

July 2

Coburg 10-12 v. Reservoir 8-12.

Eastern Lines 15-19 v. Jolimont 9-4.

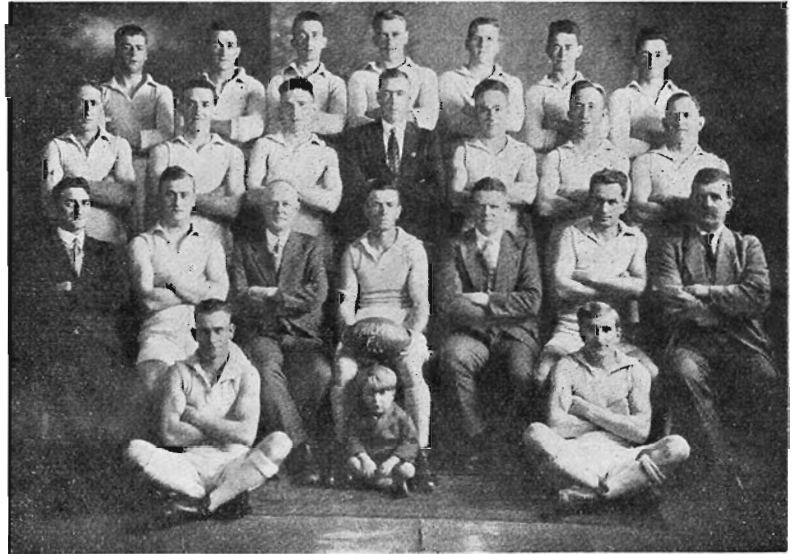
Car and Wagon received a walk-over from Loco.

July 9

Eastern Lines 13-11 v. Coburg 7-19.

Car and Wagon 8-19 v. Reservoir 7-5.

Jolimont walk-over from Loco.



The Geelong railway football team.

Sporting News from Geelong

THE Geelong Railway team at present occupies fifth place on the premiership list of the Geelong Athletic League, and is two games behind Belmont, in fourth position.

The last two games played by Railways have been won in convincing style. Scores in the Railways and Moriac match were: Railways 13.18, Moriac 5.5; and against West Geelong the result was Railways 17.12, West Geelong 9.10.

Brislan heads the team's list of goal

kickers, while others playing at their top are Tom Evans, Nelson, Magill, Leach, Denning, Shanahan and Bliss. Jack Brown was playing good football until he met with an injury to his ankle some weeks ago and has since been out of the game.

Since the formation of the Railways cricket and football club, a couple of seasons ago, steady advancement has been made, until at the present time, the railways name is held in esteem by local sporting bodies and reckoned as a force to be contended with.

Gossip from Railway Association Clubs

FROM Mr. Reg Bowman, secretary of the Reservoir-Heidelberg team:

"Although disappointed at our showing in the last two games, we have not yet given up hopes for the final. It is hard to get everyone together for practice. The contest for the most popular player is creating quite a deal of rivalry amongst the boys. A. Hughes is at present at the top of the poll, closely followed by J. Dominquez, but as a large batch of votes for one player is expected at any time, either of these two may lose his present position. I would like to add that the boys are always anxious for a game, and at the season's end would like to play a few social games with other clubs. This can be regarded then, as an open invitation."

MR. A. NORTH, secretary of the Eastern Lines club, writes:—

"After our great win over Coburg, I am fully satisfied that the cup will at last be coming our way. With Jack Ryan in good goal-kicking form (he has kicked 21 goals in two matches), we have at last overcome our weakness forward. President Jack Brooker, with his good committee, has his players and members

keen and full of enthusiasm. A most successful social evening was given the members recently."

WORD comes from Mr. Morgan, secretary of the Coburg Line club:—

"We are in great hopes of winning back the Commissioners' Cup which we lost to North Loco. last year. The only defeat this year was by Eastern Lines, on July 9. This defeat has stirred us up, and no doubt we will field a stronger team in the semi-finals. The club is in a good financial position, owing to the loyalty and co-operation of all club members and the hard work of officials. The president (Mr. W. Banner), treasurer (Mr. L. O'Toole) and chairman of finance committee (Mr. W. Keppell), in common with the rest of the committee, are leaving no stone unturned to ensure a greater success, on and off the field, financially and socially, than in the past. Over a dozen cups (gold and silver) have been donated by various club patrons. The coach and captain, L. Stack, has proved an excellent appointment, and some of the outstanding players at the present time are Austin, Flynn, Cracknell, Hartigan, Wallace, Willmott, Summers and Caldew."

Wednesday League Side Improves

TWO of the three games played by the Railways team in the Wednesday League during July were won, and the third was lost to Fire Brigade for the first time in four years. The railwaymen are now looking forward to the finals, which are played at the Melbourne cricket ground on August 6, 20 and 27. They expect to win another premiership.

Results of the July games were :

July 2.—Railways played Fire Brigade and were defeated by two points after the best game staged in the Wednesday League this year.

Scores—Brigade, 8-14; Railways, 8-12.

July 9.—Railways defeated Yellow Cabs by 7-16 to 3-4. This was the first time Yellow Cabs had been beaten this year. Our players opened up the game and ran all over them.

July 16.—Railways played Press and after a fine clean game they won by 11-12 to 5-15.

V.R.I. Golf Notes

MUCH enthusiasm and success has attended the monthly inter-branch competitions of the V.R. Golf Association. Nearly all the branches of head office have teams competing for the association shield. The division of the draw into two sections enables some branches, prolific with budding Walter Hagens, to put two teams on the fairway.

The finals of both the "A" and "B" sections will be played on August 3 and 17, and, when this went to press, Rolling Stock Golfers were out in front from the Way and Works in "A" section, whilst the Construction branch team was fighting it out keenly with the Accountants in the "B" section.

Full particulars of the Competition finals may be obtained from the secretary, V.R. Golf Association (Mr. G. Deal, Electrical branch, Flinders-street Railway Buildings).

Institute Gymnasium Notes

MUCH enthusiasm is being shown in Institute gymnasium circles with the approach of the forthcoming boxing, wrestling and gymnasium competitions. Aspirants for State championship honors and novices alike are hard at it.

The recently formed gymnasium club, which has for its object the promotion of interclub competitions in gymnasium games, boxing and wrestling, is going along with a swing, and promises to do much for the sporting side of the Institute.

The annual gymnasium games competitions are now being conducted on every Friday night, the first night's results showing record-breakers in W. Dern, standing hop, step and jump (distance 25 ft. 2 in., or two inches more than the record), and P. Manton who passed the double skipping figure of 145 by an additional 63 turns.

One Hundred Years Ago

THE single-line railway between Canterbury and Whitstable (England)—a distance of only $6\frac{1}{2}$ miles—will be a hundred years old next week I have seen (says a writer in the *Evening News*) the delicious description of the first journey made on the railway :

"The motion of the carriages," it says, "is particularly easy and agreeable. At first starting, the quiet power with which the vast mass was set in motion dispelled every fear in the passengers. The entrance into the

tunnel was very impressive—the total darkness—the accelerated speed—the rumbling of the cars—the loud cheering of the whole party echoing through the vault, combined to form a situation almost terrific—certainly novel and striking."

And finally this gem: "Perfect confidence in the safety of the whole apparatus seemed to prevail, and the company (including George Stephenson) emerged from the dismal tunnel into the warm precincts of the cheerful day in high spirits."

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Sweet Sliced
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Railwayman Writes Prize War Novel

AMONG the battalions of war books which have fallen into line behind Remarque's "All Quiet on the Western Front," the outstanding American contribution is "God, Have Mercy On Us," winner of a £5,000 war novel prize competition, and already a best-seller in America and England.

The author of this book is a railwayman, William T. Scanlon. His racy description of his railway experience makes interesting reading.

I STARTED out as a railway messenger boy in the local office of the Chicago, Milwaukee and St. Paul Railway at the Union Stock Yards, Chicago.

Messenger boy in those days meant anything from janitor—including keeper of the cuspidors and window-cleaner—to bill clerk, and sometimes nursemaid to a cow who would insist on having a baby while visiting stock yards. But always I was under railroad jurisdiction.

Yard clerk came next and I learned to grab numbers and also take seal records from both sides of a moving truck from a railroad shack window. That's a trick in itself, known only to yard clerks.

Later I was initiated into night life, in a railroad yard. I became night yardmaster. I do not know whether

that was my official title on the payroll, but anyhow I was the boss in the yard, and when the hard-boiled train crews showed up I told them what trucks to pick up and what to drop.

Believe me, you get a great feeling of importance, especially if you are a bit young in years, when you can stand out in a yard and give a high-ball sign with a lighted lantern and see a train of fifty or sixty trucks pull out—all on your own say so.

The yard at night was a tough place. There was usually a shooting match going on between our railmen and car robbers.

Most of us carried a gun. It was good training for war.

After about eight years with the Chicago, Milwaukee and St. Paul Railway, ranging from messenger to rate clerk, I moved across the hall of

the Exchange Building to become chief rate clerk in the Illinois Central Railroad and Big Four Railroad office, and later was chief clerk in the same office.

The combination Illinois Central-Big Four opened up the entire country to me—in fact the whole world when you take into consideration the export and import shipments. A day on a rate desk is like taking a trip around the world. You move from Canada and Alaska to Mexico, Central America, the Canal Zone, on down through South America.

It's an old saying that "once a railroad man always a railroad man," and it's about true. There is something fascinating about railroading—the elements of change of movement—the movement of people and commodities—something going somewhere all the time.

RAILWAYMEN

Exposed to All Kinds of Weather

HEENZO IS A NECESSITY

HAIL, rain, wind or sunshine, it makes no difference to the men employed on the out-door jobs in the Railway Department—they have their job to do, and they do it despite all kinds of weather. But exposure to sudden climatic changes often brings coughs, colds, influenza, bronchitis, and other chest and throat ailments. The goodness of **Heenzo** as a remedy for such ailments is proved by the fact that it is a favorite cough remedy in the homes of most Railway folk. **Heenzo** is popular for two reasons: firstly, its efficiency; secondly, its economy, for a two-shilling bottle of concentrated **Heenzo**, when added to sweetened water (according to the easy directions supplied), makes a family supply equal to eight ordinary-sized bottles of cough and influenza remedies that would cost up to £1. **Heenzo** is equally good for young and old, and can be given to even the youngest baby without fear of upsetting the digestion.

In cases where a large supply of cough remedy is not wanted, **Heenzo** may be used in its concentrated form, straight from the original bottle, as per directions supplied. This method is generally known as the bachelors' way of taking **Heenzo**.

Heenzo is the standard cough remedy in many hospitals—used by South Pole Explorers, and carried by Sir Alan Cobham in his flight from England to Australia. Order **Heenzo** from your chemist or storekeeper.

A Robot with an Electric Eye

HOW the photo-electric cell—the so-called “electric eye”—may bring about an estimated saving of thousands of pounds annually in the steel industry was demonstrated by J. V. Breisky, research engineer of the Westinghouse Electric Company in Pittsburgh (U.S.A.), at a recent meeting of the metropolitan section of the American Electric Railway Association.

AN accurate automatic process is to be substituted for human eyesight and judgment in determining temperatures of steel in the various processes of manufacture. No previous mechanical device has been quick enough to give the essential instantaneous record of the temperature of metal, in the blast furnace, the tube mill, or rolling mill. Tremendous losses thus occurred when the temperature was estimated too high, too low, or too inconsistently.

To illustrate this new use of the electric eye, Mr. Breisky made a demonstration of its precision in measuring temperatures. On the lecturer's table was a photo-electric cell unit, a cozy-glow electric heater, and a meter calibrated in degrees temperature. A varying current was made to pass through the heater, the temperature in the heating element thus being made to rise and fall.

Tremendous Saving of Steel

The slightest change—hardly noticeable to the human eye—caused an instantaneous variation in the reading of the meter. In all the processes of steel manufacture, where accurate control of temperature is essential, and where human eyesight finds it difficult to judge, the electric eye readily indicates temperatures from 1,300 degrees Fahrenheit up to the highest degrees of heat encountered.

It is estimated that in the United States alone several hundred thousand tons of steel are scrapped annually, or sold as an inferior product, because of lack of accurate temperature control in steel mill practices. The general adoption of this new robot in steel mills would save enough steel annually to construct the Chrysler Building 20 times over.

The tremendous increase in the use of alloy steel in recent years makes a means of avoiding waste essential, the speaker pointed out, since alloy steels are more expensive than ordinary steels and losses due to inadequate temperature control therefore more serious.

Another application of the electric eye, destined to affect almost every workman, office employee, or school child, was demonstrated next. A clever piece of apparatus automatically controls the lighting of factory, office or school. When the day is gloomy, when a storm arises, or when for any

reason daylight varies, artificial lights will be provided; and they will be turned off again when daylight gives sufficient illumination.

An unvarying degree of minimum light will thus be provided without human interference wherever this new device is installed.

To demonstrate the new light control, the unit was set up on the stage of the auditorium. The artificial illumination came from the ceiling, while daylight was represented by light coming from both sides of the stage. Before beginning the demonstration, Mr. Breisky had the overhead artificial lights on the stage turned on, while the “daylight effect” was out. The approach of dawn was then simulated by gradually increasing the “daylight.” At a certain point the electric eye acted, the main light being automatically extinguished. Thus a workman, near the point where such a unit was installed, would observe no variation below a fixed minimum in the amount of light falling on his work.

Mr. Breisky now decreased the light coming from the sides of the stage, representing the waning of daylight. As soon as a predetermined minimum was reached, the overhead lights were automatically turned on. A demonstration was thus completed of how a constant intensity of illumination can be maintained at a given point. Variations in daylight are often overlooked by persons responsible for the lighting of schools, streets, shops or factories.

Units Now Being Installed

The eyesight and efficiency of many workers in large plants is affected if someone neglects to provide artificial light when it becomes necessary to supplement daylight. On the other hand, waste occurs if the lights are left burning when not needed.

This automatic control is now used in one of the biggest factory aisles in the plant of the Westinghouse Electric and Manufacturing Company at East Pittsburgh. It has proved so valuable that several of the largest industrial concerns in the country are now installing such units.

Mr. Breisky pointed out how the automatic light control device could be applied to many lighting problems. The illumination of electric signs or of display windows in shops may be similarly controlled, an additional pos-

sible feature being the use of time clocks to darken the windows during the night hours when no illumination is desired.

Another interesting installation of this light control device, now in use, is that of controlling the flood lighting of several large gas holders located in the vicinity of an air port to insure the flood lights being on at any time during the day when daylight becomes too low. This prevents accidents to fliers, and is used at the same time for orientation of aviators by means of markers on the top of the gas holders.

Similarly, street lights may be automatically controlled so that adequate illumination is provided at all times without the possibility of the situation being overlooked by a busy or neglectful official.

Counting with Its Eye

A demonstration was also made of other devices developed by the Westinghouse Company where the photo-electric cell is used. Everyone entering the room was automatically counted as he crossed a beam of light which was thrown across the doorway. The shadow of a passing body caused the electric eye to communicate with a counting machine.

An automatic sorting machine was able to detect differences in the appearance of packages. A related device operated a fire extinguisher as soon as a whiff of smoke appeared.

The ingenuity of modern research engineers is bringing a quick solution to many difficult problems. It is interesting to observe how many uses have already been found for the practical application of a machine which can see.

Pigeon Smashes Cab Glass

ALBERT MARSH, a driver on the Liverpool - Southport Electric Railway, while driving in a train from Liverpool to Southport, recently noticed, when opposite Mitford-street, between Liverpool Exchange and Sandhills Stations, a flock of pigeons flying in his direction.

One of the birds flew straight for the glass casing fronting his cabin, broke a hole through, and the flying glass caught Marsh in the face. He, however, held on to his train and brought it safely to a standstill at Sandhills.



What is a "Good Husbandman?"

—*Wives Know!*

A good husbandman—a good familyman—is one who provides for the day-after-tomorrow. He knows that it is not sufficient to "pay-as-he-goes" when big expenses can be foreseen—as they almost always can.

Small, regular deposits in a State Savings Bank account will take care of the children's education, will multiply home comforts, and will provide for the family's "rainy days" and your own future. Your children are dependent on you now—don't be dependent on them!

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State Savings Bank receiving boxes are installed in almost all railway depots and establishments

UP COUNTRY

Tobacco at Deniliquin

Messrs. Selzer and Johnston, who have been successful tobacco-growers in north-eastern Victoria for a number of years, have leased two acres at Deniliquin and intend to thoroughly cultivate the land and sow tobacco seed at an early date. In the north-east, late frosts frequently kill young tobacco plants, but it is expected that this plot will raise 2,000,000 young plants for which a ready sale is anticipated in those districts affected by frosts.

Rain in the North

Bountiful rains have fallen almost generally throughout the Northern section and the weather seems to be making efforts to have the scythe work overtime at the end of the year.

Dried Fruit for Overseas

Dried fruit loadings for export from Mildura district have been heavy, and every advantage is being taken by the dried fruit packers to effect deliveries overseas. Mildura district supplies the major quantity of the export fruit, and all space on ships leaving Melbourne is availed of, so that the fruit will be available for the season's trade in England.

Golden Rain

Further beneficial rains have enhanced the season's prospects generally throughout the Geelong district.

More Rain Wanted

The recent light but general rains in the north-east have had a beneficial effect on crops and pastures, but a thorough soaking of the subsoil is required to restore complete confidence. Seeding operations have now been completed and further rains are necessary to give late sown crops a good start. In several districts "feeding-off" has been resorted to with some of the early crops, but generally speaking the frost has served to retard growth. There is a remarkable variation in the condition of crops throughout the territory. District Superintendent M. A. Remfry recently travelled over the route of the Yarrowonga—Oaklands extension and the country contiguous to the line is at present in splendid condition, and the harvest prospects bright.

Wool Coming

Arrangements for the handling of the wool traffic throughout the South-Western district are well in hand, and it is expected that a fairly heavy clip will be dealt with.

Freaks of Freaks

SOME strange freaks of nature have recently come under notice in the midlands.

A farmer at Murrayville has a pig, now six months old, with an extra trotter on one of its front legs, while a remarkably strange freak in the shape of a lamb, with no mouth and ears, and eyes beneath its top jaw, was found at Avoca.

At Tourello, a lamb was born with two distinct tails. It is suggested that the ewe was fond of two-up. The owner, for his part, declares that he would have preferred two lambs on the one tail.

Successful Picnic

At the meeting of the Maryborough railwaymen's picnic committee, a comparative statement presented by the secretary (Mr. E. J. LaRoche) showed that the profit of £247/17/1 for the carnival held on Easter Saturday, established a new record which previously stood at £152/9/11. The profit this year brings the amount raised for charity, since the inception of the picnic, to something like £1900.

Wool Hopes

The wool clip does not appear so bright, as many of the sheep sent for agistment were not returned, but with a supply of feed now coming on, results may be better than anticipated.

Tobacco Boom

A brisk demand has set in for land for tobacco growing at Pomonal. Values are rapidly rising and much of the land that has been sold has realised from £20 to £30 an acre. It is hoped to plant 500 acres this year, with a possible extension to 1000 acres next year. The influx of new residents is reflected in the fact that the attendance at the State school is more than three times greater than it was three years ago.

Country Transfers and Retirements

Mr. J. Abberton, until recently train running officer, at Bendigo, was presented with a brace of pipes on the eve of his transfer to Shepparton, and the staff were indeed sorry to lose so popular an officer.

On their departure from Tynong to Lyndhurst, Stationmaster A. S. Mawdsley and his family were entertained at a farewell function and presented with a silver tea and coffee service by the Tynong Progress Association and district residents, and a silver-mounted oak tray by tennis club members.

Before leaving Traralgon, Mr. J.

Reduced Wool Clip

Some time must elapse before the complete lambing results are known, but indications are that the percentage in the north-eastern district will be somewhat lighter in the aggregate. It is anticipated also that, as a result of the past dry season, much tender wool will be shorn in the spring. With reduced flocks and seasonal conditions the clip will be considerably below last year's figure of 104,000 bales.

Grass

The growth of grass following recent rains has caused the inwards fodder traffic to ease off, to the delight of the graziers who have been hand-feeding.

Wheat Prospects

Prospects in the Midland district continue bright for the coming wheat season. Wheat farmers have made use of every moment of daylight to get a big acreage sown, and recent rains have created boundless optimism.

Bridge Strengthening

The work in connection with the strengthening of the railway bridge over Barwon-river at South Geelong is progressing satisfactorily, and it is anticipated that the work will be completed in about two months time.

New Oil Stores

In addition to the Shell Oil Company's bulk stores at Portland, the Vacuum Oil Company has provided similar facilities, and the first consignment was pumped from the s.s. *Voco* last month.

Citrus Follows Grapes

The successful fresh grape season in the Mildura district has ended and citrus fruits are now coming forward in large quantities.

Hansen was bidden farewell and presented with a travelling rug and past president's certificate of the Institute. Mrs. Hansen was given an electric hot water jug.

Roadmaster H. P. Nolan, on transfer from Ballarat to Oakleigh, was presented with a silver entree dish by Ballarat railmen. Mention was made in these columns last month of Dimboola's presentation to the popular Way and Works man.

On the occasion of his recent retirement, Workmaster George McCubbin was given a smoker's outfit by the staff of the Ballarat section.

Where to spend a Holiday

TO HOTEL AND BOARDINGHOUSE KEEPERS, PROGRESS ASSOCIATIONS, HOUSE AGENTS, ETC.

The V.R. Magazine is sent each month to 30,000 railway homes. Of this number there are 1,200 railwaymen on leave for an average of a fortnight at any time of the year with free passes over the whole State railway systems. It therefore offers an unparalleled medium for making known holiday resorts, accommodation, etc. For rates and fuller particulars write the Advertising Manager, Victorian Railways, Spencer-street Station Buildings, or 'phone C6414

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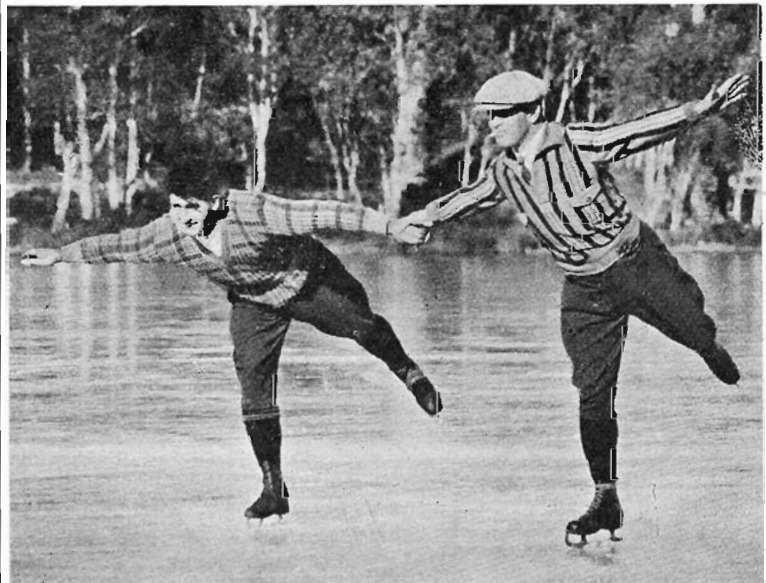
A REAL PUBLIC SERVICE

To curtail expenditure just now is a wise precaution, if not a necessity. To do this invariably means sacrificing quality for a commodity at a lower price. This does not usually bring satisfaction, but if you stay at **The Victoria** you will effect considerable saving in your hotel bill, and at the same time enjoy all of the advantages of a first class modern hotel. A sojourn at **The Victoria**, with its cheerful atmosphere, comfortable well-furnished accommodation, up-to-date appointments, splendid service and low tariff, affords a refreshing change from home environment, and is an effective remedy for depression. Single rooms from 5/- to 7/6; double rooms, 8/- to 14/-. Private bathrooms at an additional charge of 2/6 per day are available in the new East Wing. All meals are extra and optional.

THE VICTORIA PALACE

Next Town Hall, MELBOURNE

AUSTRALIA'S BEST
HOTEL VALUE



Ice Skating on Lake Catani, Mt. Buffalo National Park

JOTTINGS from the INSTITUTE

Attendances of Councillors

THE annual meeting of members of the Victorian Railways Institute will be held on Saturday, October 11, and the annual election of councillors for the ensuing year is now in progress. Attendances of councillors at the ten council meetings held during the year just closed were as follows:—

T. B. Brennan, 10; D. Cameron, 8; E. W. Arthur, 0; J. Gault, 3; P. P. Arnold, 0; W. Asker, 5; R. Balmer, 9; W. J. S. Donald, 8; G. R. Dowsett, 5; D. Elliston, 5; S. H. Evans, 6; B. E. Falloon, 10; H. W. L. Forster, 5; W. G. G. Hall, 9; W. Langan, 2; V. F. Letcher, 10; G. A. Munro, 8; J. J. Nolan, 10; E. Richard, 2; C. N. Roscholler, 7; H. S. Sergeant, 8; J. F. Stewart, 5; A. W. F. Smith, 9; A. E. Turner, 8; C. G. Walker, 7; W. Watson, 10; L. D. Wells, 7; H. Wilson, 9;

Annual Institute Elections

NOMINATIONS are invited for the positions of councillors of the Victorian Railways Institute (17 to be elected) and of auditors (two to be elected).

Nominations must be in the hands of the General Secretary not later than Saturday, August 23, 1930.

The following extract from the constitution relating to nominations, is published for the information of members:—

56. The members of the council (other than those appointed by the Commissioners) shall be elected annually by ballot, in accordance with the procedure and conditions specified hereunder:—

(a) Any two members qualified to vote may nominate as a candidate for



This picture of five well-known railwaymen was taken 34 years ago. They are: (back row) Morgan Hayes, now in the Transportation staff office and Charles Corbett, officer-in-charge of the perishable shed; and (front row); Tom Kennedy, now in Room 2, the late E. B. Jones, and J. McDonald, at present stationmaster at Warrnambool.

election to the council any member eligible for nomination by giving notice thereof in writing to the General Secretary, accompanied by the written consent of the candidate, not less than 28 days prior to the annual meeting, such nomination and consent to be made in the form set out in appendix "A" of the rules.

60a. No person shall be eligible to be nominated to the council unless he be an active member of the Institute, and has been such for at least six months prior to such nomination, and has paid his subscriptions up to date.

71. Two auditors, not members of the council, shall be elected at each annual meeting.

72. The nomination and election of auditors shall be carried out as far as practicable in the manner prescribed for nomination and election of members of the council.

Nomination forms may be obtained at the General Secretary's office.

Railwaymen's Club at Warburton

SOCIAL enjoyment for members and their families is the object of the newly formed Railways Social Club at Warburton. The club-room is in the Institute building, and public functions, social euchre parties and dances are held, all profits being devoted to local movements.

Mr. Maroney is president, Mr. H. C. Cook vice-president, and Mr. A. G. Ogle honorary secretary.

Bendigo Marriage

Mr. J. Ward, telegraphist, at Bendigo, has joined the benedicts and was given a very fine case of cutlery and silverware by his fellow-workers.

**YOU CAN'T AFFORD TO
Spare
YOUR
Spare
TIME**

HOW MUCH SPARE TIME HAVE YOU?
Let the International Accountants Society Inc. (U.S.A.) help you to make use of this time. The I.A.S. is probably the best known business training institution in the world. In this great institution with assets of over £2,000,000, you will find the opportunity to secure just the kind of training you have wanted and needed in accountancy, office management, auditing, or cost accounting, etc.

Write for full particulars to DISTRICT MANAGER,
I.A.S., BOX 945G, G.P.O., MELBOURNE

Victorian Railways Institute

2,500

New Books *and— a Reduced Registration Fee*

The Railways Institute
Library is now being
thoroughly reorganised.

2,500 New publica-
tions by popu-
lar authors will be available
on AUGUST 1st.

SIMULTANEOUSLY,
the Library registration
fee will be reduced from

2/6 to 1/-

Every borrower is still entitled to
Two Books at the cheapest library
rate in Melbourne, and the latest pub-
lications will be available each month.

If you're a
member of the
Institute and a
library
borrower,
spread the
good news
amongst your
fellow mem-
bers and non-
members.

If you're
not—

Join NOW !

A. GALBRAITH
General Secretary

Doing Without

DOING without things you can afford is a sounder economy plan than doing without those you cannot afford anyway. The one is voluntary economy, the other merely the involuntary act of necessity, yet too often are they confused.

YOU can't save money you haven't got, but you can save some proportion of what you have. Systematise your economy with a Bank Pass Book. Neither the Pass Book nor the Savings Bank account it represents cost you anything, and the Service of the Commonwealth Savings Bank is offered from its many branches and from all Post Offices.

Commonwealth Savings Bank of Australia

(Guaranteed by the Commonwealth Government)



Mr. R. S. Burridge, of the Audit Branch, sends along this picture of Ripponlea station taken shortly after it was opened. The three uniformed railway men are—S.M. A. Cook (retired), Mr. Burridge and Porter Knight (now R.S.M.)

Summer Sunset at Mordialloc

By Harry Tunnecliffe

IN their descent the shadows sought to reach
The scarf of gold that spanned the western sky.
The last rays of the summer sunset die
Above the lovely Mordialloc beach.

THE lispng waves raced over sand and shell,
Combing the shore with one incessant sweep;
And silence settled on the outer deep,
And music mingled with the ocean's swell.

CHILD called to child in all absorbing play
As from the tufted tea-tree laughter steals,
Filling the air with sweet successive peals
Whose echoes range across the sleeping bay.

THE south wind softened to a gentle lull,
The sea moaned sadly to the coming night,
And indistinctly, through the failing light,
Above the shingle soared the graceful gull.

GANNET and tern and cormorant found rest
Upon the tranquil surface of the sea,
And in the dark recess of bush and tree,
Where quiet dwelt, the land bird sought her nest.

AND from the distance, where the headland lay,
Came bathers' voices, as they vainly strove
To stem the seas that ever onward drove,
Over the pebbles, foam and flying spray.

A RUSH of little feet, and baby speech
Greeted the ripples on the rising tide,
And in a crimson cloud the sunset died
Above the lovely Mordialloc beach.

MAKE SURE

Of the condition of your eyes by consulting us. Headaches, pain round the eyes and temples or at the nape of the neck may all be due to eyestrain, caused by errors of refraction.

'Phone Cent. 10595 and make an appointment.
OPEN TILL 9 P.M. FRIDAYS.



Railway Employees' Optical Benefits

Messrs. COLES & GARRARD have arranged that all Railway Employees and their families are to be included in their Special Benefit Plan. Have your eyes tested by these well-known Opticians, who will allow you 20 per cent. discount.

Coles & Garrard Pty. Ltd. Opticians

370-372 Bourke St., Melbourne, C1
(Five doors from Elizabeth-street).

Personal Postscript Wireless

Assistant Stationmaster J. Wilson of Dandenong has retired after completing 44 years service.

Forty-five years of service was closed last month when Relieving Stationmaster J. Gallin went into retirement.

Stationmaster C. Truman of Westgarth will sever his connection with the department this month.

In charge of Maldon for many years, Stationmaster J. E. Nicholas has now retired.

Friends farewelled Assistant Stationmaster J. M. Tydeman of Balmattum recently, when he reached the retiring age.

Brevities

"I am never tired of travelling. There is something in the rhythm of a railway train that I really like."
—Kubelik in an interview.

The Pennsylvania railroad has been authorised to acquire the Western New York and Pennsylvania railroad under a 999-year lease.



"NUGGET" MIDDLE BROWN

gives a brilliant lasting shine with a minimum of effort. Use it daily on your shoes, not only for appearance's sake but also because it preserves the leather.

THE "NUGGET" TIN OPENS WITH A TWIST!

Continued from page 32

(or is it Jiggs?) presumably conducting an elimination test with Pike's new high capacity—low resistance method for which a blue ribbon was awarded.

Why not make up a small party and join the radio ramblers at their next outing at Selby. The railway 'bus stops at the door. There is a local hall available for dancing, and a picnic ground 1,000 ft. above sea level. The district abounds in week-end cottages for hire at quite a nominal sum. Anyone may come. Full particulars from "Aerio," c/o V.R. Magazine, Railway Buildings, Spencer-street.

Wireless Club Syllabus

THE following is the V.R.I. Wireless Club syllabus for August:—

Tuesday, 5th.—Preparations for August field day. Construction of all-electric sets. New members.

Thursday, 7th.—General meeting.

Tuesday, 12th.—Workshop night.

Thursday, 14th.—Special lecture. All readers of this Magazine may attend.

Tuesday, 19th.—Construction of all-electric sets. New members.

Thursday, 21st.—Technical committee only.

Tuesday, 26th.—Workshop night. Repairs, advice, etc.

Thursday, 28th.—General committee only.

Old Brigade's Annual Meeting

THE annual meeting of the Retired Railwaymen's Social Club was held in the Institute concert hall on Thursday, July 3. There was a large and enthusiastic attendance.

Great regret was expressed at the death of several old members, including Mr. J. Patrick, whose sudden death after an operation came as a great shock to many old friends and comrades.

Satisfaction was evidenced at the healthy condition of the club finances, as shown on the balance sheet which was read and explained by the auditors. Stress was laid on the large attendances at the several card tournaments held in the clubrooms each Wednesday afternoon and at the monthly socials held on the third Thursday in each month.

The new president, Mr. W. Paull, and the secretary, Mr. Maurice Quinn, urged members to bring the advantages of club membership to the notice of the large number of men who retire each month from the service.

Election for the various offices was well contested and a strong working committee, including four new men, was appointed. The new year was entered upon with hopes that it would be the best year in the history of the club.
—A.A.

Wheel Centres Axles - Tyres

For
RAILWAYS
and
TRAMWAYS

Vickers- Commonwealth Steel Products Limited

WARATAH, N.S.W.

Contractors
to all
Australian
Railways

Steel Castings
Of all sizes and
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Manganese Steel
For points and crossings
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Sydney Office
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Telegrams: COMSTEEL
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Agents for Couplers
Gilbert Lodge & Co. Ltd.
Market Street, Melb.

RAIL USERS SAY—

A TRIBUTE TO SERVICE

IN travelling today (Sunday) by the 12.30 p.m. train, from Melbourne to Box Hill, I had the misfortune, on alighting at the latter station, to leave on the rack in the train, certain very valuable articles contained in a leather bag, plus a pair of shoes and some oranges from one of your fruit stalls. I discovered my loss too late to retrieve the articles before the train continued its journey to Croydon. However, I told the clerk in charge of the booking window, who treated me very courteously, and asked the young porter to take up the matter. This young fellow attended to every train that went through, and yet in the intervals he succeeded in ringing up all the stations between Box Hill and Croydon before the train, with my belongings, reached the latter station. In phoning Croydon he surprised me by telling the officials there that the goods were in a second smoking swing door compartment near the centre of the train. When I asked him how he knew, he said he had seen me leave the train. There were many passengers by that train, and I consider that young porter very observant. This conduct is typical of all I have noticed on the railways. I have never had anything but courtesy from all members of your fine force of railway men. I must also thank you for looking into the matter of the night train through Bayswater. I asked that it be run later. I hope that will come to pass some day.

—Mr. H. A. Berry, School No. 2163, writing to the Chairman of Railways Commissioners.

"ARRIVED IN PERFECT CONDITION"

I HAVE just received, at the Haddon railway station, one truck of super., consigned from Geelong, and I would like to compliment the Department on the excellent way in which it was delivered. It came through some very wet weather, but every bag arrived in perfect condition. It may interest you to know that my wool clip handled from Haddon to Geelong by you in December last, was sold in Geelong a fortnight ago, and realised a very satisfactory figure. I was extremely pleased when I saw the bales on the sales floor, to see how well they had been handled by your Department, and how free they were from dirt or crushing. I can assure you that I shall have pleasure in asking you to handle next year's clip also.

—Mr. Chas. Walker, 21 Lydiard-street, South, Ballarat, writing to the District Superintendent, Ballarat.

SATISFACTORY HANDLING OF RACE TRAFFIC

AT last night's meeting of my committee, I was directed to write to you, expressing this club's sincere appreciation of the efficient handling of the traffic in connection with the special train from Bendigo to Deniliquin, and return from Deniliquin to Bendigo. The co-operation of the railway staff, and stationmaster at Deniliquin, during the whole of the business of the race meeting, was all that could be desired.

—Mr. J. R. Donovan, secretary, Licensed Victuallers' Race Club, Deniliquin, writing to the Chairman of Railways Commissioners.

Nothing is of greater value towards success than the earnest effort to make and keep friends.

That burden becomes light which is cheerfully borne.

Acquire the safety habit—it is one habit that will never hurt you.

The initiative which embraces the opportunities of today is also constantly unfolding those of tomorrow.

SMART WORK

WE had an urgent order passed on to us yesterday afternoon for eight tons of paper, to be delivered to one of our city clients today. Under ordinary circumstances, the truck containing this order would not have been cleared from our siding until this morning, and would not have been in Melbourne until Saturday morning. We got in touch with the local stationmaster (Mr. Collins) and he arranged to have the truck picked up by a through goods at about 5 p.m. This enabled us to have the paper available for our clients in Melbourne today as they desired. We desire to thank you for your co-operation in this matter, and also to thank Mr. Collins for his promptness and courtesy.

—Australian Paper Manufacturers Ltd., Broadford, writing to the District Superintendent, Seymour.

SATISFACTORY FURNITURE HANDLING

THE furniture arrived here before me, and a carrier unloaded it, so I had to pay nothing on it. There was not a thing broken, scratched or cracked. I was asked by men at the station who packed it, as it was the best packed furniture they had seen for a long time, and I told them that the stationmaster at Sheep Hills did the business. I want to thank you again for the way you did the business. Best of luck to you.

—Mr. James W. Butler, "Avalon," Cranbourne Road, Frankston, writing to the stationmaster, Sheep Hills.

Wholly set up and printed in Australia at the Victorian Railways Printing Works, Laurens-street, North Melbourne, for the Publishers—The Victorian Railways Commissioners.



*Ruskin's Advice
and the
Malvern Star
Standard of Value*



"There is hardly anything in this world that some man cannot make a little worse and sell a little cheaper, and the people who consider price only are his legitimate prey."

—RUSKIN

IN manufacturing, there must be one standard by which every product of a similar nature is judged. World-wide recognition of

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performance and endurance has established it as this Standard among Cycles. Guaranteed all-steel construction, together with the finest expert craftsmanship and absolute perfection of detail, has made MALVERN STAR the accepted Standard of Value.

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BRUCE SMALL PTY. LTD.

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185 Glenferrie Rd., Malvern 226 Chapel St., Prahran
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134 Sydney Rd., Brunswick

Please send me Illustr. Folder!



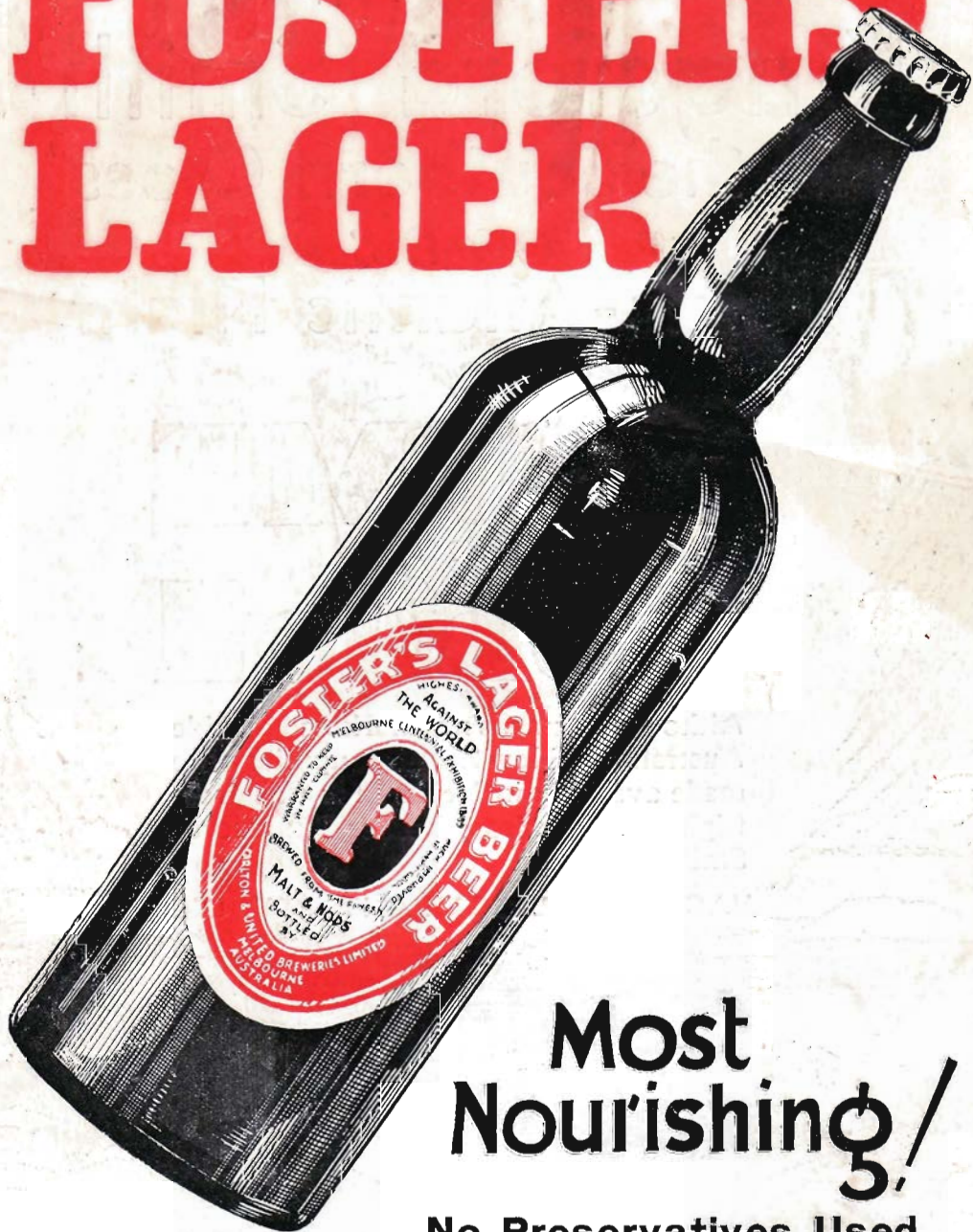
Kingsford Smith
in the "Southern Cross"
on his
Trans-Atlantic Flight
used

PLUME
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Although Plume is not marketed outside Australia and New Zealand supplies were made available in Ireland for this great flight, at Squadron Leader Kingsford Smith's request.

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**Most
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No Preservatives Used

The Victorian
**RAILWAYS
MAGAZINE**



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SEPTEMBER 1930



REGISTERED AT THE G.P.O. MELB. FOR TRANSMISSION BY POST AS A NEWSPAPER



Wonderful!

The One-shilling -a-Day Budget Buying Plan—

Puts the Finest Clothing within the reach of men who ordinarily find it inconvenient to make a single payment of, say, £8 or £9 at one time. Men accustomed to purchasing homes or furniture on Deferred Payment will find this plan of utmost convenience in purchasing Fine Clothing.

Now I Can
Dress Well
on One Shilling
a day



This Newly Established Charge Service permits railwaymen to purchase clothing on the following basis :

For £6/6/- Suits or Overcoats—

You pay £1/12/- at time of purchase and 1/- a day

For £7/7/- Suits or Overcoats—

You pay £1/17/- at time of purchase and 1/- a day

For £8/8/- Suits or Overcoats—

You pay £2/2/- at time of purchase and 1/- a day

For £9/9/- Suits or Overcoats—

You pay £2/7/- at time of purchase and 1/- a day

Payments to be made Weekly or Fortnightly

NOWHERE in Melbourne can you get such excellent values for your money. This is accounted for by the fact that our upstairs location, which saves us at least £60 a week in rent alone, enables us to offer clients a saving of 20 per cent. on all their purchases. If you cannot call, write for patterns and full particulars.

COUNTRY CLIENTS

Be as Well Dressed as Your City Friends

Write us today for our free book of samples and self-measurement form with full instructions how to measure—just take your own measurements and post to us. We'll do the rest. Try it—costs you nothing—just a post card. Get the free samples and prices anyway, and also our handsome booklet "How to Dress Well on a Shilling a Day." You will learn something interesting about dressing well and saving money.

Country Clients Please Post Coupon

Kindly send me patterns of your suitings

Name.....

Address.....

NOTE.—Please indicate shade and price

V.R.M.

BYERS

*"Known to all
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(Corner Collins Street)

101 Swanston St., Melbourne, C1.

MacRobertson

"TIP TOP"

TOFFEE

6d. and 1s.
Cartons

Now Available



"Now take our tip," said
Tip and Top,
"(This hint is well worth
dropping)
You'll take one taste and
never stop,
For 'TIP TOP' Toffee's
topping!"

Sold at all Railway Refreshment
Rooms and Kiosks

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Salamanderite or Bellite Compressed Asbestos Fibre H.P. Jointings are exceedingly tough and strong. They are suitable for High Pressures and Superheated Steam.
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ALWAYS
LOOK FOR
THE BELLS

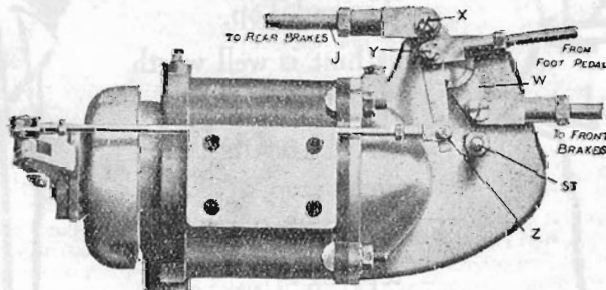
"VICTOR" VALVES
have been designed to meet the demand for a reliable Superheated Steam and H.P. Valve that will operate without loss of efficiency. All Seatings and Faces are interchangeable, and the Faces are reversible. Both Seatings and Faces are made of Chrome Alloy.

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Reefer is a scientifically designed packing so made that whilst affording the maximum metal bearing surface it is comparatively light in weight. It accommodates itself to all pressures, temperature, and sudden alterations of load.

Westinghouse Vacuum Servo Brakes

For Motor Cars, Buses, Commercial Motor Vehicles, Trailers

High
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and
Extreme Flexibility
with Minimum
Physical Exertion

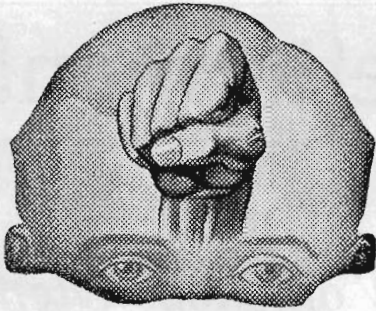


Effective Brakes
are
necessary for
safe
transportation

The Westinghouse Vacuum Servo Brake can be readily applied at quite moderate cost to motor vehicles of all types. We shall be pleased to supply full particulars on receipt of information concerning make and type of vehicle.

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Concord West. N.S.W.—Victorian Office, "Chancery House," 485 Bourke-st., Melbourne



Thinking within The Facts and Circumstances

ONE of the functions of Pelmanism is to train people to think and act within the facts and circumstances as they really are; to meet changing and perhaps adverse conditions cheerfully, to anticipate happenings and prepare for them, to make the best use of what is and refrain from regretting what might have been, to be sane and human when affairs are going well and serene and hopeful when they are going ill.

THIS is not a policy of perfection. It is an attitude of mind adopted towards life as a whole and not only towards individual and isolated circumstances. It sees things clearly as they are, neither better nor worse. It recognises a difficulty as something to be overcome and times of depression as opportunities for courageous effort, not as bogeys to be frightened of, and it seizes promptly and effectively whatever advantages there may be.

DURING the past few months we ourselves have had abundant evidence from students of Pelmanism of the value of the Pelman Training in present day conditions. Others have had this evidence too, for we are getting more and more enrolments from those who, realising that the present time calls for strength and determination, are seeking Pelmanism as a means by which these qualities may be most effectively employed.

They have learned that the phrase, "the hour and the man," is applicable to every circumstance and to all kinds of positions, low, high and middle, and that when the hour strikes, he who has done some thinking within the facts, who has a sturdy confidence in his ability to make the best of existing conditions, is given opportunities to strengthen his position and so looks upon both the present and the future without fear or misgiving.

We shall be glad to tell you more about Pelmanism and its inspiring effect on the individual.

"The Efficient Mind"

The Pelman Course of Training is fully described in "The Efficient Mind," which contains 76 pages of matter and illustrations of very great interest. Copies are posted free. Call or write for one. Inquiries are regarded as confidential communications. The Pelman Institute has no outdoor representatives.

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THE PELMAN SYSTEM is taught by post in twelve interesting lessons. It takes about three months to complete the course. Benefit begins with the first lesson, and the interest and attention are maintained throughout. Write now to the Secretary, The Pelman Institute, 32 Gloucester House, 396 Flinders-lane, Melb., C1.

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To The Secretary, THE PELMAN INSTITUTE
32 Gloucester House, 396 Flinders-lane, Melbourne, C1
Please send your free book—"The Efficient Mind"

NAME

ADDRESS

Safety—Health—Betterment

Benefit by Your Ideas

THE following awards were made during July for adopted suggestions:—

Total amount ... £78
Highest award ... £20

The number of suggestions received during July was 209.

Arrangements still exist for the placing of adopted suggestions of particular merit before the railways of the various States and also the Commonwealth and New Zealand Railways.

September Suggestions Drive

THE subject chosen for the 33rd Suggestions Drive, which will be held during September, is:—

Automatic Signals and Fittings.

Suggestions should be submitted to the Betterment and Publicity Board in the usual way. Suggestions on any other subject will, of course, also be received.

What Is Success ?

IT isn't the cut of the clothes that you wear,
Nor the stuff out of which they are made,

Though chosen with taste and fastidious care ;

It isn't the size of your pile in the bank,

Nor the number of acres you own ;
It isn't the question of prestige or rank,

It isn't the things you possess.
Whether many or little, or nothing at all—

It's service that measures success.

It isn't a question of name or length of an ancestral pedigree,
Nor a question of mental vigor or strength,

Nor a question of social degree ;
It isn't a question of city or town
Or a question of doctrine or creed ;
It isn't a question of fame or renown,

Nor a question of valorous deeds ;
But he who does something of worth every day

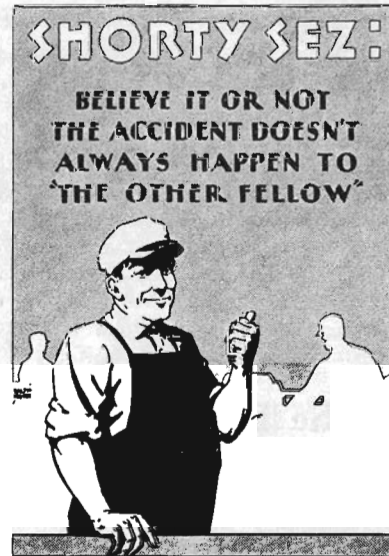
Giving pleasure or sharing distress,
Will find satisfaction the richest pay,
For it's service that measures success.

And speaking of hazardous occupations, there's the window washer and the steeplejack and the steel worker, and then there's the editor who dropped 11 stories into the waste basket.

Safety First Points— for Workshops Men

The dangers of an improper use of tools in the workshop are described in this article, which we reproduce from the current issue of the *Louisville and Nashville "Magazine."*

WE have, within the past few years, very materially reduced injuries from use of hand tools. This reduction has come about by



improper maintenance of such tools and education in their proper use. However, we still have some injuries from this source, entirely too many, since accidents of this type can be easily controlled.

With the recent rearrangement of the Safety Department, which gives our inspectors specific territories in which to work, they have been, and will continue to make, periodic and systematic inspection of tools in all departments.

Burrheaded or mushroomed tools are the most prolific source of injuries from hand tools, but there are other features which should receive as careful attention as the mushroomed head, such as spread jaws of wrenches, split handles, claw bars with worn jaws, etc.

Every foreman should most certainly

keep striking tools free from mushroomed heads. The faces of such tools can be kept in proper shape with comparative ease, and the danger of a burr-headed tool is known to everyone familiar with the use of such tools.

Oftentimes when an inspector goes in to look over the tools he will find a tool with a bad head, and is usually told that that particular tool is not used any more. The tool that isn't used is just the one that will cause an injury, as the gun that is not loaded is generally the one that kills a person. Such tools should not be kept about, for so long as they are about they will be used by some man at some time.

Not all shops or gangs are giving the attention they should to conditions of wrenches. The jaws of wrenches should be inspected with special care, because sprung jaws prevent wrenches from taking a firm hold on nuts, allowing them to slip off, which often causes serious injuries.

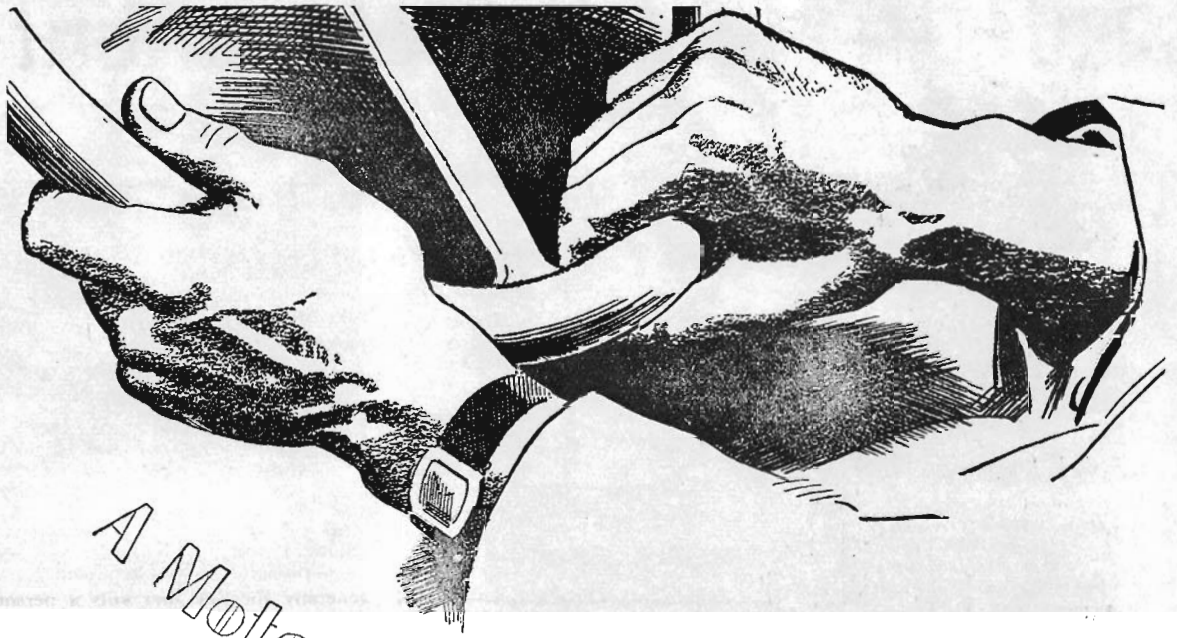
Danger of Grease

Split or broken handles can cause some very serious injuries. A split handle occasionally catches the flesh of the hand and pinches a blister, and we have had some very serious cases resulting from blisters caused from pinches. The handles of all tools should also be kept free from grease, as the hand slipping off the tool has caused numerous accidents resulting in injury.

One of the most common types of injuries to track men is caused by claw bars slipping. Proper maintenance of the jaws of claw bars will prevent many of these accidents.

Claw bars are also sometimes struck with spike maul on the heel causing burrs on each side of the heel. These burrs should be kept clipped off, as we have had a number of accidents from them flying off when struck and hitting men. However, with the type of claw bar now in use, which has a flattened or chiselled end, there should seldom be an occasion for striking the end of the claw bar.

Improper use of tools probably causes as many injuries as a poorly maintained tool, and most certainly the improper use of a hand tool, together with poor maintenance of the tool creates a hazard that is very apt to cause injury.



A Motorist writes

**“However greasy my hands may be
Clever Mary never slips out of them”**

“I Recommend It”

states noted Bacteriologist

“... I find that the CLEVER MARY ANTISEPTIC TABLET gives a nice, soft lather, has excellent cleansing properties, and gives off a pleasant aromatic odour. It has a definite ANTISEPTIC and GERMICIDAL action. I therefore recommend it as an Antiseptic cleanser.”

(Signed)

(Original may be inspected at Head Office of The Paget Co.)

YOU don't have to be a motorist to appreciate this extraordinary new cleanser—but if you are, then you'll find it indispensable. For it's completely different from and better than any cleanser you've used. Clever Mary Tablet dissolves grease—removes stains,—lathers instantly in salt water or fresh—and contains a positive antiseptic.

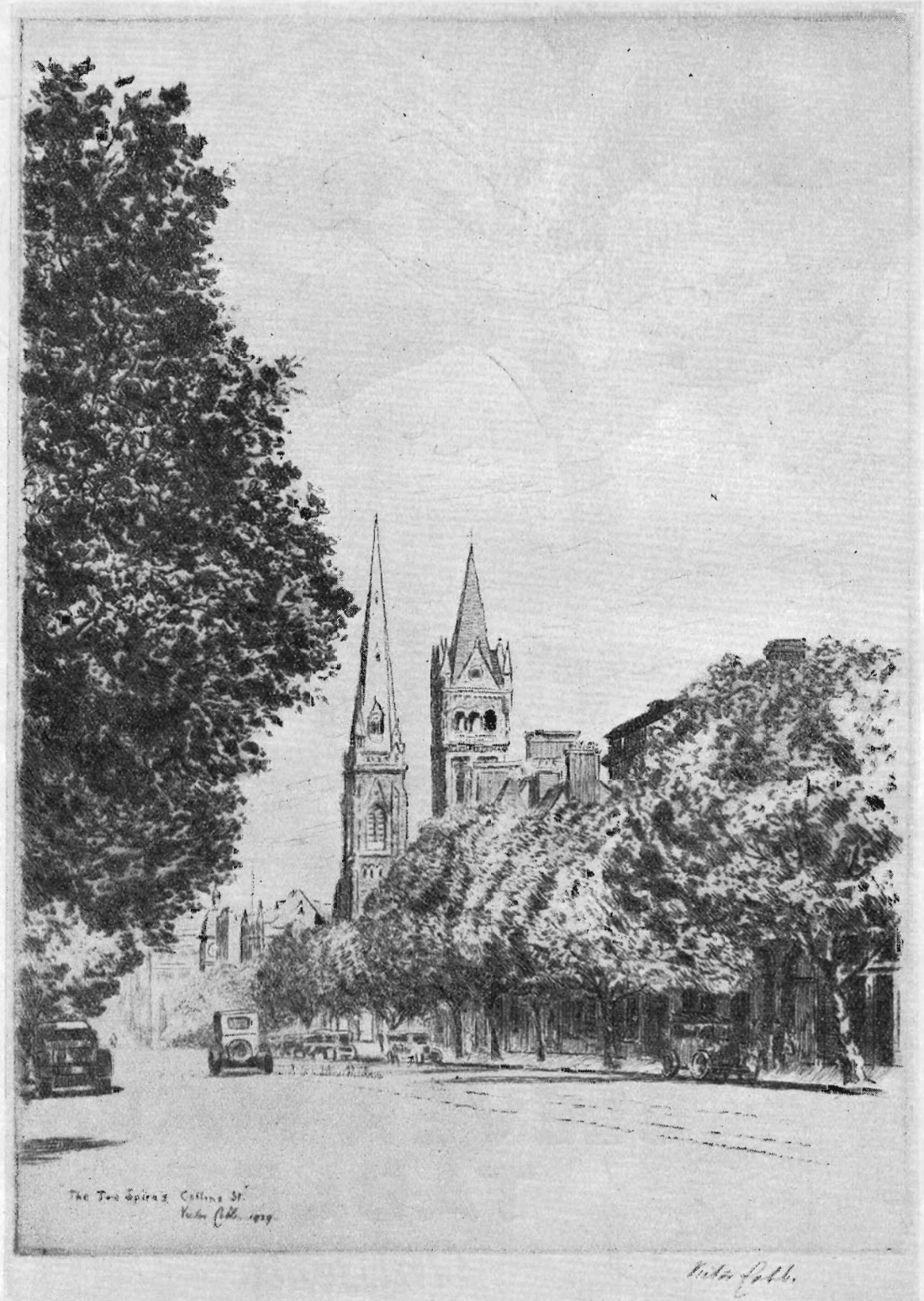
Think of it—a germicidal tablet that is non-irritant and positively harmless to the skin—that will do all that you've ever asked of any cleanser—and more—in half the usual time.

Give Clever Mary Tablet a trial to-day . . . As a smooth hand-cleansing treatment it's a revelation!



**CLEVER MARY
TABLET**
Antiseptic

MADE BY THE PAGET MANUFACTURING CO., LTD.



"The Two Spires, Collins-street."—An etching by Victor Cobb.

The ETCHER'S CRAFT

By VICTOR COBB, with etchings by the writer



PEAKING from a lifetime of practical study in the etching craft, I must say that I have found it to be the most interesting and alluring of all the graphic arts. Its various charms of approach and possibilities, and its

variety of technique seem endless.

Its most distinguished exponent of modern times, Sir Frank Short, A.R.A., says:—"I believe that more real enjoyment is got out of etching than any other form of art, and I would assure those who love etching on paper, that there is besides in this a world of enjoyment for those who make them on copper."

And again F. T. Palgrave says:—"There are few forms of enjoyment purer, stronger, and more enviable than the gift of producing for oneself—and for others—those aspects of peace and loveliness which most closely touch the breast and awaken human sympathy. What a charm against the baser influences of the world, against the disenthusiastic experiences of life, against old age itself—that common enemy of all—may not such a gift as this present? How unpurchasable a source of pleasure, how inalienable!"

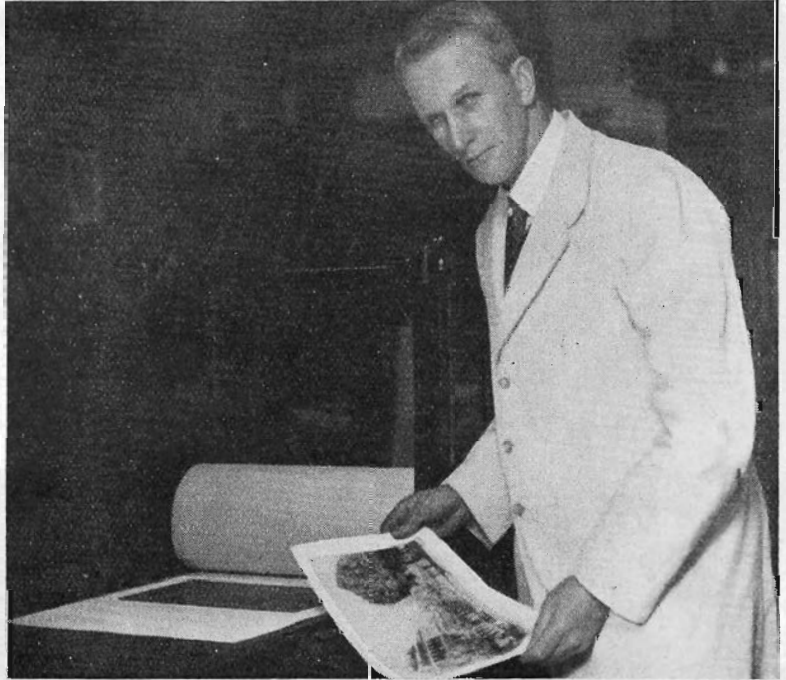
An etching is a print on paper from a metal plate, on which the artist has drawn his picture in reverse, and then corroded, or etched it into the plate by acid.

THREE distinct stages are imperative in the process of making an etching, and all must be absolutely mastered by the etcher before he can claim its full accomplishment

1. *He must be master of drawing, composition and expressive line.*
2. *Must have supreme control of the acid work*
3. *Must be master of every legitimate phase of printing etchings, without usurping the domain of the etcher's point, or needle, which alone must be his principal medium of graphic expression.*

Many etchers have claim only to No. 1. Fewer still have mastered Nos. 1 and 2. And an extremely small percentage, possibly not more than two per cent., can claim mastery of 1, 2 and 3.

Prior to the advent of photography



Mr. Cobb at work in his studio



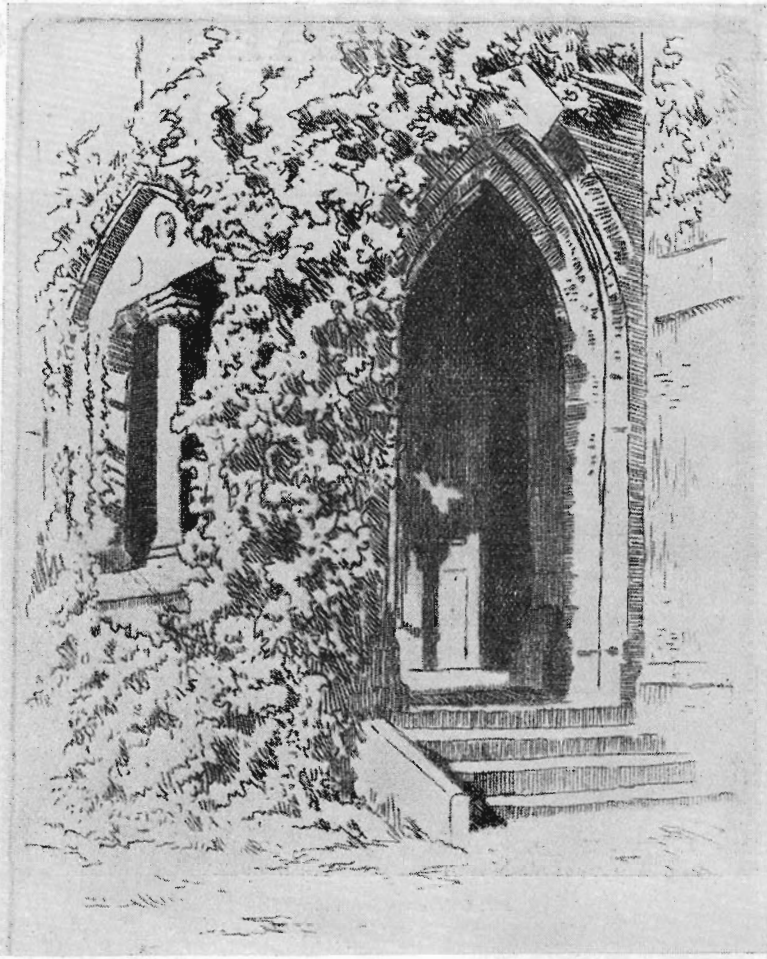
"A Fragment" . . .

(which is not an art), etching was largely utilised for pictorial publication of paintings, but is now used solely as a medium of original and artistic expression.

We have it on record that, as far back as 1568, there was born into the world the most versatile and profound genius the art of etching has ever known. Rembrandt Van Rijn was the first to demonstrate the glorious possibilities of copper plate and steel point in the hands of a genius, and the amazing fact is that he is still the undisputed master of etching, that his marvellous triumphs of what is probably the most illusive, uncertain and difficult of all the graphic arts, those masterpieces wherein he has soared into realms of sublime achievement, have now remained unrivalled for over three centuries.

Artists all the world over have been and are still admiring his work, hundreds and thousands of remarkable etchings have been done since his time—but the world has not yet finished admiring Rembrandt's work; life and vitality will forever stir in them!

How many of our etching exponents of the present day realise the truth,



A sample of Mr. Cobb's earlier work. This etching of the entrance to Trinity College, Melbourne University, was done in 1912

that etching should be the art of expressive and not imitative line? Whistler, the greatest etcher since Rembrandt, was much alive to this truth, and in one of his brilliant retorts to his hostile critics, said: "To say that we must accept Nature as she is, is to say the musician must

accept the piano as he finds it, and sit on the keys! But the artist is born to pick and choose, and the result may be beautiful, as the musician gathers his notes and forms his chords until he brings forth from chaos—glorious harmony!"

Etching is eminently a personal art,

SATAN'S "Railway by the Sea"

UNDER this title, *The Evening News* (England) recently published a "talk" with Mr. Magnus Volk, of Volk's Electric Railway, Brighton. There will be a new station at Whitsun for this "famous little electric railway down on the seashore—the railway which was built by the man who first brought electricity to the town."

The railway was opened by the Mayor on August 3, 1883. In those days the cars carried ten passengers and ran at six miles an hour. "My scheme met with a good deal of op-

position; people said that the railway started nowhere and ended in the same place, and so on; but last year over a million and fifty thousand persons used the railways. Soon after it had started, an old lady who liked riding on it, said to one of the conductors: 'I suppose we shan't have nearly so many thunderstorms now that you are using up all this electricity.' And an old gentleman took to coming down every morning and standing with a foot on each rail to give himself an electric shock. He told me it did his rheumatism good."

as individual as handwriting, and though all artists do (or should) sign their works, as a guarantee of good faith and identity, an etching from the hands of a master is signed all over—by his personality and individuality. Whatever be his temperament and his mood, they will permeate his work in most unmistakable characters.

IN Australia, the out-door conditions for making etchings are not as favorable as in cooler countries.

In England, for instance, the foliage and contours of the trees are more decided, and the thin light and shade more defined. We have, in our trying and changeable climate, moreover, the distractions of hot winds and numerous insect pests, while the tone values of our landscape more often than not are elusive and subtle and "pitched in a much higher key." Still, we have some etchers who have achieved work of a high standard and, as our "big four" in the art, I have no hesitation in selecting the names of Sid Long, Heysen, Lionel Lindsay and Harold Herbert. Conrad Martins of New South Wales appears to have been its first pioneer etcher, and John Mather for Victoria.

All etchers of high attainment have taught themselves and found their own way in their art, and if the student approaches nature with a firm and steady resolve to study and fathom her beauties and her mysteries—all of which are to the average person a sealed book—and to seek knowledge from her boundless cyclopaedia of wealth, then—and not until then—will she reveal her secrets to him.

*A needle point is all I ask,
Upon the polished copper,
To let me take this "foreground
bit"*

*From all the wealth beside me,
And soothly—simply—etch it
With Nature here to guide me.*

Victor Cobb.

World's Oldest Railway

HOW old is the oldest railroad man?

C. J. Hill of the American Brotherhood of Railway Clerks nominated J. Gallagher, who is now more than 100 years old and has been a Long Island railroad pensioner for 30 years.

Mr. Gallagher's career dates back to the era when horses were the motive power for Long Island trains.

As a sort of alternative for "oldest" honors, Mr. Hill mentions Albert Stone, retired New York Central clerk, who "was over 90 years of age last time I read about him."

Things—We Are Talking About

The Magazine Goes

IT is with deep regret that we are compelled to announce that we have reached the decision that, having regard to the grave financial position with which all of us are confronted, we shall be unable, while the present serious situation exists, to continue to provide the funds necessary for the publication of the Victorian Railways Magazine. The present issue of the Magazine shall therefore be the last until further notice.

This decision has been reached only after the gravest deliberation. If any means had presented itself which would have made so drastic a decision unnecessary or even permitted it to be deferred, the Commissioners would have been only too glad to embrace it. The Magazine has always held and still holds a place high in their regard. They realise to the full its value as a medium for the promotion of good-fellowship amongst that loyal body of employees who comprise the railway staff; they recognise its worth as an additional link of friendship between the administration and every member of the railway family, and they cannot over-estimate its importance as a builder of that splendid *esprit de corps* and ideal of service which throughout the Commonwealth have made the Victorian Railways a by-word for efficiency.

But, at a time when extreme financial stringency demands that every possible economy shall be rigorously practised, we are most reluctantly forced to the conclusion that no alternative is open to us but to save the expenditure which is involved in the publication of the Magazine.

AS soon as the financial situation is sufficiently improved, it will be the aim of the Commissioners to republish the Magazine as heretofore. In the meantime, in order that the staff may be kept in touch, as far as practicable, with current railway news and events, they propose to issue each month a "News Letter," which will be distributed to all members of the staff, just as the Magazine is now distributed. The "News Letter" will not, of course, be a full substitute for the Magazine, but it will partly fill the breach, and we believe that it will speedily find a place in the regard of all members of the big railway team who have derived so much pleasure and enlightenment from the excellent little journal whose place it will, we hope, but temporarily occupy.

H. W. CLAPP, Chairman
W. M. SHANNON, Commissioner
T. B. MOLOMBY, Commissioner

SO this—our 81st issue—will be our last for some time. At the ripe age of six years and nine months we're passing temporarily into obscurity, under the shadow of the nation-wide economic depression. In that time nearly

IT'S AU REVOIR, WE HOPE

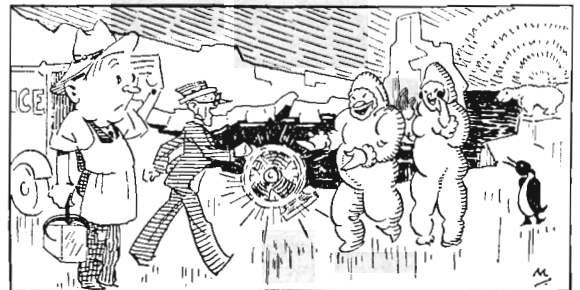
2½ million copies of the Magazine have been distributed, under the direction of four different editors, including such prominent newspaper-men as Mr. H. R. Gollan (now assistant manager of the *Argus*) and Mr. H. C. Fenton (at present representing the Australian National Travel Association in London). The Commissioners explain the circumstances surrounding the Magazine's departure in the foregoing statement. They are sorry to see it go. We're sorry too. And we hope that some of our readers will be sorry also. We thank our contributors, our subscribers and our readers for their interest in the Magazine, and we thank our advertisers for their continued help. May we all meet again some day!

DISCUSSING "Service Before Salesmanship" in a recent address to the *Argus* luncheon club, the Chairman of Railways Commissioners had some characteristically stimulating observations to make.

SERVICE AND SALESMANSHIP

Salesmanship he described as "the art of finding out what people want;" service as the act of "giving them what they want, and giving it in a manner that makes them want more." Service, the Chairman continued, implied more than mere routine or systematic efficiency. It implied a

desire to help. Why did we go to one shop in preference to another? Frequently because there was a spirit of welcome there—because we were given the impression that the assistants were out to please us, just as much as to make a sale. With proper service to back it, there was plenty of



Salesmanship. . . . the art of finding out what people want.

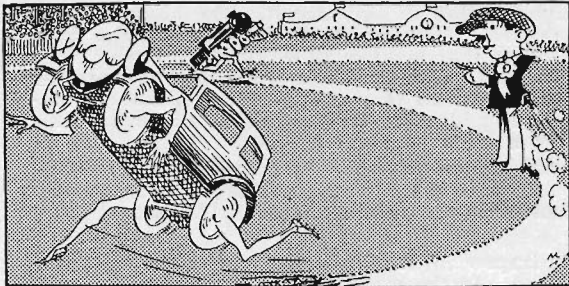
scope for salesmanship, so long as the confidence was there that the goods or the service were all right. No one was going to keep on kicking a good thing away from him, and no one was going to keep on buying anything, whether it was stocks and shares, or the daily newspaper, or railway service, just because the salesman was a charming fellow. "There has to be real value behind the sale," Mr. Clapp emphasised. "The buyer has to be convinced that he is getting what he

wants and in good measure."

"IN this State's railway business," the Chairman proceeded, "the service ideal is, I truly believe, as strongly implanted in the great majority of the men who are associated with it as in any other business in this country, whether privately or publicly owned. We receive constant proofs of that. Almost daily we get letters of appreciation from our customers, letting us know of some helpful action, quite outside the ordinary routine, on the part of some member of the staff. And not a day passes but we receive suggestions from railwaymen pointing out how in some way or another the standard of service might be raised. Do not think," Mr. Clapp hastened to add, "that I am trying to create the impression that we are 100 per cent. We are not; but it is the goal that always lies ahead."

CONCERNING THE RAILWAYS

... (text continues from previous block)



The road man got a long-distance start in the race. . . .

MR. CLAPP had a final word to say about road competition. "You cannot apply the word 'service' to what the road operator is doing," he maintained. "Looked at from the community point of view, it is dis-service in the truest sense. Every economist who has expressed himself on the subject seems to be clear on that point."

WHEN A SERVICE IS DIS-SERVICE

There was no mystery, he explained, about the lower rates which the road services were offering for the high-class loading. The road man got a long-distance start in the race while the railways were placed a long way behind scratch. The railways were handicapped by the burden of very low rates for 70 per cent of their total traffic: the road man wouldn't take commodities that had to be carried at low rates. The railways paid interest charges amounting to 3½ million pounds a year: the road man paid nothing towards the cost of that essential part of his plant, the roads. The railway paid one million pounds yearly to maintain railway tracks and bridges: the road man paid less than one-fourth of the damage he caused to the roads. The railways obeyed the industrial awards of the country: the road man fixed his own working conditions, sometimes working 18 hours a day. "I say deliberately," said the Chairman, "that this country cannot afford to pay the huge costs involved in maintaining two sets of transport services to do the work which can be efficiently carried out by one."

TALKING about community service, the Victorian Railways department is well to the fore in its representation on the recently formed State Relief Committee which is co-ordinating and supplementing the work of all bodies that are seeking to relieve the widespread unemployment distress in the State. Mr. H. W. Clapp is chairman of the committee and Mr. W. Thomas, Assistant General Superintendent, is a member. Mr. A. V. Stenning of the Betterment and Publicity Board is secretary, and Mr. W. R. Bunker of Room 10 is organiser. In

RAILWAYMEN AND UNEMPLOYMENT RELIEF

... (text continues from previous block)

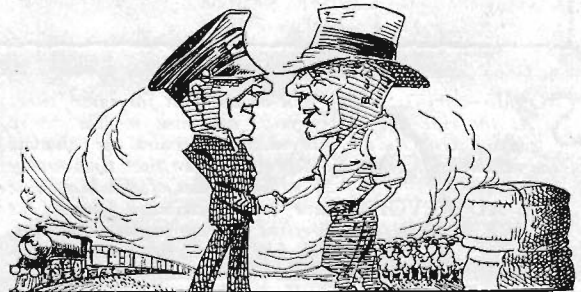
addition, the services of Captain F. W. Frawley, J.P., of the Stores branch, and Mr. J. J. Sullivan, of the Transportation branch, have been specially loaned to the Minister in charge of sustenance, the Hon. E. L. Kiernan, M.L.C. Mr. Sullivan, who is one of the finest debaters in the Commonwealth, was instructor of the V.R.I. literary and debating society, which won the *Herald* novice debating tournament in 1926, and Captain Frawley will be best remembered for his association with the dramatic and literary activities of the Institute. He was one of the early managing editors of the *V.R.I. Review*, which subsequently became the *V.R. Magazine*.

MAGAZINE readers will remember an article by Mr. Ernest I. Lewis on the functions of Uncle Sam's Interstate Commerce Commission, which we reprinted in our May issue. The appearance of this article has brought an entertaining and

A LETTER FROM THE I.C.C.

friendly letter from Mr. Lewis's office in Washington, mentioning some of his recollections of a visit to Australia in 1907. "I have," he writes, "a most interesting association with Menzies' Hotel in Melbourne. . . . I had a number of old gold-mine operators at dinner one evening, and after dinner, we were sitting in the drawing room drinking coffee, and these gentlemen were filling me up with the most wonderful stories of Australia's romantic history, stories of the Welcome Stranger nugget and other finds. Some little distance away sat a young man about my own age, 35, poring over magazines and newspapers. When my guests departed, he moved over and said that he could not help overhearing what they were talking about, and observed that I was a fellow-countryman of his. Then he sat down and told me more wonderful stories about gold-mines in Australia, particularly in Western Australia. He gave me his card. On it was printed "Herbert Hoover, Mining Engineer." We became friends and I later encountered him in Siberia and then, as fate would have it, we both landed down here in Washington, he as Secretary of Commerce and I as a member of the Interstate Commerce Commission. The contacts still continue, the last being a dinner in the White House a couple of weeks ago."

Mr. Lewis is anxious to get back for another visit to Australia. He wonders whether it is still necessary, "as it was in 1907, to change trains and their lading at State lines because of different gauges."



A happy augury for this wool season.

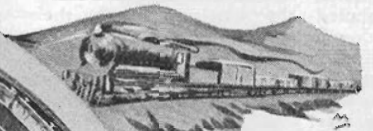
THE season's wool is on its way to the seaboard at the present time, and go-getting station staffs have been busily canvassing wool-growers for a renewal of their last season's confidence in railway transport.

AFTER THE WOOL TRAFFIC

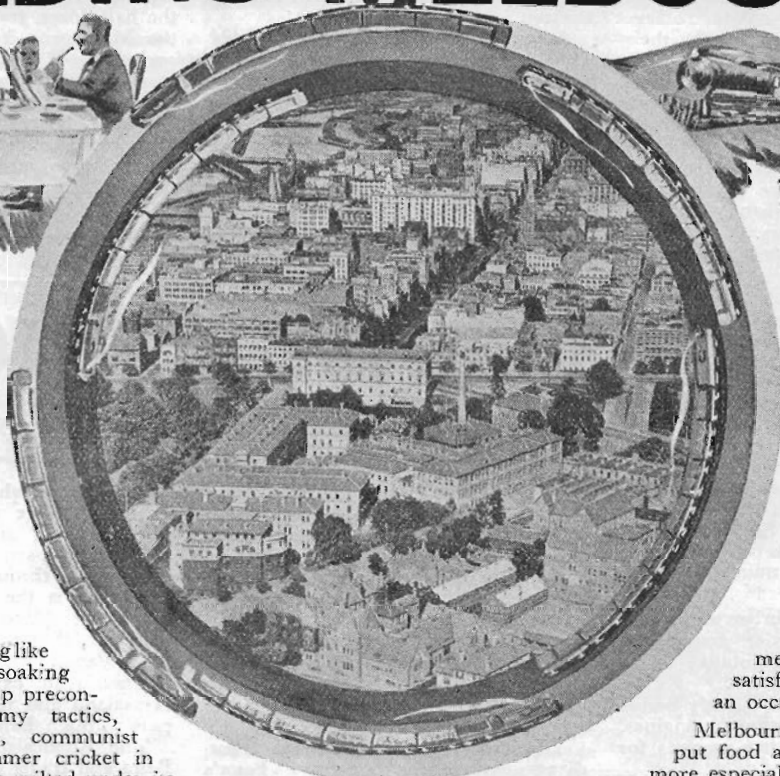
Special arrangements have been made to provide a service that will fully and efficiently meet the needs of wool-growers. All wool will be loaded at the expense of the railways, and the handling of each consignment will be closely watched until it is landed in the wool-broker's warehouse. A happy augury for this season is the following extract from a recent report by the commercial agent, after a conference with the manager of one of the largest firms of wool-brokers in the State:

"The manager stated that last year the railways handled 56,000 bales and some thousands of bags of wool for his firm and not one claim for loss or damage had to be submitted. He readily consented to my making use of this statement when soliciting wool traffic."

FEEDING MELBOURNE



by C.H. Cheong.



THERE'S nothing like rain, driving soaking rain, to break up preconceived plans. Army tactics, anarchy, mob law, communist gatherings, and summer cricket in England, have in turn wilted under its onslaught—melted away as it were.

And I felt within my rights to rave at the sweeping, pelting ice-water penetrating my incompetent greatcoat. "Go out," the editor had said, "to where they feed Melbourne." That was all.

It was deucedly hard to find the place.

Feed Melbourne!

Quite a novel expedition it proved, until it rained.

First of all, I confidentially approached the guard of a country express.

"Where," I queried, "had I best go to see Melbourne fed?"

He echoed the three last words mechanically while I shifted uneasily on my feet. I tried again.

"What I really mean is where should I go to see the *city* being fed. I don't mean individual restaurants, I mean the metropolis, Melbourne as a city."

It was rather a lame explanation and we realised it together. Then he sensed the thought.

"Well," he told me, "go down to the Dudley-street signalbox and look out of the windows."

To confirm this, I went to Flinders-street.

It wanted about four minutes to midnight. Budding Nurmis were making final rallies for their trains. Porters looked at their timepieces to check the station clock.

I presented my burning problem to the most mature official on the barrier. Unfortunately a tickle in the throat punctuated my speech, and the man, eyeing me suspiciously, advised me to pull myself together and go home while there was yet time.

ASHUNTER, going on night duty, next listened to the story. Yes, he knew that Dudley-street signalbox was the place. Melbourne was fed from there all right. "Perhaps," he amended, "not from the signalbox itself. But, at any rate, if you go there, you're as near to the place as you can expect to be. Or," he added, "as you will want to be on a night like this."

It was a dreary trip down, the rain gave no signs of abating and I was conscious of a feeling of resentment against the monstrous appetite of a

metropolis which demands satisfaction on so boisterous an occasion.

Melbourne, I decided, ought to put food away for a rainy day, more especially if that day happened to be a night.

Gutters were gushing. The glistening asphalt streets reflected bright splodges of yellow from corner lamps, and the swishing rain beat a terrific tattoo on the iron roofs.

DOWN past the Stadium I entered the Melbourne Yard . . . out of the deserted, unfriendly street into a universe of activity, a world of railways. The narrow pathway led in to a maze of gleaming steel tracks criss-crossed in a jig-saw puzzle. Whistles of locomotives sounded in the stillness of early morning.

A lighted island in this ocean of steel ribbons was the signalbox, plainly proclaimed by a lettered board to be Dudley-street. Now I would see Melbourne fed.

The occupants of the box, between crashings of the levers, extended cordial greetings. The system over, Signalmen are renowned for their hospitality. Maybe Dudley-street is the training college for the subject.

Seen from the warm interior of this veritable glass-house, familiar landmarks looked unfamiliar as, in the distance, they defied the elements. Through the shafts of rain, the Spencer-street clock face was but a pin point.

The buildings themselves resolved into a black mass at the end of the glittering steel tracks. Farther to the right, the goods sheds tower rose above ridges of the buildings. Immediately to the left the Melbourne Yard offices looped the blackness with their window lights. To the rear the North Melbourne loco. depot dimly acknowledged existence and provided a haven into which occasional engines made their way.

Speckling the compass points were the signal lights, their chameleonic faces twinkling triumphantly through the rain-swept blackness.

And from the west, east, north and south came the steam convoys laden with the necessities of life. Products from all parts of Victoria, not only to feed, but to clothe and to cheer the city.

There was a perpetual barrage of crashing levers, during which the three signalmen worked as a team. One move, they explained, made several roads available simultaneously. A brief exchange of train locations set them at it again.

"One-fifteen Nyora, Shipping," meant, of course, that the train was to be shunted to the Shipping Shed. The Nyora happened to be the advance guard of the country trains.

CERTAINLY, suburban trains were dividing the larder among the suburbs, but the country trains actually stocked the pantry.

Electric locos, paused silently beside the mammoth puffing engines, impatiently waiting a few seconds for a run through the yard.

Down from Ballarat and the north-west, Shorthorn cattle thrust suspicious muzzles from trucks which were coupled to louvres loaded with dairy produce, fruit, vegetables and biscuits. The train went down to the goods sheds, brought back the beasts and went to Flemington, where buyers would gather on the morrow to purchase Melbourne's meat supply on the hoof.

Mallee roots, from the main line, and more dairy produce were shuffled to and fro while the train was juggled to its siding.

Then the engines for the paper trains came out from the loco. depot and puffed easily through to Spencer-street.

South-eastern Victoria contributed coal, milk, butter, vegetables, and cheese from her provincial centres. The eastern line brought briquettes, vegetables, still more milk, butter and cheese and a few trucks of sand, some of which, I understand, was not to be utilised as foodstuffs.

Working these trains through the bottle-neck of Dudley-street, the signalmen were unanimous, was the hardest and most difficult job confronting them. Team work alone achieved the satisfactory results. Team work, the basis of every organisation, was the fundamental of their job.

Phones rang as the box received advice of train destinations and points

slid over under the influence of men whose lives had been spent in a skilful manipulation of signal levers. . . .

Fish trains from Stony Point carried Melbourne's white meat, brain food by the ton.

An engine from the north-east hauled a half-hundred trucks of chaff, firewood, and horses. These, too, I understand, were not actually intended to feed the city. The south-west, however, brought some tons of vitamins in the shape of dairy produce. There was also a truck of explosives, but these, it

seems, have no food values and are in consequence seldom eaten.

Before the first streaks of dawn, nearly eighty trains had converged on Dudley-street to be shepherded through the half-dozen tracks which opened to the Melbourne Yard. And this but one night of 365. Melbourne, then, eats, drinks, wears, and is comforted by nearly 30,000 goods trains per year. . . .

Just at dawn the rain ceased, foiled in its pitiless attack on the organisation which never relaxes in its herculean task of feeding Melbourne.

Glimpses of EAST AFRICA

By C. E. STEVENS
(A young Victorian Railwayman at present travelling in South Africa)

INVARIABLY hot, tropical trees and vegetation, a cosmopolitan population and a strong foreign atmosphere . . . such is Beira, a seaport on the east coast of Africa, and the capital of that portion of Portuguese East Africa administered by the Macambique Company, a Portuguese company vested with similar powers to the British South Africa Company which, up to a few years ago, controlled Rhodesia.

Like most seaports in the East, divers nationalities constitute Beira's population—Portuguese and Kaffirs predominate, whilst British, Indian, Goanese, Chinese and Northern Europeans make up a large percentage.

The town is quite primitive in some respects. Up till quite recently a trolley, pushed by natives over narrow-gauge lines, was the only means of transport from one part of the town to another, but now motor-buses are replacing this rather novel conveyance.

There are no horses nor mules, the only traffic being motor cars, of which there are now quite a number.

The majority of the buildings in the town itself are of foreign design, but in the suburb of Ponta Gea there are a number of fine modern homes. Drinking saloons are in profusion, there being fully a hundred, and a number of these extend on to the footpath where perspiring foreigners sit at tables and sip their wine.

Most business houses commence work at 7 a.m. From 11 a.m. until 1 p.m. the town is either dining or asleep. White clothing is universally worn and very often the male folk wear shorts. At 5 o'clock every night most of the town are drinking "Sundowners." The most profitable business in Beira is the sale of liquor.

Unlike other important seaports, Beira does not possess extensive wharves, most of the loading and un-

loading from ships being done by lighters. There is a constant stream of passengers and cargo vessels to and from all parts of the world. Many people pass through Beira *en route* to England, via the east coast of Africa, calling at Dar-es-salaam, Mombasa, Zanzibar, Port Sudan and through the Suez Canal.

Then again exports from Rhodesia, Nyasaland and the Belgian Congo all pass through Beira.

The Rhodesian train terminates at Beira and trains leave here for Central African and Nyasaland. Many big game hunters pass through Beira on their way to the Congo and Kenya Colony. Elephants, lions, leopards and antelope may be shot within 50 miles of Beira.

Rugby and soccer are the popular winter games, whilst tennis, cricket and golf are also played. Yachting is another pastime enjoyed by some. Beira is starved so far as amusements are concerned. There are two inferior picture palaces, but there is only a minimum of enjoyment from these. They commence at 9.15 p.m., and there is a five-minute interval at the end of each reel.

The rise and fall of the tides is most marked, the difference between low and high tides being 15 to 20 feet at times. Very often boats have to wait for high tide before they can leave the port. Despite the excessive heat experienced during the day, the nights are delightfully cool and refreshing. An artist could paint a fine picture here during an evening, with the palm trees and boats silhouetted against a beautiful sunset.

Mosquitoes are most troublesome, but a good night's rest may be had if a mosquito net is used. The sanitary conditions are gradually being improved, and the climate may be said to be fairly healthy.

The RAIL WEIGHT is The BEST WEIGHT

by Bert Ford

W EIGHT, we are informed by a learned gentleman who has collected the meanings of some 70,000 words and condensed them into 2,662 pages of clear type, is nothing more or less than heaviness.

Heaviness, he explains, is weight.

So far, so good. We know what weight is. Let us press on to speak of its use in a general way and a railway way.



Foreman W. Turner, who has charge of V.R. scales, testing one of the railway check weights with the Department's copy of the Imperial Standard Weights.



IT has been said that weight and its allied measure is interwoven so closely in the fabric of the social system as to be indispensable. This we believe readily enough, for correct weight and measure in the ultimate issue forms the only reliable standard by which the whole of the business of the community is transacted.

Farmers dispose of their wheat at so much per bushel, but the cumbersome method of measuring is so impracticable that a predetermined number of imperial pounds gives the equivalent of one bushel. Mr. Farmer, in consequence, by his system of weighing, obviates laborious measuring and incidentally expedites the transportation of his product.

The Miller's "Light" Ton

It isn't generally known, by the way, that the weight of a bushel of wheat is determined each year as soon as possible after the harvest, and depends solely on the average quality of the grain. This weight ranges usually in the vicinity of 60 and 63 lb.

The coal miner's mineral is sold by the ton, and the miller disposes of flour also by the ton, but the two standards differ to the extent of 240 lb. The long ton by which the coal is sold weighs 2,240 lb. but the miller needs but 2,000 lb. to his short ton.

We purchase clothes and footwear at a certain price per suit or a pair, but the clothier and leather merchant sell their raw products by the yard, or at so much per pound.

The value of metals and precious stones is based in weight, their standards being in terms of troy ounces and carats.

The water supplied us is paid for by the gallon, the amount being computed

by certain methods of weighing and calculations resulting therefrom.

Architects in building houses allow a predetermined air space in cubic capacity for each room, and so, right throughout the civilised world, we have in every phase of life some matter whose value is based on the weight or measure.

Work for Specialists

The very earth on which we exist may be approximated in terms of either weight or measure, and even the unexplored heavenly bodies are said to revolve through space at such and such a distance. Scientists and astronomers the world over vie with each other for accuracy in their measurements of the rarefied distances of space.

It is not surprising then that specialists are required to supervise not only the manufacture of the weighing instruments but also the maintenance of them. And less surprising is it to find the Railway department, whose revenue to a large extent depends on the carriage of goods

charged by weight rates, employing a staff of specialists.

It was in 1903 that the Victorian Railways saw fit to bring Foreman W. Turner from the Midland Company, England, and install him in charge of weighing appliances. Here for 27 years, this expert has been scientifically weighing up the railways.

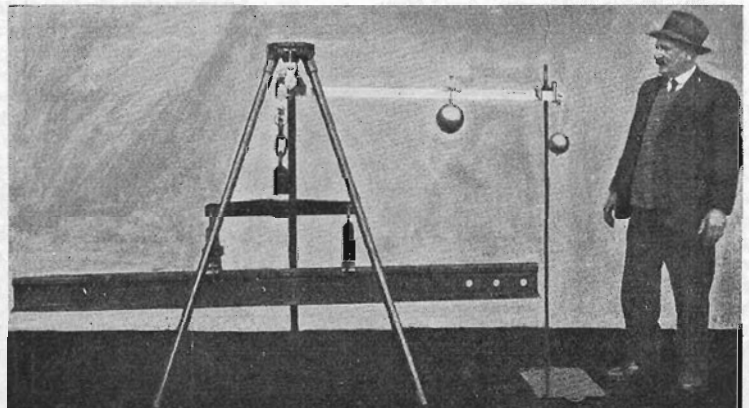
The designing engineer, the organising officer and the supervising staff of the Victorian Railways will inform—nay, prove to—you, that the departmental research in this direction amounts to a science.

Railway Weight and Measure

Giant locomotives, rail bridges and tracks are designed and built only after the most exacting calculations have been made of the weight and measure of material, and the manner of carrying it into effect.

So vast a retail organisation as the Victorian Railways is constantly selling service to the community at large, and, bound up with this service, is weight and measure.

Wheat, wool and coal are transported



This amazingly accurate weighing machine, designed by Foreman Turner, determines the amount of wear on rails, which are weighed before laying, and then reweighed after a given number of years.

by weight rates. Timber, firewood and stone are few items carried on measurement rates.

It is to ensure the accuracy of these measurements that Foreman Turner and his staff at Spotswood repair, test, adjust and manufacture the appliances.

Victoria, it seems, is the only Australian State whose government regards the railways test of scales as final. In all other States, public weights and measures bodies are

detailed to check the apparatus.

The Victorian Railways are custodians of a complete set of bronze copies of the Imperial standard weights and measures, together with the necessary testing beams.

The weights and measures act states that these appliances must be sent to the Observatory for comparison with the State standards, and accordingly every five years they are forwarded to Dr. Baldwin, the Government Astrono-

mer, who has immediate control of them.

Should any of the weights err on the light side, they are evened again by plugs of solid gold.

Although a great amount of testing work is carried out at the workshops, by far the greater proportion must necessarily take place where the weighing appliances are used. To do this, regular inspections and tests are carried out over all the State, and they embrace every variety of instrument ranging from the locomotive weighing machine with a weighing capacity of 168 tons, to the letter scales of 8-oz. capacity.

Truck and Road Weighbridges

For weighing traffic, the department provides 43 truck weighbridges ranging from 25 to 40 tons capacity and 59 cart or road weighbridges which compute loads from eight to 35 tons.

Mr. Turner's latest appliance was designed to ascertain the wear on steel rails, which are weighed before laying and again after a given number of years. From the loss in weight is determined the wear. . . .

It would seem, in fact, that the Victorian Railways know the way to weigh.



The Victorian Railways copies of the Imperial standard weights. These copies check all weights used on Victorian railway scales.

Locomotive Design—How Will It Develop?

“IN countries where water power is available for the generation of electrical current at a cheap rate, and where coal is dear, such as Switzerland and Italy, there is not much likelihood of the steam locomotive being extensively used in future. In new countries with infrequent services, and those countries where fuel is cheap, the steam locomotive is likely to continue to improve in efficiency.”

This forecast of the probable trend of development in railway locomotion was made by Sir Henry Fowler, Chief Mechanical Engineer of the London, Midland and Scottish Railway, in a recent issue of the *Daily Telegraph*.

“Until recent years,” Sir Henry said, “the advance in railway design has been extremely slow; no radical change has taken place since the very early days, and general design and practice remained unaltered since the time of George Stephenson. No radical change took place until about 20 or 30 years ago.

“The growth of requirements was generally slow, and the fuel employed was, on the whole, cheap and readily available. The only attempts at development were in the utilisation of compound engines, especially in France, and the employment in them of somewhat higher working pressures.

“The practical application of superheated steam to locomotive work, by Dr. Schmidt, of Cassel, in 1898, however, was the first big step taken,

and probably no single improvement in equipment has ever given generally such a considerable economy in fuel and water for so small a modification in design.

“Important improvements were made in certain details with a view to more economic utilisation of fuel, and these were carried out generally without interfering with the general arrangement of the locomotive, which in its main features remained much as Stephenson left it.

Turbine—and High-pressure

“Within very recent times, proposals have been made for materially altering the general design of the locomotive or boiler. These proposals, which are still largely in the experimental stage, lie principally in two directions—the adoption of a turbine engine as the prime mover, and the utilisation of very high pressure steam.

“In addition, there is a tendency to increase the efficiency of the machine by utilisation of the waste products of combustion and heat in the exhaust steam in various ways, and further advance may be looked for in this direction.

“Undoubtedly the most interesting developments in progress are in connection with the use of steam at pressures much higher than those employed formerly, and recently of pressures previously unthought of for

locomotive purposes.

“For many years, the standard French large locomotive has been a four cylinder compound at about 230 lb. per sq. inch, and these have given excellent results. The only type of compounds which have been built extensively in recent years are the three-cylinder locomotive of the old Midland Company, with a working pressure of 200 lb. to the square inch.

“In these cases, the essential parts of the boiler and engine have been those which have been of the conventional design.”

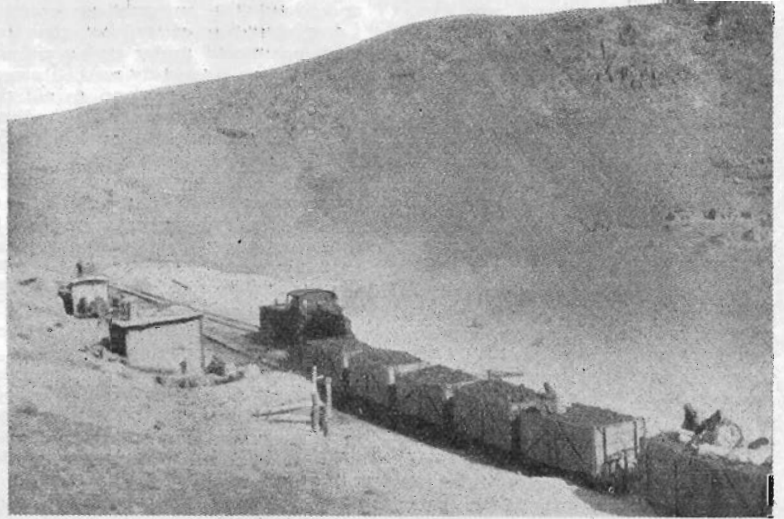
Although naturally proud of Britain's leadership in locomotive design, Sir Henry pointed out that at the present time experiments are being carried out in many other countries.

“Germany,” he said, “has carried out extensive tests with powdered fuel, and with high pressure locomotives; in America there are locomotives with pressures of up to 400 lb. to the inch; Switzerland has an engine which presents many novel features, and differs very considerably in appearance from the conventional locomotive.”

With regard to oil-fired engines, Sir Henry expressed the view that there would be no great development of them in England as far as oil-firing direct into the furnace, but that there would probably be considerable experiment with crude-oil engines of the Diesel-Electric type.

Building The Siberian Railway

by
W. G. Greene



A coal train in the heart of Siberia

ONE of the longest railroads in the Old World is that which crosses Siberia, a vast desolate track of land that is situated east of the Ural Mountains and north of China and Tibet.

In the early part of the last century, roads were very crude and rough in this area, and at certain times of the year men found it utterly impossible to reach their intended destination as planned. A delay of several days and sometimes weeks was not an unusual occurrence.

The local governors also found it difficult to keep in touch with their central government, and in turn, the central government experienced many hardships in communicating with the local governors.

The Beginning

As time went on, the need for better transportation facilities became more urgent and, in 1851, the local governors reached the point where they petitioned for great main highways that would cross the country. They even went so far as to suggest that rails be laid along these improved roadways.

The steam railway was only in its infancy, and the thought of using a mechanical form of transportation on so large a scale was looked upon as wholly impractical. For short runs, it was absolutely out of the question. Therefore, a few short line railways were constructed between the large cities in the extreme west while the other highways were generally improved.

Shortly after this incident, in 1869, the first transcontinental railway was completed in the United States and a new light was thrown upon the entire situation. Renewed demands for a cross-country railway were made and finally, after much discussion, were considered favorably.

This vast enterprise was put under way as soon as possible, and the rails

THE tremendous difficulties encountered and overcome in the construction of the great Trans-Siberian railway are described in this article, which we reproduce by courtesy of "The Octagon."

already laid in European Russia were pushed eastward, reaching the towns of Zlatoust, Orenburg and Tioumen in 1888.

Great enthusiasm was displayed by every one. The spirit of the new venture ran through the veins of all the men. The railway would be a national affair. Nothing but Russian materials would be used. Russian brains would do the designing and Russian hands would do the building.

Prince and Engineer

One of the greatest engineers engaged in this work was Prince Killkoff, who came from an old Russian family. Instead of staying at home in early manhood, he went out into the world to seek experience at first hand. Not only did he work in engineering shops at Liverpool, but travelled to the United States where he secured invaluable knowledge from various jobs on the Union Pacific.

To this man, who was thoroughly familiar with conditions at that time, the Trans-Siberian Railway probably owes more than to any other.

The proposed line was divided into six sections which were later joined to make the complete line.

The first spade full of soil was taken at the eastern terminus in 1891, whereas construction work did not

begin on the western end until 1893. A still greater length of time elapsed before the intervening sections were started, due to the character of the land and the climate.

As the rivers flow from the south to the north in the upper part of Asia, the engineers could not follow the course of the waterways but had to cross them with imposing bridges. These structures were carefully designed to withstand the raging torrents of water and to hold up against the adverse storms. Then, too, they had to be high enough to avoid blocking boats in the summer time when water crafts are used extensively in transportation between the river-towns.

Across the Steppes

The railway, however, did not wait for the bridges to be completed. In the winter time, rails were laid across the ice, and materials thus carried over. In the summer time, supplies for the men working farther along the line were transported by means of boats.

To carry the line from the Urals to Obi, a vast steppe, covered with tall brush and a dense forest, had to be conquered. No paths or roads existed, and the men, equipped with axes, blazed their own trails. The summers were hot and short, and after allowing for the numerous feast days, only four months of the year were left for the men to work in warm weather.

During the rest of the year, the engineers endured a temperature that ranged from 5 to 12 degrees below freezing to a temperature that ran down to 40 degrees below. They also struggled against the fierce cold winds that blew across the plains and howled through the cleared-away passages in the forests.

Despite the effort to keep a good supply of food on hand, unthought-of obstacles often barred supplies coming

in from the west. Water also was frequently so salty that it was almost undrinkable. Nevertheless, 885 miles of railroad were laid through this part of the country in about four years.

Another section, composed of about 1,143 miles, crossed a plain and a mountain. Here, the content of the soil was so poor that no foodstuffs could be raised and the population averaged no more than one man to every square mile.

There were times during the winter when no food could be brought in. When this happened, supplies were buried in holes dug in the ground and covered over with logs to keep out the bears and other animals. Often, these improvised larders were exhausted, with a consequent lowering of the vitality of the workmen so they could not resist the freezing temperatures, and only the strongest survived.

The greatest engineering difficulties were encountered when Lake Baikal was reached. This body of water is as large as England, and necessitated a considerable detour around the southern end where the country is extremely rugged. Deep ravines had to be bridged. Huge boulders that stood in the way of the advancing line had to be broken up with dynamite. Where this could not be done, passages were hewn out of the solid rock. One of the longest of these tunnels extended for $2\frac{1}{2}$ miles.

Boat and Train

Headway progressed so slowly that it was finally decided to use the lake to transport supplies for building the easier portions further on. A ferry boat, 280 feet long and equipped with engines of 3,750 horse-power was built. This boat had two screw propellers in the stern and had a third propeller in the front for the purpose of breaking ice, and at the same time helping to pull the boat along.

One of the novel features of this vessel was its ability to carry a train from one port to another. The deck was provided with rails on which the train could be run from the railroad and run off again when docked on the other side.

People desiring to take the lake trip instead of circling around the shore, can still do so. Many travellers find delight in combining a cruise across the lake with their journey over land.

Climatic conditions became more unbearable as the line moved eastward. The elevation above sea level rose and the proposed line penetrated the coldest and most desolate part of the country.

Although the temperature rose to 60 degrees on the hottest day in mid-summer, the ground never thawed to a depth beyond seven feet, and, where the forests kept the sun from hitting the ground, ice never disappeared two feet below the surface. Then the warmer weather brought torrential

rainfalls that caused the rivers to rise and flood the surrounding country. Long stretches of railway that had been completed under trying circumstances were frequently washed away.

Labor was scarce, and to aid this situation the Government enlisted prisoners to perform certain duties. The tremendous task of feeding this large army of men who were working miles away from fertile fields and populated towns became more troublesome as time went on. As much food as possible was secured locally. One year, however, the harvest failed and not only the laborers employed on the railway, but the few inhabitants felt the horrors of famine.

To make matters worse, a deadly disease called "Siberia" fell upon all the horses and cattle. Thousands of animals died and left the workmen helpless until other beasts of burden could be brought in.

Section by section was finally completed with the exception of the line running from Stretensk to Kharbarovsk. It was the desire of the Government to build this on Russian

soil, but in order to do so, it meant a huge turn in the line and going out of their way for miles. Then, too, the country they would have to traverse was almost uninhabited and would present serious handicaps and many hardships to combat.

Yet only in this way could they avoid Manchuria. For this reason, they held up construction and directed their thoughts towards a means of solving this problem, the outcome of which resulted in the conquest of Manchuria and the use of the Chinese Railway thereafter as a means of reaching Vladivostok by way of Harbin.

One of the interesting features of this line that connects the cities of Petrograd with Vladivostok through a distance of 7,680 miles, 4,771 of which lie east of the Ural Mountains, is that it is single track throughout with the exception of certain side switches for passing trains.

Once more, a dream that appeared highly improbable nearly a century ago has become a reality, and improved transportation has opened up broad reaches of wilderness to the spread of civilisation.

Russian convicts, wearing leg-fetters and with their arms chained to their wheelbarrows, assisted in the construction of the great Trans-Siberian Railway.



Cars That Make Their Own Weather

THE Baltimore and Ohio Railway (U.S.A.) is credited with being the first undertaking to introduce a system which will enable a passenger car to "manufacture its own weather."

A dining car has been placed in service which is equipped to cool and cleanse the air and provide ideal conditions of comfort for its passengers regardless of the season and weather conditions. On the hottest day it is possible to provide a temperature of from 10 to 15 deg. below that prevailing outside, and to remove the excessive humidity that is liable to be experienced in summer.

For the purpose of a test, made recently, the full winter heating capacity of the car was turned on and intensified by the heat from the kitchen, and, despite the warmth of the outside temperature then prevailing, the inside temperature was reduced by 23 degrees within 20 minutes of the installation being brought into operation. This is achieved by forcing a

current of air over cooling coils and thence through filters which remove dust, soot and the like, the sterilised air being subsequently distributed through the dining-car by a system of overhead insulated ducts.

The apparatus can be controlled by the car attendant, and, as it is rubber insulated, its operation is accomplished without noise or vibration.

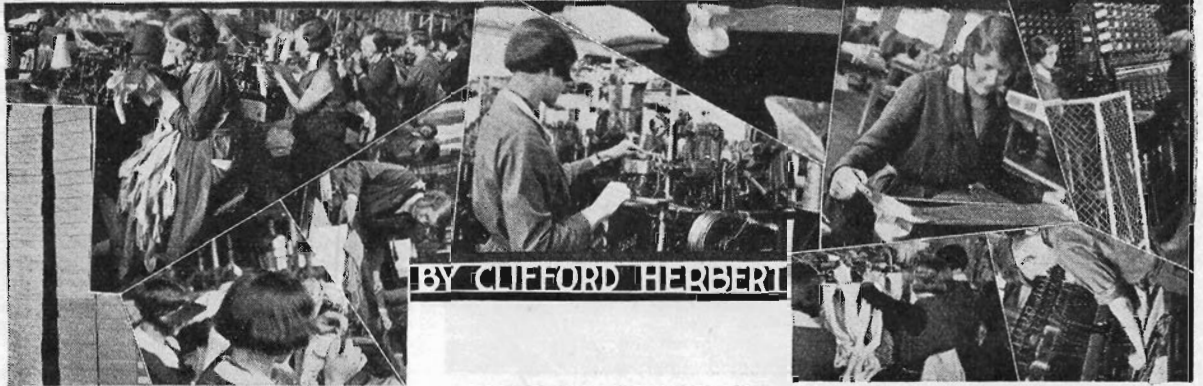
New £30,000,000 Station

PASSENGER train service into the new Union Terminal Station at Cleveland (U.S.A.) is now in full operation.

This is one of the largest and most impressive terminal stations in the world. It covers approximately 17 acres, facing the Public Square in the centre of the business district, and cost £30,000,000. A giant tower of 52 stories surmounts the main structure.

The New York Central, the Big Four and the Nickel Plate railroads jointly own the new terminal.

GETTING A LEG IN



A BOUT 25,000,000 pairs of silk stockings are sold annually in Australia. Even if they don't wear them, railwaymen load and despatch so many consignments of silk in leg form that they may be interested in this account of how they are made at the Brunswick factory of the Holeproof Hosiery Company Pty. Ltd.

THE romance of silk is an old story, years older than civilization, and it is a far call from the discovery of the silk-worm by an Oriental princess in 2,600 B.C. to the present day silken hosiery.

The smuggling of the remarkable silk-worm, by means of hollow canes, through China to Italy gave that western country a flourishing industry which attracted the world's covetous attention and brought innumerable requests for the purchase of "spinners."

Silk has since proved itself the premier thread throughout the five continents which, combined, form the universe. Its fineness, strength and appearance render it admirable for the manufacture of stockings.

200 Caterpillars—One Pair

One pound of silk makes fifteen pairs of stockings, the toll in silk-worms being 3,000. Which means that 200 caterpillars sacrifice themselves in order to adorn one pair of calves

The raw silk reaches the factory in skeins, resembling so much floss, which are wound around a wooden frame and fed on to reels.

The quality of hose determines the next movement. Pure silk stockings cause as many as a half-score of the silk threads from the reels to be twisted into the one thickness.

This thickness does not appear to be much larger than one of the original ten strands, and is wound on bobbins which silently fill and automatically stop.

From the bobbins, the silk thread

winds on to cones which fit the knitting machines and feed out the thread to make the stockings. It takes approximately 65 miles of silk thread to knit one pair of pure silk hose.



Silken legs by the armful—but before the legs go in

The machines themselves are miraculous, the fine silk being simply and skilfully woven and interwoven to produce the sartorial leg coverings. The fully fashioned hose is knitted as flat fabric and, after the first stage, it appears as a piece of oblong material of doubtful origin.

The proofing in the silk at this stage does not permit of the quality being

determined except by the expert.

Human fingers could not vie with the supple accuracy of the machines. They knit down the leg, dropping a stitch here and a stitch there to conform to the "full fashion" which so desirably fits the stockings to the ankle and obviates the creases or concertinas of years gone by. They double-knit the tops and cleverly shape the feet. No blisters form under roughly-sewn seams here.

The machines automatically halt as the stocking is completed.

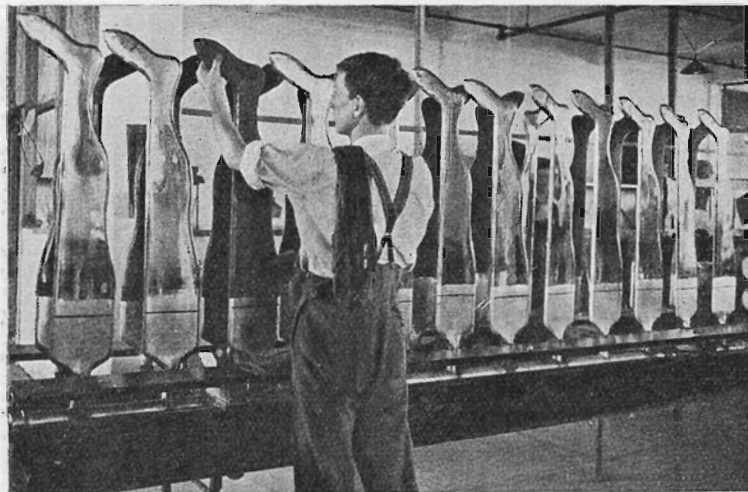
On another floor, the stocking is stitched up the back to form that seam which no real lady ever has asked. Nimble-fingered girls guide the two sides on to an equally nimble machine and in a split second the operator holds aloft the finished stocking—finished, at least, so far as actual sewing is concerned.

First Leg In

Then these self-same stockings are tested and, if they are subjected to as rough a usage when milady impatiently drags them on her shapely limbs, one could feel almost that the deaths of multitudes of silk-worms had been in vain.

The facsimile of a leg sticks brazenly into the air, a girl slips the stocking hurriedly over it, presses a button, or maybe pulls a lever, and immediately a hidden spring operates to swell great lumps on the artificial leg which stretches the stitching to what seems practically breaking point.

Then spikes in the toes force the silk knit out. Holeproof hosiery, however, stands the strain.



Slipping silk stockings over special aluminium presses

There is a search for flaws, and if keen eyes detect broken threads, the stockings are flung aside.

This, so far, has dealt only with the

fully fashioned style, whereas there is also manufactured a circular stocking which, as its trade name implies, is knitted in a circular manner and in

practically the same way as men's socks. These stockings are shaped somewhat at the ankles but are not so meticulously fitted as their more expensive full-fashioned sisters.

They are knitted in long tubes of silk or silk mixture, and in appearance are not unlike the better-class stocking. This impression is assisted by the false seam which is run down the back.

Patent and efficient machines trim the thread ends from both classes and they are bundled in mesh bags of jute and trolleyed to the dye house, which is claimed to be the most efficient of its kind in the Commonwealth.

Two great automatic machines are capable of dyeing over 1,000 dozen pairs of stockings daily, while in the firm's laboratory two chemists are continually experimenting in coloring the products.

Hosiery of dozens of different colors leave the packing room under such titles as Madame Pompadour, Lady Lorraine, Princess Ida and Zanise . . .

Summing up, it may be said that Australia has both legs in the hosiery business.

Items of News from the World of Railways

New Device for Icing Cars

AN elevating platform truck—similar to those used by street railway and telephone companies for making repairs to overhead wires—has been devised for icing railway passenger cars in America.

The old practice of icing cars is to carry the ice up a ladder, or for one man to stand on the ground and toss the cakes to the roof, where another worker catches them in his arms—a feat requiring considerable skill.

In the device demonstrated at the American Railway Association convention at Atlantic City last month, the ice is loaded in a water-tight steel box attached to the truck and then, along with one or more workers, is hoisted to a level with the car roof.

From that position it can be moved from car to car, as long as the supply of ice holds out.

When Should Carriage Windows Be Opened?

WHO controls the window in a railway carriage? The right to insist on its being opened or closed is still the cause of many a heated debate among travellers. In Germany, this burning question has, apparently, been settled. Recently a complaint was lodged against a guard who had insisted on closing a window because one man of a carriage load had asked for it. So the State railway authorities got together and considered the matter. It has been decided to set aside certain compartments, which are to be labelled to the effect that the

window can only be opened with the unanimous consent of all in that carriage. By the time all have agreed, the atmosphere will doubtless be close enough to make an open window a blessing.

Black Slave Who Worked for Railway Company

THE recent death of Taylor Parkman, retired colored hammerman in the Southern railway's blacksmith shops at Selma (Alabama), disclosed the fact that he had been a real "railroad slave" in every sense of the word.

In 1858, Parkman, then a young man, was brought to Alabama from Virginia and leased by his owner to the Alabama and Mississippi River, then engaged in grading the line from Selma to York, now part of the Mobile division of the Southern.

The railroad liked the work of the young negro and bought him outright and put him to work in the Selma shop. After the Civil War and the emancipation of the slaves, Parkman continued to work in the shop until he was retired a few years ago.

Novel Ticket Collecting

NEVER been nowhere nor seen nothin'," was the conclusion drawn by Conductor Stevens after an encounter with a young fellow who boarded the train at Rogers (U.S.A.). Calling for the youth's ticket, the conductor was told that it had been "put in the slot" at the head of the train.

So the conductor hied him to the mail car and asked of the clerk on duty if a Rogers-to-Little Rock ticket was in the mail chute—and sure enough it was.

The boy had probably never been aboard a train before, but had been told of "pay as you enter" cars, and seeing other people mailing letters on the train, had concluded that the letter box of the car was the proper place for his ticket.

Optimistic Report on Mexican Railways

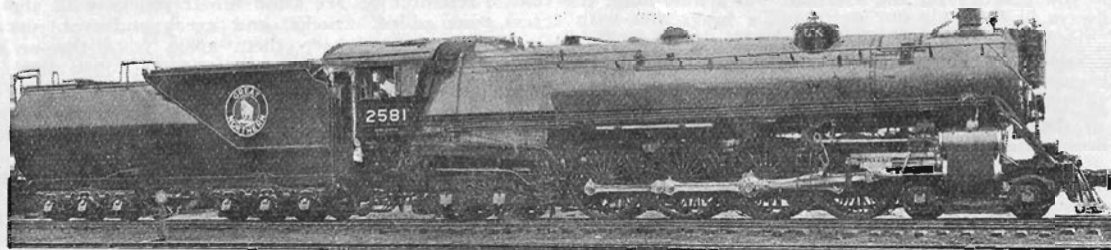
MEXICAN railroads are now in excellent condition and virtually as efficient as those in the United States, J. J. Franco, general superintendent of transportation of the National Railways of Mexico, said at the convention of the American Association of Railroad Superintendents in Minneapolis. He is president of the association.

Most of the mileage is standard-gauge track, and many of the important lines are double-tracked, Mr. Franco declared.

"Stock market crashes in the United States have had no effect below the Rio Grande," he asserted. "In fact business conditions have been improving rapidly since the Wall Street smash last November."

Reports of aggression against American land owners are much exaggerated, Franco declares. He blamed American newspapers for carrying "stories of alleged happenings in Mexico that are not based on fact—of things that never happened."

LINES from OTHER LINES



One of the new fleet of 14 Greyhound type locomotives, recently purchased by the Great Northern Railroad, U.S.A.

Shunters Don't Swear

IN the English railway world there is, according to the *Railway Gazette*, a movement afoot which should greatly delight all who pride themselves on the fact that, like Captain Corcoran, of *Pinafore* fame, they never use a big, big "D" and count it a mortal sin in those who do.

The movement in question has to do with language reform, and the extermination of all expletives and un-Parliamentary phrases on penalty of fines. Apparently it was launched some weeks ago by certain shunters, and is now "succeeding and spreading" to the porters on the "Outer London railway service"—whatever that may mean. A total collection of 9/- for "the orphans" during 13 weeks, compiled at the rate of a penny a "word," shows plainly that shunters who endure exceptional annoyances have reduced emotional expression to greater simplicity of style.

It is gratifying to learn that so pleased are the "men in the yard" at this manifest cultural development that they have decided to invite members of other grades to join in the movement towards, as they express it, "university" standards.

It is recognised, of course, that the orphan fund must suffer loss when a shunter who is caught on the shin by a pole can reply with urbanity, "Kindly be more careful, Bill!"

A Big Telephone Order

THE director-general of the Chilean State Railways recently telephoned an order from Santiago, Chile, to the New York office of the Westinghouse Electric Company for four express passenger locomotives valued at about £100,000. Ordinarily, negotiations of this sort are carried on by cable or letter and involve delays of weeks or months.

These electric locomotives will weigh 130 tons, with 3,000 volts, and will have a speed of 63 miles an hour.

At present the Chilean State Railways have 39 Westinghouse locomotives of all types in service.

Strategic Lines in France

ACCORDING to a Central News telegram, a Government plan just submitted to the French National Economic Council provides for the construction of 2,350 miles of new railway track, commercial and strategic, at a total cost of £75,600,000.

The strategic lines, which represent about 500 miles of the scheme, will be concentrated along the north-eastern frontier and the south-east, thus providing separate routes from Paris to Nice and improving communication with Marseilles in case of aerial bombardment.

Electric Power in Switzerland

LOCOMOTIVE history is being made at present in Switzerland. There, however, it is the electric locomotive that is being developed, and not the conventional "Iron Horse."

For service on the Swiss state roads there is being built an immense electric locomotive claimed to be the most powerful in Europe. This is a 2-4-2-4-2 + 2-4-2-4-2 type machine with H.T. control.

The Swiss railroads (according to the *Santa Fe Magazine*) employ current having an average overhead line pressure of 15,000 volts, 16½ cycles. The new locomotive has driving motors of 7,200 h.p. one-hour rating, and 6,560 h.p. continuous. Maximum tractive effort when starting is 141,100 pounds, and maximum speed 62 miles an hour.

The two halves of the locomotive are close-coupled.

Switzerland's monster electric locomotive will be hitched on to the international limited trains operating over St. Gothard Alpine route, the great mountain wonderway of Europe that closely follows the route of the highway constructed across the Alpine fastnesses by the Emperor Napoleon.

Owing to the steep grades to be encountered, regenerative braking is provided for. The run across Switzerland by the St. Gothard route is full of rare thrills, but safe and comfortable travel everywhere is the rule in this picturesque corner of Europe.

Increasing Steam Pressure

ON the continent of Europe new high-power steam locomotives continue to appear. The latest is a cleverly designed locomotive built for the German railroads by the Berlin Maschinenbau.

This machine in general outline resembles the standard 4-6-2 fast passenger locomotives of the German road. The principal variations are the introduction of three cylinders and the modification of these and of their valves so as to render them adapted for ultrahigh steam pressures.

The boiler of the new German locomotive embodies the principles evolved by the late Professor S. Loeffler, and is an entire novelty. Two of the three cylinders take the form of high-pressure cylinders outside the frames, and the other is an inside low-pressure cylinder driving the leading axle.

The Loeffler system (writes Arthur Stead in the *Santa Fe Magazine*) claims to provide all the thermal advantages of high-pressure superheated steam without danger and excessive construction cost. It also solves the troublesome problem of boiler scale, the water being vaporized and steam generated in a high-pressure boiler and drum, wherein there are found no flue gases or products of combustion.

Steam pressures employed run from 215 pounds to as high as 1,700 pounds per square inch. The machine is of a somewhat complicated nature, but tests have shown the Loeffler locomotive to be a wonderfully powerful haulage machine.

Spending Four Millions

THE Canadian National's £4,200,000 outlay for new equipment this year includes, according to Sir Henry Thornton, 400 freight refrigerator cars, 10 snow plows, 1,000 fifty-ton box cars, 12 sleeping cars, 5 dining cars, 12 lounge cars, 25 tank cars, 5 depressed flat cars, 3,500 box cars, 25 baggage cars, 15 express refrigerator cars, and 69 locomotives of different types.

Special Cars for Special Passengers in Germany

IT is the practice on the German railways to set aside one or more of the coaches in certain trains for the conveyance of what may be termed special classes of passengers. This is not done on the express trains of the "D." and "F.D." categories, but almost always on local trains, and those of the Eil and Perzonenzug classes running considerable distances on slower schedules. Certain coaches bear the indication, "Fur Reisenden mit Traglasten," that is for travellers with packs, and the interior arrangement of these cars differs in that the number of seats are reduced

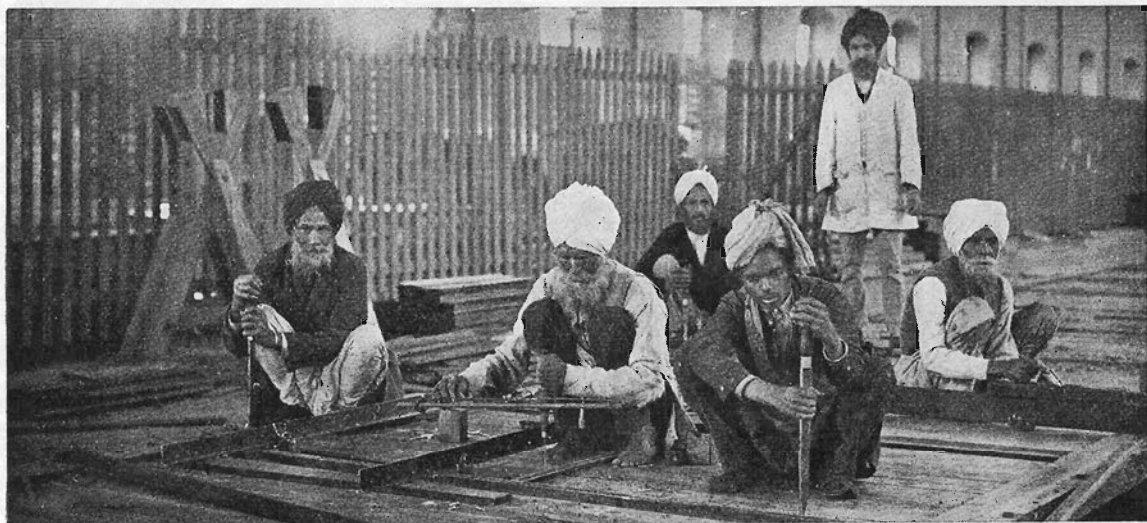
to a minimum, the vehicle resembling a brake van with a few seats added. Thus larger spaces are allowed for depositing the packs, and when all the seats are taken most of the passengers seat themselves on the baskets or bundles which at other times they carry on their shoulders.

Other coaches are marked "Fur Reisenden mit Hunde"—for travellers with dogs—it not being permitted to take dogs into the ordinary compartments of a train.

In a similar way (says the *Railway Gazette*), an entrance to the subway leading to the platforms is sometimes

set aside for travellers with shoulder packs, and every endeavor made to keep them apart from the ordinary passengers, and at more than one station special arrangements have even been made for this class of traveller to secure tickets at a specified booking-office window.

The plan adopted for indicating the make-up of a train by means of an illustrated board on the platform shows individual travellers where they can find the class of carriage they require when the train arrives, and these boards also bear the indications referred to above.



Sikh body builders at work in the Moolhalpura car and wagon shops, North Western Railway, India. (Photo. kindly supplied by Mr. C. Travis, Assoc. Editor, "Railways Gazette.")

Roller-Bearing Locomotive Trucks

LOCOMOTIVES on the Canadian Pacific Railway are being equipped with roller-bearing trucks, the first to be introduced on a Canadian railroad. The roller-bearing truck has many advantages over the old plain friction-bearing type, and has been introduced on the Hudson and other types of C.P.R. locomotives after intensive experiment by the company's engineers.

Higher speed and the assurance of punctuality, in short and long runs alike, have caused a steady increase in the size and weight of road engines in recent years. The resultant problem of devising a truck capable of bearing its share of the additional weight of the locomotive has been solved by the introduction of the roller-bearing truck, which is expected to be adopted by the major railroads of the world before many years.

Besides the advantage of carrying the

increased engine weight more successfully than any other truck yet designed, the new roller-bearing truck is able to run continuously, with only periodic examination, and without any danger of overheating.

It is also sealed and is dirt and dust-proof, requiring lubrication only at yearly periods, an advantage that tells heavily in favor of speed and punctuality.

Modernisation in Turkey

NEW Turks no longer name children, as the old Turks inevitably did, after the wives and followers of the Prophet, says *Railway Age*.

The Anatolian city of Konia wins the prize for "modernisation" with the recent bestowal upon a boy baby of the name "Railroad." He was born on a train.

In the 'sixties

I REMEMBER well going from Paddington to my private school at Malvern in the 'sixties, the luggage piled on the carriage roofs," writes Mr. D. H. Blair in the *London Times*, "and I remember an intimation that passengers who wished to smoke could climb up, at their own risk, and sit and smoke among the trunks. Trains were started in prehistoric days not by whistle, but by a key-bugle. The tune played at Paddington was "I'd be a Butterfly." The broad-gauge coaches were divided into two compartments, holding four each.

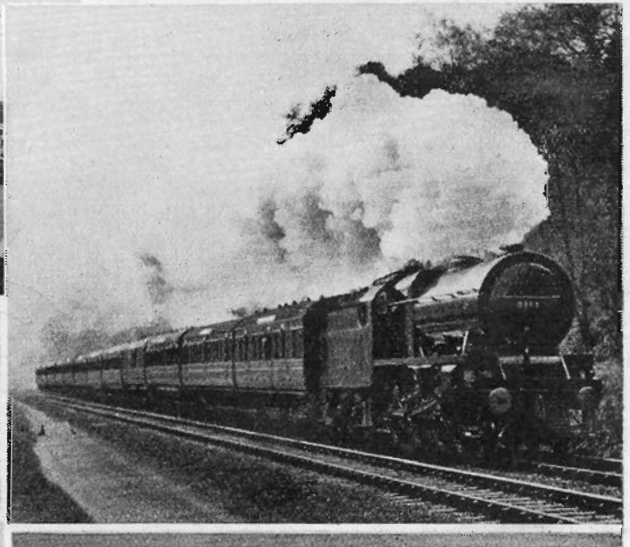
"I recollect once, while three noisy companions and I were playing cricket in our compartment (batting with ginger-beer bottles), the sliding door opening, and the dignified countenance of Bishop Samuel Wilberforce looking in. He complained that he was trying to write a sermon, and that he could not get on with it."

THE MODERN RAILWAY UNIVERSE-



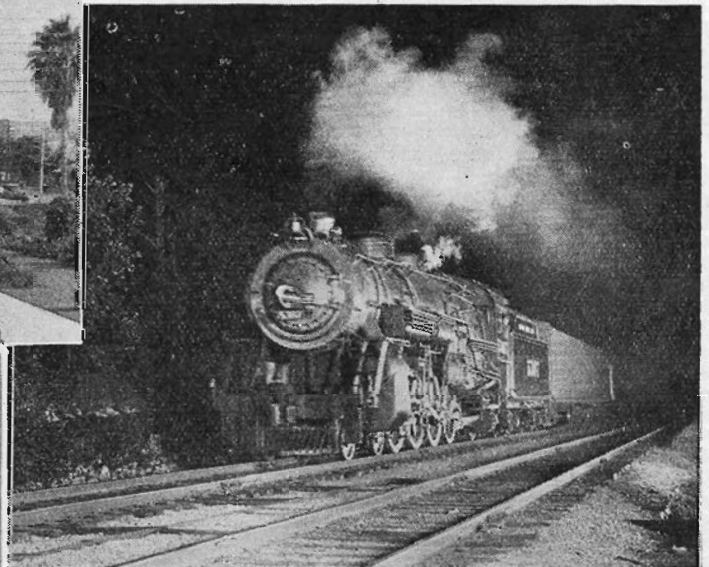
ABOVE : St. Pancras railway station, headquarters of the London, Midland and Scottish Railway Company.

RIGHT : The Royal Scot, crack train of the L.M.S. Coy., which covers the 299½ miles between Euston and Carlisle, Scotland, at an average speed of nearly 51½ m.p.h., despite long and severe gradients along the route.



ABOVE : San Antonio, a passenger station in Texas (U.S.A.), on the International Great Northern Railroad, a subsidiary of the Missouri Pacific Lines.

RIGHT : A midnight picture of one of the long-distance expresses of the Missouri Pacific Lines, speeding westward from St. Louis to Kansas City.



THIS is the first of a series (which we had intended continuing regularly) of the latest photographs of the principal railway stations and passenger expresses in the different countries of the world. As the Magazine is now temporarily ceasing publication, we advise all our readers who may wish to make a collection of the pictures, to file this page until the Magazine is reissued and the series continued.

WE take this opportunity of gratefully acknowledging the kindness of the various railway companies of the world in generously supplying us with this unique collection of pictures.

REPRESENTATIVE RAILROADIERS

By R. H. JUNIOR

Caricature by ANGUS MAC

No. 36—

Outdoor Stores Superintendent—

H. S. Sergeant

ANY woman is convinced that, in the absence of unremitting feminine vigilance, any man will become hopelessly untidy, disorderly and careless in his habits, dress and general manner of existence. This utterly indefensible attitude has persisted throughout the ages, right from the first occasion on which Eve complained patiently of Adam's alleged shortcomings in the matter of care of his Sunday-wear fig-leaves.

H. L. Mencken has drawn attention to the widespread prevalence of this attitude of "benign espionage and misrepresentation," and confesses that, although personally one of the most orderly of mortals, he has more than once gone out of his way to satisfy the expectations of his women-folk by deliberately hanging his hat on the chandelier, clumping over the carpet with muddy boots, going out in a snowstorm without a greatcoat, filling his shirt-box with old copies of the *Church Times*, hoarding some of his books in the dustbin and shaving himself with tooth-paste.

While the majority of men suffer undeservingly and uncomplainingly beneath this attitude of detached feminine superiority and well-intentioned correction, there is at least one man in the Victorian Railways, the character of whose career puts him beyond the blind criticism of the most censorious of women. Both factions of the Housewives' Association, acting in unison, would experience difficulty in detecting chinks in the armor of his method and orderliness.

For Outdoor Stores Superintendent H. S. Sergeant has been engaged in a general tightening-up of railway housekeeping methods and a restoration of order from comparative disorder on departmental storehouse shelves ever since his visit to America with the Comptroller of Stores in 1921. In collaboration with his branch chief, he has reorganised and refitted all Victorian railway storehouses, introducing new methods, arranging improved storehouse layouts, classifying thousands of items of stores, numbering material, and, with an eye to economies in the placing of orders, making systematic and regular reviews of stock.

His bristling new broom has swept through all the metropolitan storehouses, all the country loco. and



works depots, and all small storage locations like the cabins of running gear repairers and train examiners.

Bundles of brooms, scrubbing brushes and tin billies no longer swing heavily from the roofs of crowded storehouses, and, before the well-ordered advance of standard racks and material trays, the "old curiosity shop" appearance of many a railway storehouse has disappeared, utterly and irrevocably.

The value of stock on hand has been reduced by no less than £700,000, and where stocktaking once meant a big job that ran into months, it can now be carried through to completion in two days

The reorganisation has been a hard job and a protracted one. It has involved continuous travelling, planning,

watching and teaching. It has touched all aspects of Stores branch work—from the ordering of material to the final book-keeping. And its results are a tribute to the foresight of C. W. J. Coleman in choosing H. S. Sergeant as his companion for the American tour.

The younger man had ever been a glutton for hard work, right from the time when he started opening letters, copying correspondence and answering the 'phone as a junior in the office of Railway Storekeeper E. J. Goode in 1897. He had advanced through the different grades in his branch, sampling experience with both eager hands, and was in charge of the Spencer-street store, then the main general storehouse in the service, when the direction of a certain forceful and recently arrived railway expert named Harold W. Clapp

sent him overseas with his branch chief

Outdoor Stores Superintendent Sergeant was also actively associated with the establishment of the railway reclamation depot at Spotswood, where obsolete engines, empty gum-bottles, arsenic drums, old chimneys, ancient concrete-mixers and all the rest of the discarded odds and ends which a railway system accumulates by the effluxion of time, are salvaged or sold, reclaimed or auctioned.

Last year, £93,000 was earned by this humble adjunct to the big Spotswood storehouse—earned from the sale or reissue of condemned material.

In orderly, unflurried and supremely methodical fashion, H. S. Sergeant is continually saving money . . . directly and indirectly.

CON. COLLINS Looks BACK—

CON. COLLINS at the ripe age of 84 years is weighing the pros and cons of present day rail problems with as clear a vision as many critics a good half-century younger.

Con. is in his twilight, the aftermath of a bright day—a day that has extended over 30 years of railway service. He is living in McConnell-street, Kensington.

"A YE, aye," he will tell you, "I was in the railways before the Flinders-street Station was built."

The Hobson's Bay company was then the employer of railwayman Collins. He was a junior, receiving the princely wage of 5/- per week when he commenced his railway career. The only roads—your true railwayman seldom talks of "lines"—were the Brighton, the Hawthorn, the Sandridge and St. Kilda.

There was a row of stalls retailing tobacco, fish, liquor and general goods on the very platform of the Sandridge (now Port Melbourne) road.

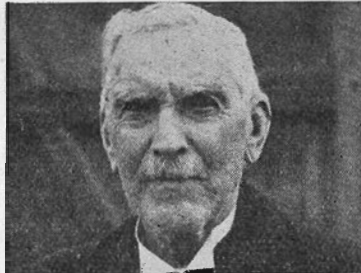
"Well, well," and Con. Collins meditates on the changes that have taken place. His memory wings him back to a different age, an age when Melbourne was not the lusty city of today.

Railwaymen were more carefree, there was not the concerted team work of present day working, but somehow things managed to get along well enough.

Con. Collins remembers the pumping station at the end of Princes Bridge—Melbourne's water supply.

He remembers too, the amusing sight of a man with a red flag preceding all trains from Spencer-street

to Flinders-street and return. The public of that period had scant respect for steam trains, and if, by any chance, the train came to a standstill on the way across, it was a common thing for people to scramble between or



Still going strong at 84—Mr. Con. Collins photographed at his home last month

even under the vehicles to gain the opposite side of the road.

As a Victorian Railwayman, Con. Collins was responsible for the introduction of the improved white disc displayed on the rear vehicles of all trains.

Originally, the disc was a complete circle, and was an awkward addition to the guards' kit. Guard Collins ingeniously cut one in halves and, joining them by means of hinges, presented the specimen to the stationmaster at Flinders-street, who forwarded it to the Commissioners.

This suggestion was adopted, so that when Con. Collins retired some years ago, he left the equivalent of a thumb-print on the Victorian railways service.

The best preparation for the future is the present well seen to, the last duty well done.

Britain's Most Peculiar Train

THE most peculiar train ever seen on a British railway was recently shown to railway experts and business men at Sheffield.

In exhibiting it, the London and North Eastern Railway Company were demonstrating how they were meeting the demand for trucks which will carry unusual types of freight—bulky goods, heavy goods and goods of strange shapes.

The train, 300 yards long and weighing 634 tons, included a huge Garratt locomotive, the heaviest and largest wagon in the Kingdom, a wagon without a floor (to carry large stern frames for transatlantic liners), a giant brick wagon (carrying 20,000 bricks), a "hot" van for 10 tons of bananas, a "cold" van and a 20-ton guard's van.

Backwards is Forwards

THERE is an outer suburb of London with a railway station which has a peculiarity of its own. If you want to go to town and ask the ticket collector which of the two platforms is the "up" he will tell you "both." If you ask which way the trains go to London he will reply "both ways!" If you see two trains in the station facing opposite directions and ask which you must take, he will smile and say "Which ever you like, it doesn't really matter!"

All of which is very confusing, and might make one doubt the sanity of the ticket inspector. But it is perfectly true, and city people on their way to business watch from the bridge for the next train in either direction and enter it complacently.

The solution to the mystery lies in the fact that the place (Teddington) is just about half-way round a loop that begins and ends at Waterloo, and trains constantly run round the loop in both directions.



Saving



The Fireman

HOW best can the Victorian annual coal bill of one million pounds be reduced? How, for instance, can we conserve fuel, bearing in mind every shovelful of coal means reduced working expenses for the year. . . . Hear what the firemen have to say.

GEORGE REDFORD of the Ballarat loco. depot wiped his hands on a sweat rag. His attitude towards the problem was voiced in very few words.

"I always make my fire go as far as possible" was one thought.

"A man must have confidence in himself" was another. George believes that unless a man is confident of doing his best, he is never likely to achieve success.

"No fireman," he continued, "wantonly burns coal, and if the driver realises that the key of the situation is in his hands, he will inspire the fireman to do his best."

George Redford does not believe that the pricker should be used at all, as it seldom fails to clinker the fire.

Jim Greenbank summed up laconically.

"The fireman's job," he claimed, "is to always keep a full head of steam and a full pot of water." He proceeded to enlarge upon his theory.

He believes that the engine and the

An engine will use from 60 to 200 lbs. of coal every hour it is held waiting under fire

driver play a large part in running costs. Some engines are easier to fire than others.

He has been on the job for six years and thinks that the A2 is the easiest engine to handle. He has not, however, fired on the Pacific type.

To get the full benefit from any engine, Jim says you must have the safety valve just on the "pop." You get along better and use less coal, much less coal. He emphasised that.

JACK KERNICK, also of Ballarat, thinks that when a fireman has a regular mate he is best able to fire his engine to advantage, which of course, means that he is able to save fuel. The knowledge of his mate's method is to Jack a very important thing, for he is then enabled to anticipate and respond to the driver's requirements.

He makes his preparations as the train proceeds, and anticipates the arrival of banks by building his fire for some distance in advance. To illustrate this he suggested that it is advisable to start building up at

By W. W. W.

Coal



Man Talks—

the Victorian Railways bill (approximately pounds) be reduced? Can enginemen help bearing in mind that coal saved means re- sences at the end of the that these representa- to say on the subject.

Melton for the climb at Ballan. "Never let your fire get too thin. And learn your engine."

Jack's parting shot was, "Always drop the damper when rolling."

John Haberman of North Melbourne loco. depot suggests that if fires were always kept clean firing troubles would be eliminated. Coal in use, naturally, makes a difference.

His firing formula was: "Fire light and often, after having a good body to start with. The less the injector is cut off the better. And always keep a full supply of steam."

John is always at work well before

time, to have a quick "look over" his engine. He suggests that a fire should always be burnt through before starting.

Black smoke means that one-third of the heat value of the fuel is being wasted

"Never use the pricker, and keep the damper open with a thick fire," he added sagely.

PADDY SCHULTZ has been at North Melbourne for many years, and, like John Haberman, is eager to qualify as a driver.

"A fireman's first consideration," he pronounced, "is to make steam, which, for economical working, means

complete combustion of the fuel in the firebox."

To do that many things are involved. "First he must always keep a bright fire. The correct way to build it is heap the coal heavy in both back corners of the firebox, and along both sides, and taper towards the tube plate in front. The fire should be lowest in the middle, so that the draught can come through."

Paddy suggests that if the fireman prepares his fire in accordance with the driver's instruction, he can't go far wrong. The good fireman never fails to break the coal into lumps about the size of a man's fist. Then it lies as a mass and burns better.

"Mind you," Paddy cautioned, "there's a lot in working the door and the damper."

Railway Outposts

No. 26

Mirboo North

"IT'S an ill wind that blows nobody any good" is a saying which has a great deal of truth in it, as will be borne out by the experience of the people of the Mirboo Shire. The coal mining trouble during the last year or so has dislocated matters to a large extent in the Australian industrial world, but it made a profitable proposition of coal-winning at Mirboo North.

Huge deposits of excellent black coal exist in this district, but their development has been retarded principally by the lack of capital to commence operations on a sufficiently large scale to ensure production at reasonable rates. Since April last year, 2,496 tons of coal have been despatched from Mirboo North station, and £1,398 paid in railway freight. With the reopening of the New South Wales mines, however, this traffic has fallen off heavily.

Population of 700

Mirboo North is situated amongst the hills of central Gippsland, 89 miles from Melbourne, and at the head of a 20-mile spur line south from Morwell. The township, with a population of about 700, is the centre of a thriving district devoted to mixed farming, the principal activities being dairying and pastoral. Originally, the country was all heavily timbered, and the increasing areas of clearings which now extend back from the railway are a tribute to the work of the pioneers.

The local butter factory, with an output of some 11,000 boxes a year, is the principal secondary industry of the district, and is a consistent railway



A group of railwaymen at Mirboo North.

user. The whole of the freight traffic from the district in fact, is handled by rail.

Wool growing is another important activity and yielded, last year, 247 bales and 116 bags of wool, of a total weight of 40 tons for transport by rail. The station also derived a considerable volume of live stock traffic from the pastoral industry. Of the 290 trucks of stock despatched, there were 112 of sheep, 110 of cattle and 68 of pigs, while the 128 inwards trucks comprised 66 of sheep, 58 of cattle and four of pigs. In all, this livestock traffic meant £2,186 to the railway revenue.

Rabbits and Eggs

Livestock of a different kind also figured largely in the station's traffic, as is indicated by the despatch of about 50,000 pairs of rabbits each year.

The running of poultry as a sideline on the farm means the addition of as many as 20 cases of eggs weekly to the outwards loading. Quantities of potatoes, onions and chaff are also

despatched, while the forwarding of 20 and more cases of passion fruit weekly in season adds to the variety.

Fertilisers, general merchandise, building materials and other inwards goods traffic represented a revenue of £2,988 for the 2,756 tons received last year. The outwards revenue for the 4,287 tons handled added a further £3,739 to the station's returns. Parcels traffic was responsible for £207, and rent and miscellaneous returns for £129 during the year.

From its location, Mirboo North is convenient to Leongatha, which town enjoys a better passenger train service. Consequently, a considerable volume of the district's passenger traffic to Melbourne is handled via Leongatha. Despite this fact, 1,755 tickets were sold during the year and £765 was paid in fares.

The station is controlled by Stationmaster D. W. Gleeson, assisted by Lad Porter R. Hodge, and the variety and volume of the traffic handled ensures that they are kept busily engaged. At the same time, even a casual inspection of the orderly station yard and buildings reveals the influence of a keen and capable officer-in-charge. This impression is strengthened on meeting Mr. Gleeson, a quiet, unassuming young man, but an officer whose air of confidence betokens a sound knowledge of his job and a faith in his ability to handle any emergency that may arise. —S.C.W.

Had More Sense

"WHY didn't you put my luggage in here, as I told you?" thundered an irate passenger to the grizzled porter, as the train moved out of the little Scotch railway station.

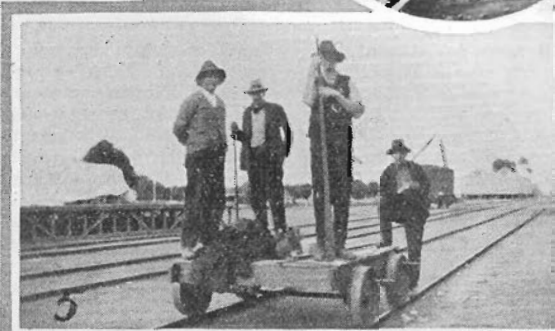
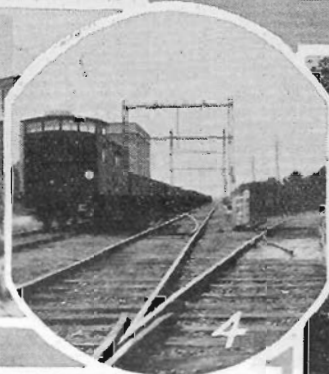
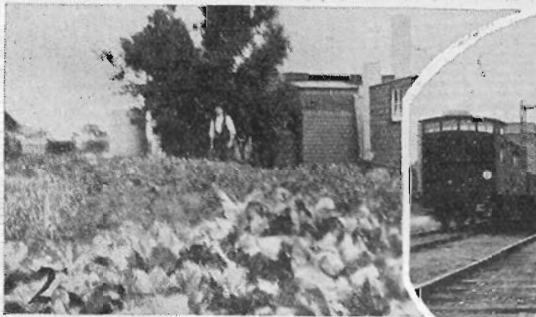
"Eh, mon," returned the other patronisingly, "yer luggage is no sic a fule as yerself. It was marked Edinburgh, and is on its way there. Ye're in the wrang train."



Stationmaster D. W. Gleeson (right) and Lad Porter R. Hodge of Mirboo North.

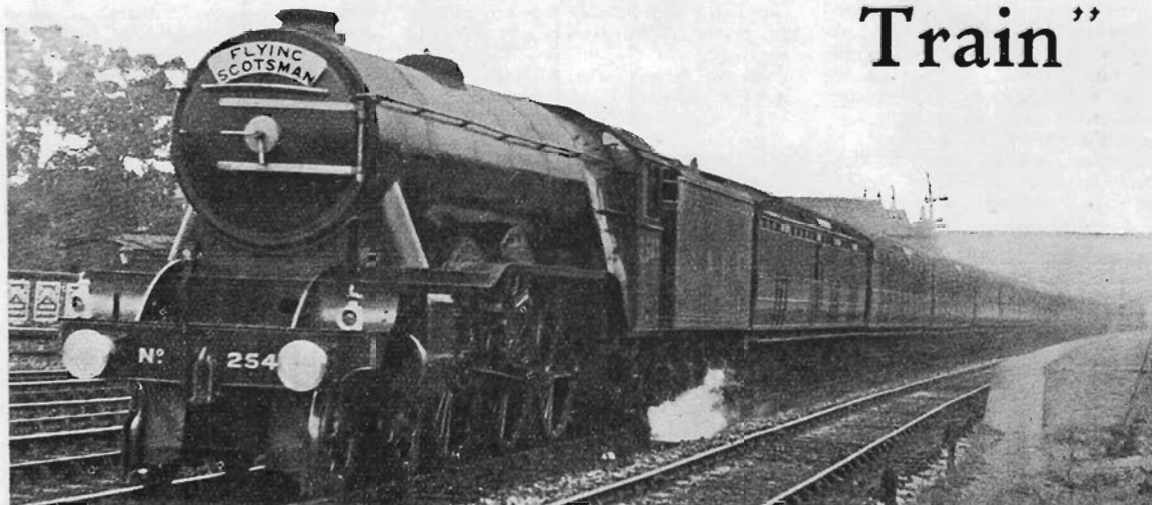
SNAPS—Round The System

Sent in by Contributors



1 and 2.—Ganger R. R. Beasley in his prize-winning vegetable and flower garden at Birregurra. 3.—In the garden of the Benalla railway Institute. 4.—Baxter goods train leaving Seaford. (Photo.—A. J. Coleman). 5.—No. 3 repair gang at Quambatook (W. Hewth). 6.—Miss Esma Jones, eldest daughter of Driver V. D. Jones, of State Mine, in her "Fat More Apples" dress which has won two prizes at Wonthaggi state school balls. 7.—Preparing site for wheat stack at Detpa. 8.—Scene at Sandbank during railwaymen's annual picnic at Traralgon.

They Call IT— “The World’s Most Dignified Train”



EVERYBODY, everywhere, has heard of the famous Flying Scotsman, the crack train of the London and North Eastern Railway which has now been in existence for 68 years. It is the company's premier passenger service and is claimed to be "the most dignified train in the world."

IF there is anything more dignified than the 10 a.m. Flying Scotsman slowly drawing out of No. 10 platform at King's Cross, it is the 10 a.m. Flying Scotsman from Edinburgh arriving gently at the buffers of No. 1 platform, King's Cross, dead on time at 6.15 p.m.

The engine-driver glances at his watch, steps quietly down from his cab with no thought of his own achievement, quickly but carefully examines his engine and murmurs "Well done," much as a rider would to his horse.

The journey from King's Cross to Edinburgh, 392½ miles, is accomplished in 8½ hours, an average speed of 47.6 m.p.h. A similar daily service is run from Edinburgh to King's Cross. The two trains pass at Tollerton just north of York at the same spot, to within a few yards, at the same time each day.

It is inevitable that occasionally a few seconds may be lost through adverse weather conditions, but there is no flurry or confusion in the endeavor to make up time. The engine-driver just bides his time until he reaches that stretch of road on which he knows he can gain a little time, always considering primarily the safety of the passengers in his charge.

During the summer months when the Flying Scotsman is run in several sections the train accomplishes the

world's record non-stop run of 392½ miles. To enable this to be achieved, the engine is provided with a specially constructed tender with a passage communicating with the train. A relief engine crew is carried on the train and the change-over is made when half of the journey has been accomplished.

400 Tons of Train

The weight of the train when full of passengers is about 400 tons, made up as follows:—

220 tons	iron and steel
120 "	timber
48 "	brass, sundries, fuel and water
12 "	passengers and luggage

Thus 95 per cent. represents the weight of the engine and carriages, and three per cent. the weight of passengers and luggage. Taking a full complement of passengers as 360, more than one ton dead weight per passenger is hauled.

The total cost of the train and engine is £42,500. The tendency for years has been to increase the comfort of passengers, but in no other country in the world has luxury travel reached a higher standard.

The amount of coal required for the journey is 4½ tons, and the amount of water 13,000 gallons. The engine commences its journey with 5,000 gallons and scoops up water six times

from troughs between the rails at Stevenage, Peterborough, Newark, Scrooby, Northallerton and Belford.

The train crew work quietly and methodically as a team, each man having definite duties to perform under the best conditions possible. The guard's van is spacious and cost £1,800. The engine cab is roomy and allows for free movement, which is so necessary on a long trip.

The quality and durability of the engines is proved by the fact that the Pacific locomotive *Gladiator* ran 392½ miles daily for 74 days without developing so much as a hot axle box.

Restaurant coaches are built in sets on the "articulated" principle, three carriages being permanently fastened together on four bogies of four wheels each. This gives smooth running and less oscillation, and the weight of the train is lessened. The length of a triplex set is 151 feet and total weight 83 tons.

The interior of the train is cheerful but not gaudy, the exterior sober but not dowdy. The prevailing note of the scheme of decoration is tasteful simplicity which suggests that quiet dignity which is typified by the Flying Scotsman.

The walls of the first-class restaurant cars are faced with large natural colored mahogany panels. Net racks and hat

pegs are all of the simplest designs. Seats in the first-class compartments are of the armchair type, comfortably upholstered in green morocco leather or blue cloth fitted with specially constructed cushions. The floor is covered with green india rubber over felt, which deadens sound and is very soft to walk on.

In the restaurant cars, louvre ventilators are fitted above large plate glass windows 4 ft. wide, and electric fans are provided in the roof of the car constantly extracting any impure air.

Meals are cooked in an electrical kitchen. Electricity is supplied by means of accumulators, which are used when the train is stationary, and by two dynamos carried on the under frame of the kitchen car and driven by means of belts from the axles of the carriage; in fact, the movement of

the train generates the electricity which cooks the food.

Cooking by pressing buttons enables the kitchen to occupy the minimum of space which is of great importance. The switches which control the ranges, ovens, grills, tanks and hot plates are fitted with electric pilot lamps which indicate to the chef exactly what is happening inside his oven or on his hot plates. Temperature can be nicely regulated and the kitchen is spotless. Extractor fans in the roof take away smell or smoke in a few seconds.

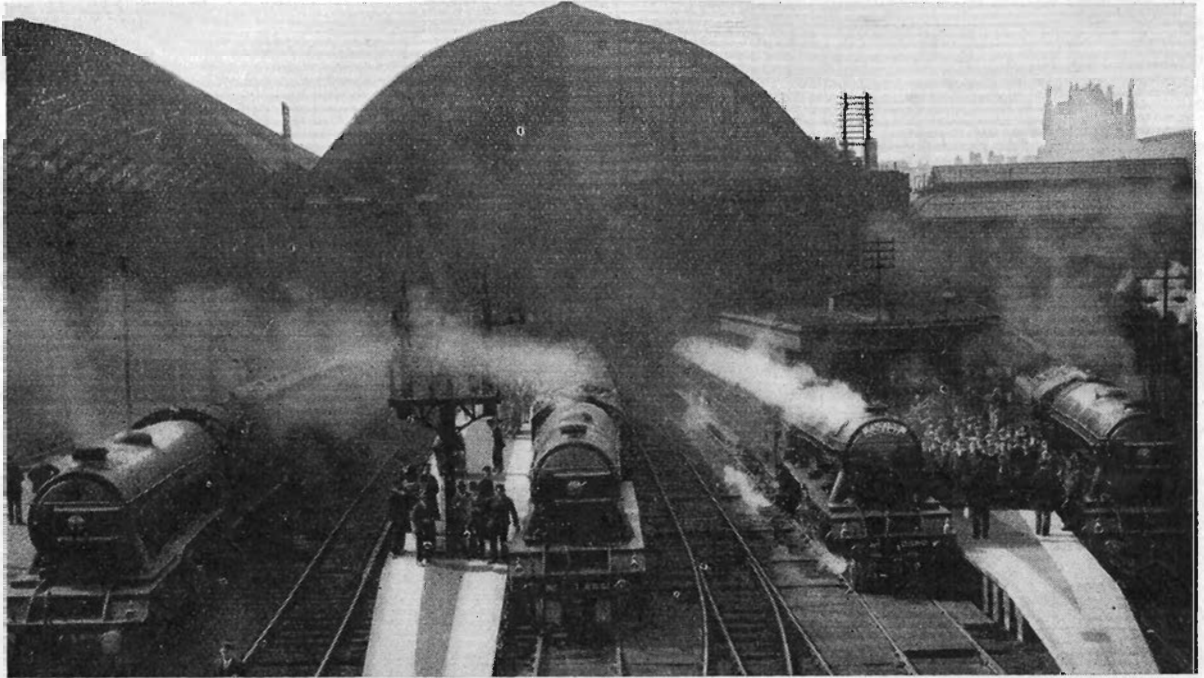
There are two 45 gallon tanks for warm water fitted in the roof of the corridor alongside the kitchen. Electrical heating elements are fastened on the underside of these tanks which are connected with the boiler at the top of the oven range. A continuous supply of boiling water for washing

up and other purposes is thus assured, as the water is partly heated in the roof before it is brought to boiling point in the boiler.

An ice manufacturing plant has been installed to ensure a constant supply of ice cubes in all weathers. It is operated by a compressor beneath the kitchen car.

A fully equipped hairdressing saloon in charge of a competent hairdresser is provided, as is also a ladies' retiring room in the care of an experienced attendant, where perfumery and other toilet articles are on sale.

That the Flying Scotsman has been in existence for so many years is a proof of its popularity, and through steady progress it has reached its present high standard of efficiency, and has taken unto itself a dignity born of the best traditions.



Scene at King's Cross, the starting point of the Flying Scotsman. The crack train is second on the right.

American 14-Year Programme of Track Relaying

BETWEEN New York and Chicago, the Pennsylvania Railroad recently completed a relaying programme commenced 14 years ago, which now gives the company the distinction of operating the longest stretch of continuous 130-lb. rail track in the world.

The programme has involved the laying of a total of 8,742 miles of main line with 130-lb. rail, at a cost of over a hundred million dollars for rail and fastenings alone. The mileage involved between the points above named is 2,852, and, in addition, the Pennsylvania has laid 5,620 miles of the heavy rail on other main lines.

Is This Safety First?

A DOG equipped with lights—a white one on his head and a red one on his tail—is attracting a lot of attention on the streets of Berlin, Germany, after nightfall. Power for the lights is furnished by a small battery strapped to the animal's back. The dog is owned by a blind man who has trained him to turn on the lights as soon as it becomes too dark for motorists to see the animal and its master on the roads.

Except for the comparatively small amount of 125-lb. rail which was laid

for experimental purposes, the heavier section has replaced 100-lb. rail which had been standard on the Pennsylvania since 1892, the earlier standard having been 85-lb. section. The first 130-lb. rail used by the Pennsylvania was laid in 1916, and the adoption of this section has continued at an average yearly rate of about 125,000 tons, the new section being installed as required to replace the most badly-worn of the rails in service.

The relaying involved also ballasting, resurfacing, the strengthening of embankments, and the rebuilding of numerous interlocking point layouts.

Railwaymen of the Month



Wonthaggi's First

SHIPS that pass in the night mean more to Stationmaster William John Killeen than to most railwaymen. He takes great pleasure in loading them up with truck-load after truck-load of wheat, flour, fruit and frozen meat. For he has

controlled railway matters at Port Melbourne for three years, and cheerfully acknowledges the fact that he commenced his departmental career in 1887. Since then—when he started as a block recorder at Bendigo—he has been stationed at one time or another at most of the system's important centres. He was first stationmaster at Wonthaggi. He has been traffic inspector in the west and north, and train running officer in the north.

Old Donald

WHILE Pipe-sergeant Murdoch MacPherson sounded the strains of "The Road to the Isles," the Newport signal shop men

recently escorted Rope Splicer Donald McNeil to the time office, where he was presented with a parcel of notes, tied with tartan and a sprig of his native heather. Old Donald was retiring after 26 years service, and Foreman Fitter Cowan, who made the presentation, handed him also the good wishes of the shop-men. Foreman Boland, Sub-foreman Livingstone and Iron Machinist Paddy Keating also had a word to say about "a good railwayman, a good unionist and a good fellow," and then Murdoch MacPherson's playing of "A Man's a Man for A' That" escorted the smiling Donald back to the shop.

Got In Early

TO wish *bon voyage* to retired Stationmaster Pithie, who has left for a 7-months trip to the Continent, railwaymen and friends recently assembled at his Seymour home. Stationmaster Pithie had charge of Lancefield, Ringwood, Tallaroak, Wahgunyah, Woodend, St. Arnaud, Colac, and Seymour during his career, and had the distinction of being the first Victorian stationmaster to be introduced to the Chairman of Commissioners on his arrival in Victoria. Stationmaster Harry Pithie of Meredith, is a son.



Senior Timekeeper Tim O'Donoghue

Sept. Birthdays

NORTH Melbourne has a cluster of well-known railwaymen on this month's birthday list. Workmaster E. Hains, formerly of Seymour, celebrates on the fourth, Senior Timekeeper Tim O'Donoghue of the loco. depot on the 10th. Train

Examiner W. Oliver of the car and wagon shops on the 23rd, Printing Officer M. F. Gray on the 26th, and Fitter R. G. Elliott of the car and wagon shops, on the 28th. Other railway anniversaries include:—

Fireman J. Clancy of Korong Vale, Cecil Widdop of Room 2, and Fireman H. P. Tomlinson of Geelong, on the first; Assistant Manager James Taylor of Newport Workshop and Phone Engineer E. G. Godfree, on the second; Goods Superintendent T. R. L. Sexton, on the third; Night Depot Foreman E. W. Ford of Maryborough, on the fourth; Train Examiner T. Orchard of Seymour, and Stationmaster Tom Mulcahy, on the sixth; Rolling Stock Clerk W. Gilligan of Seymour, on the seventh; Secretary for Railways E. C. Eyers and Assistant Chief Mechanical Engineer A. C. Ahlston, on the eighth; Claims Agent J. Southam, on the 10th; Donald McDonald



Angus Mac. roams over the hills at Korumburra. In the left corner, Storeman Leo Hynes sings to Driver Harry Boarder, wearing a washer as a halo. Institute Instructor L. Ashworth tucks an engine under his arm, and Road Foreman E. T. Brammer combs Works Foreman E. J. Stewart's hair. Parcels Porter Jack Crow is shown above Signalman Chris. Harridge, and in the centre Depot Foreman D. W. Bell chats to Stationmaster James Clancy. Timekeeper J. E. McKenna pulls out his watch with Guard "Dunk" and Clerk Tom Sexton looking on. Down below, Way and Works Clerk Telford is offered a bandage by Ambulanceman Tom Lynch, while Fuelman George Edwards brings home the ashes to the coalstage.

of Room 9 and Leading Porter Martin Young of Ararat on the 11th; Superintendent A. W. F. Smith of the Melbourne Yard, Driver A. Hunt of Geelong, Shunter J. F. Kelly of Warragul, and Works Sub-foreman M. Higgins of Geelong, on the 12th; Tom McGlade of the Weighing office, on the 13th; District Rolling Stock Superintendent Frank Boadle of Seymour, on the 15th; Electric Fitter-in-charge J. Hammond of Dandenong, on the 16th; Engineer T. Doyle of the Rolling Stock drawing office and Traffic Inspector R.S. Phillips, on the 18th; Photographer W. Howieson and Driver A. E. Dent of Korumburra, on the 19th; Assistant General Superintendent W. Thomas and Engineer Colin Young, on the 21st; District Engineer E. B. Slater of Geelong, on the 22nd; Maintenance Engineer W. Forrest of the Signal and Telegraph branch, Percy Sheeran of the Refreshment Services branch, and Signal Adjuster E. S. Bishop of Dandenong, on the 25th; Fireman C. Tat of Ararat, on the 28th; and Chief Engineer of Railway Construction C. H. Perrin, on the 30th.

Studies Military Strategy



HAVING seen service for 19 years as clerk, night officer, clerk-in-charge of the Ballarat parcels office and calculator at the Melbourne Goods Sheds, Assistant Station-master J. L. McQuillan is now hustling efficiently and courteously at Footscray, the busiest suburban station

outside the metropolitan stations. He holds seven railway certificates, covering all phases of safeworking and sound operating. Off the job, he shoots and fishes, and is a diligent student of war histories and of military tactics and strategy.

Railway Diggers' President



GEORGE H. BENNETT of the Audit branch will be president of the railway sub-section of the R. S. S. I. L. A. for the year 1930-31. George served on Gallipoli with the 6th reinforcements of the 7th battalion, and is known far and wide for the

interest which he takes in the A.N.A. and friendly society work. He is president of the Camberwell branch of the A.N.A., delegate to the metropolitan committee of the A.N.A. and represented his branch at the 1930 Echuca conference.

And Still Going

JACK COLLIGAN is believed to be the most travelled Victorian railwayman travelling. Parlor car conductor on the Sydney Limited

since 1895, he has covered the truly amazing distance of 2,243,280 miles. That's one record. Another concerns courtesy, attention and reliability.

Weight Juggler

FOREMAN A. E. BURNS has retired after 33 years railway service, leaving in his wake a veritable ocean of queer loading jobs. As foreman in charge of the electric crane roads at the Melbourne goods sheds, he has supervised the juggling of traction engines, chaff-cutters, boilers, steam rollers and machinery for years past. He was the inventor of many of the chocks, clips, handles, shoes and trusses, spreaders, trays, frames and hooks extensively used for the safe accommodation of awkward loading in railway trucks. He has

taken bulky loads, heavy loads, fragile loads and now retirement in his inimitable stride.

Surprise Farewell

YARD Foreman Theo. Sampson, who has been located at Flinders-street for the past 12 years, closed a 43-year career last month. Some three score of his railway friends gave him a surprise farewell at his home, presenting him with a gold watch and a wallet of notes, and his wife with a travelling rug.

MRS. GRINTER and family desire to thank all kind friends for cards, letters, telegrams, floral tributes and personal expressions of sympathy in their recent sad bereavement, especially thanking the employees of the Manor quarries.

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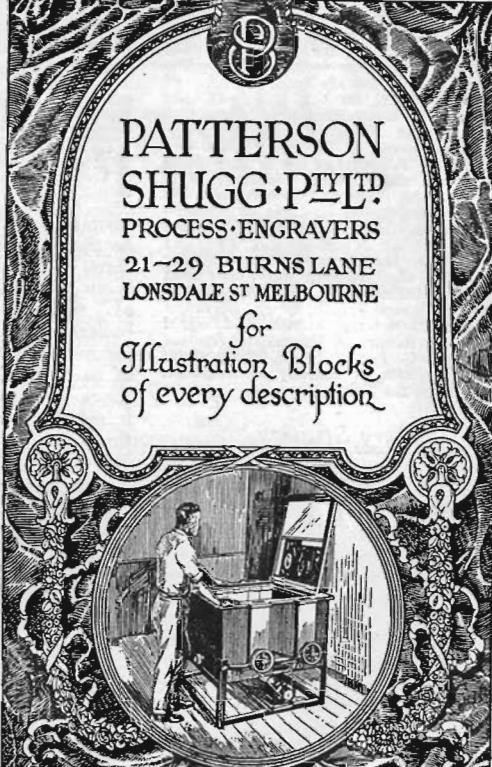
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Amplifier

"AERIO'S" exclusive details of the Loftin-White amplifier, designed for radio, gramophone and talkie work, which was recently demonstrated before the V.R.I. wireless club by Mr. C. A. Cullinan, V.K. 3, XW, Engineer on the staff of Messrs. C. P. Embleton and Company, Melbourne.

THROUGHOUT the world, great attention is being paid by experimenters to the new Loftin-White amplifier which is a radical departure from accepted practice in audio amplification, although not actually involving any new principle.

In 1914, an Englishman took out patents on a direct-coupled amplifier; that is, one in which one valve is connected directly to another without the use of coupling devices such as transformer, choke or resistance couplers. Others have taken out patents since then on this type of amplifier, while the Bureau of Standards of the United States of America built up a direct-coupled amplifier which gave good results but was impracticable for average use because an operator had to be on constant duty to keep it adjusted.

Recently, however, two American engineers, Messrs. Loftin and White, developed this system to such an extent that it is practically fool-proof and will operate consistently without attention.

The main feature of this new amplifier is that the plate of the first valve is connected directly to the grid of

the next valve (there being only two valves in this audio amplifier). This is seemingly impossible, for a valve must have a positive potential on its plate and a negative potential on its grid before it will function; but in this amplifier the plate of the first valve is given a positive potential and the grid of the second valve a negative potential, although they are connected directly together.

In order to obtain a thorough understanding of this amplifier it must be strictly understood that the plate of the first valve is *positive* in respect to its cathode, while the grid of the second valve is *negative* in respect to the filament of this valve.

Many Advantages

There are many advantages to be obtained with the Loftin-White. In the first place it has a flat frequency characteristic from a few cycles to over three million cycles under laboratory adjustments, while in ordinary use it will amplify evenly between 35 and 8,000 cycles, a greater range than is covered by the majority of broadcasting stations, gramophone records, pick-ups and loud-speakers. This

means that the reproduction is better than that of any other system, and its fidelity of reproduction is equal to that put into the system and the frequency response of the speaker.

Secondly, the amplification in the system itself is enormous. So great, in fact, that a single A.C. screen grid valve will swing a 50 watt valve properly and will overload the 245, 250 and LS6A type valve unless correctly adjusted. It should be understood, however, that the *volume* is limited to the *output* of the last stage valve, as will be referred to later.

Thirdly, elaborate filtering apparatus is not needed, since the hum can be reduced to a minimum by means of a potentiometer. In fact, the usual set hum (100 cycles) is entirely eliminated, there being only a slight fifty cycle ripple present if there is any pick-up from A.C. leads. In other words, the hum can be eliminated entirely and any ripple present is due to amplification at 50 cycles.

It should be appreciated that the Loftin-White is purely an audio frequency amplifier and can be coupled to any receiver in place of the usual amplifier, provided it is supplied with

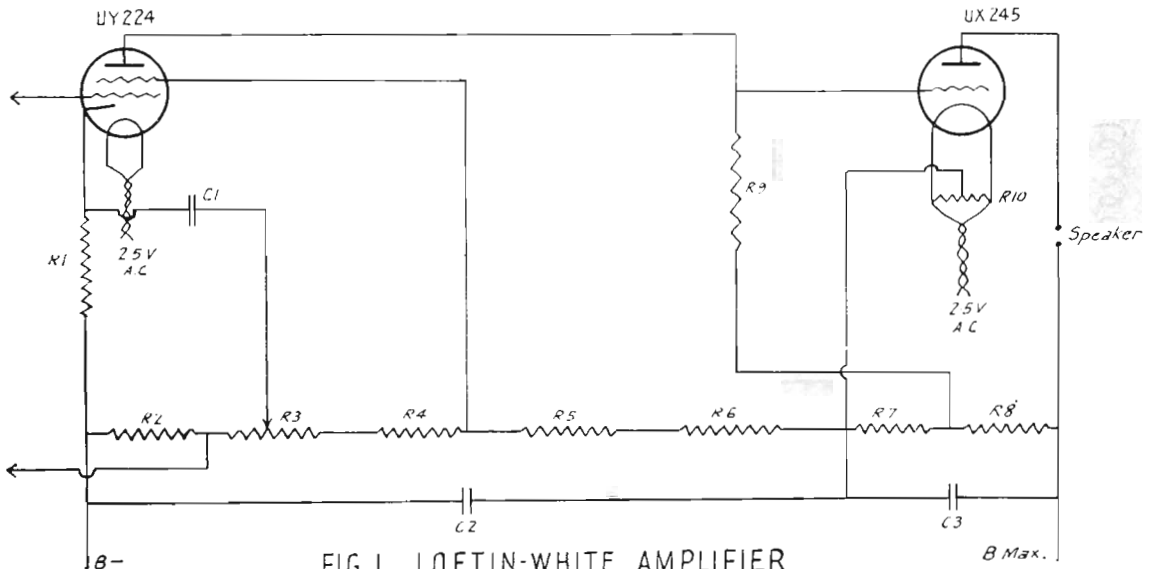


FIG. 1. LOFTIN-WHITE AMPLIFIER

the necessary power apparatus. If desired, radio frequency stages can be added directly to a Loftin-White, but in this case the full amplification of the system cannot be obtained, as the system itself is slightly disarranged when the first valve is used as a detector.

As was referred to above, while the system is capable of enormous amplification within itself, its output (volume) is limited entirely to the output of the last stage valve. This means that when a 245 valve is used in the last stage of this amplifier and the system is adjusted for correct operation, its undistorted output will be exactly the same as that of a single 245 valve used in a properly operated amplifier employing transformer coupling.

If, however, greater volume is desired than that supplied by a 245, which gives a maximum undistorted output of 2 watts, a 250 type valve should be used, which will give an undistorted output of 4 watts; while if even greater output is desired an LS6A can be used in the last stage, when the undistorted output will be about 8 watts.

For extreme volume, the last stage valve can be of the 50 watt type in which case a number of dynamic speakers can be operated from it for public address or talkie work. As in any other amplifier, the last stage valve cannot be replaced by a valve having different characteristics. If it is desired to use a different valve, the entire resistance bank upon which the system depends must be altered.

One of the greatest troubles which had to be overcome in this type of amplifier was the drift effect caused by a varying bias on the first tube. In the Bureau of Standards amplifier it was necessary for an operator to be

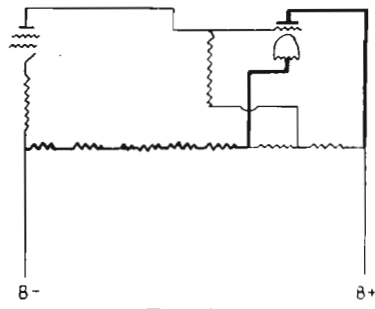


Fig. 2

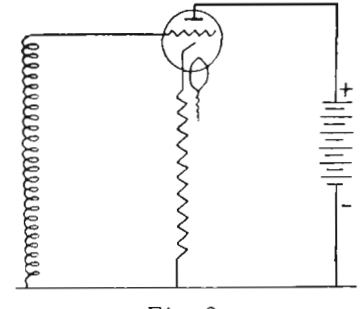


Fig. 3

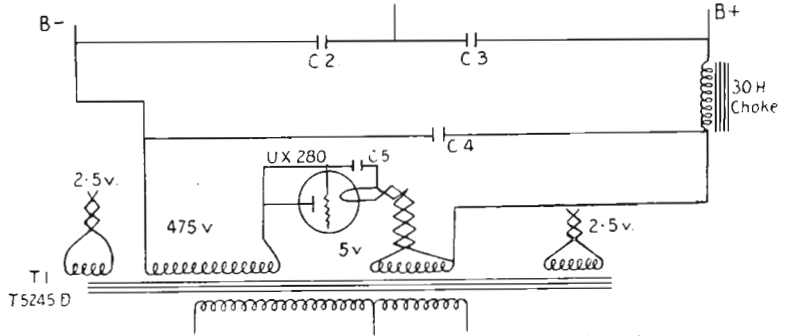


Fig 4

able to adjust the bias continuously, and it was for this reason that the amplifier was not really practicable.

In the system as devised by Loftin and White, the bias is entirely automatic and depends upon the difference between two opposing biases. One of these biases is obtained by means of the voltage drop taking place in a resistor connected in the cathode circuit of the first valve, while the other occurs through voltage drop in a resistor connected in the plate circuit

of the last stage valve. The circuit of the Loftin-White amplifier is shown in Fig. 1, the power supply not being shown. In this diagram it will be seen that the plate of the UY224 is connected directly to the grid of the UX245 and obtains its plate supply through the resistor R9.

Reference to Fig. 2 shows the amplifier in skeletonized form. The plate circuit of the UX245 is shown by the heavy black lines, and it will be seen that the circuit is from the positive of the power pack, through the 245 and then through part of the main resistor bank to "B" negative, as the output of the power pack is 450 volts, and the UX245 requires only 250 on its plate. But, for the UY224 the power supply is obtained in a different manner. The current for this valve is taken from "B" maximum through the resistor R8 (Fig. 1), and then through the resistor R9. This means, of course, that there is a drop in voltage across both resistors, and as there will also be a small current flowing through the resistor R7, there will be a drop in voltage across it also.

The drop in voltage which occurs across a resistor when current flows through it provides an excellent means of obtaining bias, and is used always in modern receiver design.

By reference to Fig. 3, it will be noticed that a resistor is placed in the cathode lead of the valve and the filament end of the grid coil is connected to "B" negative. When current flows in the plate circuit of the valve (comprising the battery,

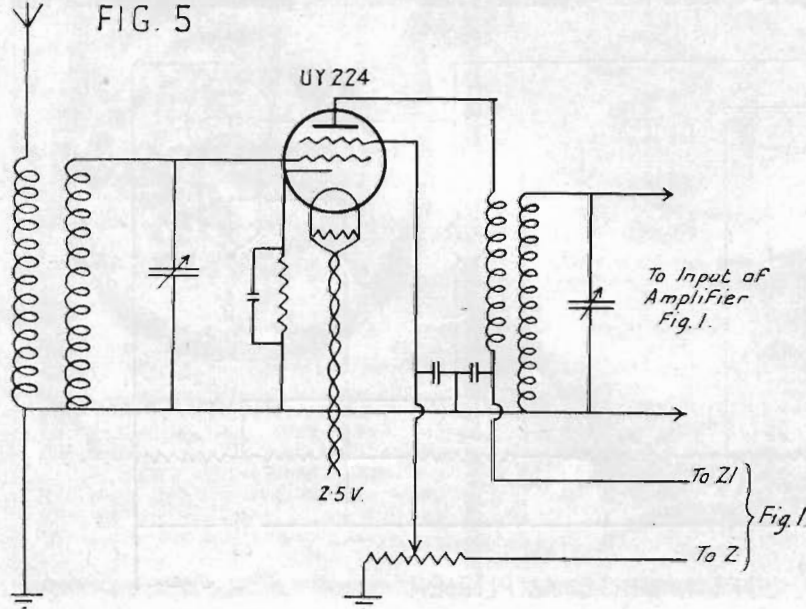


FIG. 5

valve and resistor), there will be a drop in voltage across the resistor. In other words, one end of the resistor will be at a higher potential than the other end, and as one end is connected to negative, it follows that the cathode end of the resistor will be at a higher potential than the other end.

This means that the cathode is several volts more positive than "B" negative, while the plate is still higher.

Now the grid circuit comprises the grid, grid coil, resistor and cathode, and as the grid of the valve is connected to "B" negative, the cathode must be at a higher potential than the grid. In other words, the grid is at a lower voltage than the cathode, which is the required state for normal operation of the valve.

For example, the Phillips B605 valve requires a bias of 18 volts with a plate current of 9 milliamperes and a bias resistor of 2,000 ohms. will be suitable for this valve. This value is obtained from the following formula which is used in calculating the bias resistor for any type of valve:—

$$\frac{\text{Value of Resistor in ohms} \times \text{Plate current in milliamperes}}{\text{Required Bias}} = \frac{1000}{1}$$

Taking the example above:—

$$\frac{\text{Resistor} \times 9}{18} = 2000 \text{ ohms.}$$

Therefore, it will be seen that there will be a drop in voltage across the

resistor R9, this being approximately 100 volts, which is of course far too high for normal operation of a 245. But it will be seen that there is another resistor (R7) connected in the grid circuit of the last stage valve, and as there is a small current flowing through this resistor, there will be a voltage drop across it, this being approximately 50 volts.

Now, by tracing out the circuit, it will be seen that the grid of the 245 is approximately 100 volts lower than the junction between the resistors R7 and R8, due to the voltage drop across R9, and the potential at the junction between R7 and R8 is approximately 50 volts higher than the junction "Z1" on the resistance strip. This latter junction, by the way, connects to the filament centre-tap and is part of the plate circuit of the UX245.

Thus it will be seen that there are two opposing biases applied to the last stage valve (100 volts across R9 and 50 volts across R7), the difference being 50 volts, which is that required for the normal operation of the UX245.

The bias arrangement for the UY224 is a special feature of the direct coupled amplifier. It was found in experiments that the normal method of obtaining bias, as described earlier in this article, was not sufficiently sensitive to prevent a drift effect which rendered the system unstable. This

drift effect occurs when signals of varying intensities are applied to the grid of the UY224. In this system a large positive bias is applied to the cathode of the UY224 through the resistor R1, and an opposing bias is applied to the grid through the voltage drop which occurs in the resistor R2, the difference between the two biases being approximately 145 volts.

The screen grid of the valve acts as an overload control, and the voltage on it is adjusted so that the amplification of the UY224 is just sufficient to operate the UX245 without overloading the latter.

Another feature is the "hum-bucking" control by which practically every trace of hum can be eliminated from the amplifier. This hum-bucking circuit comprises the resistors R1, R2, R3 and the condenser C1.

The power pack for this amplifier is extremely simple, as only one choke is needed, and very few filtering condensers, while the transformer need be only of the half-wave type. See Fig. 4. Note that the UX280 is used as a half-wave rectifier, the plates being joined together. If the hum cannot be entirely eliminated, a fixed condenser of .01 mfd. should be connected from the plates to either the filament of the UX280 or to earth, depending on which position gives the best results.

Concluded on page 46

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Milady's Page

BY
NANETTE

WOMEN in the AIR

By MISS KATH. BLOOMFIELD *∞* First Victorian Woman Pilot



Five of Victoria's leading women air pilots. From left, Mrs. Gardiner, Mrs McKay, Miss Kath. Bloomfield (of the Shell Company), Miss Nancy Nyle and Miss Gwen. Johnston

WITH the victory of Miss Winifred Brown in the King's Cup race in England last month and Miss Winifred Spooner's gallant performance in the air circuit of Europe, both following on Miss Amy Johnson's epic flight, it is hard to speak of women in the air as in any way implying femininity. In fact we are forced to conclude that flying is a science to which they are peculiarly adaptable and which they are likely to take up in increasing numbers.

It is, of course, unlikely that the average woman is physically fit for flying as a career, which would call for long periods at the controls and unusual physical stamina. But while regarding flying as a career as out of the question for all but a few, there seems no reason whatever why the average woman should not take up flying as a pastime in much the same way as she has taken to motoring.

It is not as expensive a pastime as is generally supposed. Apart from the initial cost of training—which amounts to about £25 (out of which one gets innumerable thrills over a period of a few months)—flying costs run out, in Australian clubs, at about 30/- per hour, and any pilot will tell you that there is more excitement to be had in a quarter of an hour's flying (costing about 7/6) than in any cut-and-dried entertainment that twice that amount of money will afford. In addition to which, you are taking part in the great movement of ushering in a new means of transport, and every five minutes spent in the air is preparing you for the time, not far distant, when you

will fly as a matter of course—as a means of getting from place to place—rather than for pleasure.

One word on the safety of the machines. There is a general impression, due mainly to the publicity given to air accidents, that all flying is dangerous, and that women would be well advised to wait until the machines become more fool-proof. It is unfortunate that the public should think along these lines, because it disregards the really great strides that have been made in aeroplane design since the War, making them, if not fool-proof, completely controllable and particularly easy to take off, fly about and bring into land.

There will always be accidents from carelessness, for one cannot eliminate the personal element in flying any more than in motoring. And there will always be a percentage of accidents from stunting. But, after all, stunting is purely optional—it is not part and parcel of ordinary flying.

There are several air services here in Australia that carry on their operations of passenger and mail carrying practically unheard of—except perhaps when a patient is rushed to hospital from an outlying settlement—for the simple reason that there is never a mishap to machine or passengers and seldom as much as a departure from schedule. I quote these instances to offset the idea in your mind that flying is always associated with danger.

I have often been asked what the effect would be of an influx of women into flying circles. I imagine it would

be to make aircraft manufacturers pay more attention to comfort in design, as did motor manufacturers when women took to the road. More attention will be given to upholstery, foot and hand controls will be made adjustable, and color schemes will become a matter of individual taste. Side-by-side seating accommodation has already been adopted by one English and one American aircraft firm, and most machines already have special provision for golf bags, attache cases, etc. Certainly the tendency will be towards a closed-in cabin type of machine for private as well as passenger flying.

Club for Railway Girls

RAILWAY girls will welcome the opportunity of associating themselves with the newly formed Ladies' Club of the Victorian Railways.

With comfortable appointments at the Institute, they will have ample opportunity to enjoy the exclusive features of a distinctly feminine social club.

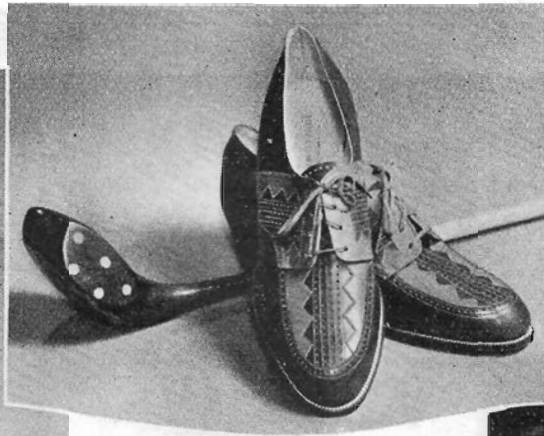
Mrs. L. Drexler, Travel Hostess of the Government Tourist Bureau, has been elected president with Misses A. Russell and M. Sullivan acting in the capacities of vice-presidents.

Miss E. Thomas, from the Accountancy branch, is the hon. secretary. A provisional committee is at present preparing a series of functions, the proceeds from which will be devoted to the furnishing of the sanctuary.

The membership subscription is 5/- per annum.



(Photos by W. Howieson)



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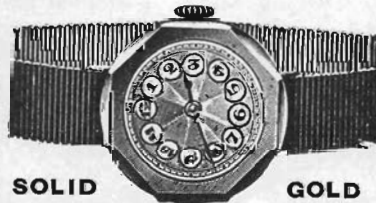
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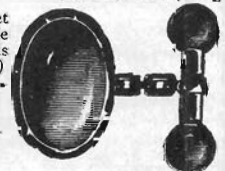


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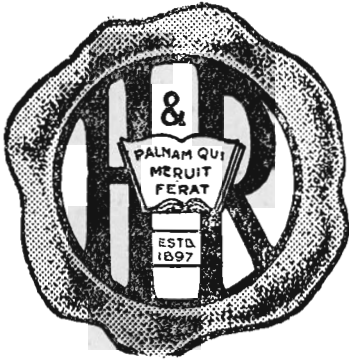
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Buffalo's Cathedral Station

BUFFALO, one of the chief railway centres of the United States, now has in the New York Central lines passenger terminal a notable civic monument. The architects designed a structure strikingly original in modern American style. The principal feature is an octagonal tower, the top of which is 271 ft. above track level. At night the buttresses and arches of the tower are illuminated by flood lights, the tower being then visible over a 15-mile radius.

THE imposing tower stands guard over and forms a part of the rectangular station building, 300 ft. long, 225 ft. wide and 100 ft. high,

Facts about Buffalo Terminal

MAIN building is six storeys in height, and the main body is roughly 250 ft. by 300 ft.

At the west corner is a tower 80 ft. square and 20 storeys in height.

Ramps and steps lead from train concourse to seven double passenger platforms, which have a total length of 7,480 ft.

To build the terminal 9,725,000 bricks, 12,750 tons of steel and 80,000 cub. yards of concrete were required.

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the outstanding features of which are Roman type arches at each end, framing windows that fill nearly the whole end of the building.

A feature that seasoned travellers notice immediately inside the station building is the entire absence of noise or vibration from passing trains. The lofty concourse is "as silent and serene as a cathedral."

This result was achieved, first, by setting foundation pillars on "vibration mats," consisting of alternate layers of asbestos and lead; secondly, by facing the walls and domed ceiling with a special type of tile which has the property of absorbing sound; and finally, by giving the concrete floor base a two-inch lining of cork slabs.

The building contains a circulating library, from which, for a small fee, the traveller may borrow a book to read on his journey and return it at a corresponding booth at his destination.



The massive flood-lit tower of the magnificent railway terminal at Buffalo

Working a Railway With Cups of Water

IF all the atomic and sub-atomic energy in a drop of water could be brought out and harnessed, it would furnish 200 horsepower continually for a year.

This astonishing statement was made last month by Sir Arthur Eddington, British astronomer, and sometimes spoken of as the "first friend" that Einstein made for the theory of relativity.

Eddington said that when we had conquered the puzzle of drawing on atomic energy, we would not need to burn trainloads of coal in a power house. We would use up a teacup of water, or a similar amount of anything handy.

The water which the water boy carries to a section gang would really furnish energy enough to run the entire railroad for a year, according to this savant.

No practical plan for securing this atomic energy has been suggested as yet, said Eddington. But astronomers believe it is entirely feasible. "We are coasting the fog-bound frontier of knowledge," he said, "waiting expectantly for a ray of light."

Railwaymen in Sport

(By REG. HUNT)

Coburg Premiers

COBURG, minor premiers, were defeated by Car and Wagon Shops in the final on August 6, but turned the tables on 13th and again won the premiership and with it the right to hold the Commissioners' cup for another year.

On the season's play, Coburg deserved the honor and the Car and Wagon Shops must be congratulated on the two splendid games put up in the final and grand final.

The scores in the semi finals and finals were:—

1st SEMI-FINAL

Car and Wagon, 12-9; Eastern Lines, 10-14.

2nd SEMI-FINAL

Coburg, 15-20; Reservoir, 9-13.

FINAL

Car and Wagon, 7-14; Coburg, 4-14.

GRAND FINAL

Coburg, 7-8; Car and Wagon, 6-8.

RAILWAY ASSOCIATION GOAL-KICKERS

LEADING goal-kickers at the conclusion of the Railway Football Association Games were

Ryan (Eastern Lines), 27 goals
Caldow (Coburg), 14 goals
Smith, (Car and Wagon) 12 goals
McInness (Loco.), Crowe (Reservoir),
and Neeson (Car and Wagon), 11 each.

Railways beaten in Wednesday League Semi-Final

RAILWAYS were beaten by Fire Brigade in the Wednesday League semi-final, after a very hard game which was spoilt by the state of the ground. Players were unable to open up the game and the heavy Fire Brigade men swept the light railwaymen off their feet and won: 8-6 to 4-6.

Summing up the performances of the teams during the season, the committee is well satisfied. In the first match 14 new men were included in the places of men dispensed with last year. Altogether 40 men were tried and some fine young men were discovered.



Coburg team, premiers of Victorian Railways Football Association

News from the Gymnasium

SEVERAL records were broken by the remarkable performance of some of the members of the Institute gymnasium at the recent competitions conducted to discover the best all-round athlete, and the champions in the various gymnasium sports.

W. Dern proved himself the top-notch of the contestants, and won the title of champion athlete from J. Delaney, last year's star performer, with P. Manton a close third. J. O'Donnell proved himself a classy indoor jumper, breaking no fewer than four records. J. Delaney annexed the skipping honors in the 1, 2, 3, 5 and 10-minute trials, whilst W. Dern, in addition to breaking two jumping records, showed his superiority on the gymnasium apparatus and in general physical culture exercises.

A new system has been introduced in the physical culture class, whereby a student on commencement of his course is presented with his physical measurements, and, from records kept from time to time, is enabled to see his gradual development as the result of healthy and systematic exercise.

The time is now approaching for the Victorian Railways to select a team of boxers and wrestlers to meet the pick

of the Queensland and New South Wales railways ringmen. Entries are invited before September 15, from all railwaymen who are amateurs, and financial members of the Institute, for the preliminary competitions, which are to be held at the V.R. Institute on September 19 and 26, to determine in all weights who shall represent the Victorian Railways in the interstate bouts to be conducted early in October.

In conjunction with these competitions, a novice competition for railwaymen and sons of railwaymen who are financial members of the Institute will be run in all weights of boxing and wrestling. Those who have never won an open or novice competition are eligible.

Railway Golf Notes

SUNDAY, August 3, marked the final stage of the V.R. golf union competitions, when golfers from the Construction and Rolling Stock branches waged some very keen contests for the shield which Mr. Dale recently presented. The Rolling Stock team prevailed by $3\frac{1}{2}$ to $2\frac{1}{2}$ points, and received both congratulations and shield from Mr. Box, of the Construction branch. Mr. N. C. Harris responded on behalf of the victors, and as a token of appreciation for the secretarial work performed by Mr. Deal, presented him with a case of pipes on behalf of the members.

The time has again arrived for the Victorian railway golfers to try conclusions with teams from New South Wales, and South Australia. These competitions will this year be staged on the various golf links in Victoria during the period September 15-20, when the much-coveted Tintara Cup, presented by Messrs. Thos. Hardy and Sons of Adelaide and at present in the custody of Victoria, will be defended.



Car and Wagon Shops, Runners-up

Football and Elocution



PAT O'BRIEN is perhaps the best known railway sporting identity in Victoria, and was for many years an outstanding personality in League football. His grand high marking and strong straight ahead dashes from the half-back line have thrilled thousands. In addition to football,

he has "starred" in boxing and elocution.

His football debut was made with Yarraville in 1911, but Carlton scouts were soon on his tracks, and he appeared with the Dark Blues in 1913 as a follower and back, and was a prominent member of the premiership teams of 1914 and '15.

From 1916 he played regularly at centre half-back. In 1918 he was acknowledged the best player in the V.F.L., and in '21, '22 and '24 he received the Sporting Globe trophy for the best half-back.

He represented Victoria in interstate games in '19, '21, '22 and '23, and was captain of the champion carnival team (at Hobart) in '24, captain of League combined teams in '21 and '23 and, with Carlton, vice captain in '18, '19 and '22, and captain in '20, '23 and '24. At present he is a member of the Railway Association tribunal.

In 1911 he won the Druids' middle-weight boxing championship, also the Victorian championship at that weight. Next year he won his first bout in the Victorian heavy-weight championship but had to withdraw owing to a badly fractured hand. He was, however, later successful in winning the heavy-weight championship with practically only one hand, of the A.N.A., V.R.I., and N.S.W. railways.

Later turning to elocution he gained many successes, the principal being champion recital A.N.A., impromptu reading at Geelong, and second impromptu reading at Maryborough. He also won at Maryborough, and at South-street was placed in the Shakesperian recital, and received hon. mention and high commendation in others.

For two years in succession he won the sentimental and humorous competitions conducted by the Yarraville C.Y.M.S.

All will agree that this is a fine record, and one of which to be proud. Pat is ambitious, but is not afraid of hard work to reach his goal. He is a man of fine personality, determined and straightforward, and my long and close association with him was a delight. Even now he looks quite fit for a game with the Blues.

Cricket on the Horizon

THE annual meeting of the Victorian Railways Cricket Association will be held in the Institute on Thursday evening, September 4, at 8 p.m. All branches desiring to enter a team in the competition for the Commissioners' Cup are requested to forward nomination, accompanied with a deposit of one pound, to the secretary (R. M. Kydd, Telegraph

office, Spencer-street) on or before September 3. A good season is anticipated again.

The annual cricket carnival will be held in Sydney early in the new year when a team representing the V.R.C.A. will make the trip and endeavor to wrest the "Mick Simmons" challenge cup from the present holders, Queensland.

Country Football

Geelong.—The Railways team, which had qualified for fourth place, met St. Mary's, the

second team on the list, in the first semi-final. The ground was in poor condition for football after the recent heavy rains, and under the circumstances, a good game resulted in a win for the Railways in very convincing style. The victory was most gratifying in view of the fact that St. Mary's have contested every final match for the past eleven years, and had never previously been defeated in a semi-final. The scores were: Railways, 8-19; St. Mary's 5-10.

Railways were to meet the winners of the Lara-Drysdale match in a final on the 23rd. Lara, however, are minor premiers and a grand final may be necessary.

The win on Saturday has roused great interest among local railwaymen, and the final match should be attended by a strong railway following.

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CAPSTAN



UP COUNTRY



Optimism in the North-East

After having been kept in a condition bordering between hope and despair for many weeks, farmers in the north-east have now had all fears removed for the time being, following the general early August rains. Conditions are now ideal for the future, and given normal spring rains, generally speaking the harvest should be a much heavier one than has been gathered for several years. In the southern Riverina territory contiguous to Cobram and Tocumwal, the prospects are particularly bright. It is reported from Findley (N.S.W.) that never at the same period of the year have the crops looked better. In the grazing areas conditions should improve very quickly, as the pastures, which have been practically at a standstill for some time, should now make rapid growth.

Wool Lighter

The wool season has been early, crops from the Riverina district being already exported; but from present indications the yield will be somewhat lighter than last year.

Record Wool Clip Expected

The mild winter has been beneficial to pastoralists and a record wool clip is likely to be handled at Geelong.

Harvest Assured

The welcome rain which fell during the month has assured a good harvest throughout the Northern district for the coming wheat crop, and a spirit of optimism is now apparent amongst the northern settlers.

Morkalla Line Progress

Clearing and grubbing work on the rail extension from Meringur to Morkalla has been completed and plate-laying is proceeding at a good pace, over a mile now having been laid down. The recent rains have been of value in making solid the five miles of foundation already made, and there is little doubt of the line being in readiness to handle the considerable wheat yield expected in the new area served by the extension.

Fond of Tobacco

A PET opossum wanders around the house of his human friend at Elmhurst and is frequently found perched on the foot of his master's bed in the morning, in spite of the fact that a nest is provided for him in a shed.

The opossum's chief delight is to climb on the man's shoulder, extract some tobacco from his pipe and eat it delightedly.

Satisfactory Furniture Handling

Recently a consignment of furniture was forwarded from Bendigo to Bairnsdale for Mr. A. F. Chambers, who in writing to Messrs. Brasier & Co., expressed his pleasure with the packing and the condition in which the furniture arrived at Bairnsdale. Messrs. Brasier & Co. invariably co-operate with the departmental efforts to secure all traffic for which road competition exists, and it is gratifying to know that this consignment was handled expeditiously and carefully by the railway staff. Such letters of appreciation are, of course, the railwayman's best advertisement for future similar orders.

Grass on the Tracks

Prospects in the Midland district are particularly bright for the forthcoming season. Grass is making good growth, this being noticeable along the railway tracks where grass has not grown for more than three years. In some places grass is already "chasing the rails," a term given by gangers to grass growing over the rails.

Warm Weather Wanted Now

Further showers which have fallen throughout the Geelong district during the latter part of July and early August have ensured a good growth. A spell of fine warm weather would, however, be appreciated. In some instances crops are so far advanced that it has been necessary to turn stock on to them to eat off rank growth.

Into the Fire

EX-DRIVER HENRY POTTAGE writes from Coleraine:—

"No need to go to British Columbia to find an engine crew who entered a hot fire-box (V. R. Magazine, August). About May, 1901, Driver Bob Sitlington and Fireman Joe O'Meara were running the 9 a.m. Up Mixed train from Portland to Ararat. Approaching Dunkeld, the grate collapsed into the ashpan. The crew struggled into Dunkeld, where the fire was shovelled out—no tip or dump bars in those days. Fireman O'Meara climbed into the firebox, straightened up the fire-bar carriers, and put bars in position. The fire was lit up, a full head of steam developed, and off the engine went to Ararat, arriving some 20 minutes late."

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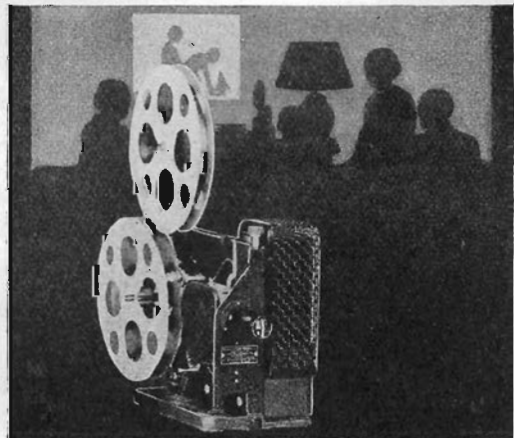
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A good husbandman—a good familyman—is one who provides for the day-after-tomorrow. He knows that it is not sufficient to "pay-as-he-goes" when big expenses can be foreseen—as they almost always can.

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ALEX. COOCH, *General Manager*

Institute Jottings

News of the Old Brigade

THE monthly meeting of the Retired Railwaymen's Club was held in the Institute concert hall on August 7, and was exceptionally well attended. The only business transacted was confined to urgent matters—the election of new members, nominations and presentation to the ex-president.

Social enjoyment followed, all members thoroughly enjoying the tip-top programme of songs, comic sketches, music and melody arranged by Mr. W. Tout, junior.

The usual monthly old-time dance will be held on the third Thursday in September, while card tournaments are conducted each Wednesday afternoon.

—A.A.

CORRESPONDENCE COURSE IN LOCOMOTIVE DESIGN

A CORRESPONDENCE course in locomotive design, construction and maintenance has been prepared by Mr. G. H. Whitelaw, carefully checked by the designing staff of the drawing and workshops office and personally reviewed by the Chief Mechanical Engineer.

Twelve papers cover the design section, and set out in a clear and simple manner, the various progressive deductions, formulae and ratios necessary in the design of a locomotive.

Thirty-two papers deal comprehensively with the construction, repair and maintenance of locomotives.

The complete course is open to financial members of the Institute on payment of a fee of £5, which includes instruction in safeworking, care, maintenance and operation of the brake.

AMATEUR CYCLING CLUB SUGGESTED

IT has been suggested that an amateur cycling club be formed in affiliation with the Victorian Railways Institute for the purpose of encouraging this form of sport within the railway field.

Institute members who are interested are invited to communicate with the General Secretary, so that the club can be formed in time for the forthcoming amateur track season.

NEW FACES

WELCOMES were extended at the last meeting of the council to Messrs. G. A. Curtis and Keith Millar. The former officer has been appointed by the Commissioners to succeed the late Mr. H. W. L. Forster, and has become a member of the lectures and classes committee.

Mr. Millar succeeds Mr. W. Langan, who has been appointed organising officer on the Institute staff. He is attached to the sports and social sub-committee of the council.

HAT TRICK IN BILLIARDS

THE Maryborough Institute billiards and snooker team have been successful in winning the interclub tourney again this year, the third time in succession, and the shield trophy now finds a permanent abode on the Institute wall as a tribute to their prowess.

Books and More Books

THE Victorian Railways Institute library has now been thoroughly reorganised. Two thousand seven hundred new books by popular authors have been added, and simultaneously the library registration fee has been reduced from 2/6 to 1/-.

Each borrower is still entitled to two books at the cheapest library rate in Melbourne, and the latest publications will be available on the Institute shelves each month.

INTERNAL COMBUSTION MECHANICS

THE Institute Council has been enabled to make arrangements for the installation of a motor chassis and other automobile attachments in the Jolimont motormen's class room, Batman-avenue.

The instructor, Mr. C. Wilson, leading hand motor mechanic, will now be able to give practical demonstrations of the working parts of the motor. Employees attached to the departmental rail or motor services, desirous of obtaining valuable and practical knowledge of this subject, are urged to enrol as students in this class, which is open to financial members of the Institute on payment of a fee of 20s. per term of 20 lessons.

Mr. D. Elliston and Mr. G. Dowsett, who have been absent from meetings of the Council of the Victorian Railways Institute for the past few months, due to ill-health, have now resumed their seats on the Council.

SHORTHAND AND TYPEWRITING

CLASSES in typewriting and shorthand are now open to members of the families of Institute members. The class year is divided into two terms of 20 weeks each.

Tuition fees are: Financial members, 10s. per term of 20 weeks; dependents of financial members, 10s. per term plus an annual registration fee of 5s.

CONGRATULATIONS TO MR. BRENNAN

A VERY pleasant interlude at the last council meeting of the Institute was a motion of congratulation to the General President, Mr. T. F. Brennan, on his appointment by the Government as a member of the commission of three which is investigating the financial position of the State's public service.

BOOK-KEEPING AND ACCOUNTANCY

SIMILARLY, the subjects of book-keeping and accountancy are also available now to the dependants of financial members of the Institute, on payment of a registration fee of 5s. per term over and above the fees set out for financial members—£1/1/- per term of six months for book-keeping, and £2/2/- per term for accountancy.

Topical Personalities

After 41 years on the job, Foreman Car Builder J. Scanlon of Jolimont has retired. He was presented with a wallet of notes. Footballer Joe Scanlon is a son.

Goods Foreman W. Griffin of the Melbourne goods sheds will retire on September 27. He has been a railwayman for 42 years.

Well-known poultry and dog-breeder Despatch Clerk Bill Lucas of the Audit branch has retired.

Assistant Stationmaster A. K. Ferguson of Crib Point, has been transferred to Hawthorn. He was presented with a gold-mounted fountain pen by the local residents.

Guard R.E. Lapsley, so well and popularly known on the Mordialloc run for many years, has handed in his kit and whistle after having completed more than 42 years service.

YOU CAN'T AFFORD TO Spare YOUR Spare TIME

HOW MUCH SPARE TIME HAVE YOU? Let the International Accountants Society Inc. (U.S.A.) help you to make use of this time. The I.A.S. is probably the best known business training institution in the world. In this great institution with assets of over £2,000,000, you will find the opportunity to secure just the kind of training you have wanted and needed in accountancy, office management, auditing, or cost accounting, etc.

Write for full particulars to DISTRICT MANAGER,
I.A.S., BOX 945G, G.P.O., MELBOURNE



TO HOTEL AND BOARDINGHOUSE KEEPERS, PROGRESS ASSOCIATIONS, HOUSE AGENTS, ETC.

The V.R. Magazine is sent each month to 30,000 railway homes. Of this number there are 1,200 railwaymen on leave for an average of a fortnight at any time of the year with free passes over the whole State railway systems. It therefore offers an unparalleled medium for making known holiday resorts, accommodation, etc. For rates and fuller particulars write the Advertising Manager, Victorian Railways, Spencer-street Station Buildings, or 'phone C6414

BETTER ACCOMMODATION

FOR SHOW VISITORS

THE Annual Agricultural Show will soon be here again, and despite bad times, many thousands of country people will visit the metropolis for the purpose of attending this great carnival. It will be as interesting as ever with its exhibits, ring events and working models of modern machinery, etc. You cannot afford to miss it, and your sojourn in the city can be made thoroughly enjoyable by staying at The Victoria with its modern, comfortable and moderate priced accommodation. In order to accommodate our patrons who desire to stay from the 22nd to the morning of the 27th September, we cannot book for less than 5 nights, during that period. Requests for reservations are coming in freely, and applications for accommodation should be sent at once, together with deposit. Single rooms, 5/- to 7/6; double rooms, 8/- to 14/-. All meals are extra and optional.

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In the heart of the Grampians.

In Retro- spect

The aged delight to contemplate the past, and it is natural that they should.

With the inactivity of declining years it is a genuine pleasure to dwell upon the activities of the past, but thriftlessness in early years makes poor retrospect, and contemplation of the pleasures of youth will be poor recompense for discomfort in age. Better to do without some things you can afford now, than later to be obliged to forego actual necessities you cannot afford.

OPEN A SAVINGS BANK ACCOUNT AND MAKE IT ENSURE YOUR FUTURE. EVERY POST OFFICE IS AN AGENCY OF THE

**Commonwealth
Savings Bank
of Australia**

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Wireless

Continued from page 35

So far we have only described this system as a gramophone or talkie amplifier. A stage of R.F. amplification can be added quite easily as shown in the circuit, Fig. 5. Here we have a normal tuned input circuit to a UY224, the bias for which is obtained through a cathode resistor of 450 ohms. The screen-grid valve of the R.F. amplifier is coupled to the Loftin-White amplifier through an R.F. transformer, the secondary of which is tuned and which is connected to the input terminal of the Loftin-White amplifier. The screen-grid lead is by-passed to earth, as is also the high voltage end of the primary of the R.F. transformer, both by-pass condensers being 0.5 mfd. capacity, while a similar condenser is placed across the bias resistor.

A 50-ohm centre-tapped resistor is placed across the filament of the UY224 in the R.F. amplifier, the centre-tap being connected directly to the cathode while the filament leads join the filament leads of the UY224 in the direct coupled amplifier. A high resistance potentiometer is connected to a tap on the Loftin-White Voltage Divider and to earth, while the moving arm is connected to the screen grid of the 224, so that the voltage on it can be regulated, thus providing a control for volume when the outfit is used for a radio receiver. The R.F. primary is connected to the voltage divider at the point marked "Z1."

When it is desired to use the amplifier for the reproduction of gramophone records through an electrical pick-up, the latter can be connected in the cathode circuit of the UY224 of the direct coupled amplifier as shown at "X." When connected in this position the pick-up should be of the low resistance type, otherwise the current flowing through it will cause an appreciable drop in voltage across it with the result that the cathode bias will be raised excessively.

The amplifier should be wired to the diagram as shown, and only the best quality components should be used. This applies particularly to the resistors which, with the exception of R9, must be of the wire-wound variety. When the receiver is switched on a loud hum will be heard, but this can be minimised by slowly turning the knob of the "hum bucking" potentiometer until the hum disappears. This adjustment is rather critical and must be done very slowly. When it is used as a receiver with radio frequency stages, the coils should be shielded and the condensers can be gauged, in which case a small midget condenser should be connected across the R.F. tuning condenser for balancing pur-

poses.

A magnetic type speaker can be connected directly in the plate circuit of the UX245 or an output transformer can be used with it, this system being preferred. Of course, in the case of a dynamic speaker, the output transformer must be used.

COMPONENTS REQUIRED FOR CONSTRUCTION OF LOFTIN-WHITE AMPLIFIER

- 1 UY socket
- 2 UX sockets
- 1 Radiokes Loftin-White voltage divider (R2, R4, R5, R6)
- 1 50,000 ohm resistor (R7)
- 1 100,000 ohm resistor (R8)
- 1 20,000 ohm resistor (R1)
- 1 400 ohm potentiometer (R3)
- 1 Half-megohm metaliser or wire-bound resistor (R9)
- 1 20 ohm centre-tapped filament resistor (R10)
- 3 4 mfd. fixed condensers: 1000 volt test (C2, C3 and C4)
- 1 1 mfd. fixed condenser: 500 volt test (C1)
- 1 Radiokes 30 Henry Choke
- 1 Radiokes Loftin-White power transformer (Type T5245D)
- 1 UX 280 valve (Note that the plates are paralleled)
- 1 UX 245 valve
- 1 UY 224 valve

Additional Parts Required for use as a Radio Set with one stage of Radio Frequency Amplification

- 1 set Radiokes Shielded Loftin-White coils (Type 1930.3)
- 2 6005 variable condensers
- 1 UY socket
- 1 UY224 valve
- 3 5 mfd. fixed condensers
- 1 Radiokes 450 ohm fixed resistor
- 1 50 ohm centre-tapped filament resistor
- 1 50,000 ohm volume control (potentiometer type)

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Telephone from Moving Train

THE first two-way telephone circuit to be placed in commercial operation on a moving train has been established by the Canadian National as a regular service to all parts of Canada, United States and Great Britain. Sir Henry Thornton talked by telephone on board an express train averaging 70 miles an hour to people in various parts of the United States and Canada.

The apparatus worked perfectly overland at almost any speed the train happened to be going.

The system broadcasts the voice from train to carrier current telegraph wires which parallel the track. From these wires it is carried to pickup stations and then transferred to the telephone office at Kingston, where it is placed on regular long distance telephone circuits.

Connections from the train are made by an operator stationed on it. Connections from outside are made by placing calls with the long distance telephone operator.



This D-pression!

Powerful representation of an artist's despair at the cessation of publication of the Victorian Railways Magazine. This pathetic self-study was made by Angus Mac, the Magazine caricaturist, on completion of his last sketch for the current issue.



*Here she comes
Down the street
Looking smart
And very neat!*

*Yes, of course—she
did "Nugget" her shoes
this morning!*

"NUGGET"

DARK TAN

**THE "NUGGET" TIN OPENS
WITH A TWIST!**

Last Mile Post

John Leith

AT the time of his death, last month, Mr. John Leith, of Ballarat East, was one of the very few remaining links with the old Hobson's Bay railway company.

He came to Australia from Scotland, with his parents when he was about 10 years old (in 1860), and at the age of 23 joined up with Victoria's pioneer railway company. When the Government took over the company he remained, retiring from the service as engine-driver some 18 years ago.

The late Mr. Leith was a noted athlete in his youthful days and raced with such celebrities as Bob and Alex. Don, Jack Harrison and McLeod.

He leaves a family of seven, his wife having predeceased him by 14 years.

George James Young

APAINFULLY sudden death occurred at Spotswood last month when Mr. G. J. Young of the railway storehouse staff collapsed and died a few minutes after his workmates had hastened to his aid.

He was 47 years of age, and as a member of the A.I.F., served with Colonel Tom Price's contingent in the South African war.

For 20 years he was a champion rifleman in Western Australia, and only the Saturday before his death, tied for the first place in the Victorian Railways score list at Williamstown.

He leaves a father (late headmaster at the Stawell State school), mother and wife to mourn their loss.

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Books & New Books

Thumbnail Reviews - - - - By J. D. MICHIE



Cimarron.—By Edna Ferber. “What is Cimarron?” people ask. It is the title of Edna Ferber’s new novel and it is the name they gave in the ’80s to that lawless no-man’s-land of prairie which then lay just beyond the bounds of western civilisation. It is a word which, once seen, sticks in the mind. Few now know what it means, but to everyone who reads the book, the word will recall vivid impressions of hard-riding cowboys, quick-shooting “bad-men,” covered wagons crawling across the prairie, vengeful and elusive Indians, negroes, gambling saloons, murderers, faithful wives and flaunting girls, sunbonnets and six-shooters—vice, domestic bliss and high-handed justice.

Redemption of Morley Darville.—By Stephen McKenna. The author is one of those who will be collected, in due time, “Sonia” alone ensuring it, but at the moment he appeared to be a little overtopped. This novel, however, is another success. At first, reading of Morley’s family, one fears the author is surrendering his old

field of the aristocracy, but Morley’s basis of Eton and Oxford makes one sure that he will arrive amongst the elected. The novel is particularly interesting to that circle of readers to whom authors, books and their beginnings are somewhat of an enviable mystery.

Castle Gay.—By John Buchan. “Castle Gay” is a continuation, six years later, of the adventures of some of the characters who appeared in “Huntingtower.” Mr. Dickson McCunn, who plays the chief part in the story, has now retired from business and becomes a country gentleman. Douglas, the leader of the Gorbals Die-hards, is a journalist and labor candidate for Parliament, and Wee Jaikie is a celebrated International Rugby player. A walking tour undertaken by Douglas and Jaikie one autumn in the Scots’ hills lands them in surprising adventures.

White Face.—By Edgar Wallace. All London was talking about the amazing and daring robberies carried

out so ingeniously by White Face Who is this man in the white mask? What connection has he with the mysterious murder in Tidal Basin; with the sinister masked figure who visits Dr. Marford professionally at dead of night? It is impossible not to get excited as Scotland Yard and ingenious Michael Quigley slowly track down White Face.

The Peeping Tower.—By J. E. Buckrose. Mrs. Queedy, at the age of sixty, suddenly discovered of how little account she was to anyone. The ugly house with the tower became her refuge, and there she found happiness and an escape from the loneliness that haunted her days. But the village watched with suspicion which gradually developed into a dull hatred and fear. Only sturdy little Gladys, with the active pink-clad legs, stood her friend, and even she sometimes thought of the witch who haunted the pond!

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