

VICTORIAN

Transport Specialists



RAILWAYS



E. H. Brownbill

"It is a well-known fact that no great skill is involved in running a railway system. At least this is the conclusion to be drawn from the ready willingness of Parliamentarians, the Press and the general public to point out at every opportunity just how the job ought to be done."

IN that outspoken fashion, Mr. E. H. Brownbill (Chairman of the Victorian Railways Commissioners) began a lecture at The Royal Institute of Public Administration, in October 1960. He was taking part in a series of important addresses, titled "The Challenge to Public Administration in a Developing Australia", by heads of State and Federal governmental instrumentalities, on the problems that had arisen—and possible trends—in administration due to the tempo of Australia's development.

Stressing the new specialist role of the railways as mass point-to-point carriers, Mr. Brownbill gave reasons why "far from being finished, the railways are only just getting started".

THE reason why advice is so freely available to us on so many aspects of railway administration—from the setting of fares and freights to fixing the length of suburban trains—may be due to the deceptive quality of the many complex railway problems that makes their solution seem all too obvious on a merely superficial examination.

Twenty-five years ago it was fairly generally accepted that railways were on the way out. Admittedly, they had done a great job in their day, but they were obviously doomed by the flexibility and mobility of the internal combustion engine and the rubber tyre.

To a limited extent this was true. Road transport has led to the demise of numerous lightly-trafficked branch lines, and also of small and poorly-patronized stations on main lines. However, the effect of this on the railway organism has been nothing but beneficial, for these services represented railroading in its least attractive and most uneconomical form.

transformation

WHAT the development of road transport has actually done is not to destroy the railways but to transform them from general practitioners into specialists. The process is as yet far from complete and is still meeting strenuous opposition from those sections of the community who, whilst eagerly embracing the new, are unwilling to forego the advantages conferred upon them by the old.

This process of specialization is now being rapidly accelerated by two other factors:

- Australia's booming industrial growth;

- development of new techniques of co-operation between rail and road.

The new role that is emerging suits us much better than the old and, far from railways being finished, I can assure you that we are only just getting started.

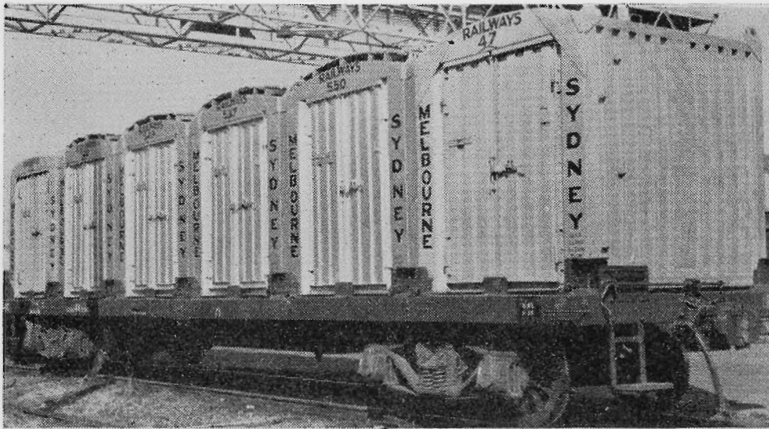
The direction in which we are specializing more and more is, of course, that of mass point-to-point transport—the "wholesale" aspect of railway business. By mass, I refer to traffic in at least wagon-load lots, irrespective of the nature of the goods.

Bulk traffic—wheat and other primary products, superphosphate, brown coal and briquettes—has always formed a large proportion of our business, but with growing industrialization new traffics are emerging as important sources of revenue—steel products, bulk cement, motor cars and bodies, and bulk liquids.

new techniques

THE second factor I have mentioned—the development of new techniques of co-operation between rail and road—is influencing our operations by bringing into the wholesale field traffic that was previously strictly retail in character. I refer to what is generally known as less than car-load traffic—that multiplicity of relatively small consignments that have to be accumulated into economical loads at the originating end of the journey and distributed to the various consignees at the destination. The new techniques are containers, the various forms of "piggyback", and forwarding agents' bulk loading schemes.

All these devices represent important steps in the direction of total transport economy, because they



**Bulk loading schemes
abolish less than car-
load problems**

concentrate on the use of that aspect of rail transport—bulk terminal to terminal operation—where the greatest savings, relative to road transport, can be obtained, and leave road transport to carry out only essential pick-up and delivery operations.

A further contribution towards overall transport economy is made by these techniques in that they extend the railways' ability to exploit the economies of size—in other words, every additional ton brought to the railways by these means reduces the unit cost of every ton carried by rail without in any way increasing the unit cost of the traffic remaining on the roads.

It would be difficult to over-emphasize the importance of size—"volume" would be a more appropriate term—on railway operations and costs. It is a far more vital factor in Australia than, for instance, in England, Europe or the U.S.A. The reason is that, because of the relative sparsity of population here, we work much closer to the lower limit of traffic volume, below which economic railway operation is impossible.

To give any railway service at all, of a standard acceptable in today's highly competitive market, it is necessary to have tracks, structures and signalling systems that are very costly initially but are capable of handling a very heavy traffic indeed without any further substantial expenditure, either of a capital nature or on maintenance. It follows that the cost of these facilities, measured on a ton-mile basis, can vary between very wide limits and can become prohibitive if traffic volume falls below a certain level.

cutting overhead

ON the other hand, working as we do above but not very far from this level, we have a very great potential for reducing the overhead portion of our ton-mile costs if we can increase our traffic volume. At current traffic levels in Victoria, overheads represent approximately two-thirds of our ton-mile costs, and there is thus plenty of scope for reduction in the overhead content of unit costs if additional traffic can be obtained.

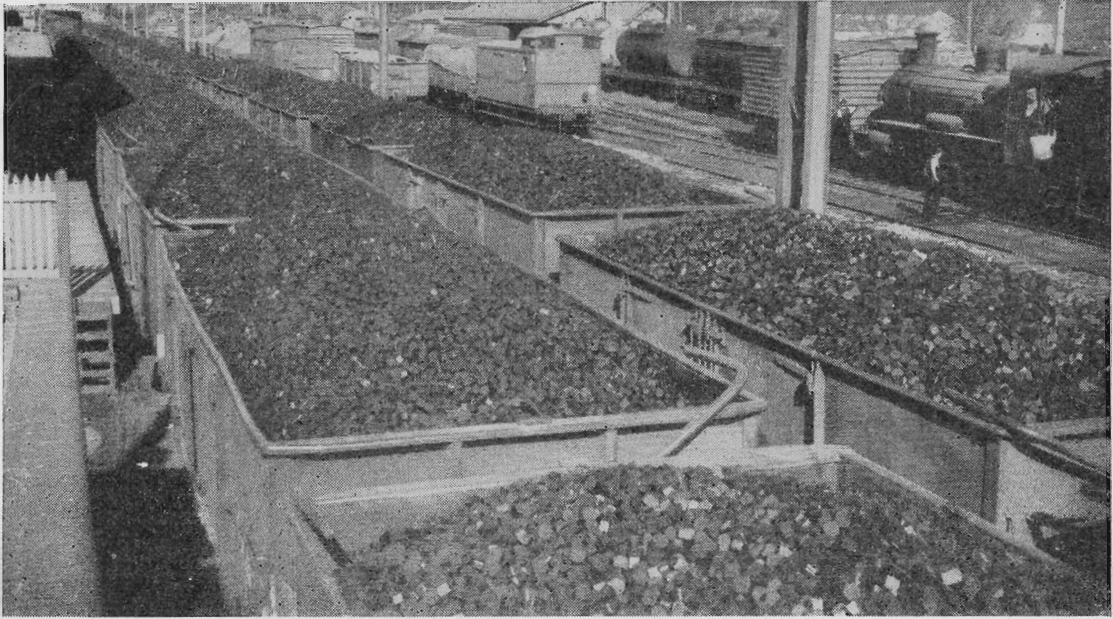
Following the argument in the opposite direction, however, it becomes apparent how vulnerable Australian railways are to a decline in traffic volume from existing levels. A temporary decline can be met by emergency measures such as the deferment of certain classes of maintenance; but a permanent decline could have one of only two results—enormously increased deficits or, if expenditure were to be cut proportionately to income, a rapid deterioration in the physical condition of the railway systems.

Quite apart from total traffic volume, there is another aspect of size that has a most important bearing on railway operations, and that is the size of individual consignments. I do not refer here to physical dimensions, but to the total volume of goods involved in a particular traffic movement.

rail's superiority

IT is axiomatic that the main advantage of rail transport is the ability to consolidate many separate units of traffic into heavy train loads on a segregated right-of-way, thus obtaining a high ton-mileage per unit of fuel and man power. Where we really come into our own, however, is in that field where the train ceases to be an aggregate of separate parts and becomes a single entity—in other words, where the unit of traffic is the train load rather than the wagon load.

A train of this nature is an entirely different entity to a train made up of assorted wagon loads that must be assembled in a marshalling yard. The former train loses no time shunting in marshalling yards—in fact, it has no use for marshalling yards at all but proceeds direct from origin to destination. As each vehicle is loaded to capacity the question of wagon load minimum weights for freight-fixing purposes does not obtrude and the train can be made up of high-capacity bogie rolling stock fitted with passenger-type bogies for high-speed running. Accountancy and statistical operations are also simplified—the whole train can be waybilled as one unit instead of each vehicle being waybilled separately as in a normal train.



A wholesale aspect of railroad business

It is apparent, therefore, that Australia's rapid industrial expansion, and the accompanying expansion of the transport market, means more to the railway systems than just additional traffic. It is also paving the way for the introduction or extension of cost-cutting methods of operation that hitherto we have been unable to adequately exploit because of the restricted size of the market in which we operate.

Of course, these changes in conditions have brought their problems too. Some of these are problems of readjustment; but far more difficult of solution are those problems—of which our "service grant" industrial unrest was but a symptom—brought about by the pressure of the nation's extraordinary industrial expansion on its limited resources.

outside pressure

REMARKABLY enough, our main difficulty in making the readjustment to the new and more specialized role of railways in the modern economy has not been internal at all, but in overcoming the battle put up by outside interests to retain railway services no longer economically justified but which confer a sectional benefit or contribute something towards local prestige (and land values).

Apart from such purely local pressures, the community as a whole has only a vague and confused idea as to just what it expects of its railway system. Should the Railway Department be regarded as a branch of the Public Service, contributing to the general development and welfare of the State without yielding commensurate returns by way of direct revenue, or should the Department be run strictly as a business, providing

only those services which can be run at a profit in the commercial sense? Nobody seems to know.

I have no doubt that if the issue were put to the test, the weight of public opinion would be found in favour of the former viewpoint, and it is, in fact, this viewpoint which dominates current policies; but this does not prevent us from being badgered from all directions because such policies are quite incompatible with profit-making.

Accepting, as we do, that the weight of public opinion requires that the Department be operated on lines that are non-businesslike in the commercial sense, one of the most difficult problems that we as Commissioners have to face is this: if profit or loss is not to be the criterion by which administrative decisions are reached, what criterion is left?

The measuring stick we employ—and I am convinced that it is effective if not altogether precise—is what might be called the "test of comparative costs". What it means is, briefly, that we will not tackle any transport job if we are satisfied that our costs, measured in resources used, are higher than can be offered for the same job by any other means of transport.

costs and charges

YOU will note that I refer to costs and not charges. Confusion between the two has probably led to more loose thinking on transport problems than any other factor.

The practical effects of the application of this principle can be seen in the closing of certain branch lines, the withdrawal of poorly-patronized passenger services from others, and the abandonment of proposals for the

construction of new lines such as Alphington-East Preston and Moorabbin-Beaumaris. The principle also has an important bearing on the allocation of our annual allotment of loan funds.

It cannot be applied with complete precision simply because the necessary data—our own costs and other people's — is also imprecise. However, in practice the issue is usually so clear-cut that a small degree of uncertainty is immaterial.

An excellent example is afforded by the investigation that was carried out in 1959 into the proposal to construct a new railway from Frankston to Mornington, via Mt. Eliza. In this case the estimates showed that the cost of carrying passengers on the new line, at the expected level of patronage, would be about 1/2d. per passenger-mile.

This is so far in excess of the best available average costs of bus transport (3.7d.) and even private car travel (4.75d.) that it is obvious that construction of this line could only have led to a substantial increase in the community's total transport bill irrespective of the actual profit or loss returned by the line. Incidentally the average cost of carrying passengers over the existing suburban railway system is approximately 1.8d. per passenger-mile.

Our problems of readjustment, then, are mainly external and consist of pressures for the retention or extension of railway services in directions that do not conform with the new role imposed upon railways by present-day conditions. Such pressures are brought about partly to maintain the status quo, which serves certain sectional interests, and partly through lack of understanding of the changes which have occurred in the railways' place in the scheme of things.

lack of staff

WHAT of our internal problems resulting from Australia's rapid economic growth? By far the most recalcitrant of these—and one for which I can see no ready solution—is the persistent shortage of staff.

The long drawn-out industrial dispute in 1960 brought our staffing difficulties forcibly to the notice of the public. I do not consider that the problem is fundamentally one of rates of pay at all.

In an economy where employment is so readily available, often close to home, and where the diversity of jobs multiplies daily, I do not think that even if we were able to afford to pay higher wages than outside industry we could induce a greatly increased number of men to accept a railway career with its unavoidable country, week-end, and shift work. The creed of full employment has destroyed the advantage we used to enjoy over non-career industries without giving us anything in its place.

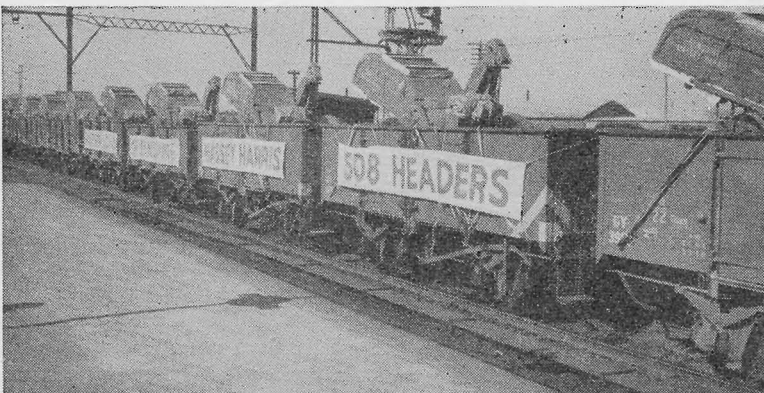
suburban problems

A most difficult problem brought on us by the high rate of post-war expansion is that of keeping up with the peak-hour transport requirements of Melbourne's rapidly growing outer suburbs.

The necessity for improved facilities to handle growing outer suburban traffic was realized as early as 1937, when a comprehensive list of essential track-work and signalling improvements was drawn up. However, the war prevented anything being done, except the highest priority job—the flyover carrying the "down" Eastmalvern line over the Box Hill tracks near Burnley.

In the years immediately after the war we had all we could do to rehabilitate the system from the poor physical condition into which it had fallen during the war years, and resources available for expansion had to be concentrated on the Gippsland line improvements necessitated by the State Electricity Commission's greatly stepped-up activities in the Latrobe Valley.

The result was that, by the time we were in a position to make a full-scale attack on our suburban problems, conditions had reached the stage when it was quite impossible to tackle the various works in a logical and efficiently-programmed manner. Instead, we were obliged to keep switching our construction forces from point to point in an endeavour to overcome one



Unit of traffic is the train load

“hot spot” after another, concentrating mainly on those jobs that would yield quick results.

Under these conditions major works, most of which are of greater ultimate importance, have had to take second place for the available resources and have fallen a long way behind schedule. Moreover, every time a big job has to be stopped and restarted there is an inevitable increase in the final cost, to say nothing of the capital invested which earns no return until the whole job is completed.

works in sequence

IT was only quite recently that we regained sufficient control over the situation to start tackling our major works in an orderly manner, but from now on our aim will definitely be to do one job at a time. This may well result in some eminently desirable projects being put on one side longer than would otherwise be the case, but in the long run such a policy must pay off.

One result of the rapid post-war development in outer suburbs has been that we have had to temporarily relinquish much of our inner suburban traffic to other forms of transport. This development arose out of the impossibility of carrying out major trackworks fast enough to allow an augmented outer suburban service to be operated as an addition to the service of short-distance trains that previously met the requirements of inner suburban passengers.

The only way in which we have been able to cope with the great increase in outer suburban traffic has been by extending many of these trains from inner to outer terminals. As a result, outer suburban passengers, who have first choice of seats in the mornings when the decision whether to travel by train or other means is made, have gradually edged inner suburban passengers out of the trains. This process cannot be reversed until multiple trackwork has been constructed over the busiest routes so that short and long distance trains can run side by side.

When this stage is reached we will make a determined effort to recapture the lost patronage—hence my reference to its “temporary” diversion.

traffic gain expected

CONSTRUCTION of the city underground railway and progressive redevelopment of inner suburban residential areas are other factors that can be expected to contribute towards an eventual resurgence of short-distance rail traffic.

The “tests of comparative costs” principle is of considerable importance when allocating our annual allotment of loan funds.

In the normal business world there is only one basic test to be applied to proposals for capital expenditure: will the resultant increase in income and/or reduction in expenditure more than meet the annual charges on the capital outlay?

On the other hand, in a Government Department such as the Education and Police Departments, which are not expected to re-coup, by way of revenue, more than a fraction of their expenditure—in other words, true Public Service Departments—capital expenditure is determined not by profitability but by the relative urgency and importance of the various demands for extension of the services provided by the particular Department.

In the Railway Department we live in both worlds. This places upon us the third problem of deciding just how much allegiance we owe to each.

Every year our available loan funds have to be divided basically into two parts: one part to finance jobs that are true investments in the business sense, and the other for works that will yield no financial benefit—that may even help us to lose more money—but are unavoidable if we are to properly carry out the “public service” aspect of our function.

If we were to allocate our funds purely with a view to financial benefit, we would stop building air-conditioned carriages for country passengers and more tracks for suburban passengers and concentrate on such projects as replacing steam locomotives with diesel and extending systems of automatic signalling—there is no lack of items that would yield a worthwhile return. However, in practice it is impossible to avoid spending a great deal of money on projects that will yield no financial benefit to the Railway Department; so the best we can do is to ensure that the expenditure will yield a commensurate return to the State indirectly, if not directly.

This is where the test of comparative costs comes into play. If capital expenditure of this nature is to yield a benefit to the State it must result in the Railways carrying out transport tasks at a lower cost than would be the case if the money were not spent on railway facilities and the transport tasks were carried out by other means.

The best illustration of expenditure of this type is that incurred on major suburban track and signalling works that are designed, in conjunction with the proposed city underground railway, to double the peak period carrying capacity of the suburban railway network.

peak period economics

AS the fares paid by peak period rail travellers do not cover costs, the greater the number we carry the more we lose. On the other hand, as practically the whole of whatever additional passengers we attract will be diverted from private cars, and as our cost per passenger-mile on existing lines (1.8 pence) is less than half the cost of private car travel, the State cannot help but profit greatly from its expenditure on rail facilities—particularly when it is borne in mind that



Less road congestion benefits the community

the alternative is to spend a great deal more than this on freeways and parking stations if the emphasis is to be on handling traffic by private cars.

There is a further indirect benefit to the community which flows from any diversion of passenger traffic from private cars to trains, namely, that any lessening of street congestion improves the flow and therefore reduces the costs of the traffic remaining on the roads—particularly vehicles engaged in the essential pick up and delivery of goods.

Unfortunately from the State Treasurer's point of view, these benefits are indirect and do not help him to balance his budget. What the Treasury must have is the maximum practicable revenue from the railway asset for the minimum of outlay, which brings me to the questions of annual budgeting and budget control.

To an extent, preparation of our annual budget is along the lines of a manufacturing concern. We estimate our output, or revenue from traffic, and from this our manufacturing expenses or the cost of earning the revenue. There is, however, a great difference of emphasis insofar as one item of expense is concerned—the cost of maintenance of plant and equipment.

maintenance costs heavy

MAINTENANCE of fixed plant—tracks, structures, buildings, signalling equipment, etc.—forms a large proportion of our annual expenditure. The level of this maintenance expenditure, moreover, does not vary greatly with traffic volume, as so much of the work accrues on a time basis irrespective of the use made of the facilities.

In addition, the costs of staffing stations, signalboxes and yards are fixed in character in that these costs

cannot be adjusted to meet day-to-day variations in traffic but only according to long-term trends.

Expenditure therefore falls into two distinct compartments, one being dependent and the other independent of traffic volume.

The revenue estimate for the year is prepared by the Chief Commercial Manager, who bases his calculations on existing traffic, seasonal conditions, business activity generally, and known trends in particular classes of traffic.

From this estimate the Statistical Division calculates the train mileage that will be necessary to earn the expected revenue, subdivided according to the class of motive power—electric, diesel, or steam, each of which has its characteristic cost structure. Passenger train-miles are based on published time-tables, which are varied only to meet fairly long-term trends, and so are more or less a fixed quantity, but goods train services are readily adjustable to the traffic offering and the calculation of goods train-miles depends very much upon the revenue estimated, particularly major seasonal movements such as the wheat harvest.

estimated running costs

FROM the mileage estimates the Rolling Stock Branch, which provides motive power, drivers and fireman, and the Traffic Branch, which provides guards, calculate train operating costs; the Rolling Stock Branch must also estimate the cost of maintaining locomotives and rolling stock to run the necessary mileage. The Electrical Branch estimates the cost of power that will be used in running the electrified portions of the service.

When prepared—usually in May for the forthcoming year—our estimates are submitted to the Treasurer who considers them in the light of the overall Budget

position and suggests any adjustments he considers necessary. Any reduction in expenditure sought by the Treasurer can, of course, be made only in that portion of the expenditure not directly related to earning the revenue, and usually consists in the deferment of certain of the less urgent forms of maintenance, such as painting.

For the purpose of budget control, the approved estimates are subdivided into thirteen accounting periods of approximately four weeks each. Each Branch converts its money figure into materials and man-hours, the latter being expressed in the equivalent number of full-time men to allow for overtime and shift and week-end penalty time.



Staffing costs are fixed in character

takes remedial action

AT the end of each accounting period, the Head of each Branch responsible for expenditure reviews the actual results compared with the estimates, after which he sees the Commissioners with his detailed figures and explanations for substantial variations. At these reviews the Commissioners have before them up-to-date revenue and staff figures and are in a position to direct whatever corrective action may be necessary to ensure that the estimated balance between revenue and working expenses is not substantially disturbed.

At the same time the opportunity is taken to review expenditure and progress on the various items covered by the year's loan works programme, both to ensure that the available funds will be neither over nor under-spent and that the works are proceeding to schedule.

continued progress

WHAT does the future hold for railways in Australia? As I see it, the promise is for continued progress as exciting as the development of Australia itself.

The spectacular growth in population and trade is steadily overcoming our greatest handicap—the limited size of the transport market—while the growing importance of secondary industry is reducing our dependence on one or two major primary traffics that are subject to seasonal variations. Even now, a failure of the wheat harvest in Victoria means a pruning of expenditure and the deferment of maintenance work on the railway system; but the impact is nothing like as great as it would have been 20 years ago.

Continued growth in the size of the market will not only stabilize our operations but will enable us to fully exploit those technological developments—centralized traffic control, automatic marshalling yards—that only the largest-scale operations can economically support.

outside resistance

ADJUSTMENT to the new and more specialized role of railways in the modern world is still taking place, and is still meeting with a great deal of resistance—outside the railways rather than inside. The public has a very confused idea as to the responsibilities of its Railway Department. To clarify the matter, our primary task can be simply defined as that of providing the community with transport wherever we can do so at the lowest cost. Because this involves carrying out a number of vital tasks for direct revenue payments that do not cover full costs, profit and loss cannot be adopted as the criterion by which to judge our operations, but this does not relieve us of the responsibility of doing our job as efficiently as possible, nor does it mean that we must carry out every task for which there is a public demand irrespective of the cost.

Specifically, we are not prepared to provide transport in conditions under which we are satisfied that somebody else can do the job not at a lower charge than we can, but at a lower true cost—which is a very different matter.

On the other hand, we will continue to fight vigorously to hold all traffic that we are satisfied we can carry at a lower cost than other means of transport, notwithstanding the fact that our competitors can often charge lower rates.

It is our contention that the ability to charge lower rates for some classes of traffic by no means reflects the existence of lower true costs—that is the basis of our advocacy of continued restrictions on the operation of road transport in competition with principal rail routes.