

TRANSPORT MANAGEMENT

Vol. 3 No. 1

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Edited by
(Miss) C. V. P. Deraniyagala

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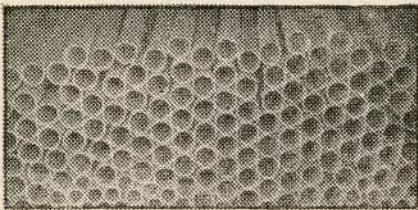
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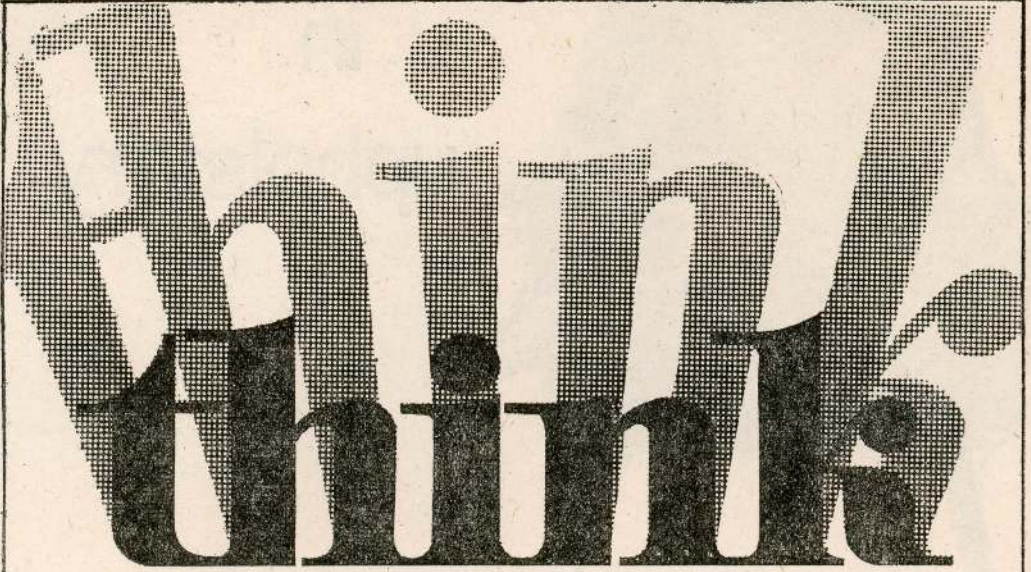
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Dynamism in Management

EDITORIAL

A dynamic management is the key to the success of any organisation in whatever the field or area activity it may be engaged in. Organisations must supply the environment and climate conducive to growth needs.

The technology of industrial Organisations have made work more of a routine nature – so much so that it has de-humanised the person doing the task. Behavioural Scientists have reiterated, that work must be satisfying – it must provide an out-let for expression of creativity – a sense of participation towards accomplishment of a common goal. Human-beings require work which is challenging and carry a measure of responsibility. Growth needs essentially require some type of working environment or involvement within the Organisation which has goals to be achieved.

It is the responsibility of Management to harness the human resources within the Organisation so that participation would not only be willing but add to creativity. Brain storming is an attempt to give wider participation, so that good ideas may be finally translated into action. Further, education and training seeks to develop and keep skills.

Managers should therefore endeavour to have a closer look at the way jobs are designed and the way Organisations are managed with a view to providing the framework for a greater sense of achievement, responsibility and opportunity for growth to as large a number of its workforce as possible.

Systemic Management

Introduction

The concept of systemic management is a modern approach to management that views an organization as a complex system of interrelated parts. This approach emphasizes the importance of understanding the relationships between different components of the organization, such as departments, processes, and people, and how these relationships affect the overall performance of the organization. Systemic management is based on the idea that the whole is greater than the sum of its parts, and that the behavior of the whole is determined by the interactions between its parts. This approach is particularly useful in organizations that are highly complex and dynamic, where the interactions between different parts are constantly changing. Systemic management provides a framework for understanding these interactions and for developing strategies to improve the organization's performance. It is a holistic approach that takes into account the entire organization, from the top-level strategy to the day-to-day operations. Systemic management is a key concept in modern management theory and practice, and it has become an essential tool for managers in a wide range of organizations. This introduction will explore the key principles of systemic management and how they can be applied to improve organizational performance. It will also discuss the challenges of implementing systemic management and the benefits that can be realized. The goal of this introduction is to provide a clear and concise overview of systemic management and to highlight its importance in modern management practice.

The Bureaucracy and Their Role in the Future

Leslie Goonewardene
Minister of Communications

After the General Election of 1970 and particularly after the new Constitution of May 1972 it is clear that we are facing a new era. In order to meet the challenge offered to us in this new era, we must all of us adjust our outlook suitably so that we shall be able to carry out the responsibilities that we shall be called upon to shoulder. For those who find themselves in positions of leadership in the institutions of the administration and public enterprise, this becomes a matter of particular importance.

The new Constitution has not only completed our Independence, but has stated that its objective is to realise a Socialist democracy. The Constitution has also cleared away the obstacles (in particular the legal obstacles) which were lying on the road to Socialism. It has, also cleared away many of the administrative obstacles lying in this path. The abolition of the Public Service Commission and the placing of the responsibility for the administration on the Ministers and the Cabinet of Ministers is an example of this.

Apart from the above, several other concrete steps have also been taken by the Constitution in order to bring the people closer to the Government. Constitutional provision has been made for the administration to be carried out in the language of the people. Sinhala, and Tamil where this becomes necessary without running counter to the Official Language Act, must henceforth be used for the purpose of administration. The use of Sinhala, and in appropriate cases the Tamil Language also, in the administration, in place of the English Language, will now become a reality. There

is no doubt that this step will be an important factor in bringing the people closer to the administration.

The United Front in its Manifesto has pledged to create not merely a Government of the United Front but a People's Government of the United Front. This is an admission that the march forward of the Socialism can take place only together with the masses.

In addition to what has been mentioned above, a number of other concrete steps are also being taken to bring about a real People's Government. The election of Employee's Councils in Corporations and State Industrial Enterprises, the election of Advisory Committees in the administration, and the setting up of Janatha Committees on a territorial basis are some of these steps. These organisations have not yet assumed a final form. Experience will determine the lines of their future development. But their appointment is proof of the desire of the Government to get closer to the people.

The Government also proposes to bring about a radical change in the administrative system. In place of the outdated colonial system of administration, it hopes gradually to set up an administrative system, which is close to the people and can be responsive to the people's needs. By setting up new administrative units of a smaller size than today, by using the co-operatives, the local bodies and similar organizations as the basis for these administrative units, by devolving powers including financial powers on these units, it will be possible to set up a new type of administrative system.

The declared aim of the Government to go forward to Socialism by democratic means can thus be attained by proceeding in the above manner. The people at large, the employees in the Public Sector, the bureaucracy and the politicians have all of them to discover their correct place in this mighty endeavour.

It should be recognized that the

bureaucrats in the Public Service and in public enterprises will occupy a very important position in this effort. Success or failure of the efforts of the Government will depend, to a large extent, on their ability to adjust themselves to the new situation and to play the role that belongs to them in the march forward of the people to Socialism.

A Transport Policy for Sri Lanka

L. S. Rajaratnam

Operations Division, C. T. B.

I must candidly observe that the subject cited above can be highly controversial and it is my intention therefore to set out briefly what in my view should be the basic ingredients of such a policy.

In the years gone by the three transport agencies that prevailed in Sri Lanka were canal, road and rail. Today, the three agencies are road, rail and air transport. Canal transport although a thing of the past, however, received serious consideration in the late nineteen fifties from the Technical Working Group on Roads and Inland Waterway Transport of the Planning Secretariat, for its restoration, but this Working Group did not make any headway in this field and is now perhaps a defunct body.

There is, in my view, no future for Canal Transport in this Country. The canals are concentrated along the South-Western Coast of the Country and their revival would perhaps have given a stimulus to the following main industries:

- (a) the cement industry at Puttalam
- (b) the ceramic industry off Negombo at Periyamulla, and
- (c) the coconut industry (the transport of nuts, copra, fibre, cadjan and rafters).

Water transport no doubt is the cheapest form of transport and is ideally suited for the transport of bulky non-perishable goods where the time element is not a factor to contend with.

From the haulage viewpoint one horse-power can haul

- (a) 3000 lbs. at 3 ft. per second on road
- (b) 30,000 lbs. " on rail
- (c) 200,000 lbs. " in water

Water transport more over is the most ideally suited for the transport of breakable articles like glassware and ceramic ware because friction is least in such transportation. True indeed, there would have been advantages in reviving canal transportation, but at what cost to the nation? It has been urged that the slow speed indentified with canal transport could be overcome with the introduction of mechanised barges.

Reviving the existing network of canals would involve the following:

- (1) Dredging the canal beds.
- (2) Strengthening the canal banks against any possible wash as a result of introducing mechanised barges and preventing further silting of the canal beds.
- (3) Possible widening of the canals to ensure the use of large capacity barges.
- (4) Ensuring a regular supply of water for transportation throughout the year instead of depending on the vagaries of the monsoon.
- (5) The need for warehouses along the canal banks.

There is however one aspect of transportation which has not received serious consideration for planning and development. I refer to coastwise shipping which has positive advantages over canal transport in catering

to our economic development and trade requirements. The advantages to be gained are

- (1) through transportation to and from ships in the harbours especially at Colombo and Galle,
- (2) the provision of a natural "way" (track) which requires no maintenance on the part of man,
- (3) employment prospects and promoting the growth of a seafaring nation.

Road and Rail transport are the two largest agencies of transportation in this country today, with Road transport superseding Rail transport for obvious reasons which I will set out very briefly.

- (1) The very much bigger network of roads compared to rail.
- (2) The great flexibility in road transport which provides more or less a door to door service as against the Railway.
- (3) The relative cheapness of laying and maintaining a mile of roadway as against a mile of railway.

Each agency of transportation has its relative advantages and disadvantages.

The Railway is ideally suited for the mass transportation of intensive peak hour sub-urban passenger traffic and for long distance services. From the viewpoint of freight traffic it is ideally suited for the transportation of bulky commodities of comparatively low value like timber, coal, granite, bulk loads of fuel, machinery and so on. Road transport is ideally suited for the transport of passengers from sub-urban and rural areas to the City and other provincial capitals and for cross country operation into areas unserved by the Railway. This does not in any way suggest that there should not be any road passenger transport services running parallel with the Railway. This aspect will be dealt with later on.

From the freight viewpoint, road transport is ideal for the transportation of smaller units of goods which have comparatively greater value and of products like vegetables,

other garden produce, fish and similar perishable articles where the time element is important to market such produce before the bloom is lost. Road Transport not only provides quicker but direct transportation to the marketing centres. Even when these goods are transported by rail, as they sometimes are, road transport has to be resorted to for their final distribution.

Today, the Ceylon Transport Board, the Ceylon Government Railway and Air Ceylon have the monopoly of passenger transportation. The C.T.B. and C.G.R. are however both running at a loss. These annual losses are most undesirable from the economic viewpoint. When the Government continues without restriction to subsidise these losses it has a two fold effect on the economy of the country in the long run. It will result,

- (1) in increased taxation and also
- (2) in diverting resources from development expenditure.

Unremunerative services undoubtedly are a big drain on the country's resources. The Motor Transport Act of 1957 makes it a statutory obligation on the part of the C.T.B. to break even financially but the Board is saddled with a large proportion of unremunerative services. One can reasonably *rest assured* that these unremunerative services are not a legacy taken over from the private operators. Most of these services were started by the Board after nationalisation on January 1st, 1958, more due perhaps to strong pressures from diverse sources to undertake new services and extensions to existing services. If a service is to continue, it is important that the Revenue Per Mile covers not only direct operating costs but also contributes towards meeting part of the indirect cost as well.

In my previous article I had expounded the fact that the remedial measures to deal with unremunerative services lie exclusively within the Board's purview.

In the U.K. the responsibility to decide whether an uneconomic service should be closed or not is vested in the Minister who is responsible to Parliament. This enables Boards and Corporations to function as Commercial enterprises obviating losses as far as possible.

The recommendation of the *Select Committee on Nationalised Industries* (British Railways) states "the consideration of profitability should be left to the Commission. But if decisions are to be taken on grounds of national economy or social needs then they must be taken by the Minister and submitted by him for the approval of Parliament. Furthermore, if Parliament is to specify that certain services should be undertaken despite the fact the Commission cannot profitably undertake them, then the additional cost of them should be provided in advance, out of public funds." It is often the mistaken belief that when private enterprise is nationalised, the burden of failure should be taken over by the state and the poor tax payer is invariably called upon to shoulder the losses realised.

The term "rail-road co-ordination" is loosely used without a clear understanding of the underlying principles. What is today provided at the Railway Stations are really bus connections to meet incoming and outgoing trains. This is far from a co-ordinated system of transport.

By a co-ordinated service is meant "the provision of the transport needs of the community at the least cost to it." The word "cost" embraces not only monetary cost but time cost as well.

In the past the term "co-ordination" was also synonymous with the word restriction especially in relation to this Country. Simply because heavy capital expenditure had been invested in the Railway it was felt that the Government should keep the Railway network fully occupied irrespective of public demand. This is clearly borne out by Section 90(2)(a) of the Motor Transport Act. No. 14 of 1951 which stipulates, "that while due regard must be had to the advantages afforded by Road Transport in the case of short distance carriage, it is in the interests of the public generally that the Railway be kept worked at or as near capacity as possible from traffic available for transport." Such a policy where Government fosters one form of transport, at the expense of another, irrespective of the comparative advantages and disadvantages of each form of transport, is the very antithesis of co-ordination.

It must however be borne in mind that during the period when the Motor Transport Act of 1951 was passed the Railways functioned as a state monopoly, Road passenger and freight transport were in the hands of private entrepreneurs and this fact could well have influenced setting out Section 90(2)(a) to safeguard the Railways.

When a bus service was suggested from Moneragala to Colombo via Ratnapura as far back as 1961 the Railway objected to it and suggested that Moneragala should be linked to Haputale by buses to enable passengers to proceed to Colombo by train. The implementation of this suggestion would have meant that passengers from Moneragala to Colombo would not only have to put up with longer journeys both as regards time and distance but are also denied the facility of a thorough service. Moreover, such a road cum rail journey would only cost more and the Railway would have been only creating an artificial demand for rail travel at great inconvenience to the passengers.

However, since 13th July, 1972 the Board has inaugurated a service between Moneragala and Colombo providing one return trip a day.

It has also been suggested quite often that in the interest of the Railway, the CTB express services running parallel to places served by the Railway should either be discontinued or curtailed. According to the Railway authorities the three services on which there is competition between the Road and the Rail, resulting in the duplication of capital expenditure and services are the following:

- (1) Colombo .. Galle
- (2) Colombo .. Kandy, and
- (3) Colombo .. Negombo

Take for instance the Colombo-Galle service where the Railway and the Road service operate *side by side*. The headway provided by the Board on the Colombo-Galle service is a 20 mts. service but if this basic service is taken into consideration along with the Colombo-Matara, Colombo-Tangalle and the Colombo-Kataragama services, the headway works out to a 15 mts. service. The Board provides both slow and express services. The present *headway*

is necessary because the Railway services are inadequate to cope with the demand. The Railway cannot possibly support a bigger headway between Colombo and Galle even if passenger demand warrants it. The Railway therefore cannot replace the express services provided by buses.

The Colombo-Kandy express bus service is strictly speaking not a parallel service with the railway as in the Colombo-Galle case. The terrain covered by both the Railway and the Board is to a large extent completely different. Even here the same problems exist for the Railway as in the case of the Colombo-Galle service especially in regard to the headway that is to be provided.

As a case in point the Traffic Commissioners in England considered a case where the Railway objected to an extension of a bus service because it ran parallel to the Railway. The Commissioners held that the facilities offered by the rail and bus transport were not comparable and the extension was authorised.

The Colombo-Kandy, Colombo-Galle, Colombo-Badulla, Colombo-Kurunegala, Colombo-Matara, Colombo-Trincomalee, Colombo-Batticaloa, and the Colombo-Anuradhapura services should be looked upon in this light. Furthermore, it will not be out of place to mention here that the curtailment of express bus services will only result in attracting and promoting a very lucrative pirate van service for two reasons:

- (1) train travel will be more expensive and time consuming.
- (2) a transport facility affording a door to door service will be denied to the passenger.

The Railway authorities often keep on pressing for bus connections at Railway Stations. Such direction of passenger travel habits at a greater cost (both in regard to time and money) and inconvenience to them is most certainly not what is meant by co-ordination.

Mr. M. R. Bonavia has aptly defined the aims of co-ordination as being "to provide the consumer with the service at minimum cost through the elimination of technical

inefficient methods." To compel a passenger to do two journeys, one by train and the other by bus when he could complete it with one journey is technical inefficiency of the highest order.

The Government White Paper (Three year Plan) entitled "The Short Term Implementation Programme" proposed a policy of Rail-Road co-ordination and pointed out that the essential ingredients of such a policy are:

- (a) the adjustment of freight rates of transport undertakings in accordance with the cost of haulage. (This could be extended to passenger fares as well)
- (b) neutrality of fiscal legislation between the two modes of transport (road and rail)
- (c) elimination of direct and indirect subsidies to the undertakings, and
- (d) reimbursement to the undertakings of that part of the cost of unremunerative services and other public service obligations which cannot be recovered through the pricing system.

The problem is how best to provide rail-road services within the frame work embodying the principles cited above. To man, the time factor, cost and convenience are the three prime considerations in the choice of a transport agency.

In a co-ordinated system of transport it is essential that freight rates and passenger fares should more or less reflect the cost of each form of transport, for there is then a "financial inducement" to users of the various transport agencies to use the cheapest form of transport at least cost to the Community. When fares and rates do not reflect cost, consumers may choose the cheaper form of transport but its relative cost of production could be so high as to reflect adversely on the Country's economy.

As mentioned earlier, there are other considerations other than the cost factor, such as speed, comfort and so on that could influence the user in the ultimate choice on the form of transport picked. But so long as the fare levied is reflected in the cost of

operation and excess capacity far exceeding the demand for that particular agency of transportation is avoided, there is no loss as such to the Community.

Items (a), (c) and (d) above are to ensure that the conditions of competition between the two forms of transport (road and rail) are on an equal footing.

With reference to item (b) the railway is completely exempt from fiscal legislation, whereas the CTB right from its inception paid duty on all its imports. In 1970 it paid a total of 18.3 million rupees by way of duty. In the circumstances the Railway should either be called upon to pay duty or the CTB be exempted from such payment to place both transport agencies on an equal competitive footing.

Setting up a Transport Co-ordinating Authority in association with the Ministry of Planning and Development to examine the question of transport co-ordination of road, rail and coast-wise shipping is a most desirable feature.

“In a developing economy (such as ours) the rate of expansion in transport has to be greater than in other sectors as the total demand from transport tended to be progressive and not merely proportional to the increases in production. The regulatory authority by the very nature of its functions would have a clear apprehension of the developmental requirements of each form of transport and was best placed to advise, assist and persuade the developing agencies to strive for more efficient management, application of improved methods and techniques and to administer a policy of co-ordinated investments.” – An extract from a report of the ECAFE Working Party on Co-ordination of Transport.

In concluding I wish to observe that the future for Rail-Road Co-ordination in passenger transport is limited except in the field of festival traffic where the religious shrines are situated away from the rail-heads. However, the provision of a rail-road service to cater to festival traffic, strictly speaking, is in the nature of providing bus connections at rail-heads to transport pilgrims between the rail-head and the festival point.

There is nevertheless plenty of scope for the co-ordination of freight traffic as between road, rail and coast-wise shipping.

The introduction of classless travel in the Railway is not a very desirable feature from the economic view point. Having one fixed fare for a journey for all classes of passengers will result in one of three possibilities.

- (a) fixing a low fare to cater to the requirements of the majority of the population resulting in the proceeds not being able to meet the total costs of operation or
- (b) fixing a fare which is too high thereby driving away a certain class of traffic resulting in under utilisation of available transport capacity, and
- (c) fixing a fare which is neither too low nor too high, resulting in one class of travellers subsidising another and also denying the facilities of rail travel to some others.

Charging different fares for the different classes of travel (1st, 2nd & 3rd class) for the same journey, could have the desired effect of apportioning the direct and overhead costs on the principle of charging. “What the traffic can bear” and the burden of meeting the cost of operation is thereby distributed equitably. Further a single fare for all classes of travel would result in more road patronage in private vehicles or hiring cars by the more affluent commuters.

The principle of “charging what the traffic can bear” could be extended to road passenger transport as well. Special buses could be made to operate from the suburban terminal points into the City and other provincial capitals at special enhanced rates providing through express trips with only seated accommodation. Such buses if they are double decks could be worked with only one conductor and the return trips to the suburban terminals could be operated on a semi-express run where a single conductor will be able to cope with the traffic catered to.

The operation of such buses is bound to attract a large number of commuters who normally proceed to work in their cars and this fact will contribute to a considerable reduction in congestion on the roads during peak hours. This in turn will result in omnibuses and other vehicles attaining greater operating speeds which will reflect very favourably on the Country's economy

especially on the foreign exchange expenditure. As stated in one of my earlier articles, the Chambers Committee had reported that if the buses of the London Transport were to increase the average operating speeds by one mile per hour, an annual saving of £2,000,000 would accrue. The saving to the C.T.B. would also be very considerable.

Re-shaping Colombo Urban Bus Services

J. Diandas (A.C.A.)

In his article in the September 1971 issue of Transport Management, Mr. R. E. Fernando has discussed the layout of the urban bus services which run through the centre of Colombo from one periphery to another.

In the CTB such through services are known as "link" services.

This is because prior to nationalisation all bus services in Colombo operated to and from the hub in the manner of wheel spokes and the first through services inaugurated by the C.T.B. were achieved by linking together pairs of such spokes.

Mr. Fernando set out in his article eight advantages of linking; then went on to examine weaknesses disclosed by experience with links. He listed four which may be briefly re-capitulated as follows:

- (1) At ten minutes frequency (6 trips per hour) the capacity may be inadequate over the inner area and inadequate during the peak, but over-adequate along the outer sections.
- (2) On a long link (20 miles) a lost trip may cost 40 car-miles or 3,000 seat miles.
- (3) Late running prior to mid-day crew change causes overtime pay to the operating crew plus idle-time pay to the relieving crew.
- (4) Whether justified or not, some trips are lost by the action of the crew. This involves pay for unproductive time.

Mr. Fernando described his solution to the weaknesses by the following diagrams:

Figure 1 (Present 'link')

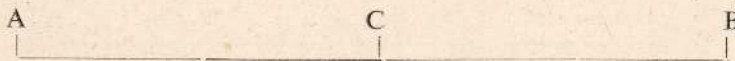
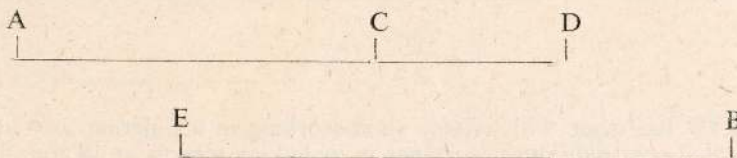


Figure 2 (Re-shaped or overlap link)



He mentioned 15 advantages for the new pattern but admitted the cost of re-shaping could in certain circumstances cost from 2 to 4 additional buses per route.

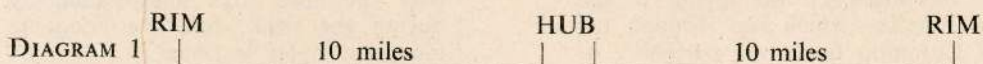
He has attached all these problems to the link problem (which is part of the problem of route lay-outs) because each of them has displayed its own symptom of disorder most sharply on the linked routes.

I consider that Mr. Fernando has confused several separatable problems including:

- (1) The length of route problem;
- (2) The frequency or intensity problem;
- (3) The road management problem;
- (4) The under-performance problem;
- (5) Matching capacity capability with programed capacity;
- (6) Matching offered capacity with demand.

Yet in his new theory of over-lap linking Mr. Fernando has displayed a fallacy which I hope to unravel in a series of diagrams, all of which deal with all-day operation and omit (for the sake of simplifications) peak problems.

Diagram 1 shows the pre-nationalisation operations on two routes running for 10 miles into and out of Pettah.



If one assumes that both routes required 6 trips per hour over their whole distances, and a further 6 trips per hour of all day "short-workings" over the inner half, the operation would be represented by Diagram 2.

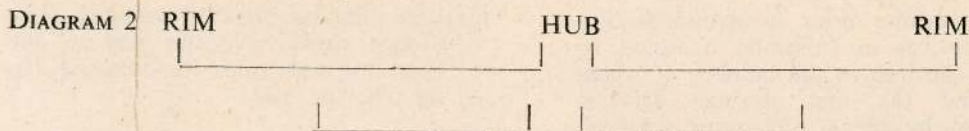
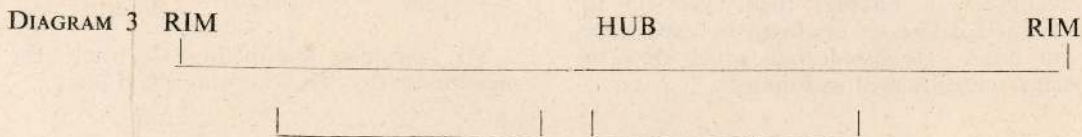
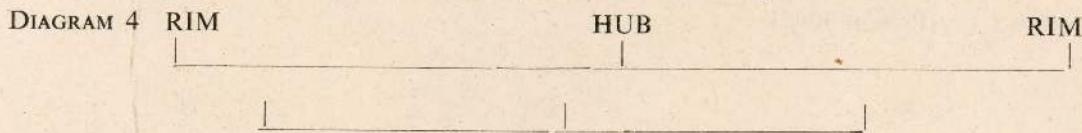


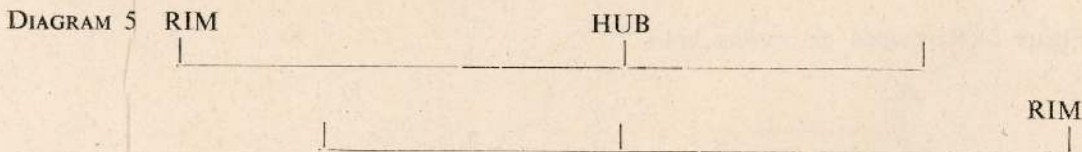
Diagram 3 illustrates the first simple stage of linking the whole-run trips, but leaving the all day short-workings untouched.



The all day short-workings can be incorporated either in Diagram 4.



or in Diagram 5:

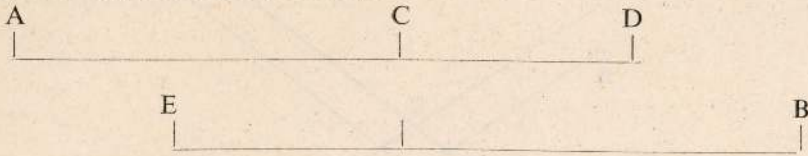


In fact the CTB has dealt with *all-day* short-working in a different way altogether, and has not incorporated *peak-only* short workings in its linking scheme at all for various reasons.

In his diagram, however, Mr. Fernando has also left out all pre-re-shaping short-workings, and has dealt only with the overall link (e.g. 101 and 138) giving the upper portion of Diagram 3 as his Figure 1.



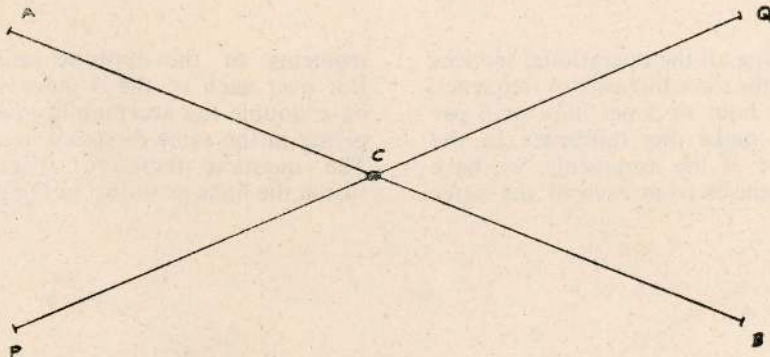
His Figure 2 reshapes the link as follows:



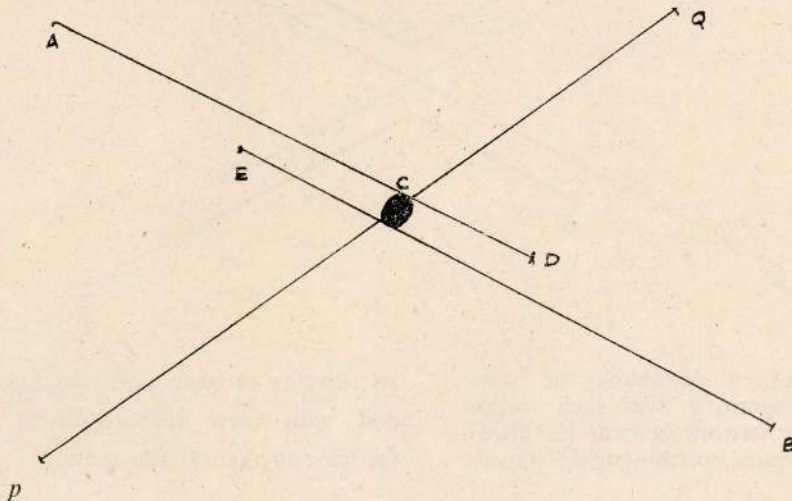
If he has not injected additional buses he has either increased intensity over E-D or reduced intensity over A-E and D-B or both increased over E-D *and* reduced along the outer ends.

There is of course nothing wrong with this provided he has kept the intensity of frequency of both the new operating lines (A-E and E-B) up to the acceptable level for public confidence. But he has produced an overlap between E and D which he considers a desirable feature in itself.

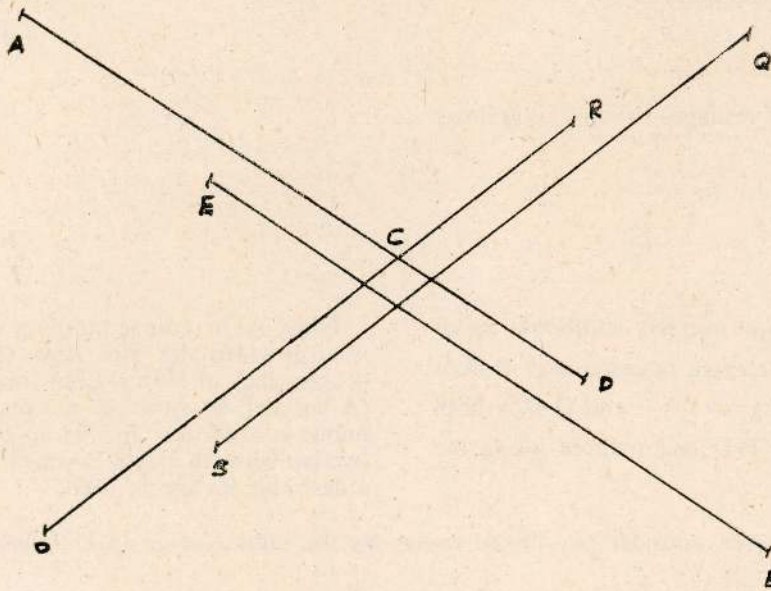
Let us, however, consider *two* linked routes on the same footing in Diagram 5.



Applying the overlap only to A B gives Diagram 6.

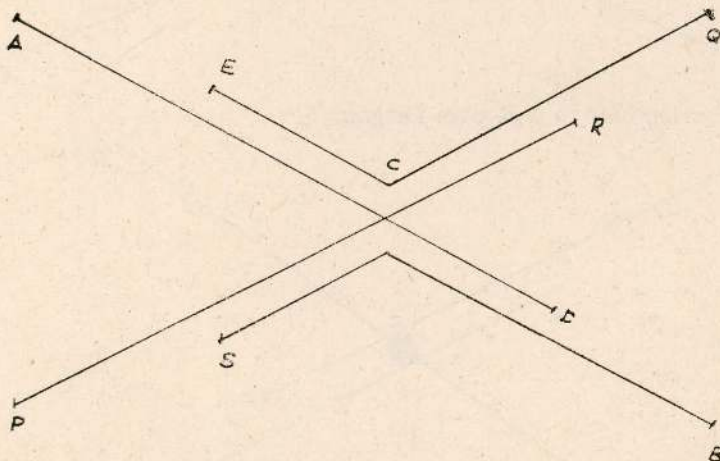


Applying over-lap to P Q as well gives Diagram 7:



Now, assuming all the operational services (4 in all) are at the same intensity of frequency (whether 4 per hour or 5 per hour or 6 per hour will not make any difference to the theoretical part of the argument), we have constant frequencies from each of the outer

segments to the opposite inner segment. But over each of the 4 inner segments we have double the acceptability-rated intensity plying in the same direction across the hub. The question therefore arises, why not switch the links as shown in Diagram 8.



Now Diagram 8 maintains the same intensity as Diagram 7 over each section of the layout (or network as it can be called). It maintains the same operating trip distances.

Its capacity to cope with passenger demand and with crew satisfaction is therefore (at least in theory) the same.

But it doubles (again in theory) the destination availability to passengers on the inner sections of each of the four arms. This is an achievement.

Achievement in practice will always lie lower than theoretical achievement. That is common to both Diagrams 7 and 8 and indeed to all the diagrams. Yet the higher the target set (on the basis of theory), the higher the practical achievement is likely to be.

In Diagram 8 the concept of overlap on a single route has gone.

Ultimately what has happened in Diagram 8 is that as compared with Diagram 6 trip distance has been reduced and destination choice has been increased, both of which achievements are at the cost either of drop in outer-end capacity and intensity or the input of additional buses.

Thus the solution is not one of over-lap at all, but one of matching capacity to demand, and compromising with crew reluctance to operate long trips.

If the original links were based on correct all-day matching neither Mr. Fernando's overlap (in figure 2) nor my diversification in diagram 8 will help because both starve the outer ends.

But to come to the symptoms (or weaknesses) for which overlap was prescribed as the remedy.

Inadequate peak capacity can only be met by split-turn buses or by standee buses. Excess outer capacity during *most* of the day cannot be converted into needy inner capacity during the peak.

Excess outer capacity can certainly be cut down but this will increase not reduce the split-turn ratio. If, however, one puts out split-turn buses for the rest of the day, the ratio will look better, but the result will be excess capacity wherever you put them out. And whether you should operate excess capacity is a question of sales promotion policy (i.e. how fast Parkinson fills up the empty seat-miles) or of benevolence (social service or pampering) according to the way you look at it.

Lost mileage is lost mileage whether you operate short or long trips, and is a symptom of control deficiency. Delays with concomittant overtime and idle pay is a symptom of the same deficiency or of over-optimistic scheduling. Malingering is a symptom of lack of management or motivation or both.

Yet most of these symptoms point to one fundamental managerial defect. The CTB has no road management worth the name. All management is in the depots. That is to say buses (and crews) are managed only at departure from the depot early morning and arrival back to depot in the evening. The only management on the road is by humble time-keepers, by occasional inspectors and by later statistical reviews.

There is no route management. That is to say no one is designated responsible for the operation of a route. That is why dual-depot and multiple depot operation breakdown in the CTB. Likewise there is no section management. No one has responsibility for all the buses (of several routes and several depots) operating on any one section of the road.

It is therefore my plea that symptoms be diagnosed, multiple symptoms be analysed, problems be identified and remedies (Managerial and Planning) be aptly applied thereafter.

In earlier days when theory was scorned by those who labelled themselves practical men, an article of this sort, taking up one man's theory and developing it into another which in turn may await question by the first or a third writer, would find small place. Fortunately in these days of scientific socialism, when theory and principle show the path and pragmatism only controls the speed and dictates an occasional diversion but never a reverse, there is no reason to fear disdain.

Yet, if space was not scarce, it would be pleasurable to write the same theme in nothing but practical terms; to deal with routes 111 and 166, for instance, where overlaps result in under-productive running and crew costs with not even illusory gain to show, and to recount some of the prenationali sation operations which led the first Chairman of the CTB to declare on take-over day that "only now is bus operation recognised as a science."

Idle Time - The Various Aspects

M. Ooruthiran

Dy. C.A.O. (Costing), C.T.B.

We all agree that idle time in our workshops should be eliminated as far as possible. The first and foremost thing necessary to reduce idle time is that we must know where it exists, to what extent and for what causes. But there is a fear in the minds of workers and supervisors that recording idle time is detrimental to them and therefore there is a tendency to understate or not to disclose the idle time that exists in their work places. This is detrimental to identifying the existence of idle time with a view to eliminating it as far as possible. Recording idle time is not always unfavourable to the worker or the supervisors. A correct understanding of the various aspects of idle time will, I hope, contribute towards correct recording of idle time.

Idle time may be first classified into two categories:

- (1) When work and all necessary facilities are available, the worker idles instead of doing the job.
- (2) Work or some facilities necessary to do the work are not available and therefore the worker idles.

In the first category the worker is definitely at fault. The supervisor should instruct the worker to do the job and if the worker fails to comply, it amounts to failure to carry out his duty and insubordination. The worker should be given due punishment for this default.

Idle time under category two may arise due to various causes. A study of the idle time according to causes will help us to differentiate between avoidable idle time and unavoidable idle time. Steps should be taken to eliminate avoidable idle time as far as possible.

Idle Time due to no work

At certain times there is no work in the workshops and the workers naturally have to idle. This often happens in the mornings for some time until buses given for run out start coming back for jobs. This now generally happens in the dock section because buses due for dock are given for peak hour running and until they return after the peak hour, the workers have to idle.

Idling due to no work is not the workers' or supervisors fault and there is no reason why they should hesitate to record such idle time. Recording such idle time can even be a credit to the workers and the supervisory staff if it is due to the fact that all jobs have been finished in time. It is possible that the best worker may record the highest idle time because he is fast at the work. Now we are encouraging fast work by paying incentives and this will certainly result in more idle time. Such idle time should be correctly recorded without fear and the causes should be clearly stated for purposes of analysis. The next question is what should the supervisory staff do if there is considerable idle time of this nature. Workers should not be asked to explain why they had idled for no work. On the other hand the supervisory staff should plan the work and find alternative work for them when they are idling... For example, if there are no buses waiting for repairs there may be some broken seats available in the depot; they can be repaired and kept ready for fitment on buses; or certain other spares or components can be made or reconditioned and kept ready for later use. Where incentives have been introduced, workers will also like this because they will earn more bonus by doing more jobs. Otherwise, the supervisory staff may re-plan their man power requirements and inform the head

quarters of the excess staff they are carrying so that they can be shifted to other work places where they can be provided with work. This will reduce idle time due to no work, provide more work to the remaining workers, and help them to earn more bonus.

Idle time due to no materials

Lack of spares is another important factor which causes considerable idle time in depots. Due to the foreign exchange problem the country is facing, there is difficulty in importing large quantities of spares. But yet we cannot say that our problem of spares is beyond any improvement. If engineers and stores staff are more alive to the problem, I believe, there is room for a lot of improvement. There should be better co-ordination and co-operation between the engineering and stores staff in this connection. There should be better communication between both and each should volunteer to help the other whenever there are problems. Action for recoument should commence before there is a real stock out and there should be better follow up with the Central Stores to ensure items available are received in time. When items are not available, local purchases or reclamation should be done in time. This requires planning and foresight on the part of the engineering and stores staff. Just as vigilant action is necessary in respect of fast moving items, proper action is also necessary in respect of slow moving or non moving items. What is slow or non moving in one depot may be fast moving in another depot. This should be brought to the notice of the headquarters so that transfers can be effected promptly. If the supplies position can be looked after carefully, in spite of the various difficulties faced to-day, it may be possible to reduce considerably idle time of workers due to lack of materials. This will result in big savings to the Board. Very often materials are not available during day time and the worker idles; Board pays him salary for the idle time. The material is some how or other procured by late evening and the worker is then employed on overtime to complete the job. Some foresight could have saved the overtime and the loss of revenue due to delaying the bus. But whatever idle time really occurs due to lack of materials should be correctly booked and the cause stated. There is no reason why a worker should have

a fear to record this idle time. Even the supervisory or stores staff need not be afraid of this idle time unless of course, avoiding it had been within their control.

Idle time due to Plant & Machinery break-down

Preventive maintenance of plant and machinery is very important so that frequent break-downs can be avoided. Even when a machine breaks down prompt repair should be effected. Supervisory staff is responsible for taking prompt and effective action to have the repairs effected. Thus idle time due to this cause can be reduced. But whatever idle time occurs due to this cause it should be correctly recorded and the cause stated.

Idle time due to power failure

Where work requires electric power there will be idle time whenever there is a power failure. Worker should not hesitate to have this idle time properly recorded. As we depend on external sources for supply of electric power, our staff cannot be blamed for this idle time. Where stand by plants are available, they should be made use of to reduce the idle time.

Idle time and Overtime

It is very commonly noticed that workers who have recorded idle time have also worked overtime. Can this be allowed? Of course, this should not be allowed, but there are some exceptions to it. Can we allow idle time during normal working hours? We should not allow this also. Our work and man power should be so planned that every worker will have sufficient work to do. He is paid incentives as an encouragement to do more and more work. But in spite of this, if a worker idles due to some genuine cause, nothing can be done; this has to be tolerated. He cannot book off until he completes his normal eight hours. So, the principle will be that idle time should be avoided as far as possible during normal working hours by proper work and man power planning, but where it is unavoidable it has to be tolerated. But if a worker is unable to perform his - job due to some reason during overtime work, and is found idling, the worker should be immediately booked off. This is the responsibility of the supervisory staff. For example, if a

worker is engaged on some work during overtime on a machine, and the machine breaks down, the supervisor should promptly book him off. So the principle here will be that there should be no idle time during overtime work. But according to the nature of work in the C.T.B., there can be exceptions to this rule also. For example, a tyre fitter may be kept on overtime during the evening shift; he will not have full time work throughout the shift, but still he has to be kept on duty, even on overtime. While allowing these exceptions, we should bear in mind that unscrupulous persons can make use of these exceptions to exploit the Board and the supervisory staff should be very careful in allowing overtime in such cases. Depot Engineers, Area Engineers and Rolling Stock Engineers should give due consideration to these facts in authorising overtime claims, especially over the 25% limit. Where workers have recorded idle time and have also worked overtime, the above said officers should check the work analysis sheets of at least a few cases every month, and should verify why idle time has occurred and why overtime has been worked, before the overtime claims are approved. Overtime claims may be approved in such cases only if there are specific actual reasons supporting the necessity for overtime in spite of idle time booked. Otherwise, officers who have authorised unnecessary overtime work should be held responsible.

Reduction of staff to reduce idle time

In depots where incentives have been introduced, it has been observed that when workers work fast, they run short of work. In other words all the workers are unable to work full time and obtain the full benefits of incentives. Therefore the number of workers has to be reduced so that each worker can be given sufficient work for the day. The excess workers will have to be transferred to new depots, workshops and service stations that are due to come up in the recent future. But there will be a problem in respect of trades of which we have only one worker for a shift. In small depots there may be only one battery fitter, one tyre fitter, one electrician etc., who will not have full time work. In such cases reduction of staff cannot be made. Then we have to encourage such workers to do a combination of jobs such as battery cum

tyre fitter. This has already been done to a certain extent. This will enable us to reduce the number of hands and provide sufficient work to the worker, but we will have to pay an allowance to encourage combination of jobs. This will help to reduce idle time and the cost thereof.

Conclusion

A correct understanding of the various aspects of idle time will help the worker as well as the supervisory staff in dealing properly with it for the mutual benefit of the worker and the Board. I hope this article will be useful for this purpose.

The following points should be remembered:

- (1) Where incentives have been introduced, the worker loses bonus by idling. Therefore the worker will prefer to be fed with enough work for the day.
- (2) Where incentives have been introduced and the worker is forced to idle due to some cause, the idle time should be properly recorded. Otherwise, the actual working time will be inflated by the idle hours and the worker will lose bonus.
- (3) Idle time should be reduced as far as possible during normal working hours. There should be no idle time during overtime work unless there are valid reasons for it. This should be carefully examined before authorising overtime claims.
- (4) Workers should not be penalised in any form simply because idle time has been recorded against their names. The causes for the idle time should be investigated into. Workers may be penalised only if idle time is proved to be due to the fault of the worker.
- (5) Better work, man power and stores planning and preventive maintenance of plant and machinery should be introduced to reduce idle time to the minimum.

Civil Engineering in the Railway

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Present Organisation

The Way & Works Sub-department of the Railway is in charge of the Maintenance and construction of the Railway track, bridges and buildings, including water supply and drainage works, road works etc. The sub-department is manned by 24 Engineers, including 3 Engineers in training. For the purpose of Maintenance and Construction the entire Railway is divided into 5 Districts, headquarters of two of the Districts being in Colombo and those of the rest in Anuradhapura, Trincomalee and Nannuoya respectively. The Head Office of the whole Sub-department is in Colombo, and the sub-department has a total strength of nearly 11,000 employees of all grades. The average annual expenditure on Civil Engineering Maintenance is about Rs. 24 million, whilst the annual programme of Capital Works, including work done items of construction for other Government Departments and Corporations totals to nearly Rs. 21 million.

Maintenance Work

The maintenance work consists of maintaining in a safe and fit condition about 1000 route miles of track, in addition to Station Yard layouts; about 850 bridges and over 3050 culverts totalling to over 10 miles; 47 tunnels totalling to over 3½ miles; and all the Station buildings, Signal cabins, Goodsheds, Offices, Engine sheds, Turntables, Bungalows, Sub-staff and labour quarters, etc., including water supply layouts, and drainage works; road work on Station approach roads and in housing schemes, circulating areas of Stations and Goodsheds; platform surfaces, etc., including fencing work.

Track gangs are posted every 3½ miles or so along the Railway line, each gang being in charge of a Ganger, and made up of a Spannerman and an average of 10 Platelayers. The Spannermen's duties are primarily to patrol the track daily except on Sundays and on Public Holidays, when the patrolling is done by the Ganger, and to tighten up loose fastenings such as fish bolts, dog spikes, etc. The Gang attends to lifting of low joints, packing under sleepers, sluicing the track which has gone out of alignment etc. The Gang is expected to go through its entire length about once a month. A Foreman Platelayer is in charge of an average of 8 gangs and has one or two assistants under him. The Foreman Platelayer inspects his section by foot, Trolley and on the Footplate of a fast passenger train, once a week, whilst his assistant generally inspects on foot and works with the gangs, covering the entire section in about two weeks. Two Permanent Way Inspectors posted at the Headquarters of each of the 5 Districts to which the Railway system is divided are responsible to the District Engineer for the safety of the Permanent Way in each District.

The Buildings and Bridge abutments and piers including water supply layouts and drainage works are maintained by 23 Sectional Building Foremen spread throughout the Railway system and overlooked by a Grade I Building Foreman at the Headquarters of each District Engineer. A Road Gang or Extra Gang attached to each District looks after the road surfacing works. The latter gang also sees to the transport of materials to work sites.

Each District Engineer has an Assistant Engineer under him, and they are jointly responsible to the Chief Engineer for the

proper maintenance of the Railway line, bridge abutments and piers, tunnels, buildings, roads, fencing etc. The Chief Engineer has the assistance of 2 Deputies and 2 Superintending Engineers at Headquarters, for guiding the District Engineers, supplying materials, framing renewal and renovation programmes, inspecting the track and buildings periodically etc. The Bridges Branch presently in charge of a Bridge Inspector is responsible to the Chief Engineer for the super-structures of bridges over the whole Railway system. He has a Bridge Foreman attached to each District to inspect Bridges periodically and to remain in charge of the Bridge Painting Gangs attached to the Districts.

Patrolling of the track is carried out on the Upcountry line continuously day and night against likely earth and rock slips etc. Emergency track patrols are introduced at other places during adverse weather conditions where there is a likelihood of the track flooding and getting washed away by heavy rain and due to tanks breaching, or when track erosion is likely to be caused by the wave action of the sea in monsoonal weather. All such obstructions to the Track are protected by the patrolmen, by exhibiting red flags and detonators during the day at each end of the obstruction, and by red hand signals and detonators at night. Regular patrolmen exchange patrol sheets with patrolmen of adjoining beats, and the sheets come back to the Stations from where they started at the end of their beat duty, affording the authorities concerned with the requisite check on the patrolling.

The Formation which is the subgrade on which the track ballast rests, has to be strong enough to withstand the heavy axle loads from engines and rolling stock. For this purpose the soil is well-drained without being saturated with water. This is especially required in clayey formation, which if wet, causes percolation of the clay into the ballast, and gives rise to "pumping" sleepers. Constant packing is then required to carry the load, specially at rail joints, for otherwise the rail top becomes uneven. In clayey soils, about 6" to 2" of the sub-soil is removed and replaced with a "blanket" of sand, ash or quarry dust. This blanket acts as a draining medium and prevents the clay from being

displaced by the pressure of the blanket under the sleepers. Open jointed side drains laid on concrete below the level of the "blanket", help to drain off the sub-soil water from the formation, the lateral slope of which from the centre of cross-section of the track, running outwards is kept at 1 in 20, whilst the end sloped of the formation section are made $1\frac{1}{2}$ horizontal in 1 vertical.

Axle loads are dispersed to the formation through the ballast section. The best form of ballast is granite or lime-stone which is crushed and screened, the stone passing through a 2" mesh and retained on a $\frac{3}{4}$ " mesh. Best results are obtained with stones graded from $1\frac{1}{2}$ " to 2". Stone ballast also provides adequate drainage of the track over a long period. The minimum depth of ballast should be about 10" to 12" under the sleeper. The ballast shoulders beyond the ends of the sleeper should be at least 12" wide to resist lateral displacement of the track, and the side slopes kept at $1\frac{1}{2}$ horizontal in 1 vertical. Under steel sleepers and at points and crossings it is found more beneficial to use a smaller size of stone, say $\frac{3}{4}$ " or 1", in order to maintain a good "top". The ballast is filled in level with the top surface of the sleepers to resist longitudinal movement or "creep".

Sleepers commonly used on the Railway track are wooden sleepers. For a Broad Gauge track, 5'6" gauge, as we have all over the Railway system, (except for 85 miles of Narrow Gauge track - 2'6" gauge on the Kelani Valley line), the sleepers are 9' long, 10" wide and 5" deep. Both hard woods and soft woods are used, but due to a shortage of hard woods, the majority of sleepers used are soft wood "Hora" sleepers obtained locally, in addition to treated Malaysian sleepers. These soft wood sleepers are creosoted under a pressure of about 200 lbs. per sq. in. in a cylinder, after the moisture has been initially drawn out by vacuum treatment at a pressure of 30" of mercury. These sleepers are well-seasoned before creosoting to reduce the moisture-content in them. Each sleeper absorbs about 3 gallons or 30 pounds of creosote. A wooden sleeper lasts about 15 years. The number of sleepers used on this Railway with a 45 foot rail is 21. The normal sleeper spacing is about 2'2", whilst the joint spacing is 18". Steel sleepers have a

longer life than wooden sleepers, but they are unsuitable in track circuited areas, or on electrified lines. They are also not suited for sea-coast lines, and it is difficult to maintain a correct alignment of track with them after some time.

Due to a shortage of timber sleepers, the Railway proposes using concrete sleepers on the track in future, and a test length of $\frac{1}{2}$ mile of track has been laid with mono block concrete sleepers designed by the writer. These are reacting well under traffic. Concrete sleepers are more stable in the track, last more than 50 years, and are more economical in the long run. Twin block concrete sleepers manufactured by us are also to be tried out shortly.

However well a railway track is laid, it is disturbed in line and level by the movement of trains, and regular maintenance is therefore called for. The level is maintained by lifting and packing. The lifting of the sleeper is done by means of a crow-bar acting as a lever against a stone or timber fulcrum, and the packing carried out by beaters which force the ballast under the sleepers. Two men pack under a rail seat together in diagonally opposite directions, described as "Scissors packing". By this means the sleepers are supported for a distance of about 15" on either side of each rail, the middles and ends not being so firmly packed. If the middles are firmly packed, the sleepers will rock about their centres, giving rise to a condition called "Centre-binding", and the rolling stock will oscillate sideways. If the ends are firmly packed, the sleepers will bear heavily on their ends causing them to break under traffic.

Faulty alignment, if due to a bodily movement of the rails along with the sleepers, is corrected by sluing the track using slue-bars, but if due to looseness of spikes, by plugging the elongated spike-holes and re-spikeing.

The choice of rail-section is dependent on the axle loads to be carried. The rail is assumed to bend in a continuous curve between wheels and not between the sleepers. The rail-section adopted by this Railway on its low-country Broad Gauge lines is 80 lbs. per yard, whilst on the Upcountry line it is

88 lbs. per yard, a section specially rolled for us, which is shallower and having a greater width of foot than the 80 lb. per yard rail, thereby contributing towards stability on the sharp Upcountry curves. The rail section used on the Kelani Valley line is 46 $\frac{1}{2}$ lbs. per yard which is now obsolete, and is being replaced from Fort to Homagama with recovered 75 lb./yard rails from the Northern line.

The expansion gap provided in fishplated joints is $\frac{1}{4}$ ". Fishplates are cleaned and oiled once a year for otherwise rust, dust and dirt make them adhere to the rails, thereby preventing free expansion and causing buckling of the track. In areas subject to corrosion, and on bridges and bridge approaches where undetected rail fractures inside fishplates might have serious consequences, this examination and cleaning and oiling is done twice a year. The fishplates and fish bolts turn sides in alternate years where cleaning and oiling is carried out once a year. It is possible to determine at a glance whether cleaning and oiling has been carried out by a paint mark on fishplates and by the position of the heads and nuts of the fishbolts. Rails are examined for cracks at ends covered by fishplates during cleaning and oiling. Tightening up fishbolts increases the bending moment in fishplates and avoids battering action at the rail ends, but there is a limit to this tightening as over-tightening prevents proper expansion. This is ensured by limiting the lengths of spanners for different rail sections. When rail lengths are battered and it is difficult to lift the joints by packing joint sleepers, *shims* are introduced between the fishplates and the fishing surfaces of the rails, to eliminate the low joints. Or else the ends are cropped and fished up again.

Rails are held in position to timber sleeper on this Railway by means of dog spikes. To prevent the rail foot cutting into the soft woods, a sole plate is placed between the rail and sleeper. These sole plates have a projecting shoulder which keeps the rail in position laterally. Normally two spikes are driven in diagonally at each end of the sleeper for the 2 rails, but on a sharp curve double spiking is carried out on the outsides of curves. In places where it is found difficult to maintain the alignment, 4 spikes are sometimes driven in for each rail. Elastic

spikes of the single and double prong types are being tested out. These are of spring steel and give a better grip when new, resulting in reduced wear of rail and less noise. Coach screws are also being introduced in lieu of sole plates and dog spikes, as they are expected to have a better grip, with less chance for them to work up under the wave action of the rail. "Creep" is arrested by the use of Rail anchors, provided at the rate of 6 per rail, anchoring the rail against the sleepers. Wear on sharp curves is minimised by the patrolman lubricating manually the outer rails with the help of a roller which he pushes against the inside edge of the outer rail as he goes patrolling the line. Lubricators fixed to the rails have also been used in certain locations. These work by grease being applied to the wheel flanges by plungers depressed by the passing wheels.

The ruling gradient on a line limits the load which can be hauled up. Gradients approximating to this and on which curves are situated are compensated for curvature because of the added resistance to the train on a curve. Vertical curves are generally provided where different grades meet and take the shape of circular curves or parabolae. The ruling gradients on this Railway vary from 1 in 80 to 1 in 200 on the low country lines, whilst the gradients are as steep as 1 in 44 on the Up country line.

The maximum permissible "Cant" for Broad Gauge track on this Railway is $5\frac{1}{2}$ " and is run out at the rate of $\frac{3}{4}$ " in a 45 foot rail length. The run out commences where the circular curve meets the transition, and continues into the straight if necessary. Where it is not possible to run out the cant in this manner due to restricted length in between curves, a smaller cant can be provided for the same speed, provided the permissible cant deficiency is not exceeded.

Curves are "trued up" by string lining, having first measured the *versines* on the ground. The measured *versines* are tabulated on a piece of paper and adjusted to give a uniform curve, after which the slues required at the different stations are noted down. Sluing of the track is carried out using slue bars. An outward slue at one station causes an inward movement of half its value at the adjacent stations on

either side, and vice versa. After a curve is realigned rail pegs are driven alongside the track at gauge distance from the outer rail at 33 feet centres, the tops of the pegs being kept to the same level as the cant on the curve. By this means the Ganger can check the alignment and the cant readily by placing his track gauge complete with level across the outer rail and the rail pegs.

Permanent speed restrictions are enforced on sharp curves, the Drivers being warned by Caution and Speed Boards suitably placed. Normally the Caution Boards are about 10 chains ahead of the point from which the speed restriction is enforced. "T" Board denotes the termination of the speed restriction.

Bridges and Culverts are inspected periodically and necessary repair works carried out without delay. Slack rivets are cut and replaced by new ones. Where corrosion is localised, small plates are tack-welded instead of replacing whole members. Painting of bridges is carried out to a programme. Bridges on the Coast Line are attended to once a year and at times once in 6 months, whilst bridges situated in the interior need attention only once in 4 to 6 years or so. Red lead is applied only over the corroded areas after proper scraping and wire-brushing. Over the rest of the area hot tar is applied direct without any scraping.

Buildings are renovated periodically. Old line rooms are expected to be renovated once a year, whilst cottage type Workmen's Dwellings have to be attended to once in 2 years. Bungalows are attended to once in 3 years. Station buildings are renovated once in 2 years, whilst Goodsheds are attended to once in 5 years and Engine sheds once in 3 years. Restrooms have to be renovated every year.

New Construction & Development Works

Some of the new track works constitute stone ballasting the track, provision of coach screws and clips to increase the average life of sleepers and for better running of trains. The replacement of the worn out 75 lbs. per yard rail section with 80 lbs. per yard on the Northern Line, north of Mankulam, is another major item of work, as also the

welding of rail joints as a safety measure for fast and intensive traffic.

Resleeping and rerailing works are normally carried out on weekends in between booked trains at reduced speeds, when the intensity of traffic is less. Such works are carried out with due notice to the Traffic Department, after advertising in the Weekly Notice, and the works are protected by banner flags placed across the track at each end of the obstruction $\frac{1}{2}$ mile from each end and detonators are placed on the rails, a rail length apart, at each end, 100 yards in front of the banner flags. Where a speed restriction has to be continued for a protracted period a warning board painted green and white is fixed at a suitable distance from the place to be protected, in such a position as to be clearly visible to the Drivers. At night time a green light is placed at the centre of the warning board.

Another important item of track construction work is the extension of loop lines and platforms at stations to accommodate longer trains. This would facilitate the crossing of trains, and would ensure that passengers get down on to platforms when detraining from the end carriages of long trains.

Provision of additional tracks in large stabling yards such as Maligawatte and Colombo Goods to ease congestion, forms yet another important item of track work.

As regards new Bridge construction, a number of weak spans have to be strengthened to carry the maximum probable loading of $16\frac{1}{2}$ B.S.U. These works are carried out by the Bridge Inspector and his staff under the guidance and direction of the Chief Engineer (Construction). In the execution of major Bridge works, the line is taken possession of for a continuous period with the least interference to traffic. The work is so organised as to be completed in the minimum time without delay to traffic. The different operations are carefully scheduled, and every endeavour is made to complete each operation ahead of schedule.

Tunnels suffer from damage or deterioration when the drainage of the surcharge above is not satisfactory. The tunnel walls and crown bulge or shift when such is the case. There is heavy seepage inside the

tunnel. It may become desirable to reline such tunnels using rail forms at predetermined centres and concreting in between.

The Railway provides improvements to Passenger accommodation and amenities at Stations and Halts by constructing modern waiting rooms with attached lavatories, and platform roof covers of old rail forms and asbestos roof sheets, etc. Railway Stations are also improved to provide better working facilities to the Staff. Corroded columns and roof members of the suburban Coast Line Stations are being replaced with reinforced concrete members. Modern Retiring Room and Restaurant facilities have been provided at Anuradhapura, Kandy, Galle, Jaffna, Trincomalee and Polgahawela. Colombo Fort Station has been already provided with two more lines and platforms recently.

In the matter of Housing for Staff, Cottage Type Workmen's Dwellings are provided with two twin houses in each set. The floor area of each house which consists of a drawing room, two bedrooms, dining area, a kitchen, and attached toilet is 338 sq. ft. The same accommodation is provided in 3 storeyed flats of 4 houses per storey, where ground space is limited for building Workmen's dwellings. Single roomed line rooms are standardised with attached lavatory, bath and kitchen and two bed rooms by joining two adjacent line rooms to form one house. Two roomed bungalows with attached toilet of floor area 535 sq. ft. are provided for officers of the grade of Assistant Station Master, Foreman Platelayer Gr. II etc., whilst a slightly larger bungalow with an additional room and having a floor area of 818 sq. ft. is provided for officers of the class of Station Masters, Foreman Platelayers, Gr. I etc. A feature in the design of these Quarters is the use of the most economic sections compatible with strength and durability. All these buildings works are in charge of Gr. II Building Foremen, overlooked by a Chief Building Foreman attached to the Headquarters of the District.

All structures erected in close proximity to the track have to conform with specified structure gauge clearances to ensure that no portion of the structure is in the way of

rolling stock, even with doors of carriages and wagons left open. This applies to side clearances of platforms, signal and telegraph posts and buildings, side and overhead clearances of bridges and tunnels, overhead clearances of telegraph wires crossing the track, etc. Extra clearances have to be provided when a track is on a curve and is canted.

Precautions have to be taken against floods, slips and washaways. Rock slips are arrested by building pillar supports to unstable rock formations and slipping of banks arrested by the construction of suitable toe walls, etc. Suitable drainage schemes are provided to all cuttings and embankments to prevent saturation of the soil. Flood openings are provided to cater for any major flood, and suitable training and retaining walls built with paved invert and drop walls to arrest scour and damage to bridge abutments and piers. Sea erosion is arrested by the dumping of $\frac{1}{2}$ Ton rubble to break the force of the waves, and back filling with 9" hand rubble.

Conclusion

It would be clear from this article that Railway Civil Engineering covers a very

wide field. In addition to its speciality of track work, it embraces the maintenance and construction of buildings, bridges, tunnels, water supply layouts and drainage and roadwork, which are dealt with separately by independent units in other major Departments. Track work and other work contingent with the track have to be carried out as expeditiously as possible with the least interference to traffic. Diversion of traffic by an alternative route to the same destination is not possible in most cases, and even if possible, is not economical. Above all a knowledge of Safety Rules become very essential for safe working and travelling about on the Railway. Civil Engineering work carried out by the Way & Works Sub-department has also to be co-ordinated with the work of other Sub-departments and Railway Civil Engineers have to be on close call at all hours of the day and night for emergencies such as derailments, floods, slips and washaways, etc. All these facts reveal that Railway Civil Engineering demands from the Engineers not only an allround knowledge, but also a deep sense of dedication to the service.

Supplies Management

V. J. J. Newton

Area Controller, Northern Area, C.T.B.

“The starting point of all economic activity is the existence of human wants. To satisfy hunger and thirst, to secure shelter and provide clothing are the chief aims of primitive man and constitute even today the motive force of all society.” Wants give rise to efforts and efforts secure satisfaction. In the field of supplies, we are actively concerned with the activity directed towards the satisfaction of wants. The primary concern of supplies management is to make efforts towards want satisfaction by supplying the necessary materials and services as economically, prudently and efficiently as possible. It is not necessary to have much formal knowledge of economics to realise that the amounts of goods and service offered and demanded and their costs are proper matters for study. It is said that “supplies can make or mar an economic system”, which only goes to stress the importance of this field of endeavour.

2. Mention is often made that management is concerned with managing men, money and materials. To these may be added ‘minutes’ (time) as well. It will be superfluous to emphasize the importance of these ‘m’ s. Whilst one is closely involved with the other, one cannot fail to realise the fact that, however much men may be motivated, however much money may be voted, unless the right materials to the right specifications are made available in the right quantities, at the right places, at the right times and at the right prices, any organisation will run into difficulty. Without the supply of the necessary materials, the factory wheels will cease to move, the air planes will remain grounded, the ships will fail to sail the seas, and so forth. Similarly our own fleet of buses will come to a grinding halt unless a steady and continuous flow of the required fuel, tyres and tubes,

batteries, spare parts, body building materials etc., is maintained.

3. We are told that Hitler lost World war II, despite his mighty war machine, as his supply lines broke down. General Rommel is reported to have withdrawn from Africa as primarily he could not maintain his supply of munitions, food and water to his men in the front. The result of this analysis of the causes of the eventual defeat of Hitler despite his outstanding and lightning initial successes had brought supplies management into the forefront in the post war thinking and planning of practically all the nations affected by the war. Consequently supplies management has grown beyond the stage of secondary responsibility and today it is recognised and maintained as a specialised function and viewed as equal to and independent of other functions such as Production, Research, Finance etc. It is in this context and the need for advanced training to recognised standards, we find the eventual merger in Great Britain in 1967 of the Institute of Public Supplies and the Purchasing officers’ Association into the single dynamic Institute of Purchasing and Supply, membership of which is representative of both Industry and the Government Service, as well as other public bodies. This was but a logical step in the quest to find more scientific ways of dealing with the social and economic problems confronting supplies officers both in the public and private sectors and in this quest we begin to see the emergence of the particular discipline of those who belong to the supplies profession. In substance it is the study of the means by which a complex industrial society can procure and supply itself with the materials and services essential for its agricultural pursuits, its manufacturing enterprises, its transport undertakings, its

social institutions and its human needs, as effectively as possible. Most of the time of the majority of the members of the Institute is expended in solving the day to day problems of procuring goods and services and controlling the use of them. However, it is gratifying to note that behind all these activities, there is continual thought and study about purchasing and supply problems, among which two are of paramount importance.

4. The first of these problems is to make sure that the best value is obtained for the money expended. Material research and material utilisation, value analysis and value engineering, quality assurance and supplier evaluation are all studies directed towards achieving this end and effecting the best buy. That prudent buying can make a tremendous contribution towards cost reduction is still not fully understood. Even at the management level far too many still think that good buying is only a matter of price and do not realise that value buying is not price buying. In a White Paper published in Great Britain about 4 years back on "Public Purchasing and Industrial Efficiency" the British Government clearly indicated its intention to obtain the best possible value for the money it was expending from the public purse.

5. The second problem is to utilise the available resources to the best possible advantage. Significant contributions towards improved capital utilisation could be made by supplies men by classification and coding of materials, determination of interchangeability of stock items, standardisation and variety reduction, prudent purchasing based on tight investment and proficient stock and stores control.

6. It will thus be seen that two of the vitally important tasks of the Supplies profession in a modern industrial society are to obtain the best buy and to seek optimum capital utilisation. It is the concept of value that distinguishes the approach of Supplies Officers from that of all others who are concerned with Socio-economic problems. Supplies men must therefore devote their professional life to the realisation of this concept of value in their work.

7. Now, reverting to supplies Management in a transport undertaking like the

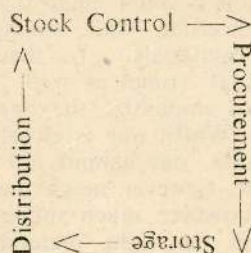
Ceylon Transport Board, the primary objectives are to:

- (i) Minimise hold up of buses in the Workshops, due to stock-outs of essential spare parts and other materials and help maximise fleet utilisation by continuity of flow of supplies.
- (ii) Keep down investment in inventories, inventory carrying costs and losses arising from redundancy, obsolescence, damage, deterioration, pilferage etc.

8. Actually, the above two aims conflict with each other and efficient management lies in balancing the one against the other and arriving at an optimum over-all result. It will not be difficult to achieve one objective at the cost of the other.

It will also not require much of efficient control or cleverness to minimise vehicle detention in the garages by maintaining uneconomically high inventories or by resorting to frequent emergency purchases at additional expenses. It may even happen that neither aim is well achieved and protracted detention of vehicles and excessive investment in inventories go hand in hand. Such a situation is quite possible, because "Surpluses and shortages are really the obverse and the reverse of the same coin - the coin of poor inventory control."

9. Stock control, procurement, storage, and distribution are the cycle or the chain activities that comprise the supplies function.



This is a continuous process and stock control is often referred to as the heart of any supplies organisation. In the Ceylon Transport Board, after considerable thought and study, the visible Record System of stock control (Kardex) aided by colour card signals has been introduced. This system was adopted with the assistance of one of the principal suppliers to the Board, viz. Messrs. Daimler Benz A. G. of West

Germany and is geared to reflect the following features which form the basic qualities of any reliable stock control system:

- (a) Indicate the actual balance in stock at any time.
- (b) Show all issues and receipts of materials completely and exactly.
- (c) Ascertain and maintain the consumption figures statistically.
- (d) Enable recouplement of stocks to be made at the right times.
- (e) Indicate outstanding orders, and
- (f) Indicate early the decline in turn over of certain items to prevent build up of dead stocks.

10. Under this system, the stock controller is able to see at a glance with the aid of the colour card signals the non-moving, slow moving, and fast moving items. The set of control cards maintained in this system are:

- (a) Stock card which indicates the existing stock position.
- (b) Order card which indicates the orders placed and deliveries made.
- (c) Statistics Card which contains consumption statistics, supercessions, modifications, annual and special estimates furnished by the Consumer Departments.
- (d) Card shoe which contains the part Number and the price per unit.

It must be borne in mind that the finest system will never bear fruit without the availability of personnel dedicated to inventory control, for this is largely dependent upon the completeness, promptness and accuracy with which inventory transactions are recorded on the stock control cards.

11. Every stock item in respect of which movement has taken place is signalled for automatic review under this system. In reviewing for recouplement of particularly motor spares in a transport organisation like ours experience has shown that in regard to consumption statistics, it may be risky to go too far into the past or too far into the future, and that the prudent course is to be guided more by the recent past. In addition to lead time, the terrain in which the buses are operated, the driving habits

of the drivers, the conditions of operation are all factors which have a bearing on the requirements of motor spares. In this context, the placement of frequent small orders would also necessarily result in the stock control exercising close and constant vigilance in regard to recouplement as well as to the movement and end use of the spares. A wise stock controller will create a situation in which the stock control will have the capacity to manoeuvre and be also able to stretch the use of the available money. In regard to the frequency of review for recouplement such review has to be done as and when the kardex indicates the necessity to do so. In any case, it would be useful to review every stock item at least once a month.

12. Selective review of the stock items is another method advocated. Such selective review is done by application of the technique of ABC analysis, which separates inventory items into 3 classes based on consumption and value. The argument is also advanced against such value-wise classification as a sole guide for recouplement of motor spares in particular, as selective review is already inbuilt in the Kardex system and an item like a crankshaft bearing at lower cost should not be considered a less important item than the costlier crankshaft itself. Moreover, even large quantities of small value items, like nuts, bolts, washers etc. may have the same effect in rising costs as a few items of high consumption value. Nevertheless, classification on the basis of ABC analysis can serve as a useful additional guide to management.

13. Procurement is an important link in the chain of supplies activities. With a view to minimising costs, management looks to their material procuring sections as a potential source for effecting substantial economies, particularly in the context of rising labour costs and such factors as lack of adequate foreign exchange and balance of payment difficulties. Procuring prudently in a highly complex world market falls on the purchasing officer, who has to be knowledgeable and experienced not only in regard to his purchasing techniques, but also in respect of such subjects as Shipping, Banking, Insurance, Commercial Law, International Trade Practices etc., to be capable of discharging his duties efficiently and

safeguarding the interests of the organisation he serves.

14. In so far as public buying is concerned, every item of purchase has to be subjected to public competition. The principle of inducing competition by means of tenders or quotations, quite apart from serving as a means of obtaining the greatest price advantage, also ensures that the choice of a supplier is not made arbitrarily, but according to the principles of public buying. Such a bargaining mechanism also affords protection to purchasing officers as well as to the organisation they serve against insinuation or unfair criticism.

15. In the process of applying his purchasing strategy, a purchasing officer uses freely the bargaining technique of calling for quotations and stimulating competition. The development of alternative sources of supply is another feature of purchasing strategy. The purpose is not to depend entirely on a single source of supply, because apart from the single supplier being in a better bargaining position such a situation also presents the danger of break down in supplies in the event of industrial, political and other difficulties affecting the selected single source. "Don't put all your eggs in one basket" is a wise maxim for procuring officers to bear in mind.

16. From procurement we pass on to receipt of materials, inspection, storage and distribution. Goods whether imported or purchased locally have to go through the process of inspection for quality and quantity prior to despatch to the various storehouses for storage and binning. Thereafter after necessary documentation, under their respec-

tive classification as (a) raw materials, (b) consumable stores, and (c) non consumable goods, the stores are accepted at the appropriate storehouses. It goes without saying that the stores staff should ensure the security of the stores in their charge and also see that all items are stored in such a manner so as to prevent deterioration or damage whilst in storage. They should also see that the most economic use is made of the available space. Modern methods of stores handling with a wide variety of equipment available have considerably eased the movement of stores from place to place. As a safety measure against fraud and pilferage and for purposes of public accountability both annual stock taking and continuous verifications are carried out. The technique adopted for stock taking will naturally vary with the type of stock, with the size and diversity of the concern and with the staff available.

17. In summing up, the Stock Controller, the Purchasing Officer and the Stores Officer have a valuable contribution to make to the success of the organisation which they serve. The requirements that must be met to make this contribution vary from the authority granted to them, the knowledge they possess of their own jobs and jobs of their colleagues, their readiness to assist and supply information to the rest of the organisation and the efficiency with which they organise their own activities. In regard to the Purchasing Officer the skill with which he carries out negotiations will be an additional requirement. Given these factors, their contribution not only to the profitability of their particular organisation but also to the economy of the country in general will be valuable.

The C.T.B. and the Practice of Management

By S. Wijegoonewardena
Management Unit

Instances were not rare, even in the near past, when the Depot Superintendents or the Unit Heads were removed for their failure to administer the workplaces efficiently. Some of them have failed miserably as Managers. Why did they fail? A discussion on some of the reasons for their failure and also of some important principles of management will help the managers to diagnose their own weaknesses and to improve their effectiveness as well as the results of the organisations they work for.

It is well known that the scarcity of management expertise, has become a hindrance to development of organisations, in developing and underdeveloped countries. The reluctance in application of scientific management principles on the misconception that it has very little to play in the organisations, retarded the progress of the enterprises during last two or three decades. Though not speedily but gradually and meaningfully various concepts and aspects of scientific management have begun to make their presence felt in the Organisations.

In the light of the above facts the CTB was no exception. For example, Depot Managers for a long time, have been concerned with the routine office work or mere supervision of a Bus service. Management functions exercised by them were devoid of the fundamentals of scientific management. Absence of knowledge on the part of the administrator in the managerial functions of Planning, Organisation, directing, controlling, and co-ordination, made his administration ineffective.

Gone are the days the Depot Managers thought themselves merely Bus Operators.

A new outlook is given to the concept of the Depot Manager. He has come out of his isolation. His effective administration of Depots is demanded by the Board and his active participation in the smooth functioning of the Organisation, is increasingly wanted by the country. Therefore, now we can be proud of the fact that the Board has moved one step forward by bringing its Depot Superintendents etc., into a management stream and training them in the functions of management, thereby enabling them to think and act in the full sense of Managers. This, undoubtedly will help in no small measure for the Board to improve the standard of administration in its Depots & Workshops etc., ultimately to achieve its objective.

Organisation, Motivation and Control of factors of Production

Success of functioning of any organisation or unit can be judged in terms of the realisation of its objective. Realisation of the objective could be achieved through process of management which consists of systematic planning, organisation, motivation and control of human efforts along with the other factors of production. Directing and co-ordinating of efforts are also of paramount importance here.

Do our Managers really exercise these managerial functions?

The objectives of a CTB depot can generally be expressed in terms of the depot (monthly and yearly) scheduled mileage, revenue target and also its ability to win the confidence of the commuters of the area. It is true, that there is little to be done

by the D.S. in the field of Planning, as there is a set plan by the Head Office for every depot, but in organisation, directing and controlling and co-ordination, the area of activity left for the Depot Superintendent is very great. Here, the overall control and supervision of the Manager in the Operations and Engineering work and also supplies stores work is very necessary. But past experience shows that though the Depot Superintendent was supposed to be the overall manager, in practice, these sections tried to function more or less as independent units. Therefore, uniform effort of the sections in the depot was hardly achieved. This lack of co-ordination hindered the depot in operating its scheduled mileage and the collection of its target revenue.

Another requirement in the efficient administration of a depot is to ensure the smooth functioning of all sections of the depot at a minimum cost. The Depot Superintendent should organise all sections within the depot to increase the efficiency of these sections thus minimising the cost and by maximising the utilisation of available labour and material. He should make every endeavour to cut down idle time of garage workers and bus crews and also try to cut down unremunerative mileage. He should carry out work studies in various sections of the depot with a view to setting up of work norms, which is one of the surest ways of reducing the labour cost. By doing so an efficient Depot Superintendent could transform his depot into an economically viable unit of the Board.

It is disheartening to note that on a study carried out by this unit of certain depots, it was revealed that some depots had many months of arrears in documentation including the compilation of statistics while having an excess of depot staff.

Another important element of management is the motivation of the work force. Motivation is necessary to inspire the workers to put their best efforts to the job they perform. A CTB depot cannot run efficiently unless the mechanics, bus crews and supervisory staff do a good job of work. Effective participation of workers is imperative to the achievement of the best possible results.

Successful co-ordination of work is of utmost importance for the efficient administration of an organisation. Every department or unit should work in harmony with the rest of the departments, i.e. Mechanical Engineering Division should provide the required number of buses and maintain these buses in a sound condition. Operations Division should run the buses getting the maximum utilisation of the vehicle and the Division of Supplies should supply the necessary items at the right time. Thus, every section and department should perform its allotted role. Water-tight compartments between sections would only undermine the proper utilisation of the limited resources.

Paying enough attention to fundamental matters and problems

The Manager's function in general is to direct the operation of the organisation on the lines conducive to the attainment of its objective. Any problems or bottle-necks which have a bearing on the attainment of these objectives should be considered as fundamental. The Manager who is unmindful of the problems facing his depot and who fails to study, analyse and take remedial action is failing in his role as a Manager. It is the Manager in an organisation who carries the maximum responsibility and therefore faces the maximum challenge. As such, he must find ways of using his time most effectively. He has to play a more active role as an overall controller and must divest himself of routine work, for this is necessary to free his time for problem solving and decision making which are inseparable functions of a Manager.

Lack of Creative Thinking

Especially in the Public Sector, we often come across Managers who think their job is to "let things happen". Managers of this type hardly allow enough time to think and act creatively and constructively. The success of a plan or the achievement of the objective rests on the successful administration by the Managers. In the process of management of a depot, the Manager can adopt any new methods to clear up bottle-necks in the day to day operations. He could and he should think of various ways and means of improving the internal efficiency. He must evaluate his own performance and take remedial action.

Management is a Science but it is an art as well because the degree or results achieved vary with the personality of the Manager. Success depends not only on the theory or the technique but on how it is practised or applied. The Manager who builds up good human relations with the workers and create a desire in them to give their willing co-operation would achieve good results.

Credibility

Another important feature in the proper functioning of an organisation is the confidence of employees in their Managers. Instructions to the lower rungs, defining their share in translating the plans of the organisation into meaningful goals, flow from the Chief Executives of the depot. Therefore, they have a right to rely on the Manager.

On the other hand the confidence of the employee in the Manager is of paramount importance because the motivation or willing co-operation of subordinates is to a great extent determined by this relationship. As such, unquestioned fair play and objectivity in dealing with subordinates is of great importance. Further, a Manager must take the responsibility for the consequences of the actions of his subordinates. Appreciation of good work of the subordinates will not only give them job satisfaction but also encourage them to do better work leading to greater efficiency of the organisation.

Giving Opportunities for the subordinates to train themselves

The practice of tying down subordinates to one particular job for long periods is an indication of the fact that Managers are ignorant of the benefits which an organisation obtains in the long run by rotating them in various duties. Every opportunity should be given by a Manager to subordinates to train themselves in all aspects with a view to developing their skills and for qualifying themselves for promotion. Hence, internal training programmes at depot level is of great significance both to the employee as well as to the Management.

Failure to delegate and to delegate effectively

Delegation is the transference to others the power and the responsibility for the performance of a specific task or for the making of a decision. Proper delegation is fundamental to the efficient functioning of an organisation. This would free the Manager's time to deal with more fundamental matters, ensure a fair and even distribution of work load, encourage and develop the ability of subordinates and also to train subordinates in higher levels of work, thus providing capable successors to fulfil future needs. In any delegation it is necessary to entrust a job of work to the most suitable person for that specific job. Also instructions should be given clearly with the necessary facilities provided. It is also necessary to keep a control of the work while it is in progress. Desired, results could be achieved only by proper and effective delegation.

Decision making

Management is always a decision making process, because whatever a Manager does, he does it whether knowingly or unknowingly through decision making. A good deal of the time of a Manager is spent on decision making. Majority of these decisions are routine or of a tactical nature which accomplishes a desired end with a minimum of effort. Important decision which affects the productivity or which will bring about a significant change in the situation can be called strategic decisions.

Decisions making is a system and rational process of defining and analysing a problem, developing alternative solutions and eliminating them until a best course of action (solution) remains. Another prerequisite in the successful administration is the compatibility of decisions taken in various sections at various levels without which maximum results can hardly be achieved.

Are the CTB Managers good decision makers in the true sense of decision making? Are we finding the right problem defining the problem, analysing and classifying the problem? Are we searching for and developing systematically the possible alternative

course of action and trying to determine the best course of action? More often that not our decisions are based on incomplete knowledge. It is dangerous indeed to jump to conclusions with little knowledge, experience or insight. Apart from this, some of us believe, that we can find a problem by delaying a decision or by not giving any decision at all. All these weaknesses at any level of Management are serious deficiencies, inimical to the organisation's progress.

As regards decisions at managerial level "the fine art of Executive decision consists" according to C. I. Barnard (the Author of "The Functions of Executive") "in not deciding questions that are not now pertinent, in not deciding prematurely, in not making decision that cannot be made effective and in not making decisions that others should make."

The right solution to the right problem at the right time will only help.

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ඉවතලන කුඩා කඩදාසි කැබලි එකතු කරන්න

රාත්තල ගත 15 යි.
ටොන් එකක් රු. 336 යි.

පහත සඳහන් අපේ මධ්‍යස්ථානවලට ඔබේ කඩදාසි තොගය නොපමාව භාර දෙන්න

- 61, ස්ටැෆ්ට්ඩ් මාවත, කිරුලපන, කොළඹ 6.
- 387, වෙල්ස්කුමාර මාවත, කොළඹ 14.
- 419, ගාලුපාර, රත්මලාන.
- 147-149, ග්‍රැන්ඩ්පාස් පාර, කොළඹ 14.

ලොතරැයි වාසනා

හදවන කුළ මල් හිනාව මතුකර ගෙන්ගෙට සිරිකත මිණි ඉල්ලම බිහි කළ ලොතරැයි	ගෙනාව වාසනාව
ලොතරැයි පත සත පතහකි - ඔබහට එය සුඵ පැරදුනමුත් එය දිනුමකි - රට ජාතිය රක	මුදලකි ගැනුමකි
රෝහල්, ඔසු, අද්‍යාපන කටයුතු පොඩි ලොතරැයිසෙන් වැඩි මුදලක් ඒ වෙනුවෙනි	දරුවන්ගේ යෙදවෙන්නේ
ඔබෙන් ලැබෙන සුඵ මුදලට ඔබටම යළි දිනුම් රට වැඩුමට හා රැකුමට රජයට එමගින්	ගොඩකි දිරියකි
ඔබගේ රට ඔබේ හදවත වැඩුමට මුදලක් දහස් ගණන් රජයට හැම වතාවකම පිරි	යොදන්න නමන්න
හදවනකට පවත් සලන මිහිරෙන් මත්වුණු මග පෙන්වයි ලොතරැයි පත නව නව ඉදිරිය	කෙනකුට දකුමට
සැප සම්පත වාසනාව - පොදි බැඳ ගෙන්ගෙට සිරිලකටම කිරි උතුරනු ඇත ලොතරැයි	ගෙනාව වාසනාව

- ජාතික ලොතරැයි මණ්ඩලයේ ප්‍රචාරක සේවයෙහි දැන්වීමකි

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