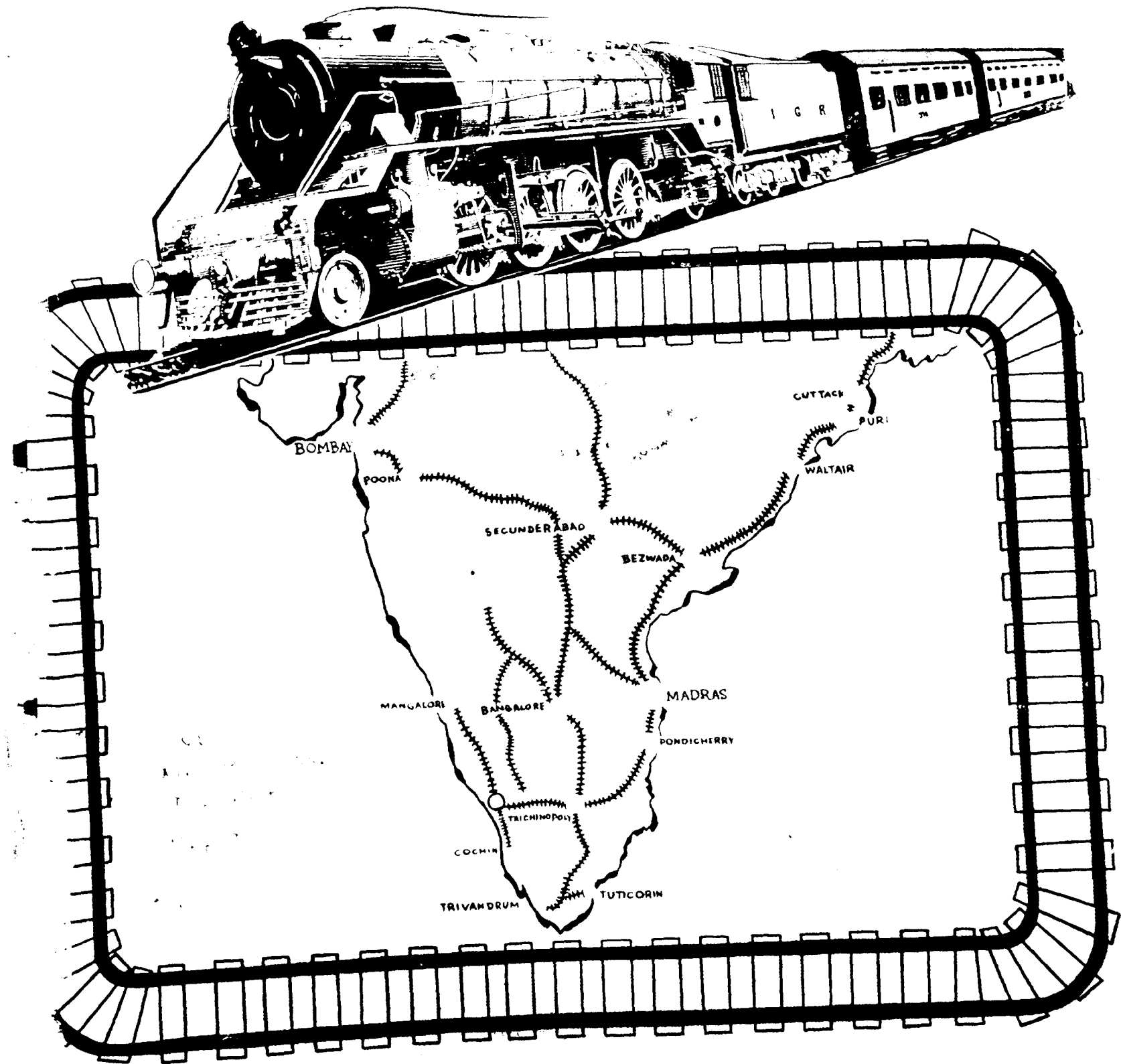


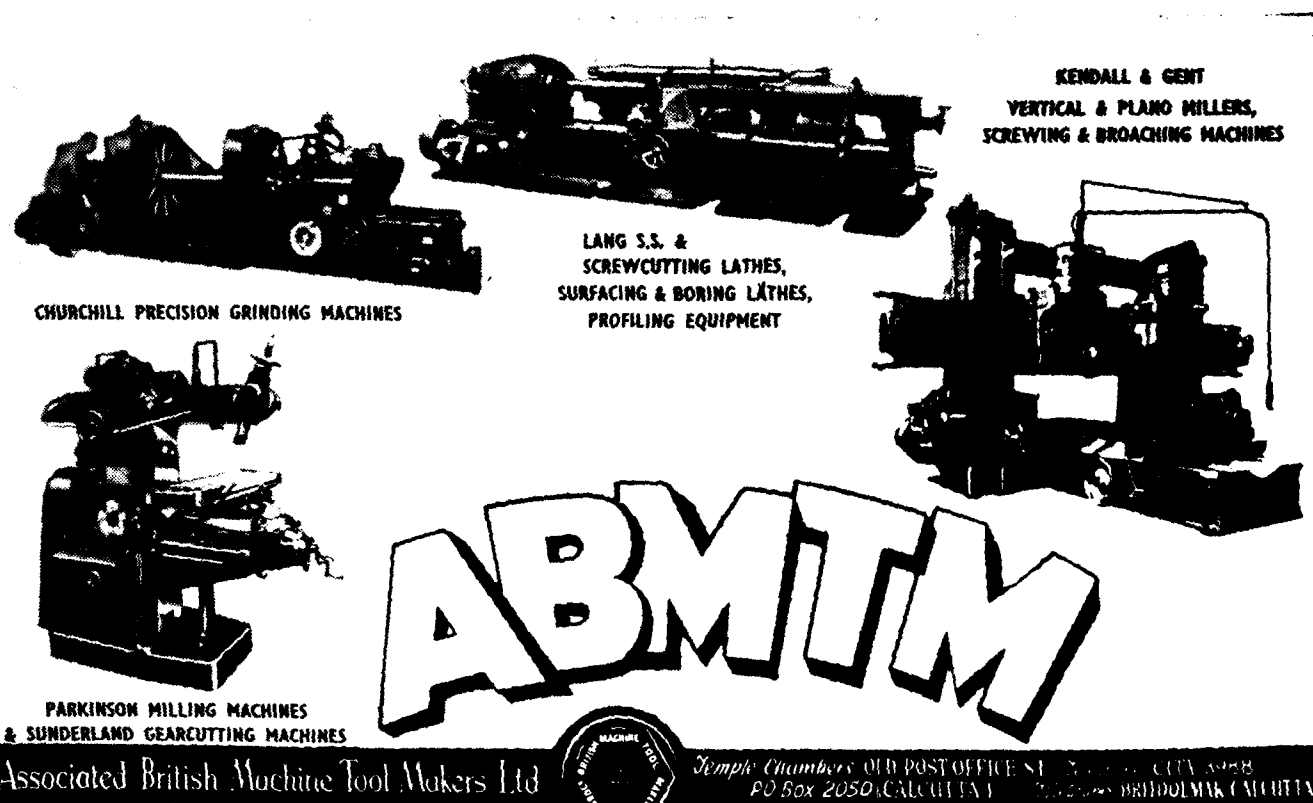
SOUTHERN RAILWAY

DEC - 1953



SOUTHERN RAILWAYS *Magazine*





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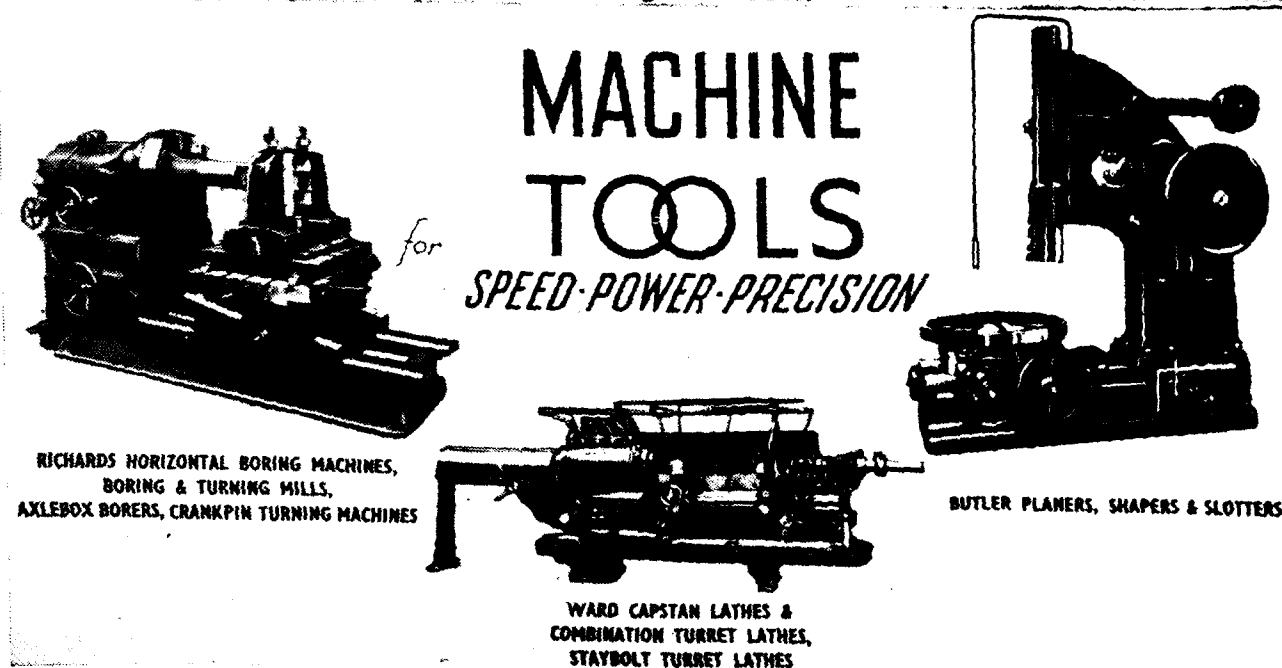
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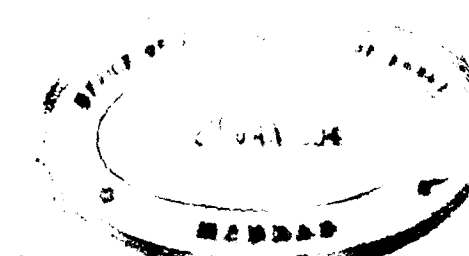
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CONTENTS

	Page
1. EDITORIAL	5
2. NOTES AND COMMENTS	8
3. SRI KARNAIL SINGH	10
4. OUR LONDON LETTER	13
5. SIGNALLING AND INTERLOCKING	17
6. INTEGRATED INDIAN RAILWAYS—WHAT IS WRONG WITH THEM? (III)	22
7. ROAD COMPETITION (V)	26
8. MACHINE TOOLS IN THE FAR EAST	29
9. ONE NIGHT IN THE MARSHALLING YARD	31
10. COGS IN THE WHEEL—V	34
11. PRECIOUS STONES	35
12. ELECTRIFICATION OF RAILWAYS	38
13. ALL-INDIA PHILIPS RADIO AND LAMP CONVENTIONS	43
14. A PROGRESSIVE PERSONNEL POLICY	46
15. RAILWAY DEPARTMENTS—"THE MEDICAL DEPARTMENT" (IX)	47
16. INDIAN ELECTRICAL MANUFACTURERS ASSOCIATION'S SIXTH ANNUAL MEETING	56

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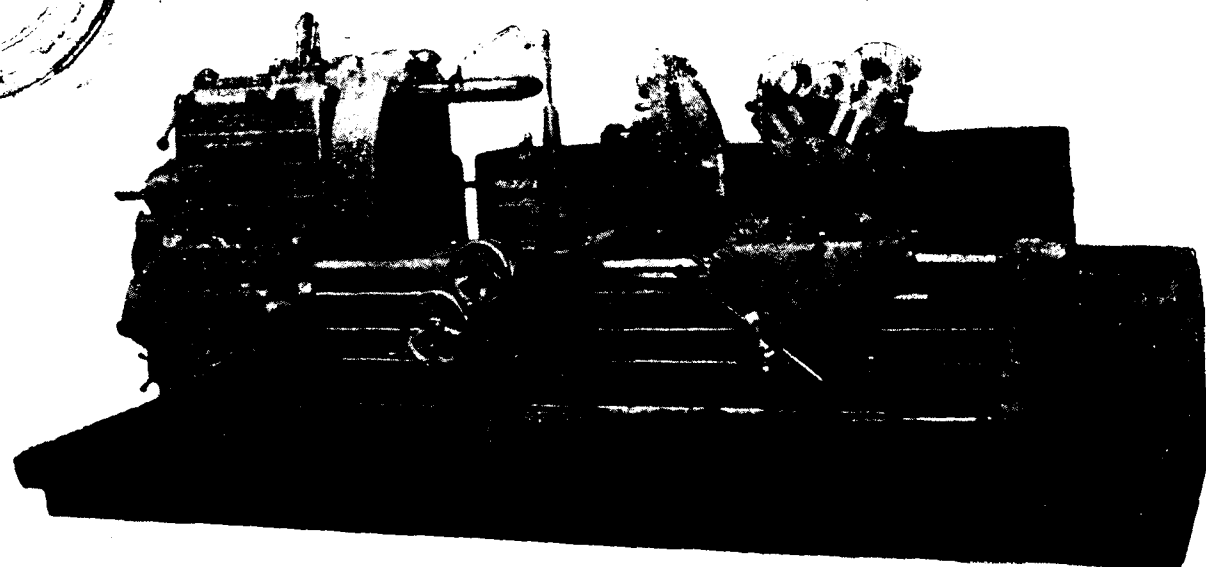
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SOUTHERN RAILWAYS MAGAZINE

VOL. V
NO. 6

DECEMBER

ISSUED
MONTHLY

"DRIVES FOR RESULTS"

DURING recent months Railway administrations have conducted three 'drives' or campaigns. The first was a 'Courtesy Week' from October 2 to October 9th; the next was the "P. L. M. Week" (the letters P. L. M. being the code abbreviation for "Pack, Label, Mark") from December 1 to December 7, and finally a "Cleanliness Week" from December 14th to December 21.

The "Courtesy Week" was apparently an all-out reminder for all railwaymen, and more especially for those whose jobs brought them into frequent touch with the travelling public, to be polite in their dealings with this enormous travelling public, as well as to be specially careful in their conversational approaches and exchanges. The polite phraseology of whatever language it was necessary to use had to be carefully chosen so as to give the public the impression that the railwayman was a man of charm and courtesy. Railwaymen were also exhorted to 'wear a smile', go out of their way to help anyone who sought assistance, take a genuine interest in redressing the complaints or grievances of passengers, and be particularly considerate to the third class traveller.

The "P. L. M." campaign had as its objective the education of the merchants and traders to be more thorough in the packing, labelling and marking of every consignment brought to a railway goods or parcel office for transit by rail. Obviously, a drive of this nature is to help reduce the incidence of consignments which may be damaged, misdespatched or lost while in rail transit, and thus relieve the railway administrations of a considerable burden in investigating, paying or refuting claims. The advantage to the trading public is that his goods reach destination and the consignee safely, quicker and intact.

Finally, there was the "Cleanliness Week" when the call went out to all railwaymen to clean up tracks, platform surfaces, station offices, parcels and goods sheds, waiting rooms and waiting halls, including the lavatories and latrines attached to these bathing sheds, public conveniences, with the liberal use of disinfectants, station yards, drinking water receptacles, the inside and outside of all passenger coaches, and practically everything which is used both by the railway passenger and the railwayman. In addition, the drive included railway station colonies, houses and dwellings of railway staff, the various office buildings and offices, even down to the arrangement of files and desk and table appurtenances.

Now what are the reactions to and the results of such drives. A 'courtesy' campaign which has been given wide publicity, and well in advance, more often than not produces a marked critical attitude on the part of the travelling public towards the railway staff. Thousands of people who will have recourse to use the services of a railway during a 'courtesy week' will expect to be treated with almost a super form of courtesy and service. If the railwayman in his dealings with a passenger or merchant falls short of the high standard expected, he is promptly the subject matter of a grievance or complaint. Even ordinary courtesy and service rendered by him is often considered as a lapse. The results of such a campaign may be somewhat dubious, as because of the attention focussed on courtesy and service, complaints instead of coming down, may go up, and appreciations of any good service given may never come to light.

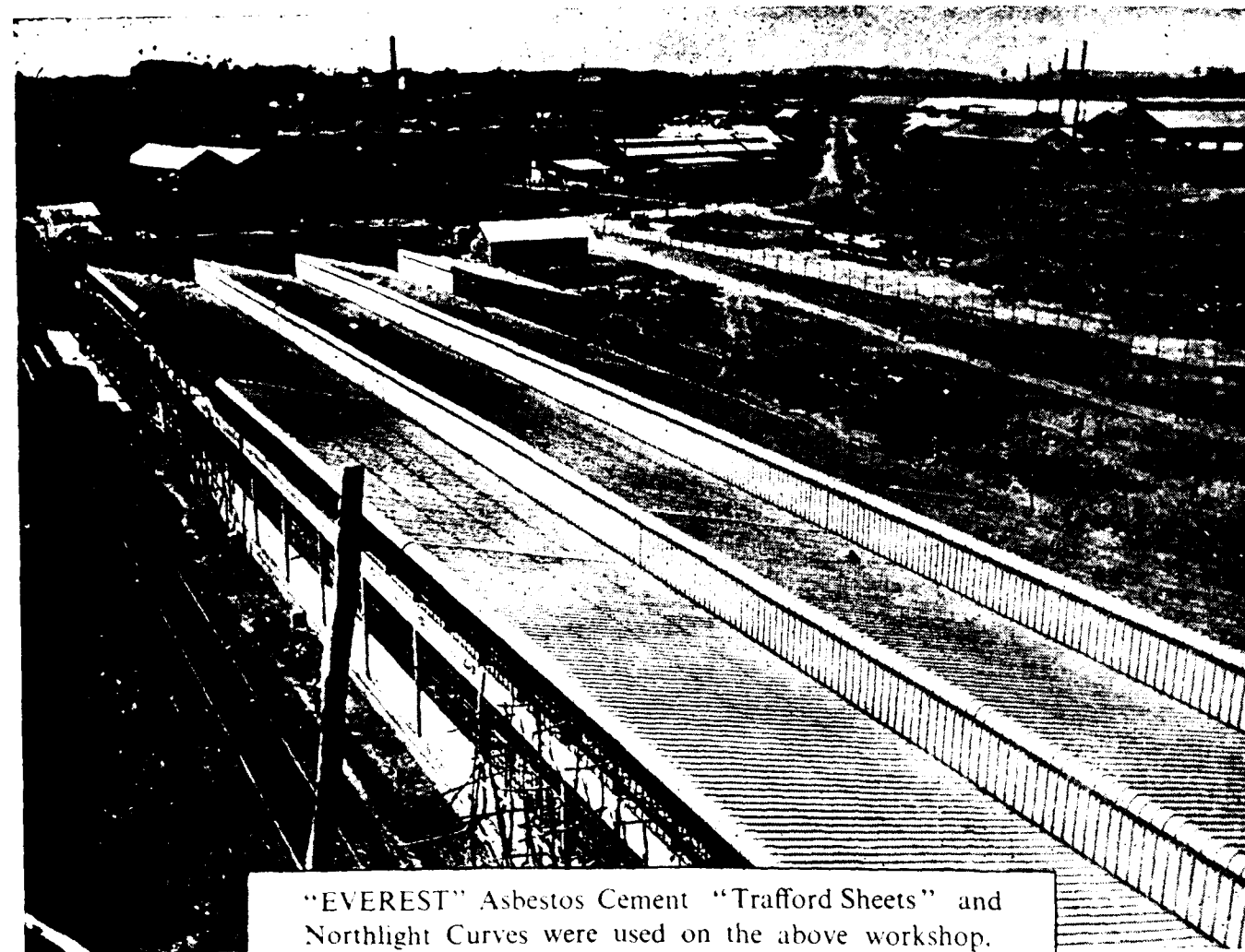
A "P. L. M." drive perhaps is a timely reminder for the trading public to be more careful in tendering their goods for despatched securely packed and clearly labelled and marked more for their interests than for that a railway administration. The complacency of the railway staff in this context rises mainly from a too-easy acceptance of goods tendered without insisting that the prescribed conditions for booking are strictly observed.

A drive for cleanliness, like that of a courtesy drive, has a tendency to make a railway-using public extremely critical, and again pin-points attention more on the defects of the administration. The day-to-day work of a vast railway system often has to be done under conditions where dirt and litter accumulates faster than these can be cleaned up, especially in large junctions and terminal stations where thousands of passengers pass through each day, but in spite of this, the regular staff employed for such purposes are more or less able to keep station platforms and concourses and waiting halls tolerably clean.

Drives or campaigns to achieve certain desired results are no doubt necessary when properly timed, but to launch such drives periodically to achieve an intensification of effort in certain aspects of a railwayman's normal routine duties is almost a confession of an entire organisation lapsing into a state of complacency, with a consequent relaxing of effort to maintain efficiency of the required standard. Where and when such a state of affairs has been revealed and patently calls for an intensified alertness and effort, perhaps the same results can be achieved without acquainting the public of what is being done by an advance publicity campaign. Obviously in a public utility service when additional or better amenities are to be provided, advance publicity is called for, but not to attract the hyper-critical attention of the public to what may be a relaxation in maintaining normal standards of efficiency.

A man of such firmness and other abilities as a statesman ought to have, should always have the common concern in view, and look upon his private accidents or business as considerations much inferior to the public. In consequence of which, he will be much more careful to maintain his dignity than actors who personate kings and tyrants; and yet these, we see, neither laugh nor weep according to the dictates of their own passions, but as they are directed by the subject of the drama.—PLUTARCH.

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NOTES AND COMMENTS

OUR GM'S MESSAGE TO ALL OPERATING STAFF TO AVOID ACCIDENTS

THE following message has been addressed by our General Manager to all Operating Staff (Transportation, Traffic and Power) to avoid accidents.

"There have recently been a number of serious accidents, one of them with serious loss of life. The good name of our Railway has been marred. The public and the Press are very critical.

Most accidents are due to negligence and or breach of rules. We carry millions of precious lives and millions worth of goods. We cannot afford to be negligent or ignore rules for safe working in any manner.

Slackness and lack of a sense of responsibility on the part of any staff, particularly those connected with train

working, can be dangerous and has therefore to be eradicated at all costs.

Already, in proves cases, those responsible for accidents are severely dealt with. But punishment itself can achieve little unless the persons concerned realise the seriousness of mistakes and take a resolve to avoid such.

From now on, for each month, a brief summary of the more important accidents due to negligence slackness, deviation from rules, etc., will be published bringing out clearly the cause of the accidents, the damages resulting from the accidents and wherever possible, the lapses on the part of staff which led to the accident. It is hoped that the staff will take careful note of these and try to improve themselves.

All staff concerned are earnestly requested both in the interests of the public and themselves to pay greater attention to rules and avoid all slackness. We have to regain our reputation for safety in travel and this can be only possible by the joint effort of all staff.

* * * * *

OUR FA & CAO OPENS RAILWAYMEN'S CONFERENCE

The Tenth and Eleventh Annual Conference of the Southern Railway Employees' Union, New General Offices Branch was held in the beautifully decorated Memorial Hall in Park Town early this month. For the first time in the history of the Trade Union movement such a large attendance of class III employees was seen in a conference which told in plain words that the middle class who suffered so much for the freedom movement and who are being exploited are not prepared to sit idle. The Hall was packed to the full and the bright faces of the young clerks and anxious faces of the Old senior men revealed that they will join hands to bring about an improvement in their conditions. Nice placards depicting the immediate problems such as "confirmation, House Rent, Pre-1931, Fifty percent higher grades" were displayed neatly and it showed the capacity of the organisers particularly the enthusiastic Secretary of the Branch Mr. Narayanasamy.

It was in the fitness of things that a patriotic Indian Head of the Department opened the conference. We mean Shri S. Ramayya, M. A., I. A. & A. S., Financial Adviser & Chief Accounts Officer, Southern Railway. Loud cheers greeted him when he entered the conference

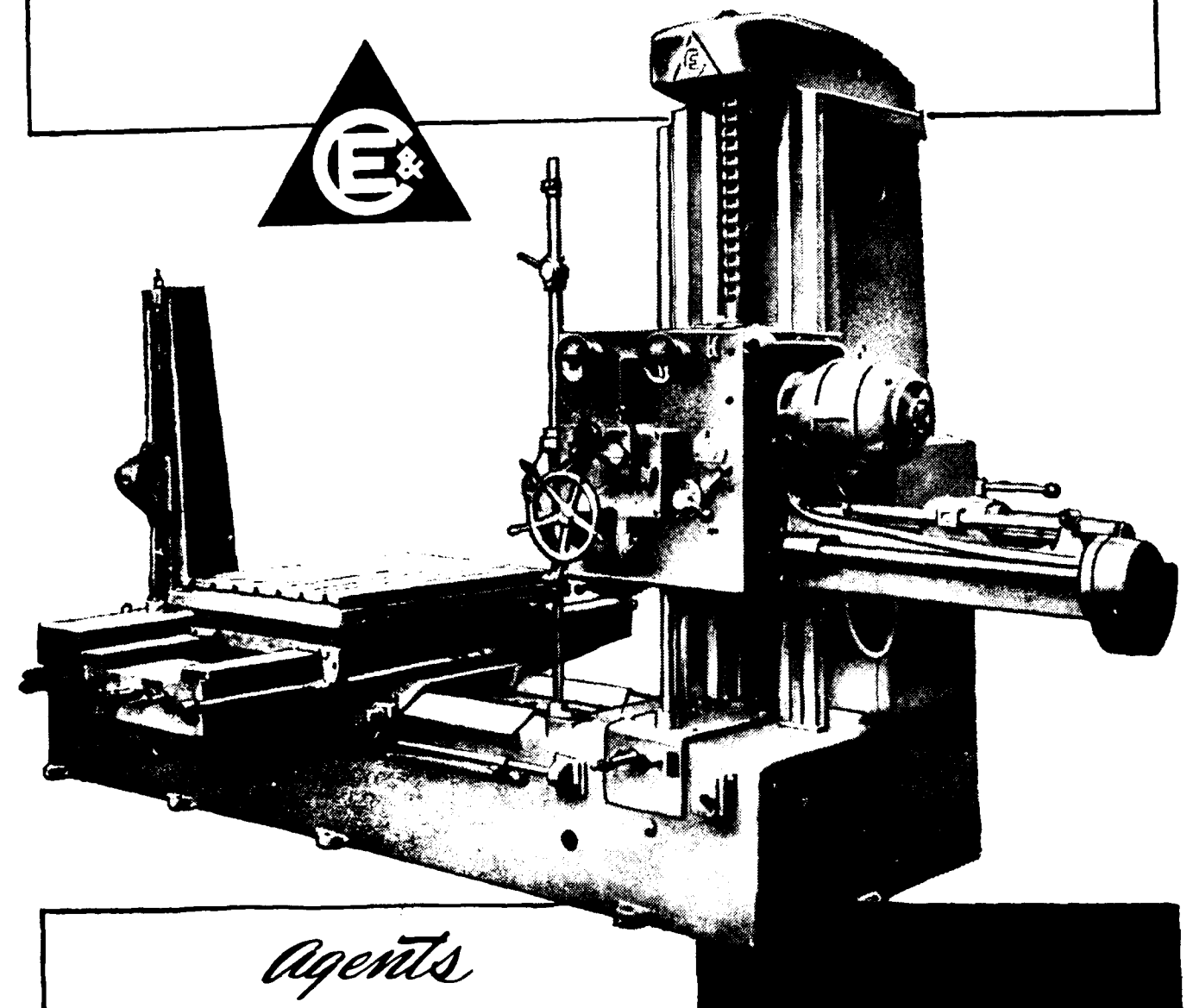


Sri T. A. Joseph.

(Continued on page 49)

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IN THE GALAXY OF RAILWAYMEN—V

SRI KARNAIL SINGH

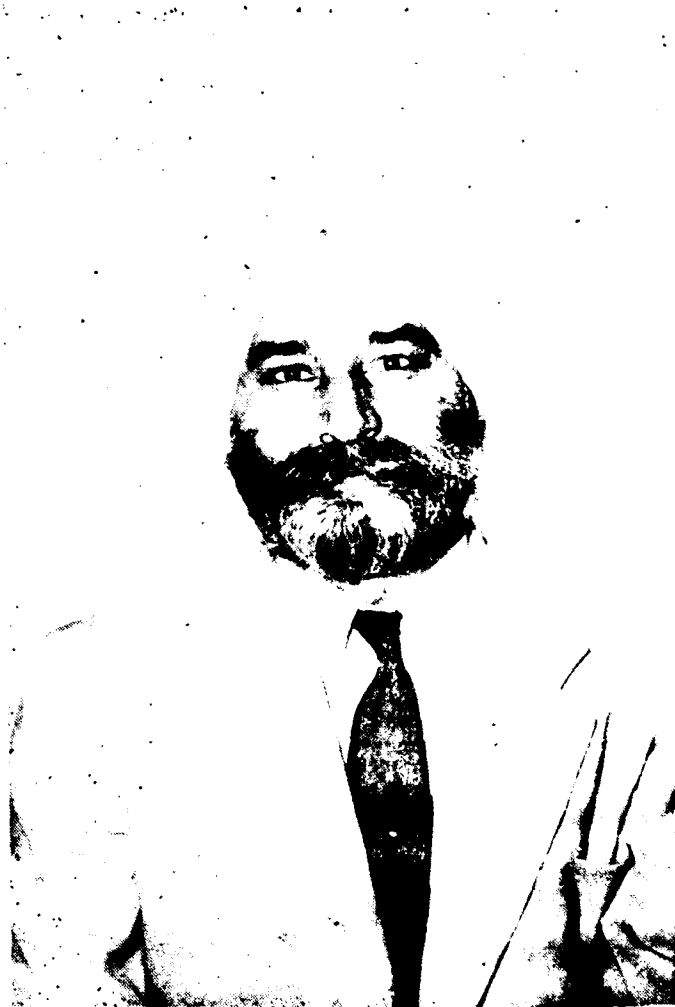
By Socrates

THE partition of the railways had come to pass. With it a portion of the strategic area of the Assam Bengal and Darjeeling-Himalayan Railways had gone to Pakistan. The link between the hill tracts of the North Eastern India and the direct route to Darjeeling had disappeared. It was necessary to re-establish some sort of a connection, and so, the authorities in power thought of a quick method of regaining communication with lost areas. The result was the project that is popularly known as the 'Assam Rail Link.'

It was in the literal sense of the term a 'link', i.e., a chain that connects two ends of tracts and opens up direct communication between the two. Having decided upon the project, which, it was very essential should be accomplished within the speediest time possible, there was a hectic search for a person who could be commanded to carry it out.

Luck favoured Karnail Singh, the intrepid Engineer, who had till then not reached the highlights. He was a 'plain' and 'simple' Engineer on the North Western Railway where he had, of course, carried out certain jobs of engineering skill, and if he had been chosen for the Assam Link Project, it was not because of the eminence that he possessed, but because he was readily available and from all accounts was considered to have the necessary stamina and determination to achieve something 'huge'. Moreover, he was used to the terra firma of the North Western India, and so, if he was transported to the North Eastern part of India, he would equally acclimatise himself to the new surroundings, and—who knows he may not make history?

History he did make for within the record time of less than two years, or to be precise, exactly two years from the date of planning, he completed the Assam Link Project and opened it to public traffic. He had to begin with scratch. It was a feat which could not ordinarily be achieved in the peculiar circumstances of the country and the conditions then prevailing. It must be remembered that the period was one of confusion worse confounded; planning there was very little; the whole thing had been conceived in haste; budgeting had, of course, been provided for; stores had to be procured at high cost and transported to the site, and engineers had to be marshalled to complete the scheme. But for the intrepid manner in which Karnail Singh tackled the job with his innate courage

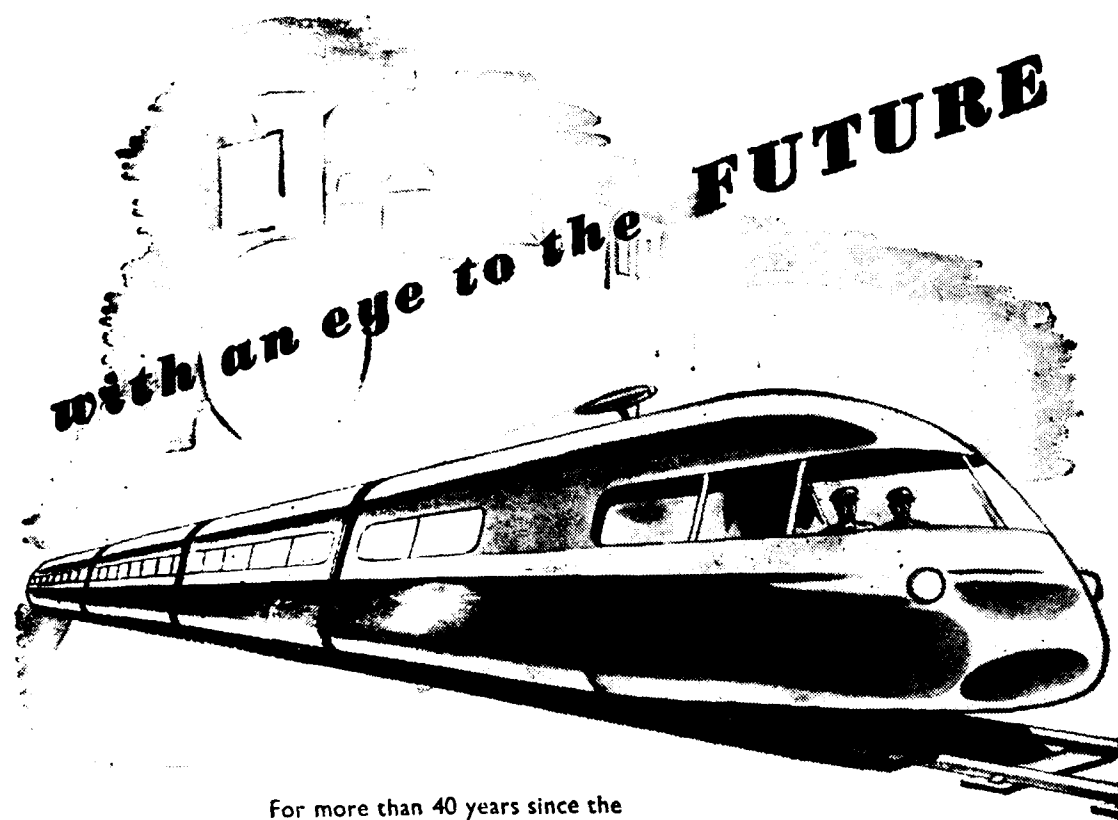


Sri Karnail Singh.

of a punjabi and the physique of a mountaineer, he could not have achieved the success that it was.

Luckily, he had a band of enthusiastic assistants whom he had chosen for their enduring patience and trustworthiness—friends and not 'officers' who, like him, had been moved out of their earlier habitation from the North Western India. Thus all signs were in his favour, and I doubt, if it had not been for Karnail Singh, no one else, either from the plains of Bengal or of Madras, would have accomplished this herculean project.

Difficulties there were plenty to be overcome. The vastness of the project can be gauged from the fact that within the small compass of 143 miles of route as



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many as 379 bridges had to be built; 7,000 tons of steel fabrication had to be erected; 25,000 tons of cement had to be consumed; and 20,00,00,000 cubic feet of earth had to be moved; and 2,00,000 tons of materials had to be reached to the site of the construction; the whole project costing 8.5 crores of rupees. All this meant time, patience and unceasing labour, and Karnail Singh, when he wired a message to the headquarters to say that the Link was ready for opening, received an ovation which it is usually not the lot of many.

Having thus achieved success, it was a problem as to how to recognise his talents, and in what formal shape it should come through. A time lag was needed and Karnail Singh took a good holiday to gather strength of mind and nerves—I won't say recoup health for he had not lost it—rather he was in the pick and brim after his Assam sojourn. But soon after he was summoned to hold charge of the Northern Railway on its inauguration in April 1952. Who else could have been chosen for that eminent place of honour—and of responsibility? Had he not given sufficient proof of his talents, and, had he not demonstrated what could be achieved given will and determination?

As General Manager of the newly formed railway, Karnail Singh did not rest on his 'oars', and so he toured round his 'little world' and made it a point of knowing personally every one, or as many as possibly could be managed, of his officers, assistants, and staff, if I may say so, for he belongs to one of those people who believe in 'personal' touch with the staff, and not remain within the four walls of the 'cubicle' issuing

'ukasees' from time to time. His manner of conversation—he is fond of speaking in the vernacular—the impressiveness of his personality, are secrets which earn for him the unstinted support and co-operation from all. To the onlooker he would not impress as the 'high personage' that he is; a friend who had not met him before, but chanced to cross him over the staircase, asked whether he was really the boss of the railway, for, he (Karnail Singh) had been seen in a simple attire with the Sikh turban on with the beard trimmed nicely and tied. His unostentatious talk is always entertaining. But once seated in the chair of authority he would forget personal relationship and judge matters purely on merits. Forgetfulness is not a word to be found in his dictionary and he would cherish with grateful remembrance an intimate personal conversation. Conviction converted into courage is the chief weapon in his armoury.

Like the Eastern Railway, the Northern Railway also had to face certain peculiar difficulties as a result of the regrouping. The biggest marshalling yard in India, Moghalserai, which had previously remained in the East India's wing was dismembered and jointed to the Northern wing and the resultant confusion that set in for a time in the wagon turnover had to be carefully got over. This matter received Karnail Singh's personal attention and he managed to tide over the 'knot', but he is convinced that eternal vigilance is necessary.

Work is a pleasure with him and he does it without the consciousness of it; that is a great virtue which the ordinary railwayman in India has to learn from him.

BUILDING AN EMBANKMENT BY BLOWING IT UP

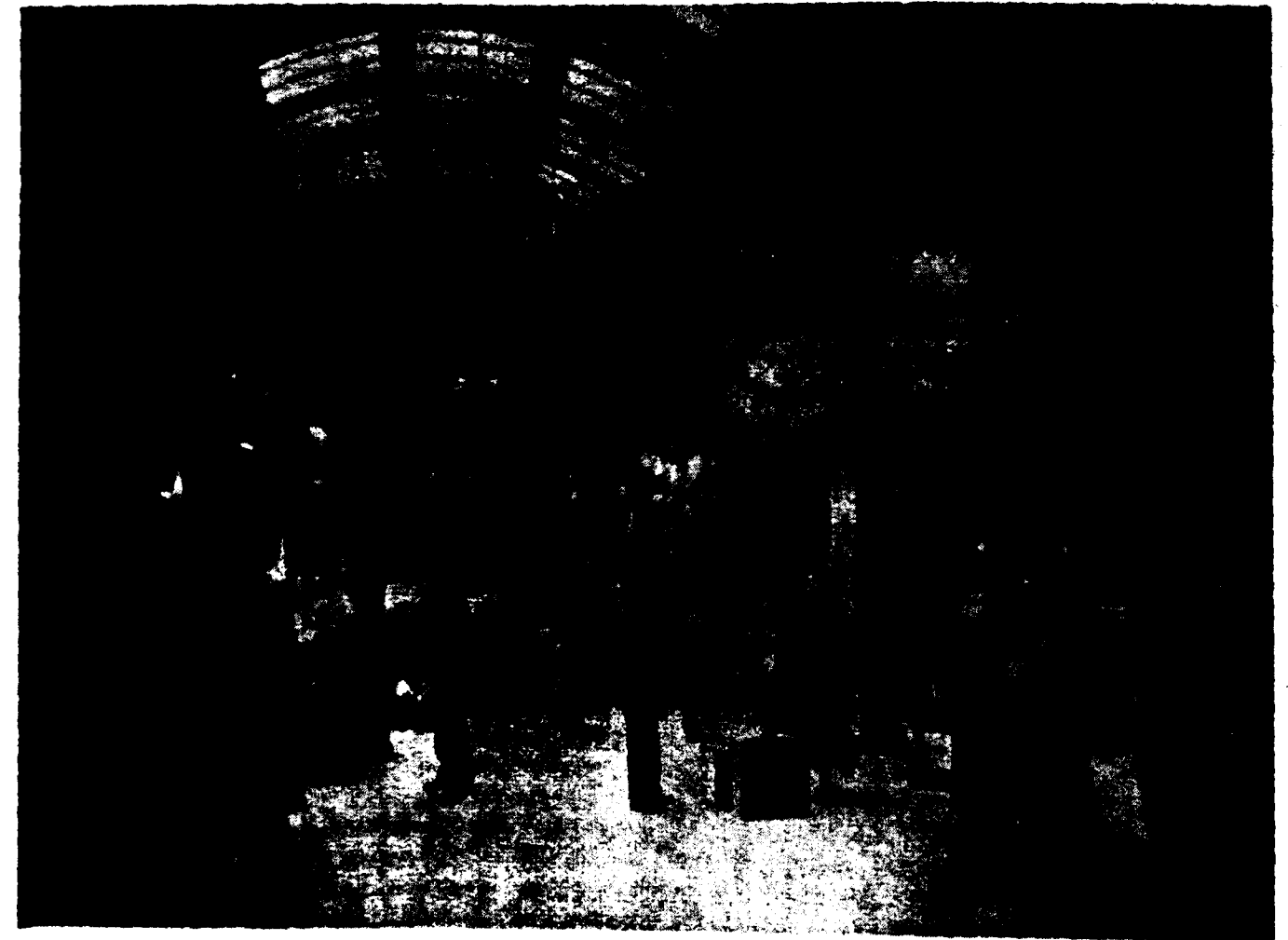
Hungarian railway engineers are employing a novel method to build a railway embankment across marshy ground from near Sukoed towards Baja, Southern Hungary. They do it by piling sand on top and then blowing up the marsh. The 650 yard embankment had to be built on ground consisting of a top layer of seven feet of peat, with more than 30 feet depth of soft muddy earth below that. Below that was firm sand. A heavy vehicle would sink to its axles, so it was necessary to make a complete change in the soil composition right down to the sandy layer. But to shift even the 230,000 cubic metres of unstable ground without mechanical help would take 100 navvies a whole year. So the engineers worked out the following method. Seven thousand cubic metres of sand was dumped on the first test section of the line of the projected embankment. It sank over five feet, compressing the peat layer. Then the peat layer was broken by explosive charges and another two feet subsidence

was achieved. Finally shafts were drilled 36 feet down into the soft soil area, explosive charges were detonated in them, and the whole mass settled another nine feet, giving a completely firm embankment. Owing to the mass of material above, the explosive effect was outward into the soft soil instead of upward. Having successfully tackled the first section, the same method was repeated along the line of the embankment. But getting the required 500,000 cubic metres of sand to the spot was itself a problem, owing to the nature of the ground. It was solved by building a sand pipe-line. Using a powerful "water gun" a sandbank is broken up into sludge which is carried away in pipes to the embankment. The embankment is divided up into square sections forming settling tanks into which the sludge is piped. There the sand settles to the required thickness, and then the retaining walls are removed. Using these methods 30 navvies and 12 mechanics are doing the work of 200 men daily.



THE Christmas season has come round again once more and with it the attendant rush of postal traffic, the trains crowded with passengers going to spend the holiday with their friends and relations and the gay decorations which appear not only

in private dwellings and shop windows but also at the railway stations themselves. British Railways have recently started the policy of making their stations bright and attractive for the festive season and the London terminals and important junctions at other



Christmas decorations at Euston Station, British Railways, London.



Mechanical plough, showing parcels on the glasis.

parts of the country are adorned with Christmas trees and associated decorations and even Santa Claus himself. Carol singing, on an organised basis, is permitted at stations for the entertainment of passengers waiting for trains.

The London Post Office system is said to be one of the most efficient in the world and it certainly needs to be to cope with the enormous increase in mail that occurs every year at Christmas. 350,000 men, women and youths are kept busy by the General Post Office all the year round and to this band of workers are added 100,000 more every Christmas to help with the extra traffic. There is never any difficulty in recruiting this temporary staff and often they are persons who have worked on Christmas traffic in previous years. Before the Christmas season there is a constant rush and this is known officially as the pressure period. There is high pressure in the sorting offices, a rush at the railway stations where mountains of mail bags are piled on high; the telephone exchanges are busy with friends exchanging

greetings; the telegraph offices are overworked dispatching and receiving the season's greetings; post office vans, packed to their utmost capacity, rush from place to place; post offices are packed with people buying stamps; everything is done at high pressure but there is no disorder.

Christmas is the high tide of the year for the British Post Office as the season of goodwill approaches. There is a mounting growth of all classes of Christmas mail from Great Britain to places all over the world. Months before Christmas the post office is handling Christmas mail for overseas. The public are warned to post this type of mail early and they respond generously to this type of request. This traffic is, however, comparatively small compared with the avalanche of home mail which will follow.

Special arrangements are made to deal with the Christmas postal traffic. These include the setting up of a central control at postal headquarters with subsidiary control centres at nine regional headquarters. This organisation is in operation day and night until the 'all clear' on Christmas Day. During the rush period the central control is in communication with the regional centres and large sorting offices and is this in close contact with the progress of the work and can deal with any emergencies. The Post Master General receives reports from the central control twice daily and this continues until the completion of delivery on Christmas Day.

The busiest centre of the British Post Office is at Mount Pleasant. This is situated just off New Oxford Street and it is one of the largest sorting offices in the world employing about 8,000 persons. This organisation functions for 24 hours a day seven days a week sorting the inland Christmas mail and putting it into the proper receptacles for transmission to all parts of the country. Here millions of Christmas letters are handled with surprising dexterity by young and old alike, in perfect order.

Mount Pleasant has its own underground railway station and this is situated about mid way on the six and a half mile of underground railway connecting all the district sorting offices from Paddington to Whitechapel. This deep level electric railway is entirely automatic and carries thousands of mail bags every day removing congestion from the streets above. This unique railway has no counterpart in any other place in the world and it has an annual car mileage of 1,500,000 miles. No manual labour is employed on the trains the work of driving and directing them being done by the signal

cabins. This railway attracts some 18,000 visitors every year.

Some idea of the volume of inland work undertaken by the British Post Office at Christmas may be seen from the figures given below for one particular period in December:—

Letters posted at Provincial offices 391,000,000

Letters posted in London 120,000,000

This comes to a total of 511,000,000 letters which means:—

Weight in tons	8,800
Full mail bags	493,000
Motor van loads	8,800
Parcels posted in the Provinces	11,800,000
Parcels posted in London	4,200,000
Weight in tons	26,700
Full mail bags	1,190,000
Motor van loads	26,700

In the month of October there is a substantial rise in the volume of mail for every part of the world. In the year 1948 the outgoing Christmas parcel mail amounted to some 375,000 bags equal to 90,000 motor van loads. This was about 40% above normal. In the reverse direction the incoming parcel mail received from mid November onwards amounted to 1,000,000 bags or 350,000 motor van loads.

Many of these parcels come to grief and burst their wrappers due to insufficient packing. Mount Pleasant has a special place for dealing with these postal tragedies and it is known as 'Heartbreak Corner'. The broken and damaged parcels are required by special staff who work from morning until evening. The men and women employed here try to find out which article comes from which parcel and then make sure that they are properly secured and addressed.

During the Christmas traffic the postmaster General visits all the main postal offices to watch the progress of the work. It is also customary for the Lord Mayor of London and the Lady Mayoress, accompanied by the Sherriffs and their ladies, to tour Mount Pleasant a few days before Christmas to watch the sorting of hundreds of thousands of parcels.

A visit to a Postal sorting office on Christmas Day presents a different spectacle. There is nothing but long, empty benches, an eloquent silence and an empty stillness. The postmen have delivered the mail and are

off home to enjoy a well earned Christmas with their own families.

General Sir Brian Robertson has been appointed Chairman of the British Transport Commission in the new organisation abolishing the Railway and other Executives. Many must have questioned the wisdom of appointing one inexperienced in the science of transport. The decision having been made, the choice of an administrator of the calibre of General Sir Brian Robertson is gratifying in that it gives the new policy a fair chance of success. The only executive remaining under the new scheme is the London Transport Executive and Mr. John Elliot, the outgoing Chairman of the British Transport Commission has accepted the Chairmanship of this executive. By knowledge and experience he is in every way fitted for the task of controlling what the Minister of Transport has decided as the world's finest metropolitan transport system. Mr. Elliot is accustomed to the problems of what is known as mass transportation for the Southern Railway, of which he became acting General Manager, can claim credit for developing and operating the biggest suburban and inter-urban electric network in the world. Another requirement, stipulated by Mr. Lennox-Boyd in his recent statement in Parliament, was "a keen realisation of the views and feelings of the public on matters relating to daily travel. This qualification Mr. Elliot possesses in full measure, for in 1925, at the early age of 27, he left Fleet Street at the request of that great General Manager, Sir Herbert Walker, to take charge of the Southern Railway's publicity and advertising department when its public relations were at a low ebb.

So satisfactory were Mr. Elliot's efforts in restoring the railway to public favour that by 1930 he had become traffic development officer. Later, he served successively as assistant traffic manager until appointed General Manager in 1947 when Sir Eustace Missenden became first Chairman of the Railway Executive. There followed a period of valuable experience as Chief Regional Officer of the London Midland, with a strengthened justification for his selection as successor to his former chief when the Railway Executive chairmanship became vacant in 1951. He has accepted the presidency of the Institute of Transport for 1953-54. London Transport has excellent traditions which have been worthily held and in Mr. Elliot will no doubt be found those high qualities of statesmanship, finesse and organising ability possessed in such large measure by the pioneers of that system—Lord Ashfield and Mr. Frank Pick.

On September 4 a train travelling from Liverpool Street, London, to Ipswich (Suffolk) was steaming

through Bethnal Green Station (East London) when the carriages became uncoupled from the engine. The first coach was flung sideways over the platform and wrapped itself round a signal gantry. The second coach, a guard's van, slewed at right angles across the platform. The third and fourth coach were derailed but were not overturned. The train was composed of ten coaches but only four persons, who were travelling in the first coach, were taken to hospital with slight injuries. The reason why there were no other passengers in this coach was because black and white notices pasted on its windows read "Not for public use". Inside was an invalid on a stretcher suffering from an infectious complaint, his wife and two attendants. The engine driver said:—"I looked out and saw the coaches had fallen behind and were careering across the platform. There was a crashing roar as they went round the signal gantry. I've never seen anything like it before. It was a miracle no one was killed".

In the London Letter for December 1952 mention was made of the gradual abolition of the horses used by British Railways for their parcel vans being replaced by the modern mechanical horse. 1500 horses are still left but which are being gradually replaced by mechanical horses. Few people can afford to purchase these animals and as the British Railways could not afford to maintain them (for they eat a lot) there is nothing left for them but the slaughter house. Some of these horses are rescued by kind hearted people who subscribe to animal welfare societies so that they can buy them. They are then sent to spend the rest of their days in the country. The younger horses are fit for further service and could be used on farms but here it is a question of money for the average price is £60 each.

No difficulties deterred one Manchester widow who wanted to save a horse. She fell in love with a railway horse named Richard when she saw him in the street three years ago. At week ends and holidays she used to visit him at the railway stables in Manchester with carrots, apples and lumps from her sugar ration. Richard, aged ten, is redundant but the widow has already raised a fund of £41 among her friends towards the £60 needed to save him from slaughter. This lady said:—"If I can't raise the rest of the money in time the Humane Education Society has promised to lend me the balance and I'll pay it back as soon as I can". So Richard will go to a horse's home in Carlisle but the fate of the remaining horses remains a pathetic question.



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SIGNALLING AND INTERLOCKING

By H. C. Towers, M. I. E. E., M. I. R. S. E., M. Inst. T.

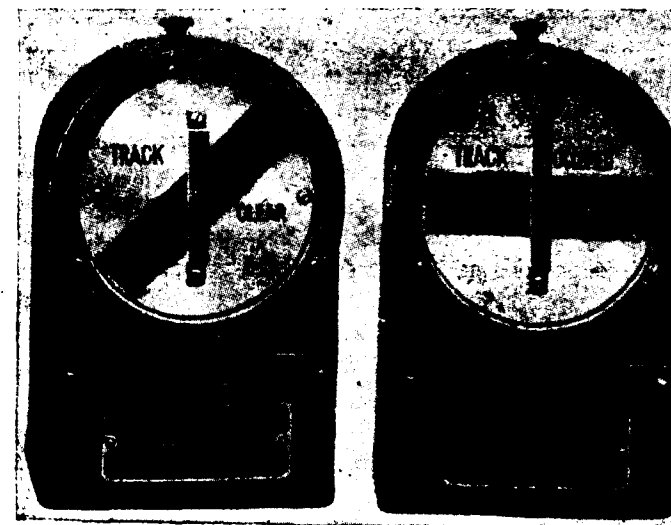
Chapter 12. The Track Circuit

THE track circuit is the most accurate device yet introduced for detecting the presence of a train or vehicle. It is by no means a new idea having originated in England in the late sixties. The first track circuit was installed at Crystal Palace Station by Mr. W. R. Sykes, who had started the well known firm of Messers W. R. Sykes Interlocking Company which is still in existence under that name. The idea was not a success but later it was introduced in America in 1879 while a Dr. Robinson patented a method of track circuiting in England in 1872. In 1890 two track circuits were in use on the English Railways, one at Cannon Street Terminus on what was then the London, Chatham and Dover Railway and the other through Kings Cross tunnel on the Great Northern Railway. The latter was part of a very complete scheme which dispensed with the use of two mechanical slots, two mechanical wires through the tunnel and two levers in the signal cabins. For the insulated joints an insulated fibre bar was used, in place of fishplates, and the ends of the rails rested in separate joint chairs which were fixed to a special sleeper.

The use of this primitive form of track circuit was discussed at some considerable length at a meeting of the Institution of Electrical Engineers held in 1897 (then the Society of Telegraph Engineers) and most of the



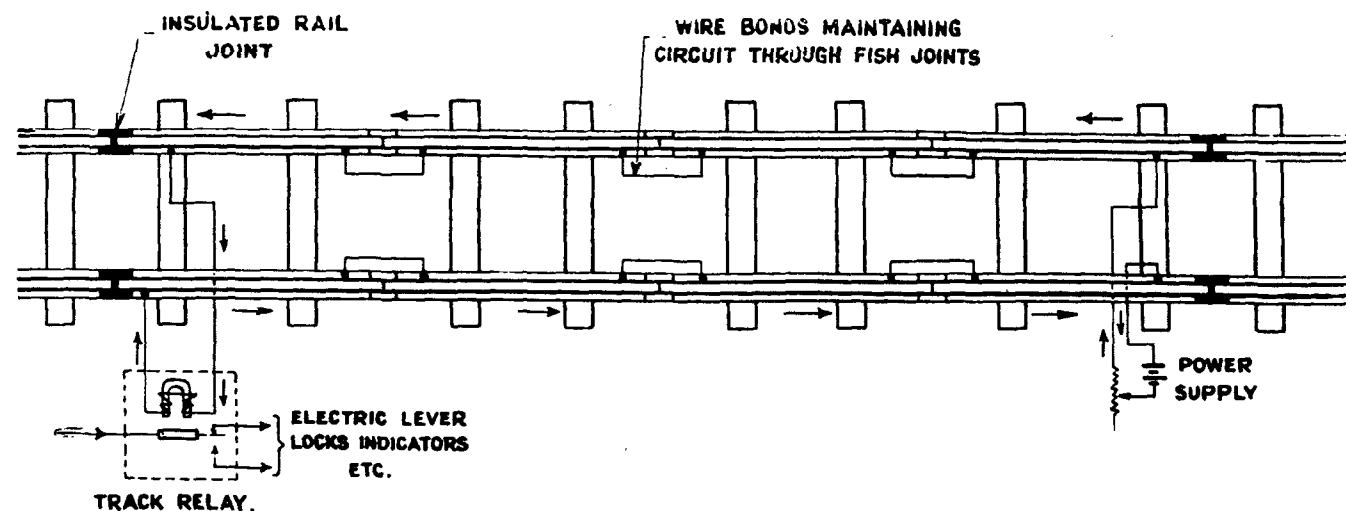
Early type of track relay worked by batteries.
(By courtesy Westinghouse Brake & Signals)



Track indicators for signal cabin instrument shelf.
(By courtesy Westinghouse Brake & Signals)

members present showed considerable scepticism. Some of the questions asked were, how the track circuit was going to work when the line was flooded, how could sufficient insulation resistance be obtained to make the track operate in such a damp climate as England and what assurance was there that the track relay would operate when the train stood on the track circuit. Half a century later hundreds of thousands of track circuits were in use all over the world proving the reliability of the device.

The basic principle on which the track circuit operates is that the running rails are made part of an electrical circuit. A reference should be made to the diagram of a simple direct current track circuit. A pair of fishplates on opposite rails are completely insulated and at the other end of the track circuit another pair are similarly insulated. This is done by placing insulating collets in



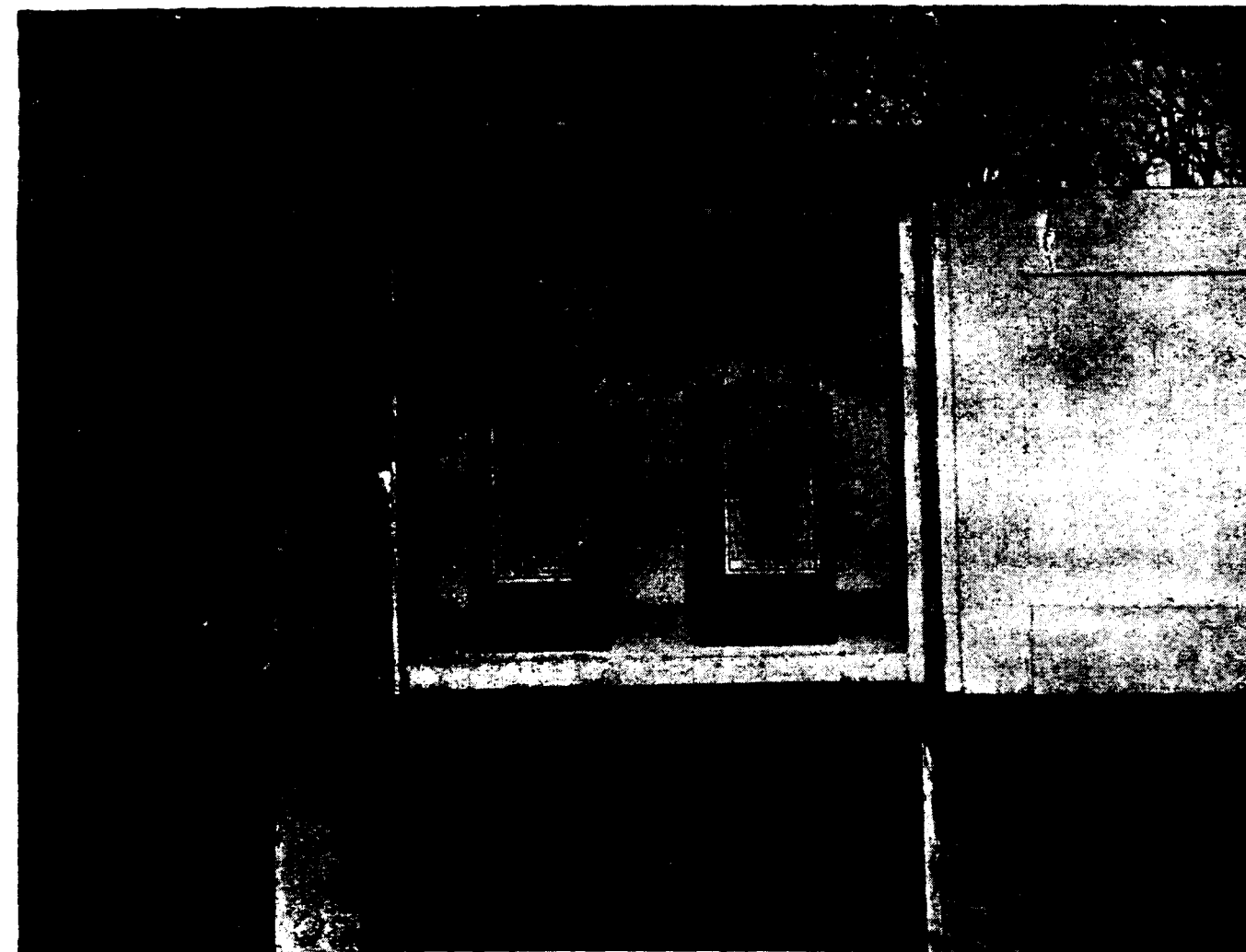
SIMPLE DIRECT CURRENT TRACK CIRCUIT
DIRECTION OF CURRENT SHOWN BY ARROWS.

the fishbolt holes, an insulated plate between the fishplate and the rail and a section of insulation, the same shape as the rail section, between adjoining rails. This is called an end post. The distance between a pair of insulated rail joints and the next depends upon circumstance and will be explained later. One end of the track circuit is called the feed end and the other the relay end. At the feed end, a pair of wires, one from each rail, is connected to a battery. At the other end a track relay is connected across the rails. The track relay consists of an electromagnet with an armature with contacts attached to it. The arrows on the diagram indicate the direction in which current travels. From the battery it flows down one rail until stopped by the insulated joint, through the wire and track relay coil, through the other wire back through the other rail to the other side of the battery. Each intermediate rail joint is bonded to as to reduce the resistance of the joints. The current flowing through the relay coil attracts the armature which lifts thereby closing the contacts fixed to it. When a train enters the track circuit, the wheels and axles electrically connect the two rails together and, as electricity always takes the shortest path, the current from the battery flows through the axles instead of through the track relay coil. The relay armature drops disconnecting the contacts which were made in the attracted position and connecting those intended to make in the unattracted position. It will thus be seen that the first pair of wheels entering the track circuit cause the relay to drop and that it will not pick up again until the last pair of wheels have left the track.

An adjustable resistance is included in the circuit from the battery to the rail. There is a certain amount

of leakage of the current from one rail to the other due to the ballast. This is termed ballast resistance. Therefore, in addition to the current passing down one rail, through the relay and back to the battery through the other, there is another circuit, the current leaking across from one rail to the other throughout the length of the track circuit. The battery has therefore to supply sufficient current to work the relay plus that leaking from one rail to the other. The adjustable resistance allows this to be done. The value of the ballast resistance is not constant but varies according to weather conditions. When it rains, the leakage increases and the ballast resistance decreases. More current has to be supplied to the track circuit by reducing the value of the resistance. It should be noted that when a track circuit fails, due to decrease in ballast resistance or other reason, it is a failure on the other side of safety since the track relay drops and any circuits dependent on its up position for clearing signals are disconnected. The track circuit is also a broken rail detector because, if a rail breaks, the track circuit is interrupted and the track relay drops. In the early days of track circuits they were designed on the open circuit principle in that the presence of a train on the track circuit completed it instead of dropping the relay. This method was discontinued since a failure was not on the safety side and broken rail protection was not afforded.

In the early part of the present century, the alternating current track circuit was introduced. The type of relay and feed arrangements are quite different but the principle remains the same. Today both types are in operation and the use of battery operated or alternating current from supply mains purely depends on circumstances.



Track Circuit Battery of A. D. 618A cells at Stenson Junction—London Midland Region British Railways
(By courtesy Le Carbone Ltd.)

Batteries require test and renewal but are the only source of power if an electrical supply is not available. They are applicable for steam operation but not for electric traction. Alternating current can be used in both cases though for electric traction it is the only suitable supply.

The contacts on the track relay establish local electrical circuits both when the track circuit is occupied and clear. These circuits may be for an indicator in the signal cabin, to show the signalman when the track circuit is clear and occupied, for electric locks on the signal lever reading over the track circuit, for electrical warning bells at level crossings, to lock point levers instead of the mechanical locking bar, and for many other purposes. Track circuits may be used in isolated cases or for completely track circuiting a station yard or a complete section of railway.

The use of an isolated track circuit could be applied to an Outer or an Home signal where no Outer Home is pro-

vided. On most railways the rules require that when a train is detained at such signals, the fireman has to be sent to the signal cabin to remind the signalman that the train is detained there. This would prevent him from inadvertently accepting a following train due to a moment of mental aberration. If a track circuit is provided outside the signal the presence of the standing train on it would be indicated to the signalman by a suitable indicator in the signal cabin and it might also be included in the block circuit to prevent acceptance of a following train if offered by the next signal box. Isolated track circuits are also used for platform lines particularly when the signalman at each end of the station cannot obtain a clear view of these lines due to curves, overbridges or other obstructions. In some countries a station master's electric control is provided in his office. This control, which is generally fitted with slides bearing electrical contacts, releases electric key transmitters in the signal

boxes. One is provided for each Home Signal in either direction. Therefore, before a Home Signal can be lowered to admit a train on to a particular line, the station master first sees that that line is clear. He then pulls the appropriate slide which releases a key from the transmitter in the signal cabin. This key unlocks an Annetts lock on the Home signal lever. The station master's slide is locked in the pulled position until the lever is returned normal and the key replaced and turned in the key transmitter. This releases the electric lock on the slide and it can be replaced normal. If the platform lines are track circuited the station master's control is not required since electric locks on the Home signal levers hold them normal if the track circuit is occupied. Electrical signal replacers, described in the previous chapter, would also be fitted to the Home signal levers, so that the signal would automatically return to danger when the track circuit was occupied and quite independent of lever operation.

Track circuits are also used for the track locking of point levers. Where this method is used the mechanical locking bar described in the chapter on point connections is not required. The section of line on which the points are laid is insulated and the pair of insulations before reaching the points are usually placed about 42 feet ahead of the point switches which is equivalent to the length of the locking bar. The contacts on the track relay release an electric lock on the point lever in the signal cabin. In other words, when the track circuit is clear, the points can be operated. When a train is passing over the points, the electric lever lock is disconnected through the track relay being down, and the point lever is locked. For purposes of economy, a hand plunger or foot plunger is generally included in the circuit so that it is only completed when the signalman wishes to use his point lever, pressing the hand plunger with his hand, to operate the lever lock (providing the track circuit is clear) or the foot plunger with his foot. The hand plunger is mounted on a board at the back of the lever while the foot plunger is fixed in the floor just in front of the lever. It can be seen that the foot plunger is more convenient since it leaves both

the signalman's hands free to work the lever. The application of track locking to point levers makes the signalman's work lighter since he only has to operate the facing point lock and not the locking bar which is generally connected to it.

It has been explained in the chapter on points that with points which are not worked economically, two levers are used, one for operating the point switches and the other for the facing point lock and locking bar. When the locking bar is replaced by a track circuit, the electric lock can be placed on the facing point lock lever so that when the track circuit is occupied, the lever is locked normal and the points cannot be unlocked. If the facing point lock lever is left reversed the electric lock is inoperative and the points are thus left free even though the track circuit may be occupied. The mechanical locking ensures that signals reading over the points cannot be lowered unless the facing point lock lever is normal and the points locked. This method, however, does not protect the points during a hand shunting method so that they could be moved while a shunt movement was taking place unless it was being done under a subsidiary signal. Although more expensive in installation, it is a better proposition to track lock the facing point lock lever and the point lever as well. There have been cases where, although subsidiary signals have been provided for shunting movements, derailments have occurred due to signalmen inadvertently operating point levers while a train was passing over them, the electric track lock being on the facing point lock lever only. This type of accident is liable to occur where trains regularly reverse into lie bye sidings. If due to a moment of inattention, or other reason, the driver starts up without noticing the subsidiary signal at danger, while the signalman is setting the points to the siding, the train may be on the points when the movement takes place. If the point lever is track locked as well, this accident could not occur providing the insulated joints are positioned a sufficient distance away from the tip of the points, as they should be. (To be Continued)

NEW ELECTRIC ENGINE IN PRODUCTION

A new heavy-duty electric railway engine known as the BO-CO has just gone into serial production in Hungary.

A product of the MAVAG engine factory and the Klement Gottwald electrical factory, it is powered by motors producing 3,200 h. p. driving on five axles.

In a test run one of these engines pulled 17 Pullman coaches, totalling 600 tons, the 70 miles between

Gyor and Hegyeshalom and back six times in one day.

Considerable extension of the electric line network is being undertaken in Hungary. Work is in progress on the first 40-mile section of the Budapest-Miskolc line and after that electrification of the Budapest-Szov, Budapest-Szolnok, Budapest-Pusztaszabolcs lines will be commenced.

YOU OWN THE RAILWAYS— HOW DO YOU USE THEM?

As public servants, Railwaymen have to assist the public in the proper use of Railways.

In free India the Railways have to play an important role to achieve the greatest economic growth and the fullest industrial development of the country.

The Railways cannot attain the fullest degree of success in their role without the unstinted support and co-operation of the people to whom the Indian Railways now belong.

The public can co-operate in the following ways *inter alia* :—

REMEMBER

- ★ *that any leakage in the Railway revenue caused by illicit travelling operates to the financial detriment of the Railways in particular and tax-payers in general and to the inconvenience of ticket paying passengers.*
- ★ *that insecure packing, improper labelling and inaccurate marking, lead to compensation claims causing a drain on the national exchequer.*
- ★ *that undue detention of goods consignments in the goods sheds and wagons means loss of space and wagon power, which could be utilised profitably in some other ways by the Railways.*
- ★ *that travel and sanitary conditions can be greatly improved by keeping Railway carriages and premises clean and tidy.*

WESTERN RAILWAY

Integrated Indian Railways—What is wrong with them? (III)

QUALITIES OF LEADERSHIP—VITAL IN TRANSPORT UNDERTAKINGS

IN the two previous articles on the subject the aspects of Goods and Passenger traffic vis-a-vis the integrated railways in India were dealt with at length. In regard to the Goods traffic, it was stated how efficient and improved transport at an economic cost expected of the integrated wider organisation was not achieved as a result of which the trading interests were dissatisfied with the transport facilities now available not to speak of the implementation of the first national five-year plan the success of which is entirely dependant on the improved transport made available to the people plentifully and much more cheaper than it is being obtained at present. As for passenger traffic, it was stated that the fall in the number of passengers travelled by rail in the already low per capita rail travel in India owing to foreign rule has been accentuated on account of higher fares and poor service was a pointer that the working of the integration must be reviewed in the light of experience gained so far. This should not, however, be taken to mean that the idea of integration itself was wrong. Far from it, we are aware that political integration which we have achieved has not solved all our problems. The economic front is bristling with difficulties. The intensified effort so badly needed in this direction must result in increased production and the benefit of such development cannot materialise or be fully realised without a rapid rationalisation and expansion of transport facilities. The implications economic transformation and progress in terms of rail transport are, more adequate and more efficient transport facilities than can be afforded by the resources of small systems confined to their respective restrict areas. Integration has come to stay. There is no gainsay about it. Efforts should now be concentrated on the problems of organisation and leadership so vital in a transport undertaking even in normal times. It is, therefore, proposed to examine this aspect in the present article somewhat in detail.

THE ORGANISATION OF THE RAILWAY BOARD

Though one should not quarrel with a name, public opinion in India associated with a longest national movement, the world has ever seen, is somehow averse to the old relics left by the British Government. This is especially so in regard to the Railways in India managed by the Railway Board which was the monopoly of the ruling class once. It is true that the cream of British intellect manned the Railway Board and the standards

they set up were of a high order. Sir Hugh Raper, the Member Transportation and Col. Wagstaff, the Member (Staff) were men of outstanding abilities who could deliver the goods. Take for instance the war-time needs of the Railways. Sir Hugh had to take important decisions to carry war-time traffic with the existing engines, rollingstock and line capacity. He rose the occasion and came out successfully. He convened for the first time in the history of Indian Railways, a meeting of the Operating Heads, which was called "OPERATING MEETING" and evolved plans for the future. He left definite instructions that the Operating Heads must come fully prepared with an appreciation of the Railway operating problems. This was called the Raper's Report in the latter years—though feebly adopted by the Indian counterparts minus the vigour in it.

THREE BOLD DECISIONS

Three bold decisions were taken then. Number one was the creation of the War Transport department with a Priority Control Organisation. Number two was the decision to cancel passenger train services to accommodate more goods trains in the interest of the community as a whole. And number three was the "KEEP WAGONS MOVEMENT". Having taken the decisions he created a suitable machinery in each Railway and had the necessary follow up. He kept a close watch on the organisation of the individual Railways and had the necessary drive and powers pull up any defaulter. He had the direct access with the then Viceroy. It is true that inspite of the best talents exhibited by the Britishers, people were not enthusiastic over achievements, simply because "good government is no substitute for self-government" and in the latter years of British rule a deep feeling of lassitude and frustration affected the whole of the country's life.

TRANSFER OF POWER

On the transfer of power, owing to the departure of a large number of British holders of key posts on the Indian Railways, these posts came to be held by the Indian Officers of the Railway service, a very large number of whom had been denied experience in such key posts previously. These officers have more than proved their mettle and competence by their individual leadership and capacity to hard work. Being inexperienced in organisation and management they wanted some one more experienced to lead them. Although organisation is no substitute for leadership in creating morale in a large enterprise like the railways morale cannot be sustained without good organisation of all staff arrangements. Good

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organisation in turn depends on the personnel available to man key posts so that the best of them may be placed in positions of strategic effectiveness and the best possible use made of all officials in order to obtain success in the fields chosen. To illustrate this with an example on the Railways, we may take up the posts of Deputy Heads of Departments which is a junior administrative scale post. These men are to assist their Heads and at the same time take decisions of policy. It so happened that suitable men could not be found to man these posts for various reasons on all the railways with the result stagnation resulted everywhere. It is true that it is the Railway Board which has powers to fill up these junior administrative posts but once again this centralised cadre posting proved ineffective—the results was only the weakest, most parochial-minded and timid souls occupied the posts. This was the position at the time integration was effected.

THE POST OF THE CHIEF COMMISSIONER OF RAILWAYS

Indeed India after independence was lucky in having had an able Maharastrian Shri Kamlekar C. Bakhle as the first Indian Chief Commissioner of the Railways. Like all other Indian Officers he also suffered under the alien rule and was suppressed for his independent outlook. Within the short time he took charge of the Railways, he organised the work effectively and left an impress of his capacity for organisation and management. The Indian Railway Enquiry Committee of 1947 better known as the "KUNZRU COMMITTEE" started work during his regime. The Adjudication on the "Hours of Work" of Railwaymen under the chairmanship of justice Rajadhashya was completed and awaited implementation. The Railway labour problems were far from peaceful. In short it was most trying period for any administrator and consolidation of the nation's biggest asset the Railways was his watchword. Yet, it was at this time the integration of the Railways was motted by the then Minister of Railways. Everyone knows that Shri Bakhle suggested postponement of the integration for another five years.

His reasons were on his intimate practical experience of the Officers cadre available on the Railways to undertake any new venture. In this view of Shri Bakhle, the Indian Enquiry Committee also agreed but a different decision was taken and no useful purpose would be served by going through the past. The post of the Chief Commissioner was abolished and Shri Bakhle retired. The Chief Commissioner without any departmental duties attached to him presided over the Board's meetings and had powers to over-rule his functional colleagues. He was the adviser to the Government. In abolishing the post of the Chief Commissioner, the then Minister expected co-ordination at the Ministers' level and it went on well as long as a Minister-cum-Administrator was there. Due allowance to our infant republic and lack of experience to our leaders was not made and the integration lost also the tempo and philip it received at the hands of those who started it. This is the crux of the issue which demands solution here and now.

WHAT SHOULD BE DONE THEN?

What should be done then? It is a question that cannot be answered easily and within the purview of this short critical article. The Indian Railway Enquiry Committee has opined that the Railway Board being not only the Railway Executive but also part of the Government Secretariat does not fulfil certain basic needs of the Railways. These are, power to settle and carry out long-term development schemes and give prompt decisions on all railway subjects. Decisions are delayed while there is too much interference in the day-to-day working of the Railways. They suggested a central authority to control the affairs of the Railways. We have also the experience of the British Railway Executive. Something must be immediately done to steam line the organisation starting with the Railway Board level if the Five-year plan for which transport is so vital, should succeed. Then only we can say that the integration was succeeded for the accent on the common man.

(To be continued)

Announcement

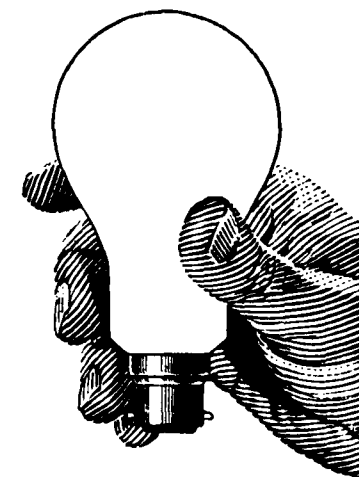
We have pleasure in announcing to all our Readers and Advertisers that we propose to bring out a special Supplement to our Magazine entitled "INDIAN RAILWAYS LOCO. CARRIAGE AND WAGON WORKSHOPS" sometime in April 1954. For the first time in the History of Indian Railways such a splendid Supplement is being published by us.

EDITOR.



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ROAD COMPETITION (V)

By T. A. Narayana Iyer

THE traffic worked by rail-road trailers is very varied and sometimes consists of fragile goods requiring careful packing for which as little handling as possible is desirable, e.g. window glass, glassware, electrical equipment, footwear, papers and cartons, wines, industrial liquids, milk-products etc.

The use of road-rail trailers, which are particularly suitable for the door to door transport of goods sent in sufficiently large consignments to form, if not a full load for a trailer, at least an important fraction thereof, gives extremely interesting results.

It has been noted that for goods such as windowglass, eggs, etc. the transport of which is rarely carried out in ordinary wagons without breakages occurring, absolute safety is assured when railroad trailers are used.

To be able to load and unload the trailers in the station to is necessary to have an end loading dock. The platform is equipped with special loading gear to assure the automatic centering of the trailer on the centre line of the wagon and to enable the auxiliary rimmed wheels of the trailers to run on to the wagon rails.

This gear, put in front of the wagons to be loaded, consists essentially of entrance guides between which are arranged mobile plates so that if a mistake is made in direction, pulling back the trailer causes it to move sideways, which centres it automatically along the centre line of the wagon. To make sure that the rims and auxiliary wheels of the trailer will run on to the rails of the carrying wagon, ramps are placed on the loading gear on the extension of these rails. Thanks to these arrangements, the loading of a trailer takes about one minute, using the tractor driver alone. Unloading is even quicker.

According to the importance of the traffic the end-on platforms are served either by a line or a group of lines or sidings in a stretch of yard sufficiently long to take a whole rake of wagons and secure their intercommunication; in practice the length of the lines should not exceed a maximum of 100 metres.

On the other hand in view of the fact that on arrival the trailers can only be unloaded if their drawbar is facing the platform, the large stations are equipped with double

direction installations, so that the wagons can be loaded according to the orientation of their destination station, and so that on arrival no shunting will be required to get them the right way round.

Loading and unloading the trailers is carried out by the consignors and consignees.

To obtain the lowest possible cost, the economics of railroad transport require the vehicles to be used to the maximum. To do so, it is necessary that:

the road journeys made by the trailer to deliver and collect goods should not exceed a certain mileage;

the load on the trailer should only concern a small number of consignors and consignees, so that the time the trailers are standing idle while the goods are being delivered or collected is as short as possible.

The maximum radius of action on the road appears to be 35 kilo-metres. In exceptional cases the firms use such trailers on collection runs to pick up certain goods, for example meat and eggs (in the west—they can be different in India).

The rail-road trailer is a fortunate combination of the best advantages offered by the railway and the road.

In addition, it enables road transport contractors to retain their commercial autonomy and continue their activities by giving their clients the same facilities, while saving for themselves the risks and drawbacks of long distance road transport by benefiting from the regularity and safety of long distance rail transport.

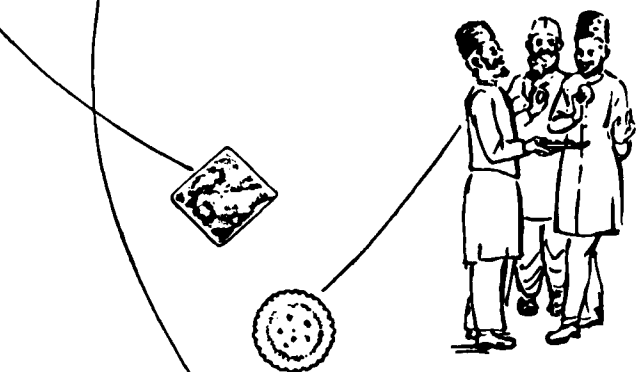
It meets in effect the principles most generally admitted as regards the coordination of the two methods of transport, which consists in giving the railway the long distance traffic, and the road the additional runs required to reach the premises of the consignor and the consignee.

In the same way it is rather a practical method of coordination of road and railway transport than a weapon

everybody enjoys...



BRITANNIA
biscuits



better biscuits
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to fight public long distance road transport, by linking the interests of the railway very closely with those of the road. The trailers now in service in the west were designed to meet this need.

OTHER METHODS OF LIAISON WITH THE STATION

Apart from the methods which have been described to bring the goods from the clients' premises to the station or vice versa, on most railways there are installations giving direct connection between the premises of private firms and the railways, making it possible to load and unload the wagons at the station and convey the goods mechanically to the premises of the consignor or consignee.

Such installations are of interest when it is not possible to link up the premises with the station by means of a private siding, for geographical, engineering or financial reasons, and they may be more economical than the use of one of the methods mentioned above. Amongst the most currently used of such methods we may mention:

1. the pipe-lines, the use of which is very widespread for the transport of liquids such as wine, ciders, milk, hydrocarbons, alcohol, etc.
2. pneumatic transporters for grains, grams, pulses and seeds, or powdery goods or goods of small dimensions loose.
3. belt conveyors and various kinds of conveyors for goods in bulk such as tiles, bricks, bottles, etc. or packed goods like sacks, cases, baskets, etc.
4. single lines or overhead lines for goods in bulk or packed goods, e. g. the ropeway.
5. narrow gauge lines.

The railways find it of interest to facilitate the construction of such private installations which reduce terminal charges and bind the users who have often invested considerable capital therein to the railway.

(To be continued)

MACHINE TOOLS IN THE FAR EAST

By A. J. Gibbs Smith

Present Position and Potentialities on the Japanese Industry

VARIOUS attempts have been made of recent years to assess the potentialities of the machine-tool industry in various countries, as this is a key industry upon which all other production ultimately depends. Considerable importance attaches to the situation of Japan, whether as possible supplier of certain types of equipment still in very short supply or as future competitor of our own industry in world export markets. As far as this particular branch of engineering is concerned, at the present time Japan has a larger production than Sweden but smaller than that of Belgium. Since the war, however, the industry has been operating very much below capacity, but, based upon existing equipment actually installed in the various makers' works, it has recently been estimated that the present-day Japanese potential production is some 9790 machines of all types per annum, equal to a total tonnage of 20,226 tons, a break-down of the official estimate being given in the following table:—

TABLE—1

Estimated present-day annual capacity of the Japanese machine-tool industry.

Type of machine	Units	Weight
Lathes		
Engine lathes	1718	5145 tons
Turret lathes	670	1399
Multi-cut lathes	120	436
Vertical lathes	66	718
Car wheel lathes	15	627
Milling Machines		
Standard type	638	1988
Manufacturing type	150	726
Thread millers	40	81
Die-sinkers	66	169

Planers	3	111
Shapers	165	572
Boring machines		
Horizontal	387	830
Jig-boring	60	234
Drilling machines		
Radials	569	1819
Single-spindle	380	372
Multi-spindle	100	297
Bench type	2730	220
Gear-cutting machines	234	405
Grinding machines	604	2081
Automatic screw machines	665	672
Thread-rolling machines	180	216
Other	230	1108
Total	9790	20,226

In considering this estimate, it should be borne in mind that during the peak years of 1938 and 1943, the industry produced 67,284 and 60,132 machines respectively.

The estimate may also usefully be compared with statistics relating to quantities, weights, and values of the Japanese machine-tool production which have recently become available, which give an interesting picture of the enormous development of the industry immediately prior to and during the war, its subsequent eclipse, and its recent partial revival.

TABLE—2

Annual production of Japanese machine-tool industry

	1933	1943	1948	1949	1950	1951
	Units	Units	Units	Units	Units	Units
			Weight	Weight	Weight	Weight
			tons	tons		tons
Lathes	3360	25 387	1 069	2 206	700	2 026
Millers	480	7 065	85	127	31	70
Planers	60	483	16	191	11	160
					22	386
						29
						437

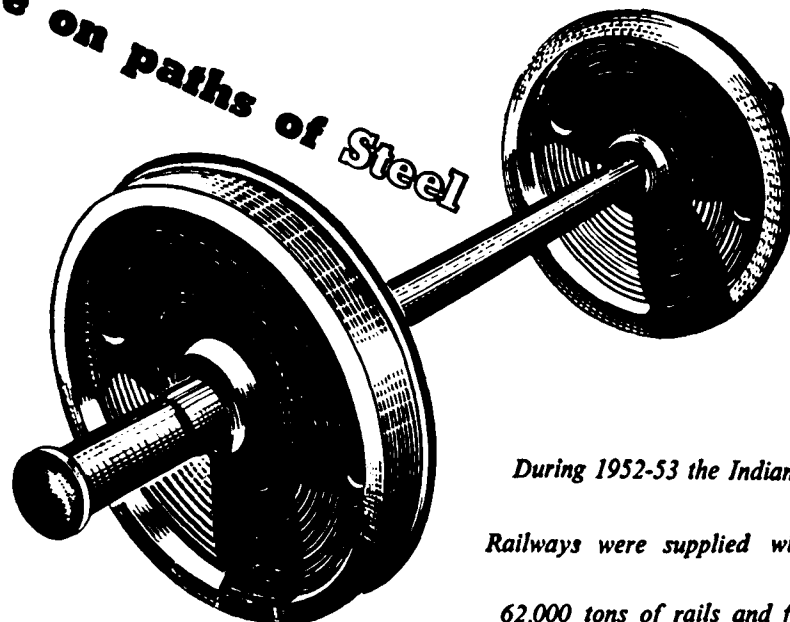
8



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Annual production of Japanese machine-tool industry

	1933	1943	1948	1949	1950	1951			
	Units	Units	Units	Weight tons	Units	Weight tons	Units	Weight tons	Units
Shapers	372	2348	697	174	127	377	44	78	(b) —
Slotters	36	647	11	42	5	26	1	680	(b) —
Borers	48	1341	1122	266	1086	205	418	137	348 88
Drillers	781	8576	3550	854	3031	795	2709	512	5582 873
Gear-cutting machines	24	1233	91	126	112	184	36	102	100 219
Grinders	300	8692	1021	410	707	429	191	427	950 705
Cutting-off	168	132	189	93	105	45	2	(b)	
Others	—	1226	898	109	664	141	233	322	1161 617
Total	5,628	60,134	8,061	4,605	6,579	4,464	4,039	2,946	8,902 4,651
Value in Yen 000			500,066		769,148		540,653		1,044,000

(a) Total for this year are estimated figures based upon returns to the end of November

(b) Included in "Others"

As far as prices are concerned, it is possible to arrive at certain tentative conclusions. The table shows, for instance, that prices considered on a tonnage basis have been steadily increasing in the following ratio: 1947 about £44 per ton, 1948 £108, 1949 £172, 1950 £183 and 1951 £224. In this connection, if the prices of the main classes of tool during 1951 are examined in more detail, they show overall averages of Lathes about £234 per ton, Millers £304, Planers £72, Borers £533, Drillers £164, Gear-cutting machines £265 and Grinders £225. As a convenient standard for comparison, it might be mentioned that British machines, which are better known to our readers, average about £400 per ton, and occupy an extremely favourable position both with regard to quality and price.

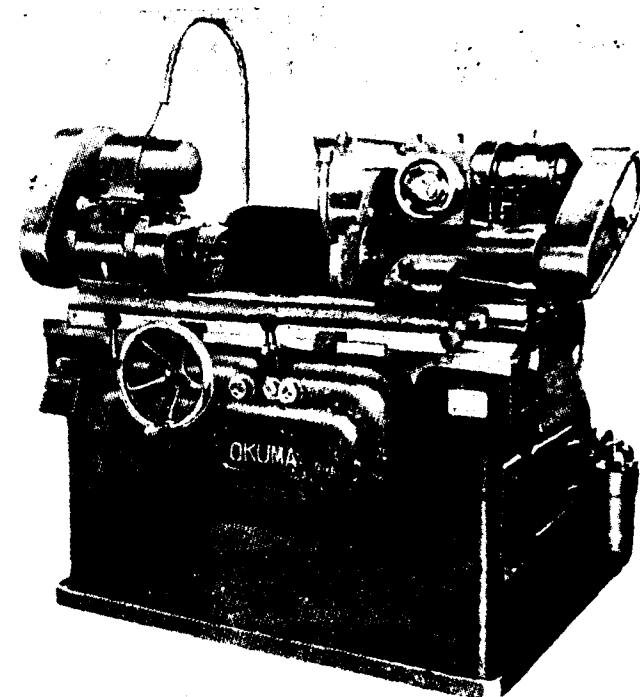
With the re-emergence of Japan as an exporter, the question of competition in world markets assumes a certain importance which is likely to be greatly enhanced in the future. During 1951, Japanese exports of machine tools for metal working were as given in the following table, in which has been incorporated the average price per ton of such exports as some slight indication of the quality and class of machine:

TABLE—3

Japanese exports of metal-working machine-tools for 1951

Destination	Weight tons	Value £(000)	Average value per ton £
Formosa	473	140.7	111
Siam	397	46.4	116
United States	115	25.7	223

(Continued on page 31)



ONE NIGHT IN THE MARSHALLING YARD

By P. G. Rose

THE talk of the five-year plan of prosperity left a cold chill on the night duty yard-master whom I met at the marshalling yard, the other night. It was a wintry night. Then was a drizzling rain. But the sound of the shunting engine, with its puffing smoke disturbed the otherwise calm atmosphere. It was past midnight and the cold was intense. I took a cigarette and lighted it. Mr. Ragavan the yard master just finished giving some particulars to the control and sat before me. I gave him another cigarette and lighting it he said.

"You speak of the five year plan of prosperity. Yes, I have also read them in papers. But do you know that in the Railways there is a recession. The passenger earnings have dropped. The number of passengers that used to travel by railways have been reduced. The goods traffic is falling and there is congestion and slack working everywhere. There is no good leadership to guide us in the Railways. I feel....."

I stopped him and said "I cannot follow you if you go on in this strain. I have come here at the special request of my Editor to study the conditions of this big marshalling yard and report factually. So please put it more clearly."

"You said there is congestion. What do you mean by this?"

Ragavan got warmed up and said, "I am glad you have come. I have been reading the *Southern Railways Magazine* since its birth. Mr. Pearson's articles on the 'Aspects of Railway working' have been illuminating.

(Continued from page 30)

This trade, it will be noticed, has been mainly confined to Far-eastern countries, and amounted to about 27% of the total production whether considered on a price or tonnage basis. This might be compared with the British proportion which has been running at around 40% of the total production for the last few years.

Considered as a whole, and set against the background presented by the same industry in other countries, the foregoing brief survey makes a picture for the United

I have read yours also. It is good of you to have come here in this cold wintry night and spend the night with us. If only some of our boses, say the District Traffic Superintendent, the Regional Traffic Superintendent, and.....care to spend one night in this marshalling yard, the congestion I am talking of will not happen. Our yard for the past two months is congested with nearly 1000 to 1500 wagons. There is a heavy railway coal movement. These coal loads have to be weighed. There is trouble with our interchange point. We have to send wagons to meet our interchange obligations. To keep a watchful eye on the scores of yard movements during a twenty-four hour day is no arm chair job. From the chief yard master controlling operations down to the shunting porters every man responsible for even a small portion of yard work must give of his best in the way of willing cooperation and efficiency, as errors of judgment in yard movements are extremely costly not only to the yard in question but to entire railway system".

"You are a bit emotional Ragavan. You mean that railway operation begins and ends only in the marshalling yards rather than in big offices. Then tell me have you any statistics to show that each loaded or empty wagons passing in the yard is accounted for and the delay caused to it is counted".

"Yes they are. We have a marshalling yard statistics of the delay is reduced by a far more hours. We can relieve hundreds of wagons for the use of the country. Now this question of delay to stock brings me to the working of controls. Sorry to tell you the controllers

Kingdom manufacturer which is considerably more rosy than the one which might have been painted by the imagination unaided by actual facts and figures and relying upon rumours of what is happening in the case of textiles fancy goods, and similar products. There is no doubt, however, that in the future our manufacturers will have to face a competitor practically unknown in this line before the war, and no feeling of complacency should prevent a close and first-hand study of the competing product which will be increasingly encountered in Far-eastern markets.

Notes: Prices in table 2 are converted from Yen at 1007 to the £; those in table 3 from U. S. dollars at 2.80 to the £.

who are to control us are being controlled", said Ragavan.

"Do not be dejected. We have to put up with this during transition. The integration brought many problems. But can you tell me, with your practical experience whether, the Heads of Administrations, and the Railway Board are alive to the vital problems and atleast plan for the future".

I watched Ragavan's face. He was not enthusiastic. Mr. Ragavan said slowly and deliberately.

"I read the five-year plan published by the planning commission. No mention has been made about detailed improvements to Railways. In our Railway Board manned by such empty leadership as not to give factual information. While we have statistics of all leading industries, we have none for the Railways. Even an ordinary student of Transport would have done better. There is an impression, from the rank and file of Railwaymen that all is not well with the leadership of officer class right from the District Traffic Superintendent to the Railway Board. They are not at all enthusiastic. I may be wrong. But my instinct is o.k. There are very good men in the lower ranks who have done wonderfully well in the past. The planning commission says that leadership should be improved at all ends. Some bad action is needed to break through the red-tapism and put in effective work. The good worker must be rewarded. The bad and the slack must be neglected to the back ground. Of all works, the work in the Operating Department is momentary and, quick results have to be obtained. I am sorry I am digressing. Just see the winter. How my lower ranks are working to form the 2/15 special goods. They must be encouraged. It is a process".

"I can understand you now. You say if proper attention is paid to mechanisation of yards, proper selec-

tion of yard staff and good facilities for their working are given we can reduce the working expenses and even tide over the recession in passenger and goods earning".

Ragavan's face brightened. "You have caught the point. But there is one more aspect of the problem. You know the white elephant. I mean our Head Offices. Thousands of staff are sheltered there and we do not know how they work. They must be job-analysed. By job analysis, it becomes possible to take stock of the staff position and to flow staff from overstaffed offices to under-staffed ones, so that there are no redundant or idle hands anywhere. It does not necessarily mean retrenchment. The object is, to realise the maximum work out of the minimum number of hands incidentally helping towards rationalisation and standardisation of work simultaneously, ensuring economy on staff matters. The aim is to have balanced position of economy and efficiency at the same time. Government and Railway offices are often blamed by the public for inefficiency; who knows, but in some cases, inefficiency may not be due to any dearth of working hands".

"Thank you Ragavan. I said. I spent a very useful time this night with you. But you said something about control I was told that contacts on the ex-SI Railway was good. I do not know anything about ex-MSM. Since you were the ex-MSM man, please tell me something about it".

"The whole ex-MSM control organisation must be trimmed to suit the changed times. It is a job in itself requiring the work of a hard, intelligent operation officer. The personnel who were taken some how must be gradually replaced by smarter men who can effectively control the trains rather than they be controller. It is a process that requires deep study and practical application" said Ragavan.

"We shall hope for better Ragavan" said I. I shall meet you some time next month. Thank you.

CONDITIONED AIR CARRIAGES

Air conditioning apparatus for railway carriages, to supply warmth in winter and cool compartments in the summer, is being designed in Hungary's Wilhelm Pieck Waggon factory at Gyor. It will be mainly for export.

The prototype apparatus will be tried out on carriages used on international routes.

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COGS IN THE WHEEL—V

By Ajax

THE story of a 'pick up' still lingers vividly in my mind although it is several years past since it happened. It has made such a deep impression on me that however much I might try to forget the episode it recoils on me like a 'phantom'. Now and then I have also gone into a 'reverie' over it.

Likewise, friends intimately associated with it have given expression to a similar feeling and said that they too were given to such hallucinations occasionally. Admittedly, the story has made incursions into the 'soul' of many people and perhaps is creating a sense of maglomania.

Here it is for what it is worth. A decision was taken to have a 'pick up' for forming a panel of names for certain senior subordinate supervisory positions on a certain railway. As the nature of the job that had to be performed was one of responsibility demanding talents of organisation, initiative, enterprise, industry, and a fund of common sense, it was desired that the widest possible field was to be the forum of the 'pick up'. It was hoped that the best elements would be forthcoming.

It is one thing to take a decision and quite a different one to put it into action. Unless the one follows the other promptly there will be little chance of getting into grips with the problem. For some reason or other in this case the matter went more by default than by design, and it was only after 18 months that it was realised that such a 'thing' had been programmed for long ago, and so, measures were hurriedly taken to execute the decision. In the meantime, it must be noted, that some 'berths' were tentatively filled by 'nomination'.

By the time the unending formalities were gone through, and the actual 'pick up' was done, it was another eight months or so. It was programmed that a written test was to be held and that the 'qualified' people were to be sent for and seen by an *ad hoc* Board.

As the intention was to get at the best material, the written test was thrown open to a wide circle of people from all over the line who were summoned to the examination hall, of course, after a preliminary weeding out. There were two centres and about 200 'pupils' sat at the examination. There was all the fanfare and trumpeting of a university examination, with invigilators pacing up and down, and if one were looking at the examination hall he would have recalled to his mind his

days of schooling and the 'examination mania' with all its fumbling, hesitancy, indecision and speculation pictured before his mind. He would perhaps think that he was appearing at the School Final or the Graduateship Examination of the University for a second time.

One enterprising young gentleman in the crowd thought he could throw dust into the eyes of the examiner by machinewriting his answers—thus eliminating the examiner's eyesore. He thought he had managed to do it 'decoratingly' to his evident satisfaction. He was consigned to a corner and the click of the typewriter was a music to the anxious and puzzled nerves of the examinees, who, when their minds were vacant, looked behind to watch for a moment the click of the machine which moved at a fast rate—and perhaps draw inspiration. The enterprising and—may I say hoodwinked—gentleman thought he had scored high by his novel method and told his friends that he had written a *thesis* of twenty typewritten pages, which meant about 6,000 words in the time allotted, namely, two hours and a half.

The question paper contained 13 questions of varied interest covering largely railway matters, although it was primarily intended to be a test on establishment rules and procedure and the application of labour laws on the railways. In friendly circles gossip went round to say that the test was one of the hardest ever held even for gazetted ranks and that perhaps even the paper setter could not answer the questions satisfactorily without the help of standard books.

Be that as it may, the written test having been over, it took another four months for the answer papers to be valued. And look! there the matter appeared to end, as the papers were put in 'cold storage' and everyone seemed to have forgotten all about it. The interview had, however, to be arranged, and by the time this was over, another four months had run out.

In the meantime great changes had taken place in the set up of the original organisation, and slowly berths which were to be filled by the 'qualified' people had already been occupied by those who had been put on by a process of the least line of resistance, i.e., 'nomination'. Needless to mention that the 'nominees' too were 'examinees'.

(Continued on page 35)

PRECIOUS STONES

By Dolly Shahani

EVER since the days of long ago, men and women (particularly women) have loved to possess and collect precious stones. Further, they use them as ornaments. At first, the cave man picked up these precious stones because their unusual colour and shape caught his fancy. Perhaps he regarded them just as playthings and gave them to his children to play with or just hung them around his neck. In time to come, these stones acquired a little more value, as they were difficult to find and then primitive man came to associate them with certain ideas, beliefs and superstitions. This greatly enhanced their value. Even today, certain stones are supposed to bring good luck or to ward off evil from its wearer. Some are considered lucky for persons born under certain stars. These are known as their birth stones, whereas others again are known to be unlucky and bring death and disaster to their wearers. Countless legends and fairy tales are woven around this aspect of precious stones. The opal is considered to be a very unlucky stone by many people. It can only be worn by a few people, for whom it is supposed to bring great good luck. Pearls too are connected with ill luck. Many a bride would not wear pearls due to this reason. But today the prices are so high, bridal jewellery mostly consists of pearls instead of diamonds, even artificial pearls.

You have probably heard of the well known story of the famous Hope diamond. Originally it came from India but through the years it changed several hands and affected the fate of all those who handled it. Today it belongs to the Hope family in America and is supposed to cause the death of anyone who possesses it. It is hard to understand how this legend came to exist. May be it was all coincidence but then when a thing is repeated too often, certain beliefs invariably come to be woven around certain objects. In this case, whoever came into possession of the diamond died unexpectedly.

According to Indian astronomical beliefs, precious stones have a strong influence on the health and well-being of their wearers. Many people in India suffering from ill health are advised by Brahmans and Pandits to wear certain stones. Often the condition is that the stone must be worn in direct contact with the skin. Another stipulation is that on awakening, the wearer must gaze upon the stone before he looks at any other object.

Another Indian superstition is that it is unlucky to lose gold. To me, this hardly seems a superstition; it is just sound economics !!!

(Continued from page 34)

There were changes in the examining body as well and an entirely new set of assesseees had to tackle the problem afresh.

At the interview three columns of assessment of the value and worth of the 'pupils' were demarcated, i.e., personality, general knowledge and marks obtained at the written test—these were to be added together and a certain percentage fixed as the passable border.

An eleventh hour change in the rules which had, in the meantime, been thought of and was perhaps coming in the near future, was suddenly visualised in the horizon and some ingenious brain scented it as an opportunity to play the role of the Pied Piper of Hamelin. Quickly papers were consigned to a safe corner in the steel cabinet to protect them from being eaten up by rats. In a short while the intended change in the rule was rushed through the *parliament* and enacted. A sign

of relief was heaved by some one. It was, however, later on, realised that the 'legislation' did not meet fully the requirements of the situation and so an amendment was moved and carried nemcom thereby giving the law retrospective effect. Ultimately, the whole matter was so stage-managed that it smote unintended persons, and the original intention of mobilising the best talents for the job was defeated by a sort of haberdashery deal.

It may be mentioned that the total time lag in this 'drama' was nearly three years. And the all-round puzzling problem was how to reconcile the various conflicting interests, namely, those who had already been 'nominated' and were on 'active' list for some time; those who had suddenly fallen off and were to be replaced by others; and those who had gained higher places to swift climbing of the ladder. The aftermath of all this was seething discontent and a sense of utter frustration verging on despondency. All the same the wheel moves on and on.

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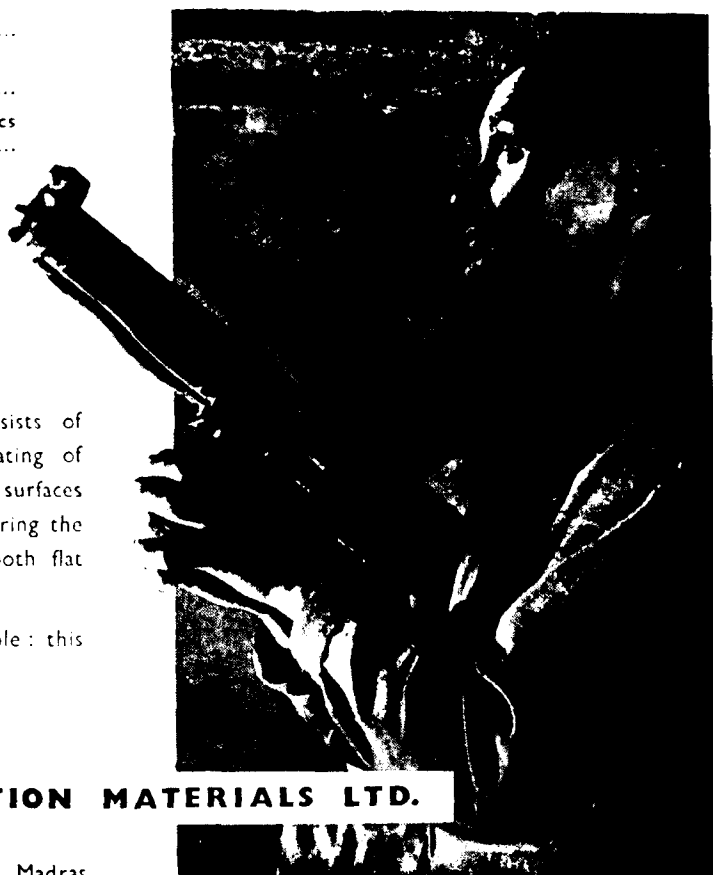
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India has always been famous for precious stones. The fame of her jewels was well-known all the world over. In the days gone by, many invaders and conquerers came to India merely to loot and plunder; so great was the fame of her jewels. The koh-i-noor diamond, the brightest jewel in the English Crown, came from India. The craft of the Indian workmen was famous. Even today Indian jewellers are one of the very best in the world considering the primitive implements they work with. The delicacy of the gold and silver filigree work would be hard to find anywhere else in the world. The enamel work done on brass is also one of the finest to be found.

In fact, until a couple of decades ago, people had the weirdest ideas about India. India was synonymous with precious stones, jewels, tigers, temples and Maharajas!

So much for the romantic side. Now let us take a more scientific outlook. Emeralds are found in the Deccan region. Emerald is a variety of the beryl mineral and according to the Fersman-Ball classification, belongs to the precious stones of the first class. Its hardness is 7.5, specific weight 2.6—2.8, colour from light green to deep green. Its masses are transparent. Having a beautiful colour and lustre, it is a great favourite with many persons. It is cut in rectangular or square shapes with stepped facets. The upper part of the stone is formed by $\frac{1}{3}$ whereas the lower part of it is formed by $\frac{2}{3}$ of the whole thickness of the stone.

Aquamarine is a variety of the beryl mineral and according to the Fersman-Ball classification, belongs to the semi-precious stones of the second class. Its hardness is 7.5, specific weight 2.7, colour from light blue to greenish, clear blue and darker bluish. It is cut in several ways, diamond cut—round, oval, oval-angular and pear-shaped; emerald-cut—square, rectangular, octagonal.

Topaz is a mineral from the group of the aluminosilicates, containing upto 20% of Fluorine and according to the Fersman-Ball classification, belongs to the semi-precious stones of the second class. Its hardness is 6 and specific weight 3.51—3.54. Its colour varies from colourless to wine-yellow, greenish and pink shades. It is cut in the same way as aquamarines.

Amethyst is a variety of quartz mineral and is a semi-precious stone. Its colour varies from a light to a deep

violet. Topaz belongs to the quartz mineral variety. Its shade varies a good deal from white to smoky. It is also cut in several forms, emerald cut—square rectangular, octagonal. Smoky topaz is the only shade to have the diamond cut; other shades are cut round, oval, oval-angular and pear-shaped.

Amber is a petrified resin of an acerose tree of the tertiary period. It is an ornamental stone. The colour varies from bright yellow, to yellow-fawn or white. Amber is lustrous, transparent or translucent. It is made into cut boards, smooth polished beads, buttons, bracelets, boxes, cigarette holders, chaplets. It is also useful as raw material in many technical products: amber acid, lacquers, chemical re-agents etc.

Platinum is even more precious than gold and besides ornamentation, has scientific uses. Wide use is made of platinum and platinum alloys in pyrometry (thermocouples, resistance thermometers etc.), in electric industry (contacts, electric furnaces etc.), in chemical industry (catalyzers, apparatus etc.), in medicine (apparatus and instruments for dentistry) and in the manufacture of various laboratory equipment. Its use is determined by the behaviour of platinum and its alloys in high temperatures and under the influence of acids, as well as by its electro-conductivity.

Platinum and platinum alloys are used in the manufacture of setting for diamonds. Platinum adds to the brilliancy and contributes to the play in colour of the diamonds thus set.

Iridium is another precious metal and is used in industry as a platinum alloy. The presence of iridium increases the hardness of platinum, and its resistance to various chemical influences and makes it more acid-proof. Platinum-iridium alloys are used in the manufacture of chemical acid proof apparatus, laboratory equipment, instruments of fine mechanics, pen paints etc.

Asmium is used as an alloy with iridium or as asmic acid. The alloys are very hard and are used in the manufacture of points for magnetic needles and fountain pens; also used for important instruments of fine mechanics. Asmic acid is used in microscopic analyses of flesh and plant tissues for colouring the nerve fissures and fat inclusions.

ELECTRIFICATION OF RAILWAYS

THE steam loco has played a great part in the development of railway transport and is as yet by no means a spent force. It still continues to play its role of a senior partner in railway transport haulage means. Electric locomotion, is, however, gradually gaining ground.

To the lay man the obvious advantages of electric traction are its high speed, clean, smokeless and comparatively less noisy travel. But to the engineer the economics of electric traction are less coal consumption, low operating and maintenance cost, more wagon turnover, higher acceleration, and easier handling as compared to the steam locomotive.

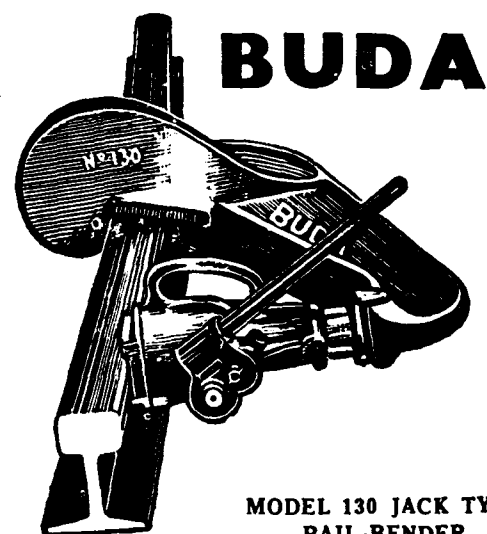
For instance, the consumption of coal in a modern thermal power house is only 30 to 40 per cent. Of that in a steam locomotive for production of equivalent tractive power. An additional advantage is that coal of

inferior grades, which is not suitable for metallurgical purposes, can be burnt efficiently. This feature is of special interest to this country where the stock of high metallurgical coal is very limited and needs to be conserved for expansion of steel and other industries. Moreover, the wear and tear of the electric loco is much less. It can run almost double the mileage of the steam loco without requiring attention. The crew required for running the electric loco is also much less.

On the other hand, the steam locomotive is a complete power unit in itself. For the electric locomotive electricity has to be generated and supplied along the railway track.

STORY GOES BACK TO 1839

The story of electric traction goes back to 1839 when a locomotive equipped with a primitive motor, drawing



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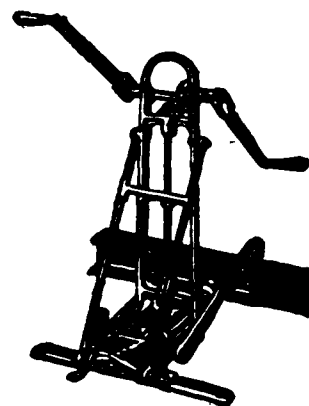


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current from a number of primary cells, was tried on a section between Edinburgh and Glasgow in the U. K. The experiment was viewed with great suspicion by steam locomotive engineers who considered electricity as an undesirable rival in the field of locomotion and naturally the experiment was declared a complete failure. The first successful use of electric power for propelling a vehicle was demonstrated at the Berlin Exhibition in 1879. It was, however, not until the last decades of the 19th century that electric transport made any real progress.

This mode of transport was first adopted where the steam engine was least fitted, i. e. for tramcar locomotion. For quite a long period electric tramcars acquired a sort of a monopoly for street traffic and in the principal cities of India it is even today the cheapest means of conveyance. On the railways, underground suburban trains, which obviously needed smokeless means of transport, naturally became an early field for electric traction. With the turn of the century electrification spread quickly to surface railway, particularly for suburban passenger traffic. Soon after the economics of electric traction, as an alternate means of augmenting

line capacity without multiplying track, attracted the attention of railway engineers.

The progress made in electric traction on railways in India and other countries can be judged from the following figures:

Countries	Route Miles	Track Miles
Great Britain	905	2,303
Japan	3,591	6,008
Germany	1,843	4,300
U. S. A.	2,708	6,525
France	2,520	4,674
Italy	3,205	6,458
Sweden	3,915	5,893
Switzerland	3,008	1,565
India	239	569
U. S. S. R.	1,040	1,565

The above figures do not include the mileage of the sections which are worked by diesel electric locomotives.

It will be seen from the above figures that electric traction has not made much headway in India as

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compared to other countries. The main handicaps which have contributed to this slow progress are the dearth of cheap electric power and the need for importing most of the machinery and plant from abroad.

ELECTRIFICATION IN INDIA

In India, electrification of track in Bombay and Madras for suburban traffic was seriously considered as far back as 1914 but the outbreak of World War I delayed its implementation. The acute housing shortage in congested cities like Bombay and Madras, however, gave an impetus to electrification. The electrification of railways in India started in 1925 with Victoria Terminus-Kurla section, a distance of about 8 miles, known as the Harbour Branch of the ex-GIP Railway. The main consideration for selecting this section was to assist the Bombay Municipality in developing housing schemes for industrial workers along this route. This was quickly followed by electrification of suburban services from Victoria Terminus to Kalyan, a distance of about 34 miles, which was completed by 1928. Simultaneously, electrification of suburban sections between the Churchgate and Borivali was started on the ex-BB & CI Railway which is now extended upto Virar, a total distance of about 36 miles. In the South, the section between Madras Beach and Tambaram, a distance of about 18 miles, was electrified in 1930 to carry suburban passenger traffic.

The establishment of electric suburban trains has been mainly instrumental in developing the suburbs of Bombay where the population increased from 5 lakhs in 1930 to 35 lakhs in 1950-51. The suburban railways in Bombay which carried 48 million passengers in 1926-27 carried 300 million in 1951-52. On the combined Central and Western Railways suburban services in Bombay, about 700 suburban trains are run every day but even this large number is not adequate, and overcrowding is still common during busy hours. The railways have already planned for augmenting suburban services and placed a large order for the required rolling stock of modern design affording better amenities. Unfortunately, the efforts of the railways to rapidly improve the suburban services in Bombay received a set back on account of acute power shortage. Due to continuous draught in the water catching areas of Tata's Hydro-Electric System the railways were asked to accept a 10 per cent. power cut and, consequently, they had to curtail their services. However, the power position has improved with the expansion of the Railway's Power House at Kalyan and more and more suburban units are being brought into service.

(Continued on page 43)

The number of passengers carried on the electrified suburban services in the Southern Railway during the year 1951-52 was 28 million.

ELECTRIFICATION OF LINES TO IGATPURI AND POONA

The reasons for the electrification of the main lines from Bombay to Igatpuri and Poona were different from those which prompted suburban electrification. To the east of Bombay are the Western Ghats—a difficult terrain. While it has been possible to lay railway lines over the Ghats, the Ghat sections were serious bottlenecks for the rapid movement of passenger and goods traffic by steam locomotives. The passenger trains had to be worked with special Ghat engines and the goods trains had to be broken up into two or three parts. The steam traction proving most uneconomical, it was decided to electrify the section between Bombay and Poona and Bombay and Igatpuri. The work was completed in 1928. The total distance of this electrified section is 180 miles.

Electrification of this main lines has helped to simplify the operation of the train services and it has been possible to increase the load of the goods trains and to carry them over the Ghats without breaking them up resulting in considerable operational savings. It has also speeded up the traffic. A distance of about 112 miles between Bombay and Poona is today covered by the Deccan Queen in less than three hours.

Different voltages are used for operating electric railway traction in different parts of the world according to prevailing conditions. In India, railway electrification is worked at 1,500 volts D. C.

The Railways are now the largest consumers of electricity in Bombay. The combined requirements of the Central and Western Railways are 288 million units a year. A large portion of this power is now supplied by Railway's own power house at Kalyan, which was recently expanded to make the Central and Western Railways almost self-sufficient in their electricity requirements. It is now proposed to add one more generating set in this power house in the course of next few years to meet the increasing demands of the Railways.

SCHEMES FOR FURTHER ELECTRIFICATION

Recognising the advantages of electrification, the Railway Board in 1946 examined schemes of electrification of several sections on different railways. The total sections so examined were about 1,700 miles, and the

All-India Philips Radio and Lamp Conventions

THE first All-India Philips Radio Convention was held in Calcutta on the 16th and 17th November, 1953. To this convention were invited the authorised Philips Radio Dealers from the various corners of the country. Opportunity was taken to discuss the problems now being faced by the Radio industry. As in the case of the other spheres of the country's industrial progress, the Five Year Plan attaches due importance to the development of broadcasting. It was realised that the status of the radio industry must constitute the fundamental basis of a sound broadcasting policy. In the position of being the leading radio manufacturers with all the facilities of research and development of an international organisation behind Philips, a firm restatement of policy in keeping with the larger scope of the plan was called for and Philips authorised Radio dealers together with the house of Philips did a bit of heart-searching so as to be able to run the industry along healthy lines as well as to renew their pledge to serve the ever growing consumers of Philips radios through the medium of their dynamic formula Q.S.G.—Quality, Service, Guarantee.

Mr. Van Rhijn, the Managing Director of Philips (India), said that through this Convention Philips Electrical Co. endeavoured to reach out to the ultimate consumer because each and every customer is entitled to a good radio for his money. Quality, Service and Guarantee are the three factors which are the traditional



Mr. K. N. Das Gupta, Minister, Works & Buildings, West Bengal Govt. (Left) with Mr. Guha, Calcutta Branch Manager, Philips, at the Light Exhibition.

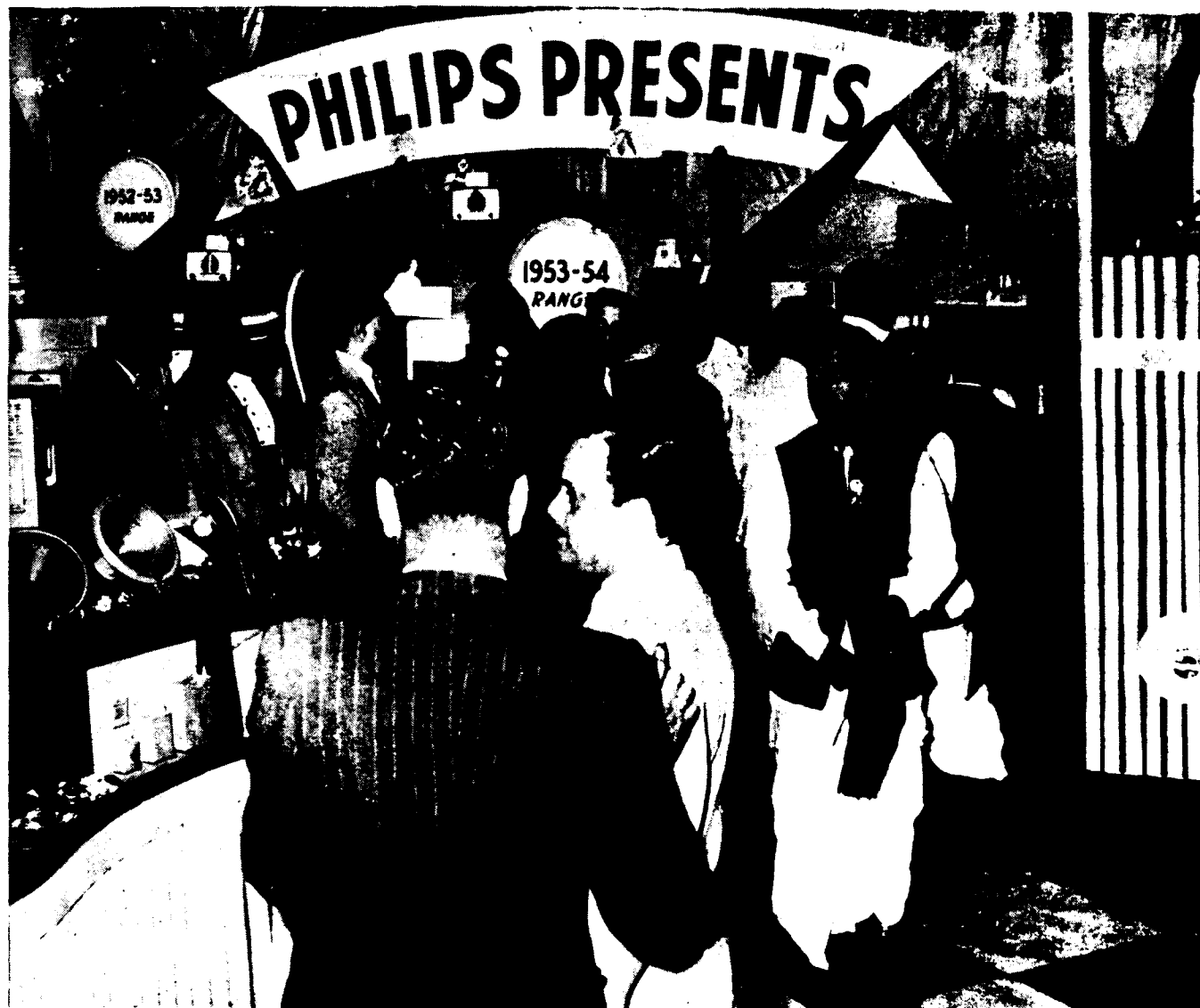
(Continued from page 43)

cost of their electrification was estimated at Rs. 50 crores. The high capital cost involved and other difficulties prevented the Railways from embarking on schemes of electrification on a large scale. However, small extensions such as Kurla-Mankurd on the Central Railway and electrification of additional two lines on sections Bandra-Borivali on the Western Railway were sanctioned. The Calcutta suburban and main line electrification from Howrah to Asansol on the Eastern Railway is at the moment engaging the active attention of the Railway Board and it has been decided to carry out a fresh survey with a view to start the work within the Plan Period, if possible. Various Committees appointed by the Government of India, such as, the Fuel Economy Enquiry Committee and the Calcutta-Terminal Facilities Committee have recommended electrification of about 2,000 miles of track with a view to conserving fuel resources and augmenting the line capacity of the country.

SERIOUS RIVALS ON HORIZON

A serious rival to the electrification of the type described above is diesel electric traction. In countries like the U. S. A. and the U. S. S. R., where there is no dearth of oil, it has been found economical to operate railway traffic by diesel electric locomotives which possess the combined advantages of steam and electric locomotives. However, in India, as most of the oil has to be imported at a high cost, diesel electrification on a large scale cannot be considered at this stage.

Another serious rival on the horizon to electric traction is the gas turbine locomotive which is at present in an experimental stage. One would not be surprised if one of these days a locomotive powered by atomic energy is found running on the railway track!



A Section of the Radio Exhibition.

qualities of Philips Radio and a customer naturally inherits them once he comes to own a Philips radio. Mr. A. A. A. Dijkers, the Radio Manager presented most admirably through his speech the musical lines with particular reference to radiograms, record changers, etc. and gave a clarion call to all the dealer friends for a united action in the present radio market. "How to sell a radio set: How to dress my windows; How to demonstrate in my showroom; What stands behind me" formed important features of his interesting talk.

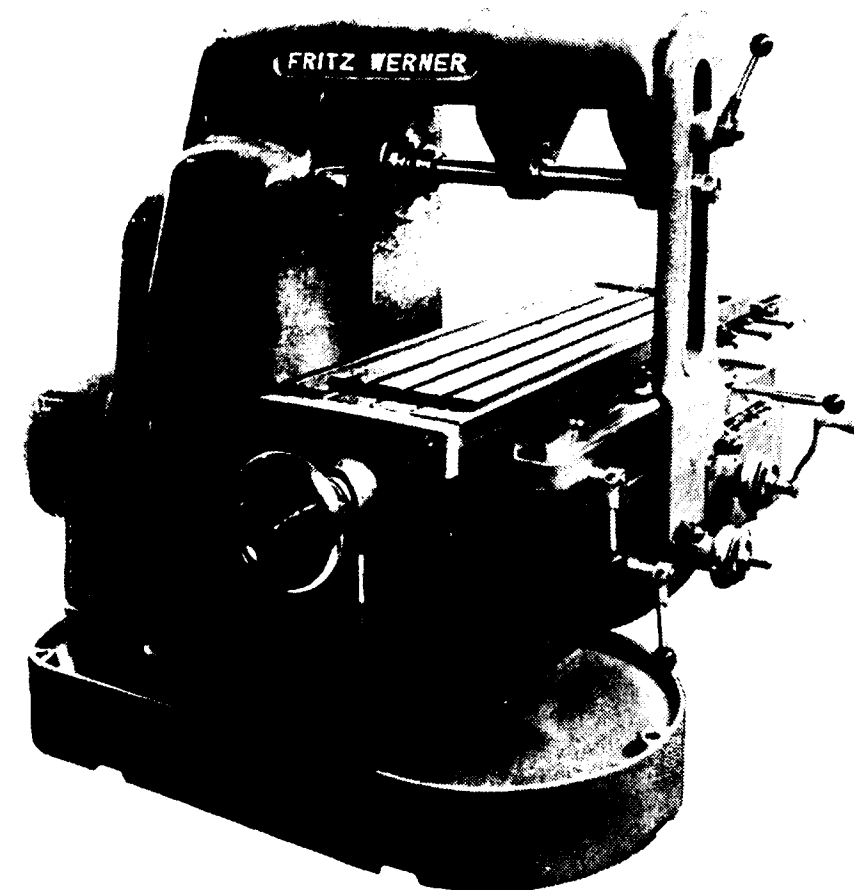
An exhibition was also arranged for the delegates to the Convention, wherein were shown the growth of Philips radio from its early stages in India upto the present time, as also a preview of models for the next year. One of the most interesting features of the

exhibition was the contrast between two show-windows — one very poorly done and the other in a most attractive and eye-catching way. The contrast was not lost on the dealers and readily did they understand the message. It provided a unique opportunity for all the dealers to know one another and acquire a feeling of being members of one family.

Besides a series of talks on the commercial aspects of the Radio industry and trade, the dealers also had the opportunity of listening to talks delivered by our Radio service engineers on the technical problems of service. They were also shown round the Philips Radio Factory where the various stages of production and assembly were watched by them with keen interest. The girl workers of the factory arranged a variety entertainment pro-

(Continued on page 46)

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A PROGRESSIVE PERSONNEL POLICY

MORE than ten years ago Standard-Vacuum adopted a personnel policy which had as its major objective the increasing participation of Indians in positions of higher responsibility. How rapidly this policy is being put into effect can be measured by a comparison of ten years ago with the present. In 1942 there were three Indians and 107 foreign nationals holding positions of higher responsibility. Today there are 66 Indians and 65 foreign nationals holding similar positions.

It is important to bear in mind that in this ten-year period, during which the number of overseas staff has steadily declined, growth and expansion has increased Standard-Vacuum's total staff from 2,000 to approximately 5,350.

This dramatic shift is graphically illustrated in the chart at right. The ratio of 1 Indian employee to 35 overseas employees in top jobs which prevailed ten years ago has changed practically to a fifty-fifty ratio as between Indians and overseas staff. *The number of Indians in positions of higher responsibility has thus multiplied twenty-two times in the last ten years.* It is confidently predicted that this trend will continue as more resident employees demonstrate administrative and technical competence.

Closely linked with the company's policy of furthering this trend are certain fundamental employment policies, designed to minimize wasteful "staff turnover" and to strengthen the organization as a whole.

It is the company's practice to offer employment to intelligent young people in sound health who are seeking a permanent, long-term business career. To ensure the

recruitment of capable employees the company lays special stress on recruitment procedures, and only those who qualify after comprehensive tests and pass a thorough medical examination find employment.

The results of these basic employment policies can best be measured by the record of long service among its people. While the last decade has seen a greater rate of staff growth than at any other time in its history of more than half a century in India—from 2,000 to 5,350—the company is especially proud of the fact that the present total includes 88 employees with more than thirty years service, 515 with more than twenty years service and 901 with more than ten years service. Thus the total of employees whose service exceeds ten years is 1,504 or approximately one out of every four people in our employ today.

Because of the company's policy of filling senior appointments by promotion from within, maximum opportunities for advancement are ensured to those employees who possess the necessary aptitude. Most of the company's 66 Indian nationals in positions of higher responsibility today have reached those positions by means of a series of earned promotions.

Since the nature of the oil industry calls for highly developed skills in many categories, the company has evolved a comprehensive programme of training for its Indian personnel. This includes special training overseas as well as a variety of on-the-job training programmes affecting virtually all classifications of employees. Among the group holding positions of higher responsibility, some of the more senior members who have shown sufficient promise are sent to the United States for advanced training in the major phases

(Continued on page 47)

gramme for the guests. The guests were also taken round the city of Calcutta in a bus and important landmarks visited.

The Radio convention was followed by the Lamp convention which held its session on the 19th and 20th November, 1953. Philips lamp dealers had it hammered home to them that they should not merely sell lamps; they should sell light; what is more important for them as also for the country at large is that they should gradually take up the task of making the people 'light-conscious'. Newer techniques of lighting homes,

factories, streets and offices should be popularised and the old methods of doing only a contractors job relegated to the pages of the past. That they do not sell lamps but light and that they have to change their entire outlook was emphasised by Mr. F. F. Van Rhijn, the Managing Director. Mr. Korff, the Lamp Manager as well as Mr. Mounter, the Chief Lighting Engineer also brought this fact to bear on the dealers through their respective discourses. The exhibition that was organised in this connection gave the dealers a graphic idea of modern lighting techniques in the various spheres of human activity.

(Continued from page 44)

RAILWAY DEPARTMENTS

"THE MEDICAL DEPARTMENT"

By A. H. Pearson

HOW many employees of all grades and categories does a large and modern railway system maintain on its payroll? As far as the Indian railway systems are concerned, each administration employs from any number between one hundred thousand and one hundred and fifty thousand personnel, and it should be remembered that these large numbers of staff are scattered over a railway system extending to as much as five to six thousand route miles. For this vast body of employees to work efficiently to keep the trains rolling, it is essential that the health and physical fitness of every employee is maintained at a high level. This is where the Medical department takes over. It is the main function of this department to take care of the health of every railwayman,—not to forget his family also—and more especially those connected with the movement of trains, and workshop personnel.

The Medical department functions under the Chief Medical Officer, and is again broken up into smaller units, either by divisions, districts or workshops, and each of these units is under the control of the Divisional, District or Workshop Medical Officer. Along with the headquarters unit, each of these is staffed by doctors, nurses, dispensers, dressers and other medical personnel. Each divisional and workshop headquarters usually has a fully-equipped and fully staffed hospital, which can administer to both in and out-patients. At a number of railway hospitals there is also a fully-equipped and modern X-Ray department under the control of a highly-qualified Radiologist.

A visit to one of the railway hospital is the best means of knowing how the medical department does its day-by-day job of administering to the railwayman and his family in sickness and in health. Every morning at quite an

early hour after sunrise employees or their family members will be collecting in the hospital premises waiting to see the doctor. By 8 a. m. the doctor is at his desk ready to see the first patient. One by one they come in and explain their ills to the doctor, who then gives each patient the attention he needs, and then writes out the prescription for a mixture, or a visit to the dresser to have wounds, ulcers, etc. dressed. The doctor also maintains a daily register, with relevant details of every patient seen and treated. The patient then goes off to the dispensary for his medicine, or to the dressing room for a dressing. If the patient himself is a railway employee, the doctor must decide whether his ailment or illness is serious enough for him to be put on to the 'sick' list until he is fit again.

In the larger divisional or workshop centres the number of patients to be seen each day are so large, that more than one doctor is on duty so that everyone waiting is seen and given the necessary advice or treatment. In this daily routine, it is the doctor's job not only to advise or give medical treatment, but he must also see that employees are not unnecessarily taken off the active list and declared 'sick,' as this would mean the loss of valuable man-hours to the administration. He must also discourage the malingerer who comes to him seeking a few days off from work when he cannot get ordinary leave.

Most of the patients who come to consult the doctor each day are there for more or less minor ailments, but there may be a number who display symptoms of a serious illness. If the illness is of a nature that requires being admitted as an indoor patient, this is immediately arranged, and the patient is kept in hospital, give the best treatment available, and not discharged until he or she is fit again. If it is necessary for the patient to have a skiagram taken, he is sent to the Radiologist, and if any laboratory tests of

(Continued from page 46)

of the petroleum industry, and 17 Indians have been so trained in the past four years. The cost of this training which is directly borne by the company averages Rs. 12,000 - per man.

The company's experience in advancing Indian employees and training them during the past ten years

has fully justified its hopes at the time those policies were first introduced, and has laid a sure foundation for their further extension. The company is not unmindful that the transfer of greater responsibilities to Indian nationals should continue, and will benefit the men themselves, the organization of which they are an important part, and the national life of India.

urine, stool etc. are required, these are also done. To help from a correct diagnosis of the patient's condition almost everything that modern medical science can provide is given to the person.

The onset of an epidemic, especially in the vicinity of a large railway colony, is always of grave concern to railway medical authorities. In the nearby town or city, such highly infectious diseases like cholera, small-pox, typhoid etc. may suddenly appear. The railway medical staff do not wait until railwaymen or their families are stricken but start preventive and prophylactic measures at once, by means of inoculations, vaccinations, etc. and by checking up on sanitation, and the protection of foodstuffs. No railway administration can afford to be indifferent or slack where serious epidemics are concerned, as, if railway employees or their families become victims to any serious disease in large numbers, it has a disastrous effect on the efficiency of practically the whole railway system, more especially in the case of the men whose job is to move the trains. Where epidemics are concerned, a railway medical department deserves credit, as the incidence of railwaymen who become victims to the current epidemic disease is very low.

Another important function of the Medical department is that of the medical examination of every new entrant into railway service, and the periodical re-examination of those already serving. Those who are recruited for service as drivers, firemen, guards, etc. will only be passed fit if in all respects they are declared A. 1, and must in particular have keen eyesight. There are certain prescribed standards of physical fitness for various categories of railway staff, and nobody is recruited to railway service until they are passed fit by the medical authorities.

The Medical department is also responsible for the cleanliness and sanitation of railway stations and colonies.

PROMOTIONS IN TECALEMIT (INDIA) LTD.

It is learnt that Mr. A. T. F. Ginzler has been appointed General Manager of Tecalemit (India) Ltd., in succession to Mr. G. Cater. Mr. Ginzler, who has, through Heatly & Gresham Ltd., been associated with Tecalemit (India) Ltd., since its formation, has been connected with the oil industry in this country for many years and is familiar with equipment problems and trading conditions.

His many friends in the motor trade and in the oil industry throughout India will be interested to learn that Mr. G. E. Cater has been appointed General Sales Manager of Tecalemit Ltd., Plymouth, and takes over this appointment in January 1954. He will be responsible both for Home sales and export trade in his new capacity, and will, therefore, maintain his interest in the activities of Tecalemit (India) Ltd. Mr. Cater hopes to visit this country at intervals in the years ahead, and looks forward to maintaining and renewing old friendships.

One can imagine the immensity of the job of keeping clean the premises of a large junction or terminal station, through which people in their hundreds of thousands pass each day and night. If this was overlooked even for a few hours, the station premises would soon get into a disgusting and obnoxious state. But the Sanitary Inspector, with his corps of sweepers and cleaners, are constantly on the job of clearing litter off platforms and between railway tracks, and cleaning all lavatories and latrines. Apart from this, railway stations, including waiting rooms, platforms, lavatories and latrines etc. are thoroughly swept, and washed with strong solutions of disinfecting fluid to fight germs and bacteria.

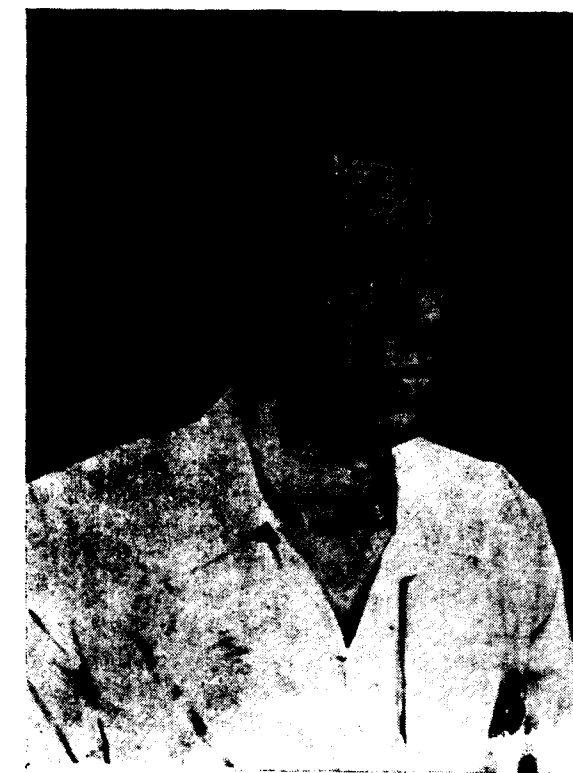
Whenever an accident occurs on the railway and people are killed or injured, the Medical department are soon at the site of the accident so that all possible relief, treatment and succour can be given. The role of the Medical department at the site of a serious rail disaster could be described to read like an epic, but here we can only make a brief mention of this aspect of a railway's medical staff.

There are other ways also in which the Medical department takes care of the railwayman and his family. For example there are the Child Welfare and Maternity centres, where milk is distributed to the infants and toddlers, and also to expectant and nursing mothers. Mothers-to-be are also given expert medical advice and treatment, and after child-birth both mothers and children are given good care and treatment.

For those thousands of railwaymen who have been railwaymen perhaps unto the third and fourth generation, it can safely be said that the Medical department takes care of their health and physical well-being from the time they are born until death claims them.

(Continued from page 8)

hall and it showed beyond doubt how our young men, called the class III staff, are ready to appreciate some good action of the Chiefs. Shri Ramayya himself is a product of the Cambridge of Southern India—Kumbakonam—and every word he uttered breathed a sense of patriotism and duty for the country as a whole. He spoke for more than half an hour and his speech was listened to with rapt attention. He spoke of our sufferings undergone under the leadership of Mahatma Gandhi to get freedom and how much it is necessary to protect that hard-won freedom. Freedom meant, facilities to improve our economic conditions and there is no short cut to improve our economic conditions unless we worked hard. No grouse should come between our sense of duty and work. Once bitterness is entertained, our hard-won independence will be lost. History is full of such instances. He said that "we are the public servants of the country and the nation and our beloved leaders expect much from us". He then turned round to Dais where there were many officers and appealed to them to read the signs of the day and treat the staff in a friendly manner. The days are gone when labour was



Shri Narayanasamy.

treated as slaves. "He is a comrade now". Loud cheers greeted the Speaker when he uttered these words. He spoke at length of the science of New Human Relationship in which each man must play his full part and should be a builder of the new society. He appealed to the sense of patriotism and exhorted them to work hard and discharge their duties efficiently in the larger interests of the country. It is gratifying to note that Shri Jal J. Batliwalla, Deputy Financial Adviser and Chairman of the Staff Benefit Fund fully partook in the conference and evinced very keen interest in the railwaymen. It is in the fitness of things that a large hearted man like him is in charge of a benefit organisation for railwaymen.

Shri T. V. Anandan, the General Secretary, who returned recently after a tour in Europe, presided over the Conference in the absence of Shri S. Guruswami, M. P.

The efficient Secretary of the Branch Shri Narayanasamy presented his report which detailed the various achievements made through his efforts.



Shri S. Ramayya.

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*Shri B. Arora, General Manager, N. E. Railway
....man of pleasing manners....*



*Shri Karnail Singh, G. M., Northern Railway
....intrepid engineer....*



*Top: Shri K. P. Mushran, G.M., Western Railway
....unassuming and unostentatious....*



*Shri H. P. Hira, G. M., Central Railway
....popular General Manager....*

*Bottom: Shri Kailas Behari Mathur, G.M., Eastern Railway
....expert in commercial side....*



*Shri T. A. Joseph, G.M., Southern Railway
....strict, and straight forward....*



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December 1953

SOUTHERN RAILWAYS MAGAZINE

53

Resolutions covering the various problems of railwaymen were passed. These include justice to Pre-1931 men, employment of railwaymen's children, Upgrading upto 50% like the postal employees, payment of House Rent allowance in view of the enhanced house rents, confirmation of staff and better medical facilities to railwaymen.

* * *

A RAILWAYMAN WEDS

The Clerical staff of the Chief Operating Superintendent's Office, Southern Railway, Madras arranged a nice party in the premises of the Modern Cafe on 14-11-53 to celebrate the wedding of their co-clerk Shri P. Sukumaran, B. A.

The cross-section of the General Offices Staff attended the function as Shri Sukumaran endeared himself to his



Mr. and Mrs. Sukumaran.

co-workers through his services in the Co-operative Stores Organisation in the New General Offices, of which he is a Director.

The Senior Officer (Movement) of the Chief Operating Superintendent's Office, Shri R. V. Subramanyam, partook in the function which was greatly appreciated by the railwaymen. Shri Subramanyam himself rose to this high position from the ranks and his genial temperament and capacity for hard work is an ideal example for a railwayman to emulate as on whom depends the entire transport position of the country. The record gathering of the staff loudly cheered Shri Subramanyam when he garlanded Shri Sukumaran and walked briskly with the Leather Suit cases—the humble present made by the co-clerks—and presented them to the couple.

The occasion reminded us of the speech made by our Prime Minister Shri Nehru before a large gathering of Railway Officers in New Delhi when he said :—

“While discipline among staff was very important, no effort should be spared in removing artificial barriers as this would help to develop *esprit de corps* between Officers and ranks”

Every one knows the Operating Department is the nerve centre of the Railway and the headquarters staff of the COPS's office are fortunate in that they have an Officer who has endeared himself to them inspite of the heavy call for work to most of them.

* * *

INTERNATIONAL RAILWAYMEN'S CONFERENCE AT ROME

The recent International Conference of Railwaymen held at Rome at the end of October was a remarkable one in the annals of world Railwaymen's Conferences. As many as 28 Railwaymen's Unions from all over the World with a membership of 3.1 million Railway workers are affiliated to the International Transport Workers Federation. The following is the break up of Union Membership on the basis of continents :—

Europe	1,420,687
America	954,000
Asia	827,000
Africa	12,000

Many interesting subjects pertaining to safety of Railwaymen operation and welfare of railway workers were discussed in this session.

SAFETY OF GANGMEN AND OTHER PERMANENT WAYMEN

After discussion on the Secretary's Report, the question of safety of maintenance of Way workers was taken up for consideration. In Europe, each of the countries report an accident rate of about 125 to 200 maintenance of way-men killed every year. In the United States, 264 maintenance of Waymen were killed and 9000 injured during the ten-year period 1941-50. On Indian Railways in 1951, about 21 employees were killed and 287 injured while working on the permanent way, sidings etc. The delegates stressed the necessity of employing look-out men who can give undivided attention to the task of caring for the lives and limbs of their comrades under modern heavy and fast traffic conditions. The risk is increased by the growing employment of the



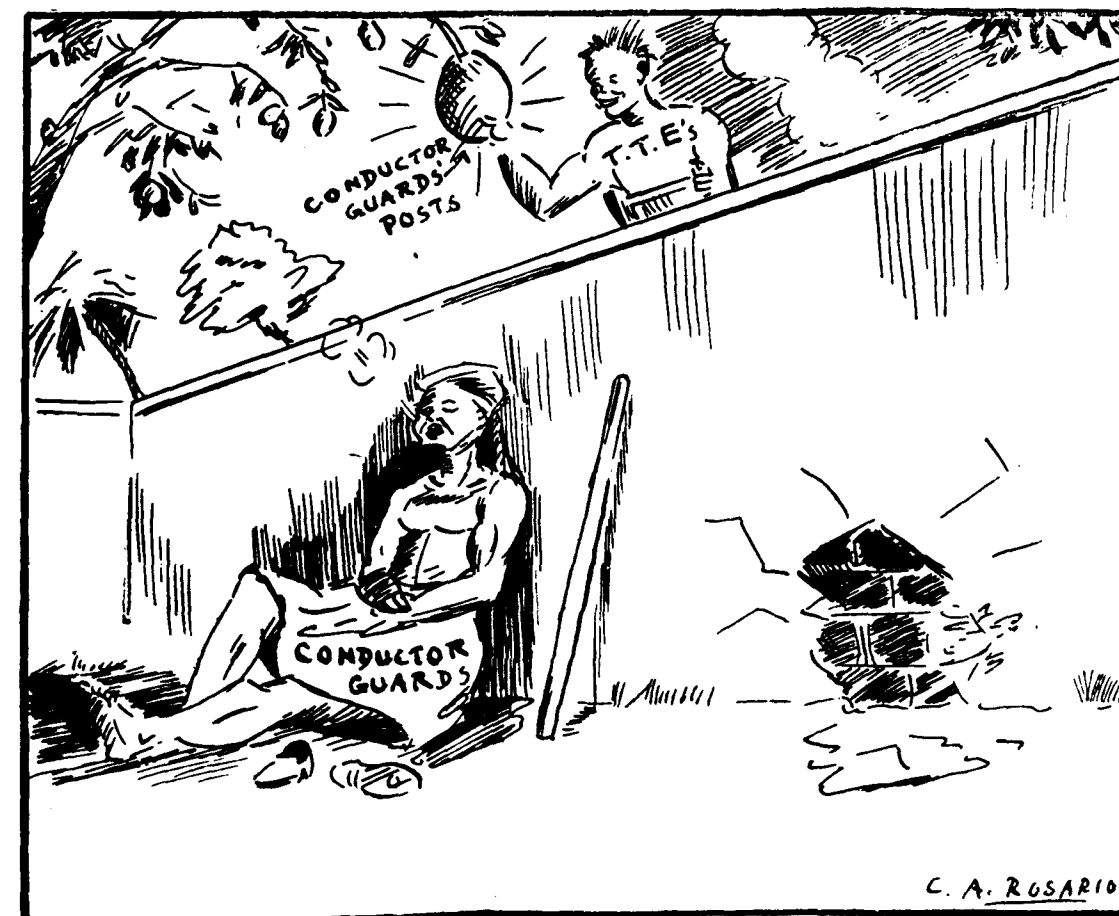
Visit of the Hon'ble Minister for Railways and Transport Shri Lal Bahadur Shastri to the Integral Coach Factory, Perambur on 10-11-53.

cycle trolleys for the daily inspection of the line. The average length covered by the inspection on cycle trolleys is about 8 miles on working days and about twice that on Sundays and Holidays. In Europe, the practice is increasing to provide every gang with a telephone to keep constant communication between gangers and train controllers or dispatchers. It was also emphasised that the transport of workers' tools and materials should have the same protection as trains. The conference urged upon the employers to take all steps to give Gangers adequate instruction in safety measures, that safety regulations should be amended and improved to keep pace with the growing railway technique in collaboration with Trade Unions to provide portable telephone to each gang where a fixed telephone is not easily accessible to ensure better protection, to educate the workers, to protect themselves and their fellow workers by scrupulously observing all safety rules and to employ look out men.

TRAINS WITHOUT GUARDS

The next item discussed related to the practice of running trains without Guards on certain European Railways. In France alone, by introduction of this system, the number of Guards has been reduced from 32,000 to 16,000 in the course of a few years. On unaccompanied trains, the locomotive drivers must perform some of the tasks which otherwise fall to the Guards or Conductors. Everywhere where trains run unaccompanied, a part of the technical and administrative tasks of the guard devolve upon Station personnel. The latter are entrusted with the task of making up of trains, putting on of the brakes of wagons and end brakes. The rear signal must be attached and the accompanying papers are to be handed to the Locomotive Driver in an envelope. At intermediate stations, the Station Personnel receive the envelopes, remove documents intended for the station, keep the

Wake up !!



The Travelling Ticket Examiners are making desperate attempts to take over the conductor Guards' job.

contents if necessary and return the envelope to the driver before he leaves. At the terminal station a Station employee receives the documents and keeps them. Station personnel remove the rear-signal. At stations when the train turns round, the Station personnel must transfer the rear signal.

The Conference decided that in case of passenger trains even when there are two Locomotive men on the locomotive or Motor Vehicle, should not be allowed to run without an accompanying train man. In the case of goods

trains it should be decided in each country on the conditions obtaining there.

A strong Indian delegation headed by Shri S. Gurusami attended the Conference for the first time. The Italian Railway Minister and the General Manager of Italian Railways attended the Conference briefly to convey their goodwill to the objectives of the conference.

The conference served as a clearing house for exchange of information and ideas for the railwaymen from different parts of the world.

"OWN YOUR WAGON" PROPOSAL IN EXPLORATORY STAGE

The Deputy Minister for Railways and Transport stated in a written answer in the Council of States that the "Own Your Own Wagon" scheme had not yet been framed, and the proposal was in the exploratory stage.

Placing a questionnaire issued by the Railway Board on the table of the House, the Deputy Minister added that it was mainly for the parties concerned to make arrangements for procuring wagons in India or abroad. However, it would not be very easy for them to obtain indigenous wagons as they were almost all purchased by the Indian Railways.

The Deputy Minister replied in the negative to a question whether the scheme would result in the discontinuance of priorities in goods booking.

Indian Electrical Manufacturers Association's Sixth Annual Meeting

Presidential Speech By T. S. Sitapati, M. I. E. E.

IT gives me great pleasure to extend a warm welcome to you all on this occasion of the Sixth Annual General meeting of the Indian Electrical Manufacturers Association. I consider it an unique privilege for the Association that amidst their manifold preoccupations, our distinguished guests among whom are our worthy Ministers, high Government officials, Foreign dignitaries and leading public men have evinced an interest in the activities of our Association and spared some of their valuable time for us. Their presence here this afternoon is to our members a source of encouragement for whatever we have been able to achieve in the past and inspiration for what we have to do in future.

Last year we had the privilege of inauguration of our Annual Session by Sri T. T. Krishnamachari, the Union Minister for Commerce and Industry. This gave to our Association a stamp of status which we have tried to live up to and augment. This year we are equally fortunate in having Sri K. C. Reddy, the Union Minister for Production to inaugurate our Session.

You are all aware that Sri K. C. Reddy has to his credit a long and noble record of public service during the past 25 years. He has been a leading light of the enlightened and progressive Mysore State becoming eventually its Chief Minister after the establishment of Responsible Government in that State in 1947 and serving in that capacity for nearly five years. About his leadership of the Mysore Legislative Assembly to which he was elected thrice and has stewardship of the State as Chief Minister, there can be no better tribute than the decision of our beloved Prime Minister, who has the gift of choosing the right men for the right places, to invite Sri Reddy to the Central Cabinet and facilitate his serving a far wider sphere. It is only a year and a half since Sri K. C. Reddy took on the new portfolio of Production carrying with it a heavy responsibility for the initiation, control and progress of several major Government-sponsored industrial undertakings. Ably assisted by a band of energetic officials, he has been able to build up an important Ministry and achieve result within a short period. There being numerous matters of common interest between the Production Ministry and the activities of our Association, it is particularly gratifying that Sri K. C. Reddy, the Head of the Ministry has been pleased to accept our invitation to inaugurate this Session and give a sympathetic hearing to our problems.

At the outset I wish to acquaint our distinguished guests with a few salient points about our Association. With the exception of manufacturers of Electric Fans and Lamps who have separate organisations of their own, the leading manufacturers in the electrical line are members of our Association. Our strength is not in the number but in the quality of our membership. On an analysis you will find that every member firm is a leader in its line of manufacture for quality, integrity and reputation and also there is hardly any established manufacturer of repute who is not our member.

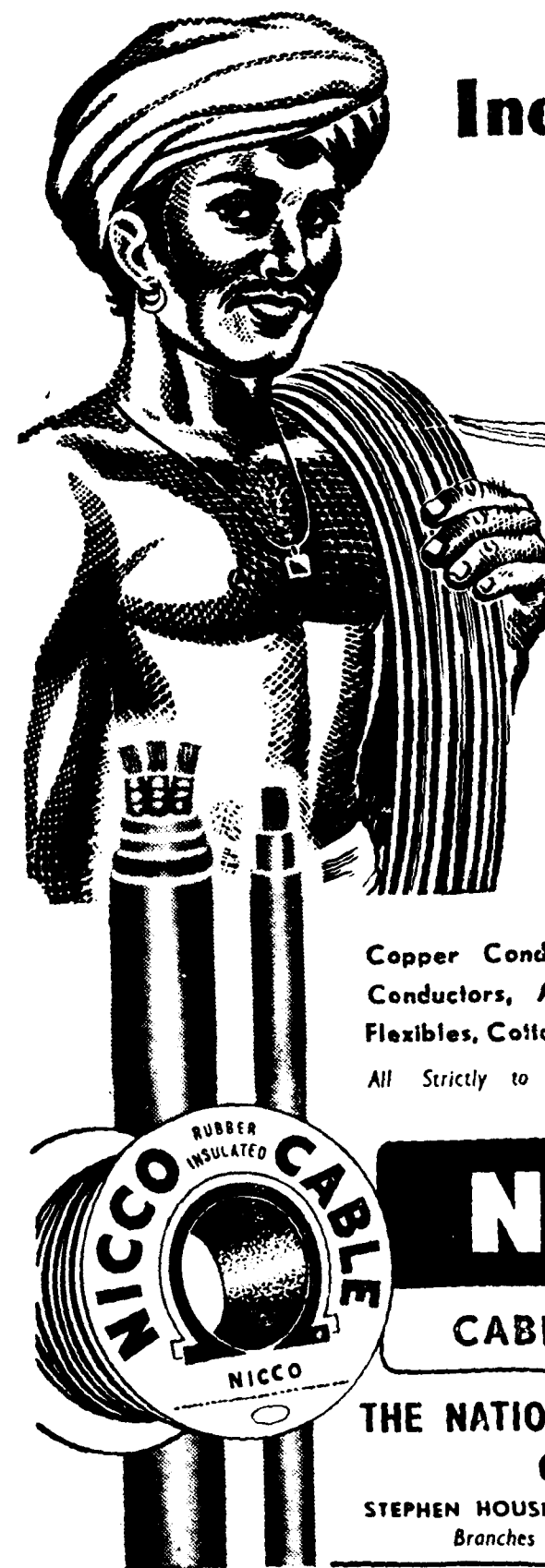
The manufacturing activities of our members have been continuously on the increase in regard to both quantity and range. In this respect I can confidently claim that the progress in the electrical manufacturing field between pre-war and war period and again between the pre and post Independence period is such as to bring considerable credit to our country. I would invite you to a perusal of our Annual Report in which is included a lot of factual data about the Indian Electrical Industry. It would suffice for me to mention here the range of products which the industry has attained so far :—

Transformers up to 2500 kVA with 33 kV on the H. T. side; Electric Motors up to 200 H. P. and controlling equipment; Electrical Steel Sheets and Stampings; Bare Copper Conductors; Aluminium Conductors and ACSR; Rubber and Plastic Insulated Cables and Flexibles of all types and sizes; Cotton, Paper or Enamel Covered Wires for Winding purposes; Storage Batteries inclusive of all special types; Simple type Switchgear; Outdoor Gang operated Switchgear upto 132 KV; L. T. Oil Circuit Breakers up to 800 amps; House Service Energy Meters; Electrical Accessories, fittings and appliances; Steel Conduit Pipes.

It is worth mentioning that in many of these items the installed capacity in India is far in excess of the country's demands; consequently there is a great scope for an export drive. Moreover, the industry is rapidly developing in quantity and scope, and it may be confidently hoped that it will exceed the expectations under the Government Five Year Plan.

Quality is a matter on which our Association lays great emphasis and every one of our members feels a legitimate pride about. This is as it should be, because human life is involved in the case of electrical plant and

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accessories, and there can be no compromise with insistence on the highest quality and workmanship. As a matter of fact, the established manufacturers find it advantageous to adhere to the highest standards of electrical plant, Cables, Wires and accessories prevailing in industrially advanced foreign countries. Until the insistence on quality in preference to price alone gets standardised in India, it is well worth reminding certain sections of the consuming public and even certain Government Departments that their requirements are fully safeguarded only when they entrust their supplies to manufacturers of repute who are known to possess proper plant, adequate testing facilities and abundant research experience.

The insistence on quality and possession of knowledge of latest advances in industry abroad are natural assets to our members many of whom represent manufacturing activities in India of well-known foreign manufacturers of repute, and most of the others have entered into arrangements with reputed manufacturers in the U. K. and Europe for technical collaboration and 'Know-how'. It is because of this noteworthy feature that there is complete harmony in the working of our Association in the interest of a rapid industrialisation of our country.

The problems of the Indian Electrical Industry are manifold and may be classified into two categories viz. those that are common to various other industries and those that are peculiar to the Electrical Industry. I do not propose to dwell at length on the several problems which the Electrical Industry has to face in common with other industries in the country, for example Taxation, Labour Policy, Provincial Sales tax etc. These are subjects already under the active consideration of Government on the basis of representation made by the various Chambers of Commerce and Industry and Federations. I would only mention that for the sake of achieving better results in India's march of industrial progress, we can do with more of intensive co-ordination between the various Departments of Government and again between the Government and private sector of the industry. Similarly, in the case of labour problems which are on the increase, the need for a more rational and firm policy cannot be over-emphasised. As mentioned earlier, these problems of great of consequence to all the industries in India have to be approached in a realistic manner and we confidently hope that our National Government are fully alive to these problems and are giving them their earnest consideration.

IDLE CAPACITY

The idle Capacity Committee which was appointed by the Government of India about a year ago has reported

that the engineering industries are having 50% idle capacity. Although electrical industries were not included in the survey, the findings are applicable to the majority of the electrical industries as well. The underlying causes, as is by now well known to everyone concerned, are to a large extent attributable to the rigidity of economic conditions under which the Indian industries are carrying on their production. The cost structure has attained a rigidity on account of the enforcement of the Minimum Wages Act and it has become impossible for the industries to compete with foreign manufacturers. The situation is augmented when factors governing the production costs are conveniently ignored in placing the Government orders. The time has come when the Government should not only cry a halt to their enthusiasm for labour legislation but also to ensure that the industries which have been established are able to maintain a record of continued progress. Idle capacity with its natural effects on production, employment and standard of living will prove a great national disaster and it must be averted in time.

STORES PURCHASE POLICY

The Stores Purchase Policy, channelised as it has been largely through the Directorate General of Supplies & Disposals, has been generally satisfactory. However, under its very system of working the D. G. S. & D. have been more concerned with prices than with any policy designed to encourage and support indigenous industries. Moreover the procedural details right from the time of receipt of an indent to its eventual disposal and payment to contractors are too elaborate to be considered essential; consequently, several avoidable delays and difficulties are known to arise. Here again, the Government of India were alive to the need for rationalising the Purchase Policy and constituted a powerful Committee who have been going into the matter very thoroughly. Our Association also had the privilege of submitting its views to the Committee. It is confidently expected that the recommendations of the Committee will have a far reaching effect in evolving a more business-like Purchase Policy and thus give an active impetus to the indigenous manufacturers.

DEVELOPMENT WING

The Development Wing of the Ministry of Commerce and Industry has been a source of strength to the indigenous manufacturers. The experience of our members with the Development Wing in any approach for help, control or guidance, has been pleasant. I feel that it would benefit the established Indian Industry to a greater extent if Government would see its way to strengthen the Development Wing yet further

not only in regard to technical personnel but also make it a powerful organ to have an effective voice in anything happening through policies of the Central or State Governments to the prejudice of the Indian Industry.

INDUSTRIES DEVELOPMENT AND REGULATION ACT

At our Fifth Annual Meeting held a year ago I expressed the Association's welcome to the Industries Development & Regulation Act and pointed out that the provisions of the Act are certainly desirable, but the success of the measure entirely depends on the strict watch and control maintained by Government. In order to attain the specified targets of production and maintain quality, the measures taken by Government against law-breakers should be as stringent as the encouragement given to established manufacturers should be liberal. It is in the national interest that where there is adequate existing capacity for any items of goods, no additional capacity should be created or allowed to come in. This is indeed the basic principle of the deliberations of the Planning Commission. It is also desirable in the case of new units which have sprung up recently that they have been examined thoroughly by the Government in regard to their equipment, testing facilities and standards of quality. As an instance in point, I would mention that the Planning Commission found that the existing capacity of the three established manufacturers at Tatanagar, Shamnagar and Kundara is sufficient to cover the country's demands for Aluminium Conductors with or without steel reinforcement. We therefore, received with surprise the news sometime ago that two additional units have been licensed for the manufacture of ACSR Conductors. It is also rumoured that another unit will be licensed very shortly. While the target set for this Commodity under the Five Year Plan has already been achieved, the creation of more units will only accentuate the problem of idle capacity which is already weighing heavily on the industry. The same applies to the manufacture of Bare Copper Conductors for which the installed capacity between the two established manufacturers alone is much more than the country's demand. Still several units have come into the field with or without licence and are contributing to acute idle capacity in the industry. The same applies to additional units for motors and transformers for which licences have been granted recently, although there is ample capacity in the country. In the absence of full information I should not be construed as criticising the Licensing Authorities who might have felt fully justified in the cases referred to. What I mean to emphasise is that in order to inspire confidence in the existing units, a representative Association like ours should be given an

opportunity to examine and put forward its views on any proposals for new industries or expansion of existing industries in the electrical line.

IMPORT RESTRICTIONS

It can be safely said that the policy of restricting imports and encouraging manufacture in India has paid ample dividends in the past. But for such a step, none of the Electrical Industries could have made as much progress as they have now achieved. As an instance, on account of import restrictions placed on Electric Motors upto 50 H.P. the production of these motors in the country has been growing up gradually, and the consumer has not suffered in any way. On the contrary, in many instances it is found that the prices of locally-made articles are cheaper than the prices of imported stores with no sacrifice in quality. Again, the Meter Industry is a recent addition to the Indian Electrical Industry and has stepped in at the correct time to cater to the increasing demands following distribution of power under the various Power Projects. The industry has already produced a quality product but being a highly precision article, it requires time to establish itself in the market. I would therefore take this opportunity to represent to Government that the policy of restricting imports and progressively enlarging the range of these restrictions should be consistently followed until the industry is stabilised.

PREFERENCE ON PRICE

A leading Economist recently reminded us that a community to be economically viable must not merely produce but be able to market all it produces. This is of special significance to the Electrical Industry which suffers very serious handicaps compared to its counterparts in foreign countries. Unlike some other industries, we can only produce against demands and we are yet to build an export market. Consequently, the prices of certain articles produced in India are bound to be higher than the imported article. If the demands increase and the Indian manufacturer can utilise his capacity better, the prices will certainly decline. Instead of pursuing this policy of encouraging demands to be placed on the indigenous manufacturer, there is a tendency for several Government Departments to prefer the imported stores even for a little price advantage. On a previous occasion, speaking about the Transformer Industry, I furnished figures to convince Government that even upto about 17.29% price disadvantage of the indigenous article, Government does not stand to lose considering the various indirect taxes realised by the Central and State Governments from the indigenous manufacturers, and the community welfare arising out of local

manufacture. Here it will be relevant to quote the Stores Purchase Policy followed by certain foreign countries as a major factor in encouraging indigenous production. In the matter of extending preference to indigenous articles, the Government of India may well emulate the U. S. Government's "Buy American Act" under which Federal purchases cannot be made of goods of foreign origin unless the price after Customs Duties is at least 25% below the domestic price. I feel it is time for our Governments, Central and Provincial to lay down a similar clearcut policy.

RAW MATERIALS

The supply position of raw materials has been increasingly satisfactory as also the assistance of the Development Wing and the Import Licensing Authorities in facilitating the import of certain essential raw materials or components which have still to be obtained from abroad. There is, however, one important matter which is sometimes overlooked, viz. that a certain raw material for one industry is a finished article as far as another manufacturer is concerned. While Cotton, Paper or Enamel Covered Wires are finished products of the Cable Industry, they form essential raw materials for the Transformer and Motor Industries. Similar is the case with Electrical Steel Sheets. Unless Government maintain a constant liaison and regulate imports only to cover essential raw materials to the minimum required, one section or other of the industry is faced with a shut-down. Actually it has come to our notice that Tatas, the only producer of Electric Steel Sheets have had to suspend manufacture of the same due to paucity of demands of the Dynamo Grade sheets. This is a matter which has to be solved at the earliest in the national interest and steps taken to avoid a recurrence.

NATIONAL LABORATORIES

Switchgear inclusive of Oil Circuit Breakers upto Low Tension 1000 amps and even 11 kV. 400 amps are being made in the country. One great handicap the manufacturers are suffering from is the want of suitable testing facilities in the country for carrying out short circuit tests. It is not possible for individual manufacturers to equip themselves with the same. May I therefore urge that it is time for Government to pay earnest attention to this need and provide facilities to the Indian manufacturers on the lines of 'ASTA' Tests carried out by the National Physical Laboratory in the U. K.

FOREIGN AID

While we appreciate all foreign aid accepted by our Government for our national schemes, I regret having to

observe that in some cases the aid so received is to the prejudice of the established indigenous industry. For instance, under the TCA Programme for the construction of tube wells, the country has been importing several types of finished articles, one of which is Transformers, which are in the regular production line of Indian manufacturers and for which ample capacity exists. We are told that contractors with whom contracts are placed for complete jobs have their discretion to obtain their requirements from the World Market. Actually it should be made obligatory on the contractors to obtain their requirements only from indigenous production and go out for goods of foreign origin only if such stores are not manufactured in India. Similarly under another Plan, finished Copper Conductors and ACSR are being imported when the indigenous manufacturers are facing difficulties with considerable idle capacity in their Plants. I also wish to refer to our Trade Agreements with foreign countries, in some of which it has occasionally been found that certain items which are in the regular manufacturing line in India are allowed to be imported. The economic advantage of any Foreign Aid or Trade Agreement is negated to the extent it involves the dumping of foreign made finished goods for the manufacture of which ample capacity exists in India.

INDIAN STANDARDS INSTITUTION

The I.S.I. has marked another year of useful activity bringing out several Indian Standards for electrical materials to which our members have contributed by serving on the several Councils and Committees. While the time and money spent by our members on the work of standardisation are justified by the number and quality of Standards finalised, it is distressing to find that even Technical Departments of the Central and State Governments are still inclined to cling to foreign standards or old I.S.D. Specifications which have outlived their usefulness. Where an I.S. Specification exists for an article, it should be made as much obligatory for a Purchaser to insist on it as the manufacturer to comply with it, to the exclusion of other foreign or out-of-date Standards.

DEVELOPMENT COUNCIL

The country is developing rapidly in the matter of generation of electrical energy. The electrical manufacturing industry has also to keep pace with such electrical development. It will be a great assistance to all interests if a Development Council is constituted for the Electrical Industry. Such a Council is essential for co-ordinating all our national efforts in the electrical field. I hope that Government will lose no time in constituting such a Development Council.

PROPOSED HEAVY ELECTRICAL PLANT

FACTORY

I now beg leave to deal with a decision of the Government of India in the Ministry of Production which will have far-reaching effect on the existing Electrical Industry—I mean, the proposed Government-owned Factory for the manufacture of Heavy Electrical Equipment. There can be no two opinions about the desirability and even the need for such a Project in India. What is important are firstly the best Agency for execution and secondly the aims and scope of such a major Project. If both these aspects are fully considered and the existing industry is taken into confidence, it would promote good. On the other hand a lop-sided planning of any feature of the Project means considerable harm to the private sector of the industry which has an important part to play in a Scheme of Mixed Economy and has in fact shown itself capable of fulfilling its obligations under the National Plan. But for the financial resources required for a large capital outlay, the existing units in industry possess the technique and are certainly capable of enlarging their range of manufacture so as to cover gradually the contemplated items of heavy equipment. In fact, some of our members have been thinking on these lines. However, this question is settled with the decision of the Government that manufacture of Heavy Electrical Equipment should be undertaken as a State Enterprise. We have been assured "that it is not Government's intention that the new enterprise should prejudicially affect, but it is rather that it should, in the main, supplement such units as are existing at present in the private sector. For this purpose, installed as well as potential capacities of the existing units will be taken into account". This assurance is no doubt very welcome but in the context of the State's recent entry into the field of major industrial activity, I may be excused for reiterating that the initial Project Report itself which is yet to be received by Government may cover only such type and range of products as will not be achieved by the existing industry even by the end of the second Planning period. For a Project like this, with which the interests of our members are closely knit, it is essential that at least two representatives of our Association should be associated with the body of the people who have been entrusted with the planning and execution of the Project. It is only such a step that will be a valuable liaison and prove beneficial both to the Project and the existing units of industry. Sir, I trust that this will receive your earnest consideration.

TELEPHONE CABLE PROJECT

We learn with pleasure that the constructional progress of Hindusthan Cables Ltd. at Chittaranjan has made

considerable headway and the Factory will shortly commence manufacture of Dry Core Paper Insulated Telephone Cables. It will thereby open a new era of industrial progress which we all welcome. I believe that as far as this Project is concerned its scope is confined only to the manufacture of Dry Core Paper Insulated Lead Covered Telephone Cables and there will be no overlapping with other types of Cables and Wires which are under the purview of the existing Cable Industry as per the Five Year Plan.

INDUSTRIAL DEVELOPMENT CORPORATION

We welcome the recently proposed step of the Government of India to launch an Industrial Development Corporation comprising of Government representatives, engineers, scientists and industrialists. It is claimed that the proposed Corporation will quicken industrialisation and revolutionise the economic activity of the country. We request Government to take an early decision to usher in the proposed Corporation.

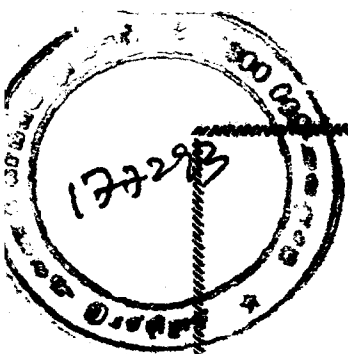
TARIFF COMMISSION

I wish to pay a tribute to the Tariff Commission which has followed a consistent policy of protection to indigenous industry taking duly into account the consuming and other interests. During the past year the Commission enquired into the Transformer Industry and extension of protection to the Battery Industry. Their findings which were accepted by Government have been of great benefit to the industries.

CONCLUSION

On the eve of my retiring from the Chairmanship of the Association which position of honour I was privileged to hold for two years, I wish to express my gratitude to all my fellow members of the Council, for their co-operation and guidance. I should also thank all others who have helped the Association in one way or other in its march towards progress. The day to day conduct of our affairs has been ably handled by our energetic Assistant Secretary Shri D. K. Sinha under the guidance of Shri R. D. Vidyarthi till some months ago, to both of whom and to the staff I wish to express my thanks.

I extend warm greetings to Mr. P. H. Bolland, the Chairman-elect who has been a distinguished Chairman of the Fan Makers Association and possesses intimate knowledge of the Indian Electrical Industry. I have no doubt that under his able guidance the Association will mark an era of increased useful activity.



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Buy your tickets only at the proper place. The authorised offices are (i) the Booking Offices at the railway stations, (ii) the Town or City Booking Offices, (iii) the out-Agencies, (iv) Travel Agents. Never buy tickets from any other source as that may lead you to trouble. Please note that tickets are not transferable.

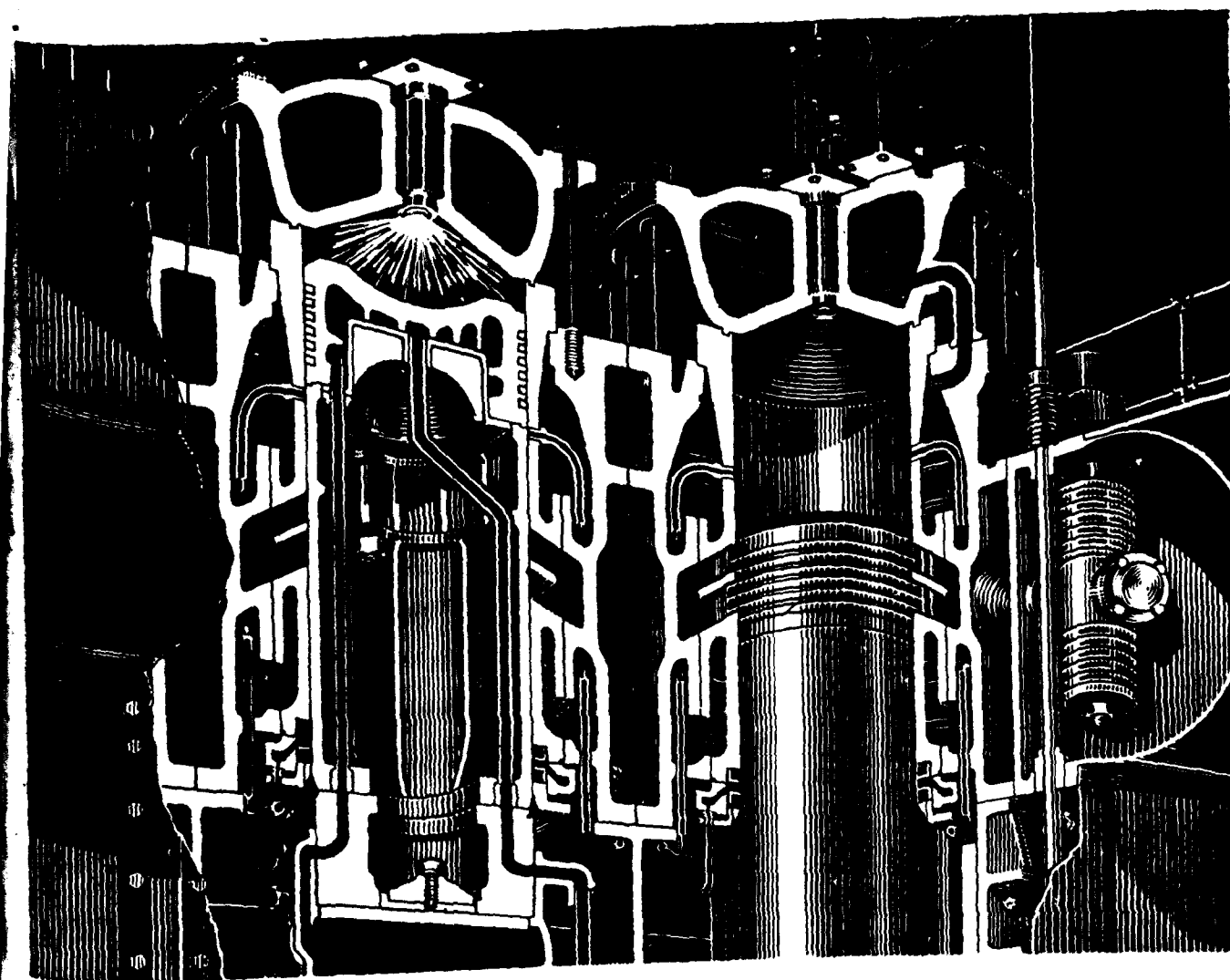
Buy your tickets at the proper time. You can avoid unnecessary excitement and trouble if you come to the station in good time, that is at least half an hour before the scheduled departure of your train. The Time Tables of the Railway are on sale at Booking Offices and Bookstalls.

Buy your tickets in the proper manner. Queue up at the Booking Window and you can get your ticket easier and quicker than by crowding at the counter.

By handing in the *exact fare in good coins or currency* you get the ticket easier and quicker, and save for yourself and the Booking Clerk time and trouble.

Check up your ticket and money before leaving the counter and draw the attention of the Booking Clerk to any discrepancy you may notice.

(Inserted in the interests of Travelling public)



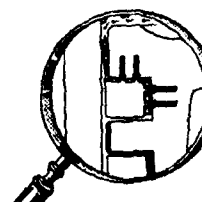
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