

SOUTHERN RAILWAY

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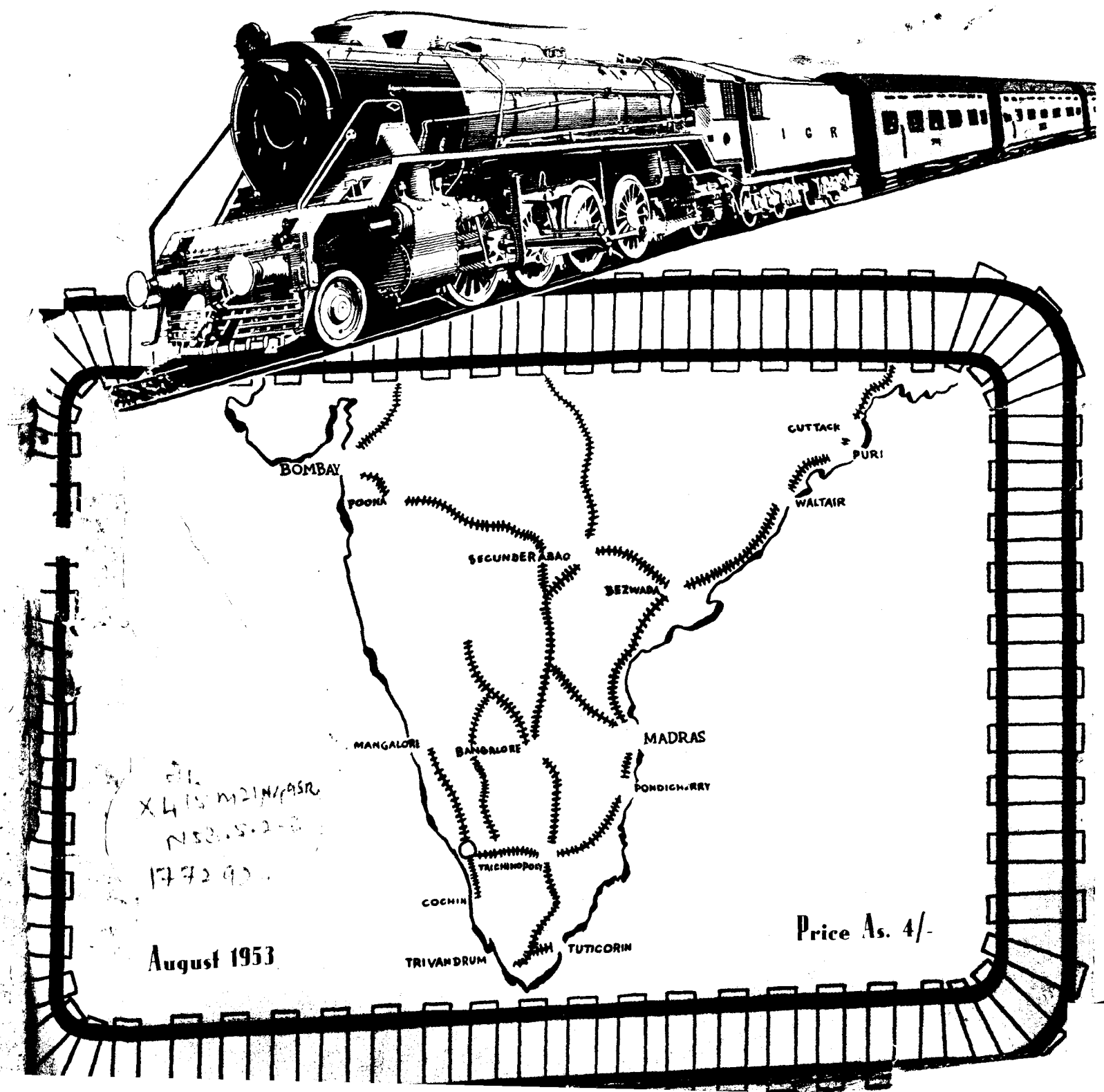
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SOUTHERN RAILWAYS

Magazine

88/54

MADRAS 1954
JUN 54



XL 15 MDN/ASR
N 53.5.2-8
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August 1953

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August 1953

ANNIVERSARY (TRANSPORT) SOUVENIR

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New Delhi,
15th July 1953.

I send my felicitations to the "SOUTHERN RAILWAYS MAGAZINE" which is about to
celebrate its Fourth Anniversary. I wish it all success.

P. B. Aiyer

Best wishes from Vice-President



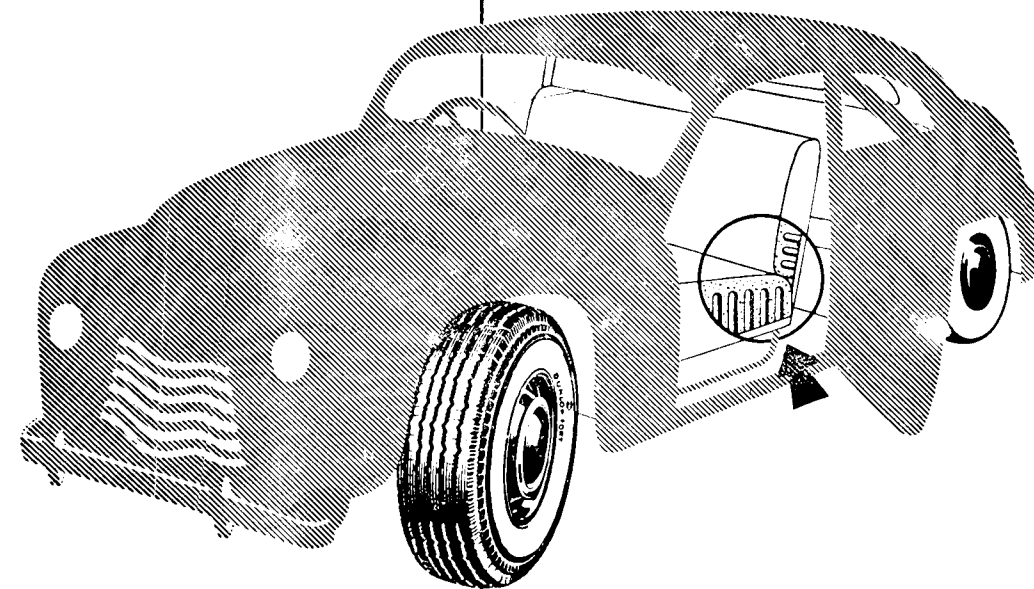
Vice-President's
Secretariat,
New Delhi.

31st July 1953.

Thank you for your letter of 1st June 1953 which just came to my hand after my return to Delhi. I am glad to learn that you are bringing out a special number or the Fourth Anniversary of the "SOUTHERN RAILWAYS MAGAZINE" by the end of August. I wish you best of luck.

Neelam

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Greatly impressed by the quality of the articles
published says our General Manager



General Manager's
Office,
Park Town,
Madras-3.

27th June 1953.

I am very happy to learn that the "SOUTHERN RAILWAYS MAGAZINE" will be celebrating its Fourth Anniversary shortly. I have been reading this Magazine from its inception and have been greatly impressed by the quality of the articles published. The articles published have not only been of interest to railwaymen in the South but to railwaymen all over India. I do hope that in the coming years the Magazine will continue its usefulness to railwaymen, and I wish the Magazine and its Editor every success.

[Signature]

Deserves considerable credit for the standard attained
says General Manager, Western Railway

41
94



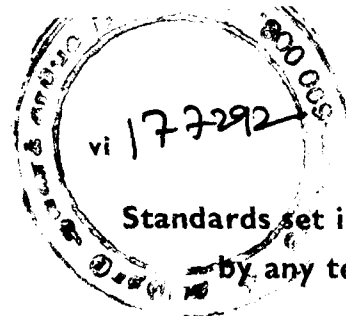
General Office,
Churchgate,
Bombay.

8th June 1953.

I am glad to learn that you are celebrating the Fourth Anniversary of the "SOUTHERN RAILWAYS MAGAZINE" in August this year and will bring out a special number on the occasion. Considering that this Magazine is so young, it deserves considerable credit for the standard that it has attained. I read every issue with interest.

May I wish you and your Magazine a long and prosperous life.

[Signature]
(K.P. Mushran)



Standards set in the technical articles on Railway matters are worthy of emulation by any technical magazine anywhere comments the General Manager, Ceylon Government Railway



General Manager's
Office,
Colombo.

25th June 1953.



The close and intimate relations between the people of Ceylon and the people of India which stem from geographical and cultural causes, find its reflection in the relationship between the Ceylon Government Railway and the Indian Railways. Particularly is this so in regard to the Southern Railways administration which is the heir to the former South Indian Railway, the former Madras and Southern Mahratta Railway, etc. For one thing, there are the ties emanating from the arrangements for the through bookings of passengers and merchandise between all stations on the Ceylon Government Railway and some stations on the Southern Railways; for another, the close geographical proximity of the Southern Railways and the Ceylon Railways, with largely similar operating conditions and terrain, have resulted in a keen interest in the exchange of technical information and knowhow. It is, therefore, with great pleasure that I send this short message to the "SOUTHERN RAILWAYS MAGAZINE", which is an important medium for the dissemination of technical knowledge and information about the Southern Railways, on the occasion of its Fourth Anniversary.

We in Ceylon Railways have noticed how the amalgamation of the South Indian Railway, the Madras and Southern Mahratta Railway and the Mysore State Railway, to create a powerful new unit of transportation in South India, has also caused a steady increase in the size of the "SOUTHERN RAILWAYS MAGAZINE" and an undoubted improvement in the quality of the publication. The standards set in the technical articles on Railway matters, especially, are worthy of emulation by any technical Magazine anywhere. I have no doubt that these articles have been successful in promoting a keener interest and awareness among all grades of railwaymen in South India and indeed among all Railwaymen, irrespective of the administration to which they may belong, who have access to the Magazine.

Apart from the readable, informative, and interesting articles on Railway matters, I have perused the articles on matters of general interest ranging from Home management to Architecture, Art and Culture, and found them good. I am sure that this variety in the reading matter provided has ensured the popularity of the SOUTHERN RAILWAYS MAGAZINE not only with railwaymen but also with the general public.

I wish the "SOUTHERN RAILWAYS MAGAZINE" all success and many more years of useful work.

M. Karagasab

A tribute to our SOUTHERN RAILWAY ADMINISTRATION and its personnel



New Delhi,

27th May 1953.

It is a particular pleasure to wish your Magazine well since I am sure that it reflects the courtesy and service for which the "SOUTHERN RAILWAYS" are noted.

Last March members of my staff and of the Canadian Agricultural and Co-operative Mission visiting India, travelled some two thousand miles on your railway system from Bezwada to Trivandrum; from Bangalore via Hubli to Bombay; and from Bangalore to Madras. They travelled on both broad and metre gauge and were greatly impressed with the cleanliness and efficiency of your system and the courtesy of your staff.

Escom Paul

"This Magazine strives hard to bring the achievements of the Railways to the notice of the public, and the needs of the travelling public to the notice of the administration" says H. E. Governor of Madras



Raj Bhavan,
Ootacamund.

28th May 1953.

I am very glad to learn that the Editor of the "SOUTHERN RAILWAYS MAGAZINE" proposes to bring out a special number on the occasion of its fourth anniversary.

It is noteworthy that Magazines such as this, serve as a link between the Railway administration and the travelling public. It is gratifying to know that this Magazine

strives hard to bring the achievements of the Railways to the notice of the public and the needs of the travelling public to the notice of the administration.

I have gone through their recent Centenary (Engineering) Souvenir, and I congratulate those responsible, on this excellent production.

I wish the "SOUTHERN RAILWAYS MAGAZINE" all success, and hope that as a result of its endeavours, a spirit of co-operation—so wanting at present—may grow between all classes of the railway services, on the one hand, and all grades of the general public, on the other, so that the genuine public purpose of this great State enterprise may be fully and truly realised, and its usefulness enhanced in the interests of all.

L. C. Prakasa

...fulfilling a useful function says Australian
High Commissioner in India



New Delhi.

India, in this centenary year, is justly proud of the record and present capacities of her railways. Their continuing successful operation is not only an example to other fields of activity in India, but to other countries as well, and the pride of achievement must be shared by every one connected with the railways.

The "SOUTHERN RAILWAYS MAGAZINE", in helping to make railwaymen better acquainted with conditions in their own industry and the world at large, is fulfilling a useful function. On the occasion of its Fourth Anniversary, I send greetings and best wishes for its continued success.

W. R. Crocker.

Good wishes from H. E. Governor of Bombay



Raj Bhavan,
Malabar Hill,
Bombay-6.

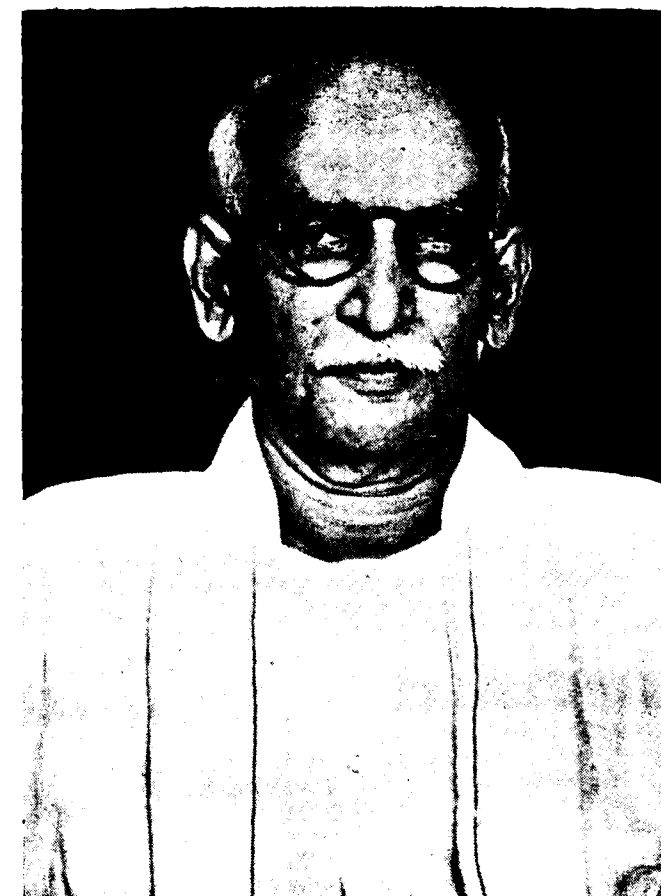
30th May 1953.



I am glad to know that the "SOUTHERN RAILWAYS MAGAZINE" has completed three years of useful service and wish it continuing success.

E. S. Bajpai

Hearty greetings from H. E. Governor of Madhya Pradesh



Raj Bhavan,
Pachmarhi.

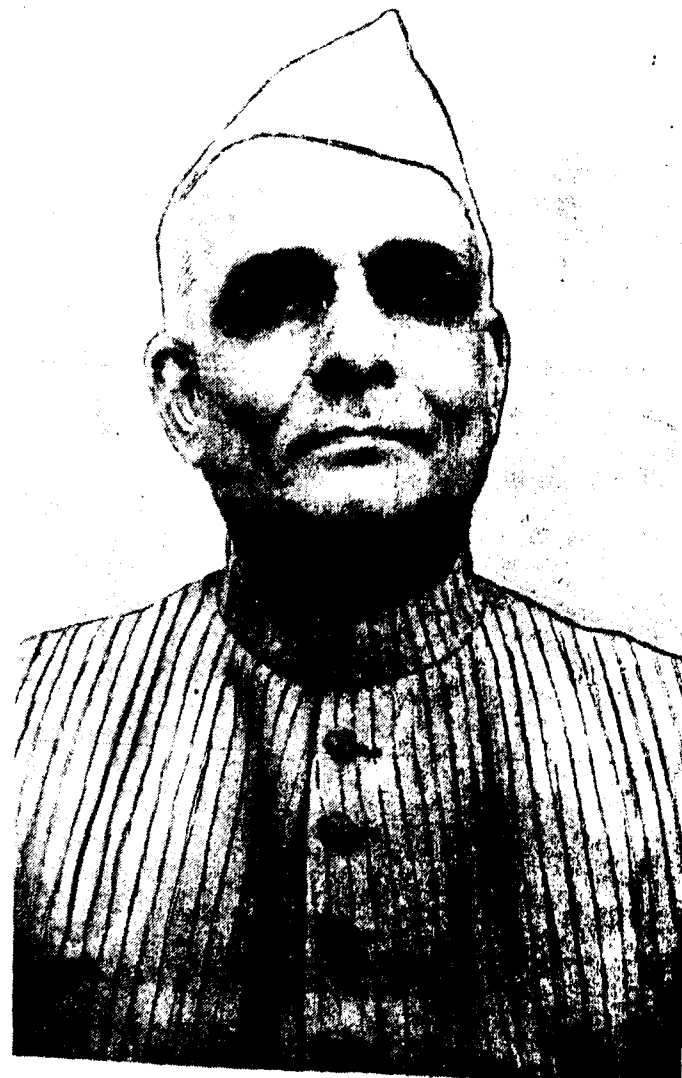
28th May 1953.



On the occasion of the publication by you, as usual, of a special number to mark the another (the Fourth) anniversary of the "SOUTHERN RAILWAYS MAGAZINE", I have pleasure in sending you my hearty greetings and in wishing the Southern Railway an era of ever-increasing amenities for its millions of passengers. That the railway authorities should seek the good-will and the blessings of the public in regard to their well-established enterprise, itself shows how keen they are upon serving the public. The degree of progress made so far in rendering such service leaves still something to be supplied in the way not merely of better accommodation and greater comforts in journeys but better attention, from the human stand-point, from officers towards passengers. It is only when personal sympathies are established that the Railways can claim with pride and fervour that they constitute the ministrant limb of the body politic.

B. Datta Bhi. Litaranay

“This Magazine has been a useful publication”
writes H. E. Governor of Bihar



Raj Bhavan,
Ranchi.
27th May 1953.

I am glad to learn that your Magazine is entering the Fourth Year of its existence and is coming out as a special number in August 1953.

It has been a useful publication and I am sure the special number will fulfill all expectations.

R. K. Durrani

This journal has been performing useful service for the benefit of the railwaymen, particularly in South India says H. E. Governor of Punjab



Raj Bhavan,
Simla.
29th May 1953.

I have been glad to know that the “SOUTHERN RAILWAYS MAGAZINE” is bringing out a Special Number to celebrate its Fourth Anniversary. This journal has been performing useful service for the benefit of the railwaymen, particularly in South India, by analysing their problems and by instilling into them a sense of service to the country. Railways are our biggest national asset and in order to enable them to give the very best of service to our people, it is essential that all railwaymen should pull together and resolve to put service before self. I hope the SOUTHERN RAILWAYS MAGAZINE will continue to contribute to this end and I wish it all success.

as Sural

Message from Hon'ble Minister for Production



New Delhi,

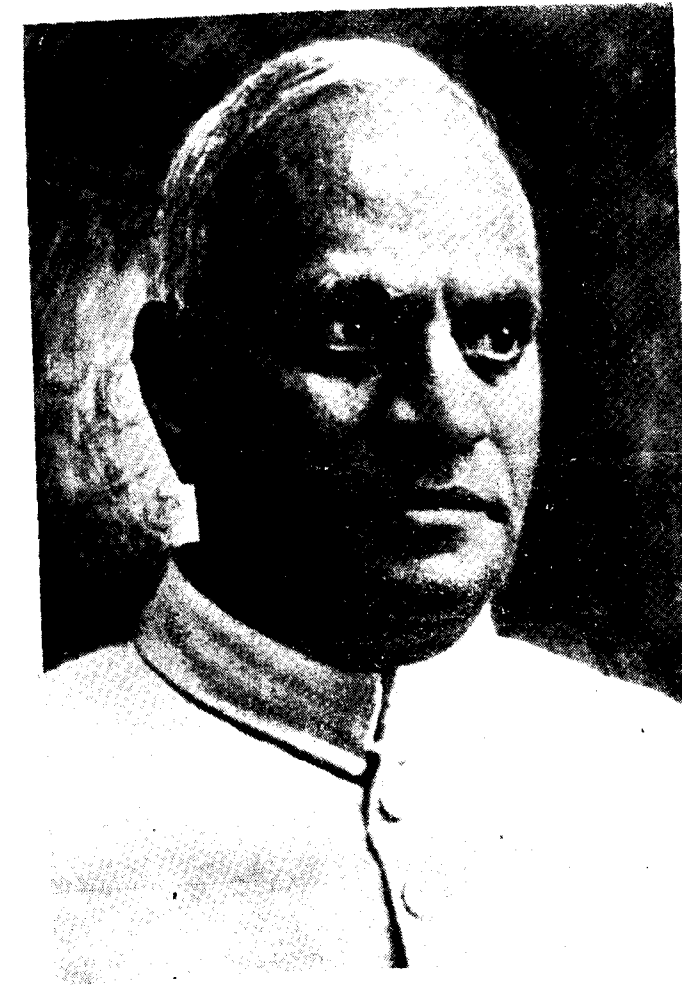
12th June 1953.

I am happy to know that you are taking out a special number in connection with the Fourth Anniversary of the "SOUTHERN RAILWAYS MAGAZINE".

I wish you success in your efforts.

K. P. Kaddy

Hon'ble Minister for Labour sends his best wishes



New Delhi,
5th June 1953.

I am glad to know that you are bringing out a special number on the Fourth Anniversary of the "SOUTHERN RAILWAYS MAGAZINE". I wish the Southern Railway Magazine every success and many years of useful service to the public.

V. V. Giri

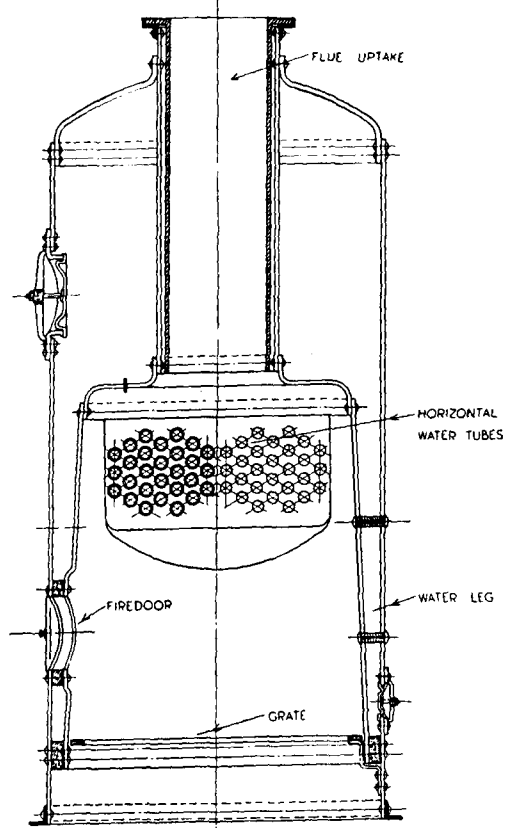
Southern Railways Magazine is an admirably prepared compilation comments
Shri A. K. Chanda, Production Secretary, Government of India



New Delhi,
18th June 1953.

I have great pleasure in sending my good wishes to the "SOUTHERN RAILWAYS MAGAZINE" on its Fourth Anniversary. This magazine fulfils an important role in interpreting the policy and performance of India's largest nationalised public utility to the public. The "SOUTHERN RAILWAYS MAGAZINE" is an admirably prepared compilation and I have been impressed with the objective presentation of the many facets of railway operations in its pages. I am confident that the Magazine will continue to maintain its high standard in the years to come.

A. K. Chanda



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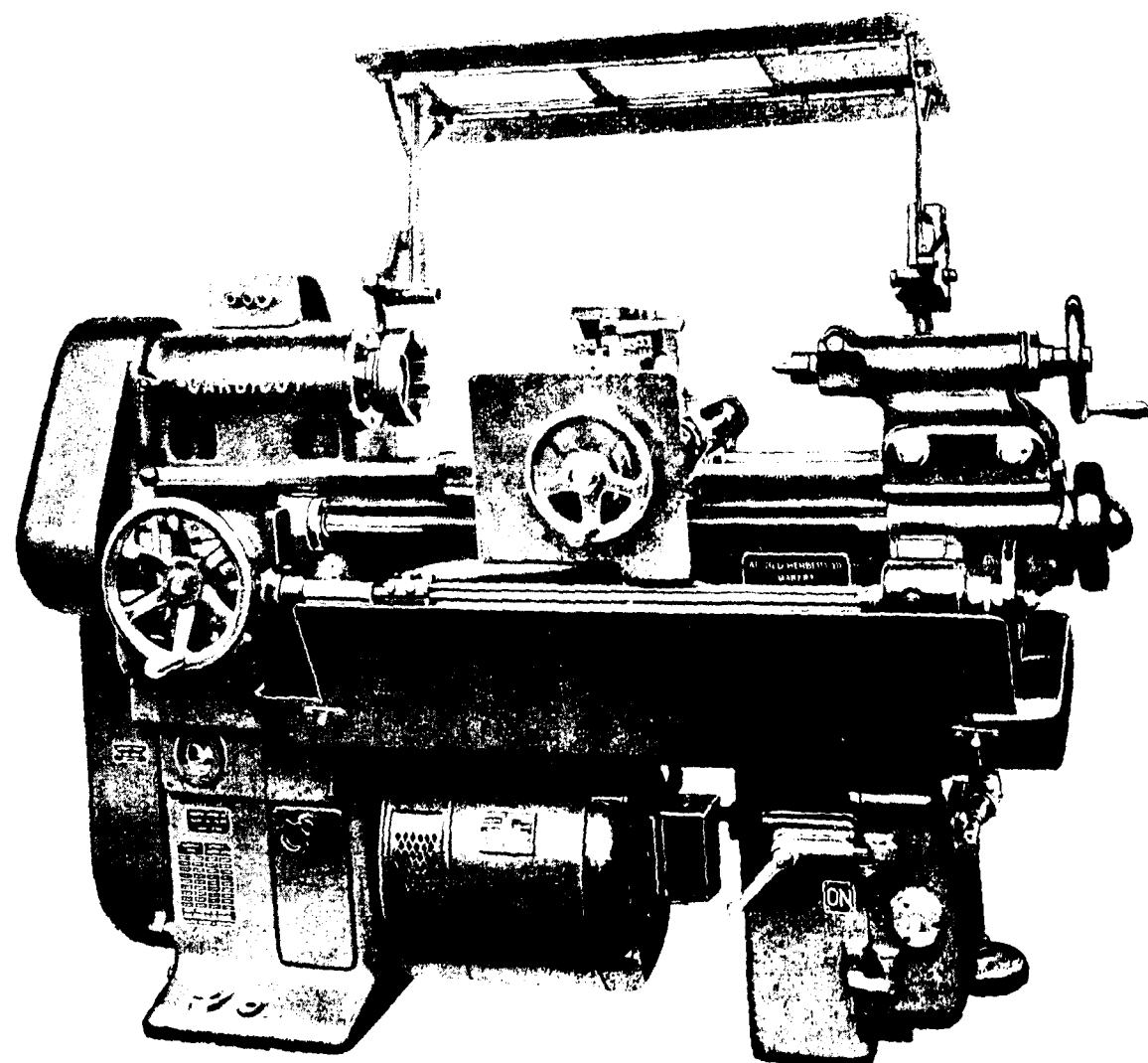
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SOUTHERN RAILWAYS MAGAZINE

VOL. V
NO. 2

AUGUST

ISSUED
MONTHLY

"MORE WAGONS WANTED"

INDUSTRIAL and trading interests are apparently far from satisfied with the transport facilities now available on railways for moving raw materials and manufactured products from production to consuming points. While addressing the quarterly meeting of the Indian Chamber of Commerce in Calcutta at the end of last month, Lala Karam Chand Thapar wisely stressed the importance of transport in the economic sphere of things. He sounded a note of warning that the prevailing bottleneck would adversely affect output and aggravate unemployment. According to him the wheels of production had slowed down for the reason that whereas goods accumulate at factory warehouses and godowns for want of adequate rail transport, consumers at the other end are faced with scarcity of goods and attendant hardship. He further added that because of the uncertain transport position factories must carry larger than normal stocks of fuel, stores and raw materials. This inevitably implies the locking-up of capital and inflation of production costs which are already high.

What is the position from the Railway's point of view to alleged slowing down of freight movements which are adversely affecting industrial and trading interests?

Official statistics disclose that in 1951 the daily average number of broad and metre gauge wagons loaded was 11,470 and 6,756 respectively. These figures were stepped up higher in 1952 to 11,961 and 7232. Average daily loadings in 1953 from January to May were 12,363 broad and 7706 metre gauge wagons. Taking a look at the official coal loading figures we find that the daily average loadings for the Bihar and Bengal coalfields during the first five months of this year were 3119 wagons as compared with 3016 in 1952 and 2870 in 1951. These figures certainly indicate that far from there being a slowing down of freight movements, there has been a substantial increase, and it can be said that the railways have played their part in meeting the claims made on them by trade and industry, although some local movement demands may not have been met due to unavoidable contingencies.

In spite of all that the Railways have done in stepping up loading both for coal and general merchandise, for which credit must be given, trade and industrial interests feel that the achievement still falls far short of the increasing demands now being made on rail transport as industrial output grows.

The present system of regrouped railways into six zones was introduced nearly a year and a half ago with the objective of improving the railways' operational efficiency and potential economies. When the term 'improved operational efficiency' is used by Railways

(Continued on page 4)

NOTES AND COMMENTS

WATER DIVINER—A BOON TO THE SOUTHERN RAILWAY

WE understand that the services of Mr. P. S. Kuppusamy, 43, Gangadareswara Koil Street, Purasawakkam, Madras-7 are utilised on the Southern Railway by the Engineering Department for water divining purposes. It is said that in all cases his forecast has been quite successful. In illustration of this fact we may point out that this gentleman has already visited a number of water scarcity areas and wherever trial pits were dug showed the presence of good quality of water at the depth predicted by him or even before.

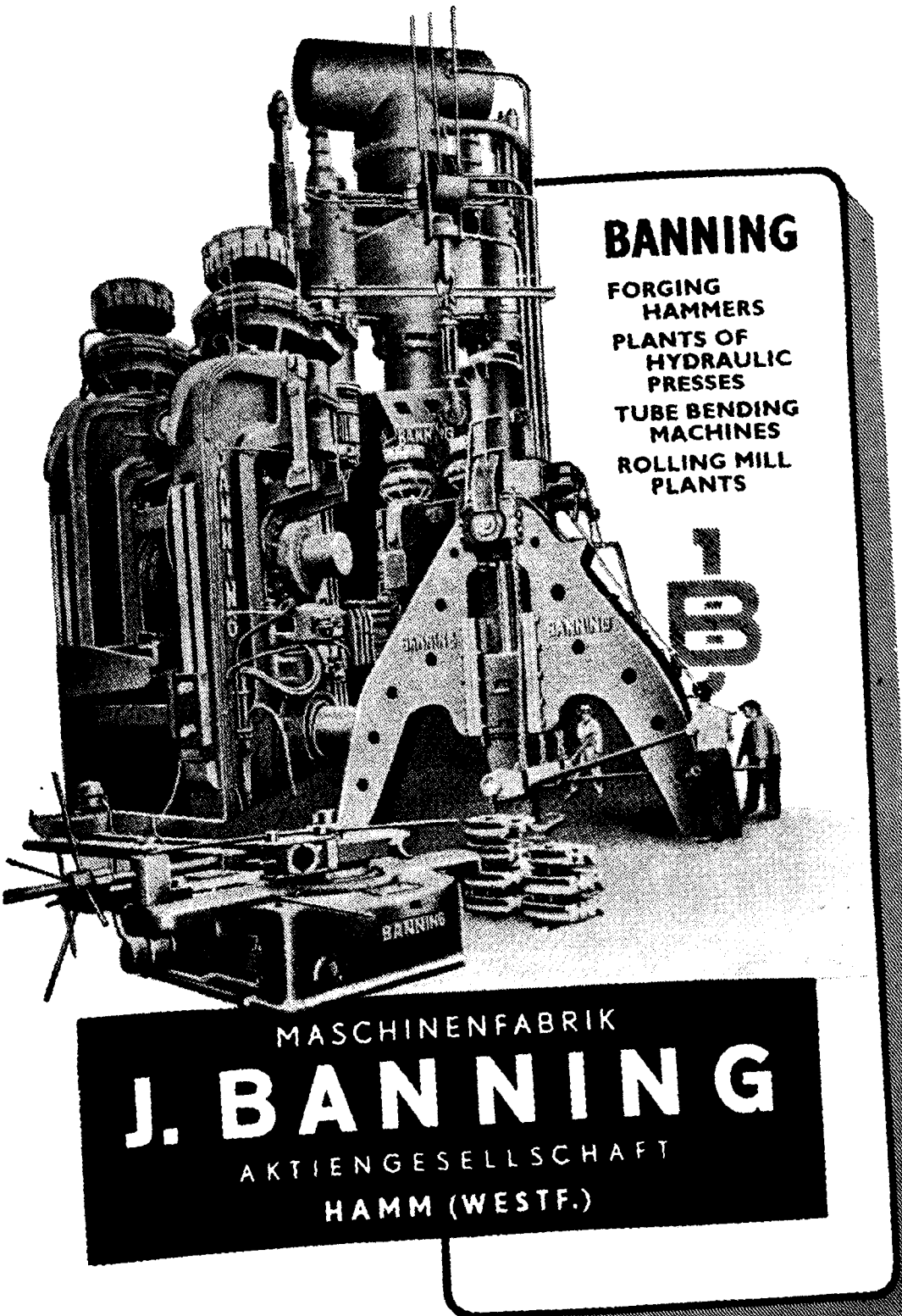
Water is one of the necessities for human existence. Similarly without water no steam engine can

haul a passenger or goods train for transport of men and materials. Men, women and children are carried by railways day and night throughout the length and breadth of this vast sub-continent. If a passenger train is held up in some important junction for want of water to the locomotive, you can very well imagine the pitiable plight of the stranded travelling public who may have to go for a marriage party or even death. Thanks to the Water Diviner who has done a signal service to the Indian Railways. Water scarcity on some sections of the Southern Railway has been a headache to the administration all these years. No doubt the Engineering Department made frantic efforts to locate water spot at the huge cost of public exchequer. Unfortunately all their attempts proved unsuccessful. It is timely and highly

(Continued from page 3)

trade and industry hopefully look forward to increased wagon availability for loading and speedier movement of these loaded wagons from producer to consumer. So obviously the question asked is—will the railways be in a position to meet progressively the increased demands of industry and trade with the rising tempo of economic activity envisaged by the Five-Year Plan. On this issue the Planning Commission have stated that “the plans for railways have as the primary objective the rehabilitation of assets which will enable the railways to handle more efficiently the traffic at around present levels.” This would mean that with trade and industry increasing production and output, they would naturally look forward to more transport facilities being made available for the movement of raw materials, commodities and manufactured goods from centres of production to the widely-diffused points of consumption. But if the railways are only expected, with increased efficiency, to move traffic at present levels, trading and industrial interests must perforce look to other means of transport for lifting and moving what the railways cannot. Road, air, riverine and sea transport are the other means by which raw materials, goods and merchandise can be moved; but it is not likely that these alternative means of transport can carry what is left over from rail transport as speedily and economically as the railways.

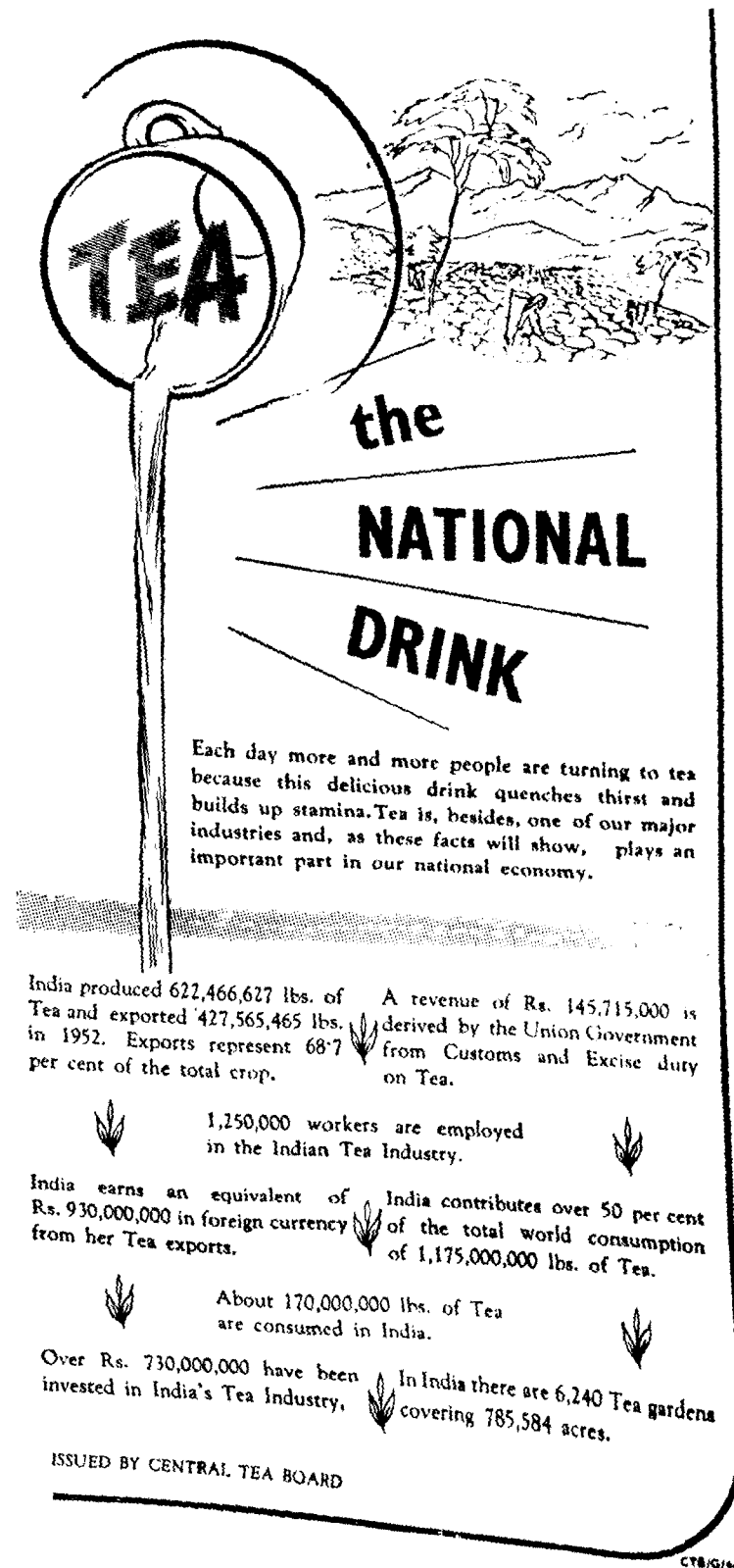
The Government's attention is more or less focussed on production, and some of the more important ancillary aspects do not seem to have had the attention deserved. It is usually to the railways that the majority of the trading and industrial interests bring their raw materials and finished products for transport to the consumers' markets, and unless the Government plans progressively to increase the railways' capacity to move the increased traffic that will be offering as a result of the rapidly expanding industrial potential, commercial interests will obviously have a legitimate cause for dissatisfaction.



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1,250,000 workers are employed in the Indian Tea Industry.

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About 170,000,000 lbs. of Tea are consumed in India.

Over Rs. 730,000,000 have been invested in India's Tea Industry.

In India there are 6,240 Tea gardens covering 785,584 acres.

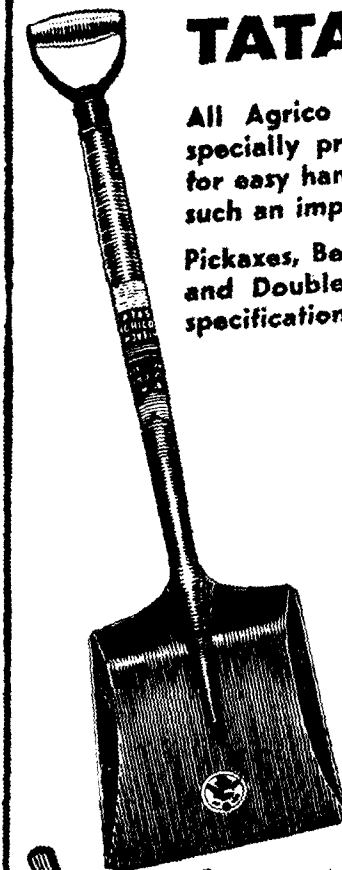
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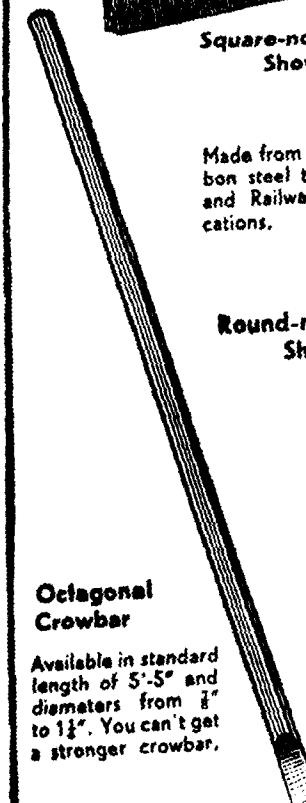
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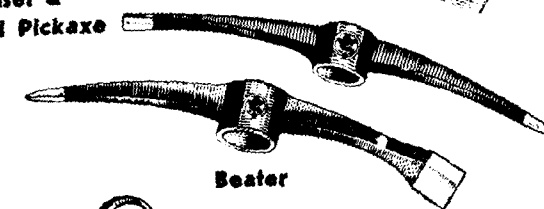
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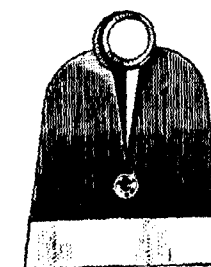
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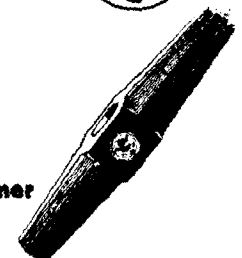
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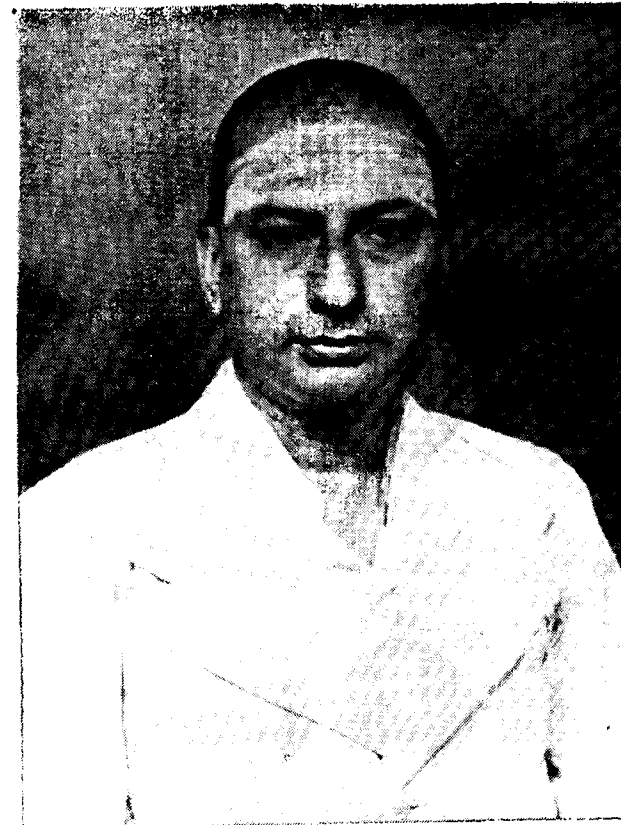


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Sri P. S. Kuppusamy

commendable that the Officials of the Engineering Department utilised the services of Shri Kuppusamy in the right time. We feel that sinking wells in water scarcity areas without the assistance of the Water Diviner would mean groping in dark and it is worth experimenting only at the points shown by the Diviner.

We hope the administration will not grudge to extend adequate remuneration to the Water Diviner considering his labour and other incidental expeness. It may be pointed out that last year our Railway transported drinking water to the distressed people of Rayalaseema. What the Engineering department could not achieve for years in finding out water spots has been achieved by Shri Kuppusamy in few hours! Taking this factor into consideration, we feel, the Railway administration should extend decent financial support to Water Diviner for his valuable services.

COS, SOUTHERN RAILWAY RETIRES

Fiftythree-year old Mr. E. La. V. Parisot Controller of Stores, Southern Railway left Madras early last

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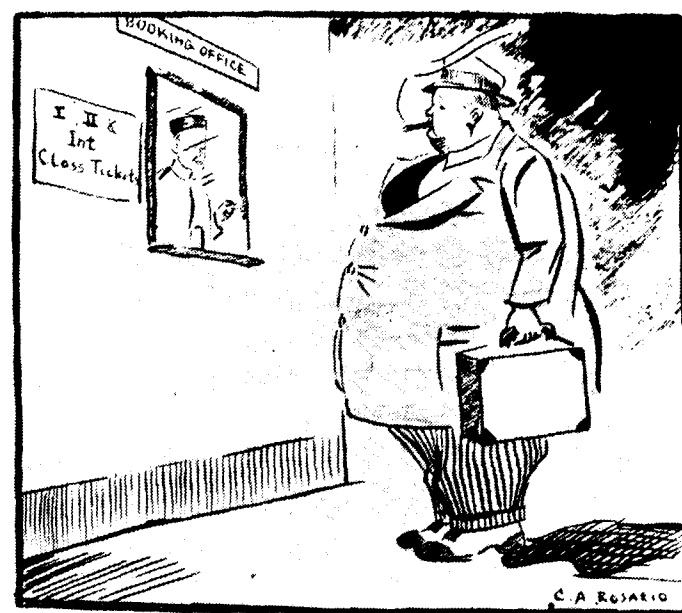
month to United Kingdom via Colombo on leave preparatory to retirement. Parisot is one of those foreigners who adored their staff so much. In his retirement the Southern Railway has lost an able Engineer and administrator of very high order.

Mr. Parisot has for nearly thirty years of distinguished record of service to his credit on the South Indian Railway (now known as Southern Railway). He had his early education at the Oratory School, Edgbaston, Birmingham. After receiving his first Engineering training with Messrs. Gwynnes Ltd., Chiswick and Hammersmith and at last with Messrs. Sir Robert Elliott-Cooper and Son, Consulting Engineers, Westminster, he joined the Inns of Court O. T. C. in his eighteenth year. He also had the unique privilege of serving in the World War I for three months in the King's Royal Rifles.

It was the year 1923 when he came to India to join the Ex-South Indian Railway Company Ltd., as an



Mr. E. La. V. Parisot



Booking Clerk:—"You better go to the Parcel Office. They will have to charge you your fare by weight"

Assistant Engineer, Maintenance. During the next fifteen years he had various engineering assignments during which he intermittently worked in the Bridge Engineer's Office and was also associated with the Tunnel Survey on the West Coast. He was also Executive Engineer for some time at Ferok during the finishing stage of the Ferok Bridge and was later posted as Ag. District Engineer, Maintenance and Personal Assistant to the Chief Engineer. His engineering skill and administrative capacity was put to severe test during his assignment on the Ferok Bridge but he emerged out of this arduous task with flying colours.

At the age of 38, he was given an assignment in the Stores Department of the ex-South Indian Railway and was designated as Deputy Controller of Stores, a difficult task which he discharged with responsibility and won the admiration of the high officials of the administration.

In June 1946 he was promoted as the Controller of Stores, Negapatam which assignment he held until recently. He displayed originality and skill in the reorganisation of the Stores Department of the Southern Railway soon after his taking over of the assignment as its Chief, and worked hard to put the department in order after the integration of the M. S. M. and Mysore State Railways with the South Indian Railway under the Railway Ministry's plan for regrouping of the railways on the zonal system.

Mr. Parisot also served in the South Indian Railway Auxiliary Force Battalion, India from 1924 until it was disbanded. He had also contributed to India's War effort during World War II by serving in the South Indian Railway Military Stores Unit of the Indian Service of Engineers.

Besides being a skilled Engineer Mr. Parisot is also a good technical journalist and his numerous technical articles speak for themselves the originality, breadth of vision and engineering acumen of the author. We take this opportunity to wish Mr. and Mrs. Parisot a bon voyage and also welcome the successor Mr. P. N. Talati who is not at all a stranger to this railway. We are sure Mr. Talati will maintain the high traditions of this office and see that there is no falling off in standards.

ICC'S NEW CHAIRMAN

Mr. A. R. Driessen, O. B. E. succeeded Mr. D. J. McIntosh as Managing Director and Chairman of the Indian Cable Co. Ltd. with effect from 1st May 1953. Mr. A. R. Driessen, a native of London, (United Kingdom) received his early training in that city, followed by a number of years at the Commercial Academy of Vienna.



Mr. A. R. Driessen

During the War he served with the Royal Air Force Volunteer Reserve as Squadron Leader and was one of the prime movers and instructors in the development of Gliding and Soaring in the Training Branch of this service. He was awarded the Cadet Force Medal and O. B. E. (Military) in 1951.

Joining the Indian Cable Company in 1952 as Commercial Manager, he joined the Board early this

Serving the Electrical and Allied trades in practically every country in Europe and parts of Asia, he accepted an appointment with British Insulated Cables Ltd., as Branch Manager in early 1940 and became Eastern Area Manager when the amalgamation of this Company with Messrs. Callenders Cable and Construction Company took place.

year and has now succeeded Mr. McIntosh to carry out the expansion programme of this Company which will embrace the manufacture of paper Insulated Cables, Synthetic Winding Wires and Plastic Cables in addition to increasing the existing plant for the manufacture of Paramite Rubber Cables and Cableco Copper, Aluminium and ACSR conductors.

We take this opportunity of congratulating Mr. Driessen on his appointment as the Chief of this great organisation and we are sure that under his able stewardship the firm will contribute substantially to the development of various industries. We wish him all success.

* * * * *

FIRST RAILWAY TRIBUNAL APPOINTED

It is a great victory to railwaymen serving on the Indian Government Railways in that the long standing disputes pending between the Railway Board and the Staff Unions have now been referred to the Tribunal by the Government. This is the first Railway Tribunal appointed in the history of Railways in India. Mr. Justice Sankar Saran will be the one man Judge who will hear both the Railway Board and the Staff Unions of Railwaymen to give his verdict.

FIVE POINT DISPUTE BEFORE JUSTICE SANKAR SARAN

It has been decided, in consultation with the Federation that the following demands made by the Federation will be referred to the Tribunal.

- (i) The re-distribution of grades for various categories of staff decided upon as a result of the recommendations of the Joint Advisory Committee should be reviewed.
- (ii) The revised scales of pay introduced for certain categories of staff in replacement of the prescribed scales of pay, originally allotted to these

categories should apply with retrospective effect from 1-1-1947 and arrears should be paid accordingly.

(iii) The second proviso to Rule 203-R of the State Railway Establishment Code Vol. 1 as modified by the orders of 21st August 1951, should be revised.

(iv) The officiating pay should be admissible to staff working in the higher grades without the imposition of any minimum time-limit at the duration of the period of working in the higher grades.

(v) The orders that in workshop leave with or without allowances, shall not be far less than half a day should be reviewed.

OTHER OUTSTANDING DEMANDS

There are four other outstanding demands and they are:—

- (i) Weightage for service
- (ii) New Pass Rules
- (iii) Travelling Allowance Rules
- (iv) Disabilities of ex-State Railwaymen on promotion.

The Railway Board have agreed to discuss these items with the newly amalgamated Railwaymen's Federation to see if agreement can be reached.

While the news of the appointment of the Tribunal is welcomed by the rank and file of Railwaymen, there is a fear that politically inspired and controlled Unions would attempt to sabotage the good effects of the tribunal. Railwaymen have therefore a heavy responsibility now. The rare opportunity should not be missed and they have to present their case clearly and cogently eschewing all political slogans, party intrigues which cannot influence any decision. We hope they will be wise this time and wish them all success in their efforts.

220 NEW TRAINS INTRODUCED LAST YEAR

The Indian Railways introduced 220 new trains, including 64 suburban trains, during 1952-53, said Shri O. V. Alagesan, Deputy Minister for Railways and Transport, in a written answer during question hour in the House of the People.

The number of new trains introduced on each Railway was: Central Railway 6, Eastern Railway 43, Northern Railway 38, North-Eastern Railway 28, Southern Railway 14 and Western Railway 91 (including 64 suburban trains).



IN order that London Transport officials might be continuously available for dealing with problems arising out of the immense Coronation traffic in London, they lived and slept for three days at the headquarters offices at 55, Broadway, London. For buses and trolleybuses there were 16 special terminals on the edge of the Coronation route area, each in charge of specially briefed inspectors. Between 4.30 a.m. and 8.30 a.m. on Coronation Day, buses entered the central area at the rate of 1,000 an hour and on some routes a headway of 2 to 3 minutes was established at unusually early hours. The heaviest concentration of buses, however, was for the crowds returning home between 3 p.m. and 7 p.m. when buses were dispatched outwards by inspectors from the terminals at the rate of over 1,200 per hour. During the evening buses again entered the West End at the rate of a thousand an hour to cater for the rush to see the decorations, floodlighting and fireworks. These hourly rates do not, of course, establish any records, it was the hours and direction of service that was

changed. In all, 44,000 bus journeys were scheduled into and out of the central area. Special report centres were set up at headquarters for the road and rail operating managers.



View of surface lines of London Transport

On London Transport railways there was a different situation. Nearly 10,000 train trips were run through the West End during Coronation Day by 413 trains. This was 50% more than on a normal day because peak headway was maintained throughout. In addition to handling the very heavy crowds in the West End, London Transport had to simultaneously carry out a number of special traffic operations notably the interworking within a peak period service of special Underground trains which are not a feature of the normal service. Twenty thousand children had to be brought to their stands on the Victoria Embankment between 6.30 a.m. and 8 a.m. on June 2nd by Underground and bus: 12,000 of these came in forty special trains to Westminster, Temple, Charing Cross and Waterloo stations. A special train for peers, Members of Parliament and their guests,



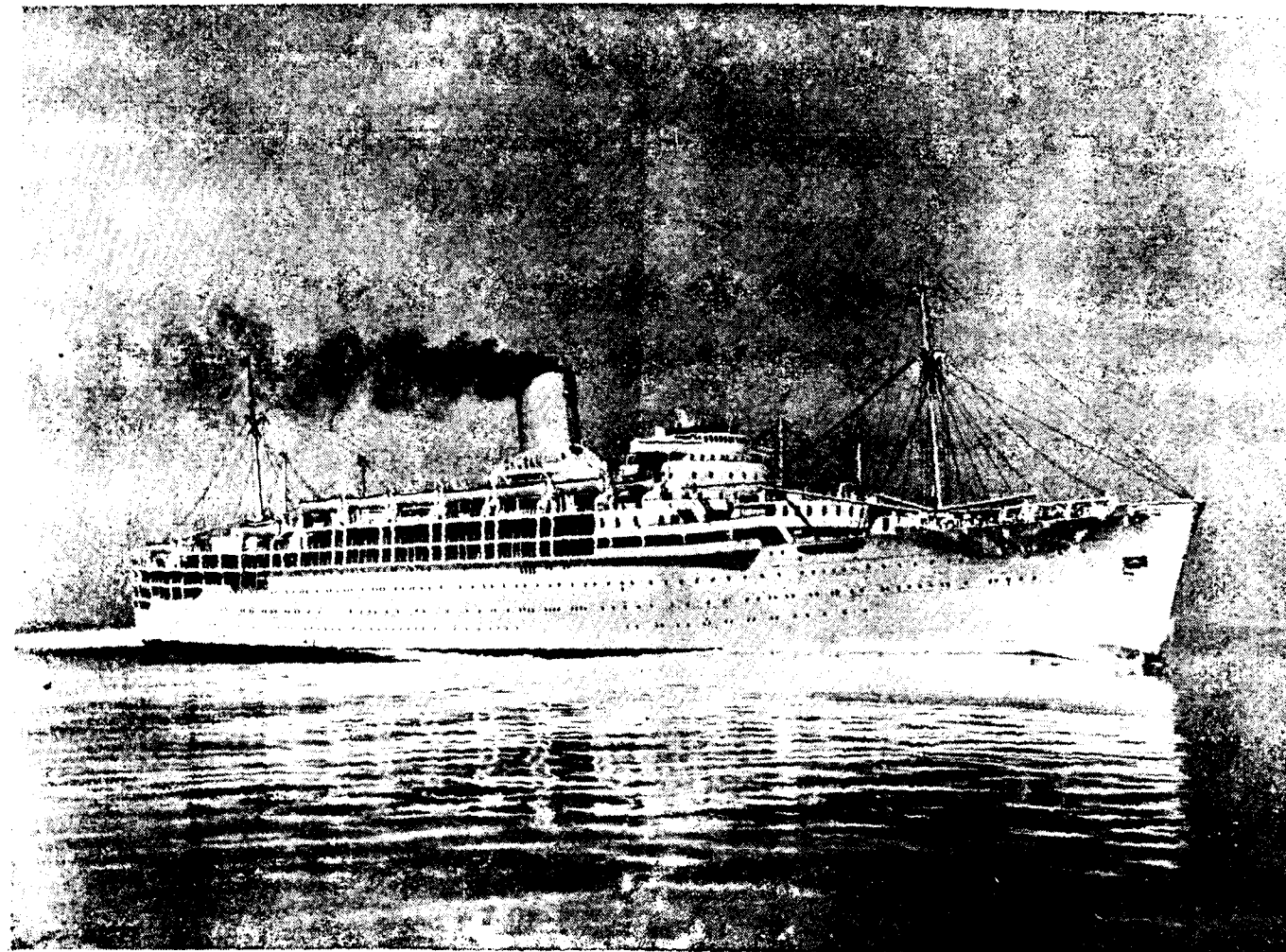
Modern Tube Railway Station on London Transport Lines

ran five non stop trips between High Street, Kensington and Mansion House to serve Westminster. Some early morning main line excursions from the north were specially terminated at Wembley Central, where special Bakerloo line trains took passengers to Baker Street and Piccadilly.

Before any ordinary Coronation commitments were handled, London Transport was called upon to convey 10,300 police from all parts of London to the Coronation route: all had to arrive on the route before 4 a.m. on Coronation morning. Over 200 special buses from a reserve store in the Kingsway subway were used for the operation. In addition, over 2,000 troops were carried in 68 buses on Coronation morning and 82 special trains were run in the period before the Coronation for the carriage of troops to camps near the Coronation route.

In connection with the Coronation, British Railway's latest train, the Elizabethan, set up a world record on June 29 in the longest daily non stop run when it travelled 392½ miles from London to Edinburgh in six hours forty minutes. The train arrived five minutes ahead of schedule. Her average speed was a fraction above the planned 58 m. p. h. This timing is not the fastest between the two capitals. The 1933 Coronation train did the journey in six hours with two stops. But it was 100 tons lighter than the 400 ton Elizabethan. The Elizabethan is the first non stop train between London and Edinburgh since the second world war.

The smoothest ship afloat has taken to the water. She is the new 28,000 ton Orient liner *Orsona* which was launched recently at Barrow-in-Furness. There is not a single overlapping plate in the hull of this



The 24,000 ton P. & O. liner SS "Chusan". This is the last passenger ship placed in service and she will be succeeded by the SS "Arcadia" early in 1954 as the P. & O's latest ship

ship or a protruding rivet for she is the largest all welded ship to be built in Britain. On the same day that Lady Anderson, wife of Sir Colin Anderson named the *Orsova*, her sister-in-law Mrs. Margaret Anderson, named a second ship of exactly the same size. She is the new P and O line *Arcadia* which like the *Orsova* has been built for the Australian run. Together the two ships make shipbuilding history. Not since the war has so much tonnage been launched in Britain on the same day. Of the two ships the *Orsova* is the most revolutionary. Her owners say she is the ship of shapes to come. She has no masts, a feature which will be mourned by old sailors. She has, however, the bows and stern of the old clipper ships. Not only does this give her more grace but also more deck space. To get the hull so smooth she was prefabricated in the workshops in 50 ton sections, X-rayed for flaws, then re-assembled on the slipway. Between them the two new ships will, when they enter service early in 1954, carry 25,000 passengers and cargo worth £16,000,000 a year between Britain and Australia.

* * * * * * *

The death occurred, on May 30, of Sir Sam Fay, a great and famous figure amongst past railway officers. He was General Manager of the former Great Central Railway from 1902 until 1922. Born on December 30, 1856, he began his railway career as a junior clerk in the traffic department of the London and South Western Railway. In the early eighties he published an entertaining history of the company under the title *The Royal Road*. Shortly afterwards, in 1884, he was transferred to the Traffic superintendant's office at Waterloo as second clerk being promoted in a few months to be chief clerk to the Superintendent of the line. In 1891 he was made Storekeeper and in the following year he was appointed General Manager of the Midland and South Western Junction Railway, in which position he brought that secondary, cross country line, to a notable state of efficiency. In April 1899, he was invited to return to Waterloo as Superintendent of the line, London and South Western Railway. In 1902 he was selected by the Directors of the Great Central Railway Company as General Manager. Confronted with a difficult financial and traffic position upon completion of the London extension, he greatly improved its fortunes and upon the creation of the port of Immingham he was knighted by King George V. Sir Sam Fay filled a number of important positions at the War Office in the 1914-18 war. He

was made Director of Movements in January 1917 and in March 1918, he succeeded Sir Guy Granet as Director General of Movements and Railways at the War Office with a seat on the Army Council. He was a member of the Railway Executive Committee and continued after the war as a member of the Ministry of Transport Railway Advisory Committee. He retired from British Railway service after re-grouping but continued to fill a number of offices and directorships of overseas railways. Although his duties at the war office carried the rank of General he refused to wear uniform.

* * * * * *

During the past year there have been several serious accidents on both British and Indian Railways. The question why signals even when in full clear view, are at times disregarded, often has been debated. Sometimes these instances are caused by the effects of outside interests on the mind. Brunel distrusted educated engineers. He said he did not sneer at education but thought the non-reading man was the better man for the footplate. It was "impossible that a man that indulged in reading should make a good engine driver". The job required "a species of machine and while he wished for an intelligent, honest and sober man," Brunel declared he would "much rather not have a thinking man". It is considered that 99% of the cases of drivers missing signals is due to lack of concentration. Mental anxiety appears to have hardly any bearing in the matter. All too often the driver cannot account for his error at all and may need to be convinced that the signals were actually against him. The driver of an important train which gets a clear run day after day may be caught off his guard by a signal being against him which he may miss. British Railways are already carrying out extensive trials with automatic train control but its complete application to the main line of even only one railway would be a very expensive matter.

* * * * * *

British Railways are at present rebuilding the engine shed at the north end of Crewe station and are about to build a completely new engine shed at Thornaby in the North Eastern Region. Both are to be of the roundhouse design. For many years this design has been condemned by railway architects and now it has come into its own again. The first engine sheds were mostly round houses and when in time

(Continued on page 15)

SIGNALLING AND INTERLOCKING

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

Chapter 8. Train Working by Automatic Signals.

TRAINS can also be worked by means of continuous track circuits. In this case no block instruments are necessary since the signals giving access to the block sections are directly controlled by the presence of the train in the track circuit section.

The railways of North America have many more miles of track protected by automatic signalling than is the case in Great Britain. The reason for this is, at the latter portion of the nineteenth century, automatic signalling became a practical and commercial possibility. At that time the railways of Great Britain were already fully provided with mechanical signalling and lock and block. In America there was therefore a clear field in which to instal the new type of signalling.

Two decades ago, over 38,500 miles of railway in the U. S. A. were equipped with automatic signalling. In Great Britain only a few hundred miles existed, principally on the London Underground Railways. At the present time many of the main line railways of Britain have adopted automatic signalling, where

signal boxes could be closed, and it is also to be found in Australia, New Zealand, Africa and India.

The primary action of this method of signalling is that the passage of a train actuates and controls the signals without the aid of any individual. At junctions, crossovers, etc. it is necessary for somebody to control the movements of the trains and work the levers controlling the signals, points, etc. For straight track, in between such places, automatic signals can be applied and their spacing is dependent on the speed of trains, density of traffic etc. This type of signal is universally operated by track circuits and has been since their inception except for a few isolated cases where treadles have been used. In any case, the track circuit, using the running rails as part of an electrical circuit, is a constant and absolute "last vehicle detector".

The types of signals in use on railways today are either colour light, of the multiple aspect or search-light type, or semaphore. The type of aspect displayed by an automatic signal is exactly the same as that of a signal worked by a signal box except that

(Continued from page 14)

they decayed they were nearly all replaced by sheds of the rectangular type. The argument was that it was so much easier to get engines into and out of them and there was so much more room to accommodate engines undergoing light repairs or having their regular washouts. As recently as 1950 a senior railway officer examined the merits of the rectangular as opposed to the roundhouse type of shed and was much in favour of the former. He wanted to know what happens when the central turntable breaks down. British railway architects must have already thought of that one but the solution has not yet been published.

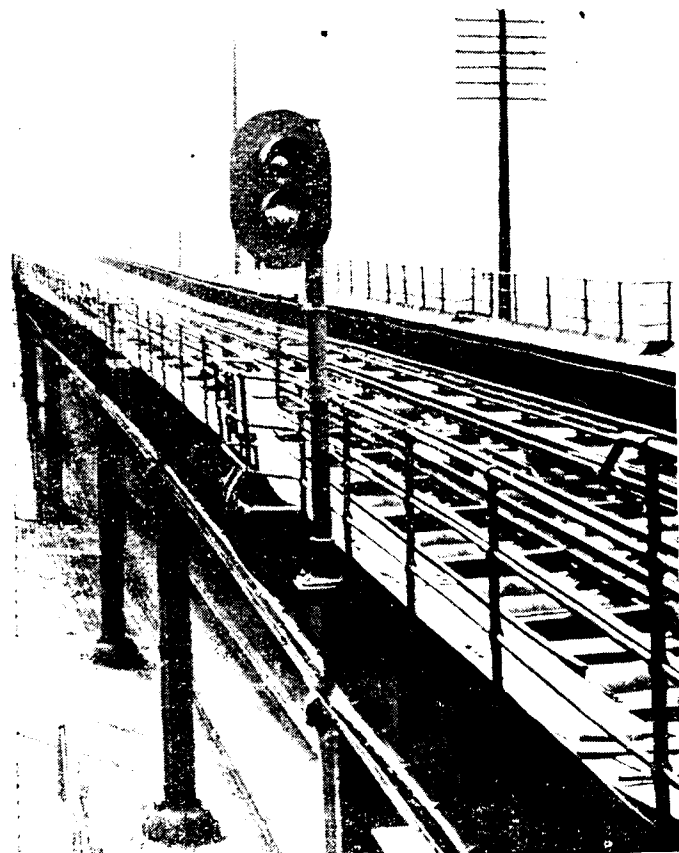
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In Kent, England, there is a case of a train that never comes. More than a year has passed since the last train clattered over the 11 miles of single line railway which used to connect the East Kent villages

of Shepherdswell and Wingham. But at each junction with the road there is a sign 'Crossing on gates', and this is surmounted by an illuminated replica of a Victorian locomotive. Road users complain that the signs cause delays because strangers are unaware that they need no longer stop, watch and listen.

* * * * * *

A shunting locomotive at Coffs Harbour, about 400 miles north of Sydney, collided recently with a cage containing five fully grown circus lions. The cage was being drawn across the station yard by an elephant. The lions escaped and residents had to be warned by a special broadcast from the local radio station to remain indoors until they were rounded up and recaptured. No doubt there was much tree climbing by pedestrians who happened to be the vicinity!!



Two aspect automatic colour light signal on Liverpool Overhead Railway, England. Introduced in 1921 these were the first colour light signals to be used in that country

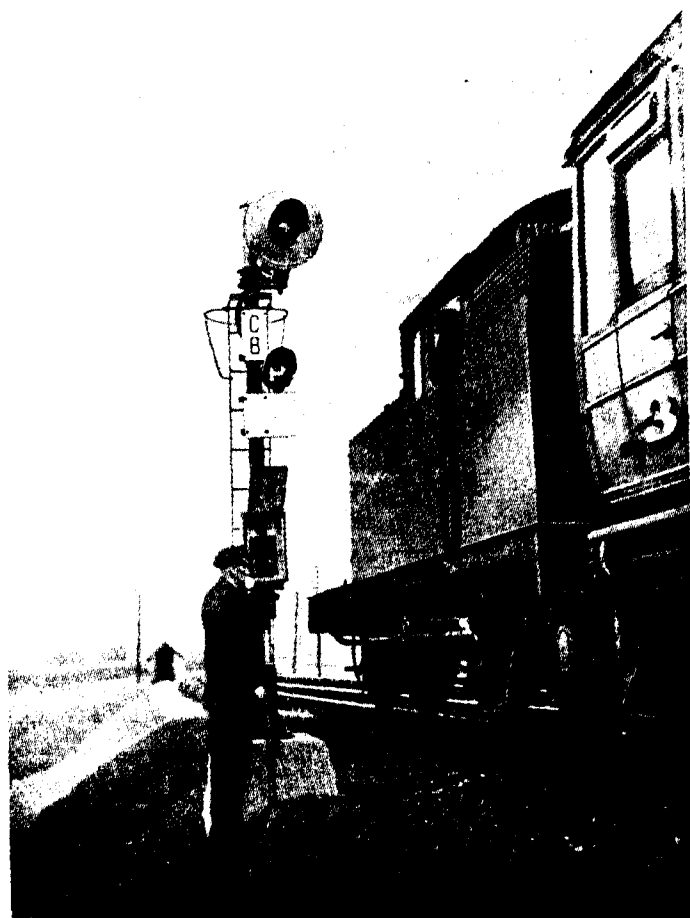
in the latter case the normal aspect is RED while in the former it is GREEN. Automatic signals are given a distinctive mark so that drivers can readily recognise that they are automatic and have no manual control. This does not apply where signals are approach lighted or are normally RED, changing to green on the approach of a train. This latter method is used on the Paris Underground.

These signals have to be power operated. They cannot be worked manually by the pulling of a wire attached to a lever as in the case of a mechanical signal. In the early days of automatic signalling, before light signals came into use, semaphores were employed working in either the upper or the lower quadrant. In America, three position upper quadrant signalling found much favour and a great deal of it is still in use. With this system, the first aspect is the arm inclined upwards at an angle of forty five degrees and the second at an angle of ninety

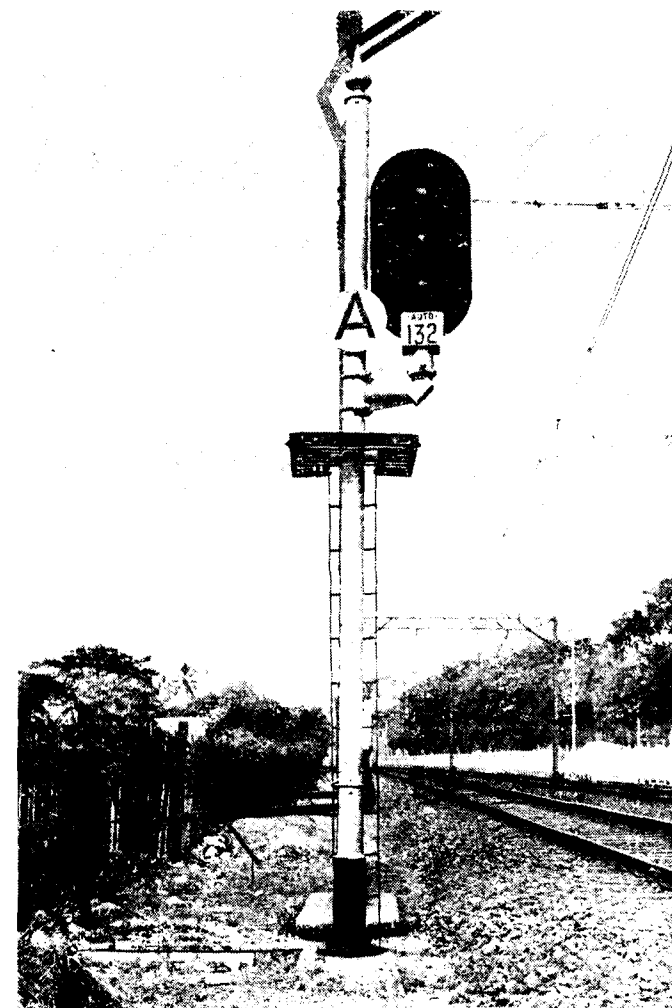
degrees which makes the arm parallel with the post. The danger indication is the conventional horizontal position. The night indications are the same as for the colour light three aspect signal - red, yellow (45 degrees) and green (90 degrees). The 45 degree position indicates that the next signal ahead is at danger and the 90 degree position that it is either at 45 degrees or 90 degrees.

Initially, the track circuits controlling the signals were fed from batteries. The semaphore arms were actuated by compressed air or gas. This entered a cylinder which drove a rod pushing the semaphore arm into the 'Clear' position. The admission of air was controlled by an electric valve energised through the track circuit relay.

An installation of gas signals was put into service on 11 miles of the North Eastern Railway (British Railways) in 1905. The gas cylinders were located at the base of the signal and contained sufficient gas for 7000 signal operations. The admission of gas into the



Engine driver telephoning signal cabin when detained at automatic signal due to its failure



Three aspect automatic signal in Bombay. Western Railway

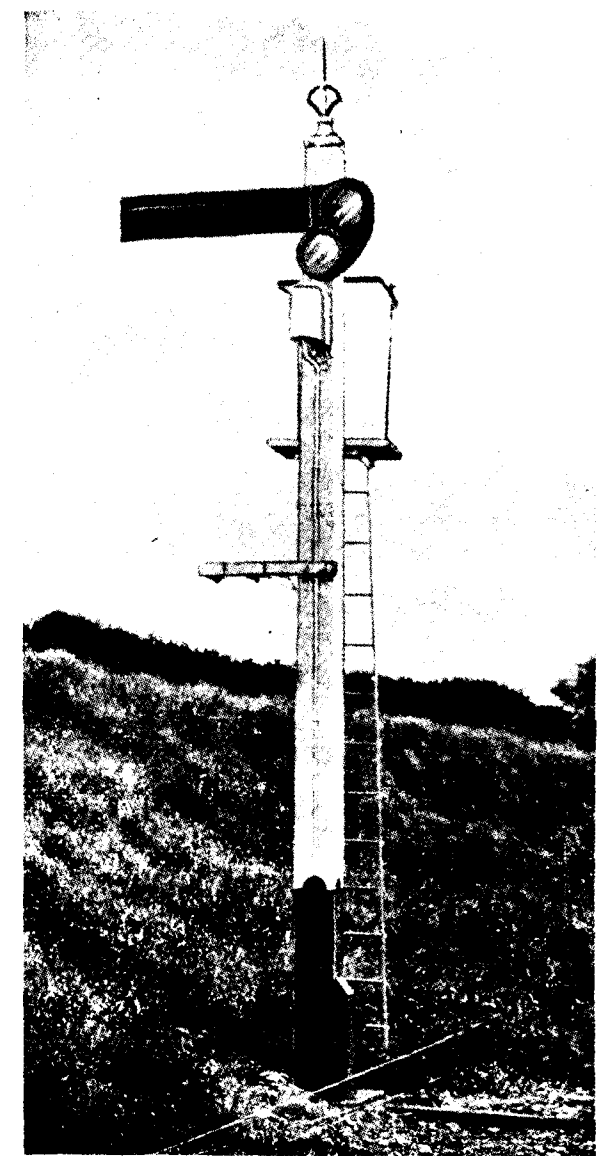
signal operating cylinders was controlled through the track circuits in the same manner as described above.

In the same year automatic and semi-automatic (controlled) signals made their appearance on the London Underground Railways with the electrification of the Metropolitan District Railway and the construction of the tube lines. On the open sections, semaphore signals were used and in the tunnels special signals with moving spectacles both types of signals being operated by compressed air at 60 lb., electrically controlled by track circuit. At the present time, colour light signals are employed on the surface sections of lines and lamp signals in the tunnels. Compressed air is used throughout for point operation and for automatic train stops.

The first colour light signal was introduced as far back as 1913. Due to electric lamps of low candle

power it was unsuccessful and it was not until 1920 that an installation of practical value was brought into use. This was on the Liverpool Overhead Railway where fifty-two two-aspect signals were brought into operation. This was followed by an installation of three-aspect signals on the Edgware extension of the London Underground Railways. Colour light signals were introduced on Indian Railways in 1927 and 1928 and from these years their installation has advanced rapidly.

A semi-automatic signal is a signal worked from a signal box but is automatically replaced to danger when a train passes it through the train occupying the track circuit immediately ahead of the signal. It cannot again show 'Clear' until the signalman has

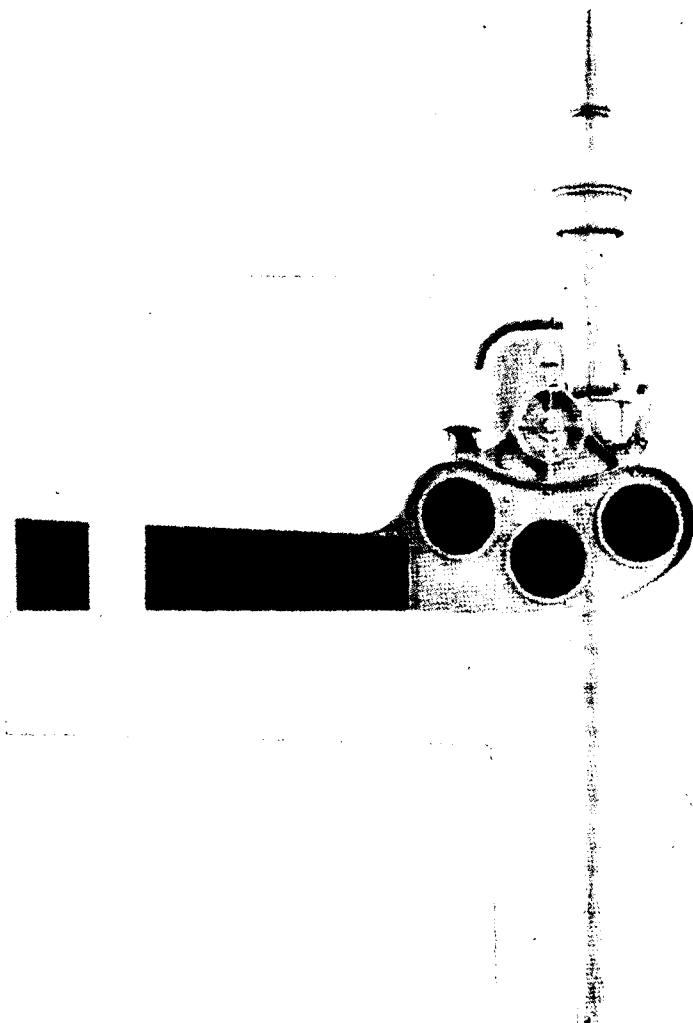


Two aspect lower quadrant automatic semaphore signal electro pneumatically operated

there are different rules to be observed in the case of a signal failure when the signal is automatic or semi-automatic.

There is a special section in the railway rule book covering the operation of signals and points. Rules are also framed to instruct railwaymen what to do, and what protective measures to take, in the event of a signal failing. The standard of signal maintenance achieved today on the British Railways is very high and Indian Railways compare very favourably with it considering differences of climate and other conditions. Where failures do occur, they are almost without exception on the side of safety which means that a signal fails to show 'Clear' when it should do so. In that event, if it is controlled from a signal cabin, the driver has to wait until a written authority is sent out for him to pass the signal in the 'Danger' position. A pilot brings the authority to the train and rides into the station with the driver.

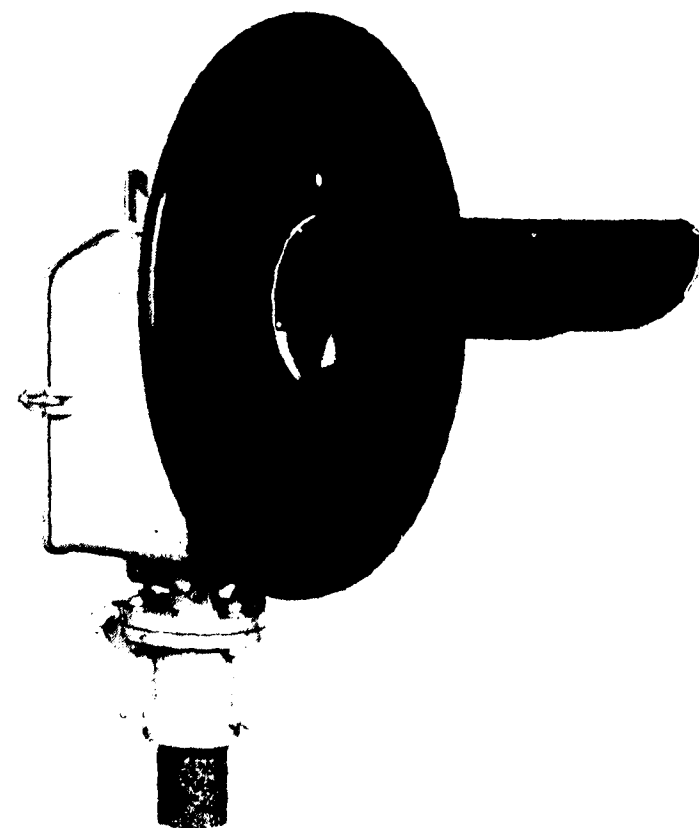
With automatic signals, staff are not available to issue an authority to proceed in the case of their failure. They are usually situated in isolated places and between stations and their nature of operation contributes to this factor. Special rules are applied



Three aspect automatic semaphore signal

replaced his lever normal and pulled it again. This feature is accomplished through special circuits. All signals controlled in this manner are known as semi-automatic signals but there are often cases where a signal is automatic for certain periods and semi-automatic at other times. This situation arises at places where there are crossovers or sidings which are only used occasionally. There would be a waste of labour in signal boxes if such places were continuously manned and they are therefore normally closed. A special switching out lever known as a King Lever is used and this lever can only be reversed when the levers controlling the main line running signals are reversed. The pulling or reversing of the King Lever then locks the signal levers in the reversed position and also completes certain electrical circuits to permit the signals to work automatically. At the same time a small illuminated 'A' sign appears underneath the main line running signals. This sign informs drivers of trains that the signal is working automatically and that the signal box is closed. This is essential since

(Continued on page 19)



Searchlight signal. This only has one lens and the colour of the aspect is changed by a small spectacle inside which is electrically operated

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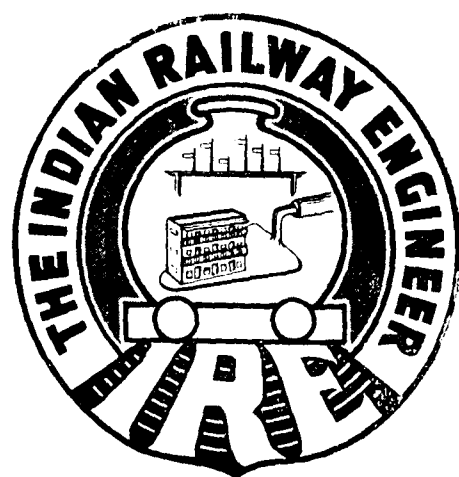
TANJORE, (S. I.)

(Continued from page 18)

to automatic signals and generally they are the same for all railways though an individual railway's subsidiary rule may vary slightly. Generally, a driver is instructed that if he finds an automatic signal at 'Danger' he is to wait one minute and then if it does not show 'Proceed' he is to call up his guard, as an additional lookout, and proceed ahead, with very great caution, prepared to stop short as any obstruction, until the next two automatic signals have been sighted and passed in the 'Proceed' position. If the line is on a curve the guard is instructed to walk ahead of the train.

Automatic and semi-automatic signalling can be applied equally to single and double lines. The diagram with this chapter explains the basic principles. Track circuiting has enabled the centralised traffic control system to be devised which is in use, in various forms, in many parts of the world. With this method many miles of single line railway can be controlled from a central point and in the U. S. A. sections over a hundred miles long are in operation. Signals are not only located at crossing stations but also between stations to enable trains in the same direction to follow each other.

(To be continued)



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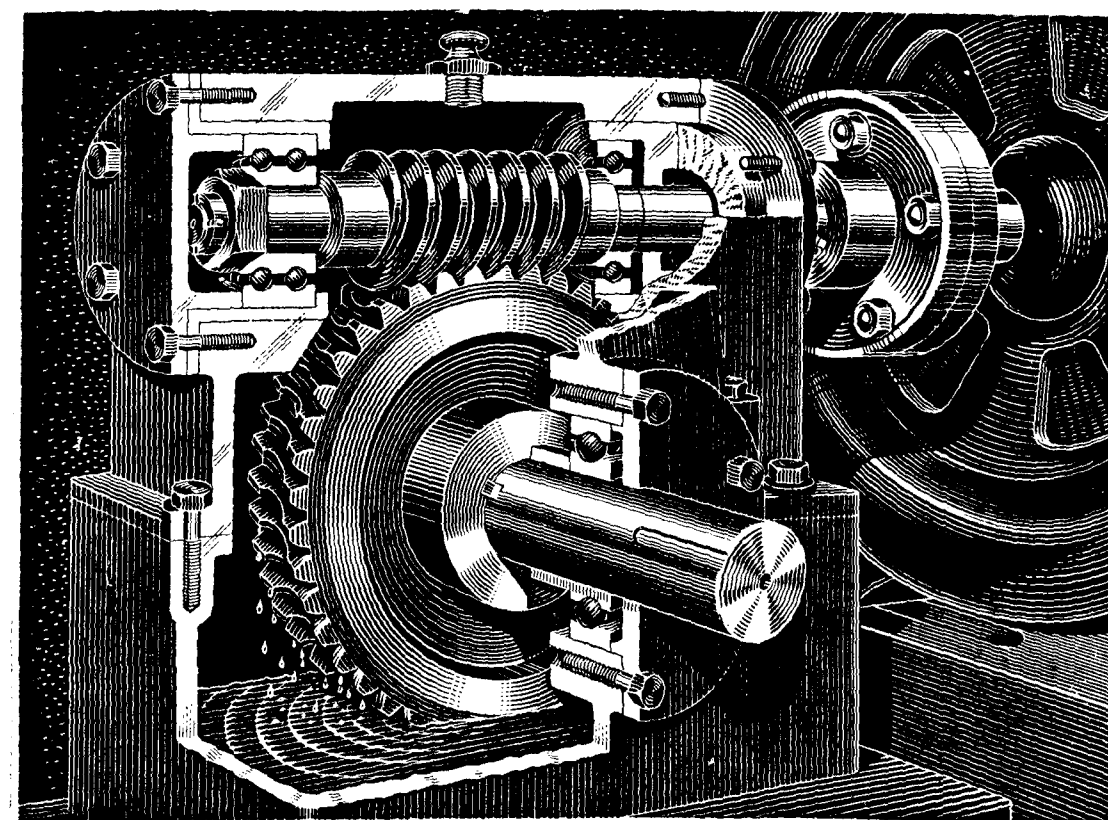
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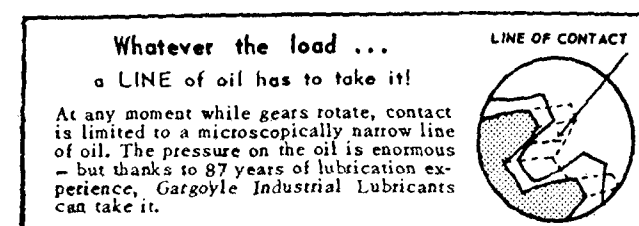
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Feed Water Treatment for Locomotives

By T. Victor Colley, A. M. I. C. E., A. M. I. Mech. E., A. M. I. Loco. E.

THE treatment of feed water for stationery Boilers has long been recognised all over the World as a necessity for attaining maximum efficiency and trouble free operation, and a number of different types of Water Treatment Plants are available to meet individual conditions. It is only within comparatively recent years, however, that Locomotive Engineers have realised the manifold advantages and savings which can result from careful attention to the quality of feed water.

With very few exceptions, the Railways in India have not paid much attention to the treatment of feed water, scale formation and Boiler corrosion being accepted as inevitable phenomena inseparable from day to day operation of locomotives. Bearing in mind the enormous amount of water used in locomotives and the vital need for economy in operation, this neglect of a primary element is rather surprising.

It must be admitted, however, that water treatment for railways is a very much more complicated matter than treatment for stationery Boilers. The latter usually obtain their feed water from one or perhaps two sources, and although the water characteristics may vary throughout the year, these variations usually follow a known cycle, so that treatment can be adjusted to suit and the installation of one Plant only is sufficient to give the desired results.

On the other hand, a locomotive is a mobile unit and has to use water from all kinds of sources and this means that a number of plants must be installed, not necessarily of the same type or capacity, so that waters of widely different characteristics can be treated and made available at all watering points.

For efficient results on any railway, all the different watering points likely to be used must be considered individually and the appropriate treatment applied at each point, so that the locomotive throughout its journey uses nothing else but treated water.

Before going any further, it will be as well to understand exactly what hard water is and how it becomes so.

WATER AND ITS IMPURITIES

Chemically pure water as represented by the formula H_2O is never found in nature. No matter from what source of supply the water is

obtained, it invariably contains impurities, either in suspension or solution.

If the water contains suspended matter, it is easily discernible to the eye because the water is not clear, but impurities in solution cannot be detected by the naked eye, and although a water may be perfectly clear, it may still be absolutely unfit for Boiler feed purposes.

The primary source of all water is the sea, and the sun evaporates sea water which eventually condenses and falls in the form of rain.

As the rain falls it dissolves atmospheric gases, such as Carbonic Acid, Oxygen and Nitrogen and thus it is enabled to disintegrate the various rocks forming the earth's crust. The first action of the rain as it falls on the earth's surface is to loosen the soil and carry it into the streams and rivers. The portion of the rainfall which percolates through the soil absorbs carbonic and other acids derived from decaying vegetable matter and from the excretion of plant roots, and since the acidity of the water is now increased its solvent power is also increased, so that when the water comes in contact with the various rocks beneath the earth's surface, these rocks are attacked and carried away in solution.

The character of the water from any particular source depends upon the nature of the rocks through which the water has percolated. If, for instance, the rocks are limestone, the water will be hard, but if it percolates through peaty soil or comes in contact with granite, it is generally soft, though it may be acid.

The following substances are most commonly found in natural waters:

Calcium Carbonate, Calcium Sulphate, Magnesium Carbonate, and Silica. These are all scale formers.

Other substances found are:

Chlorides of Calcium, Sodium, Potassium and Magnesium, and Sulphates of Sodium, Potassium and Magnesium,

and whilst these substances do not readily form scale owing to their great solubility, some of them

decompose under temperature and pressure in a Boiler and help to cause scale and corrosion.

From the water point of view, the Locomotive Engineer has to face three major problems, viz:—

- (1) Priming.
- (2) Scale Formation.
- (3) Corrosion.

and any system of water treatment must have as its object, the elimination of all these three sources of trouble.

PRIMING

Priming, sometimes known as foaming, is a troublesome condition very well known to all Locomotive Engineers, owing to the frequency with which it is encountered.

Very briefly, priming is due to water being carried over from the Boiler with the steam, this "carry-over" being in addition to and in excess of the ordinary "wetness fraction". When the Engine is running at speed a burst of priming does not have much effect, but if priming is encountered at starting, time is often lost owing to difficulty in getting the train away, and in addition frequent and excessive priming must increase maintenance costs with the renewal of glands and superheater element joints, to say nothing of increased washing out and decreased Engine availability.

Priming can be due to quite a number of causes, but generally it is due to two causes either jointly or individually. These are:—

- (a) Keeping the water level in the Boiler too high, so that the steam space is decreased, and
- (b) Allowing the concentration of the total dissolved solids in the Boiler water to become too high, owing to insufficient blow-down.

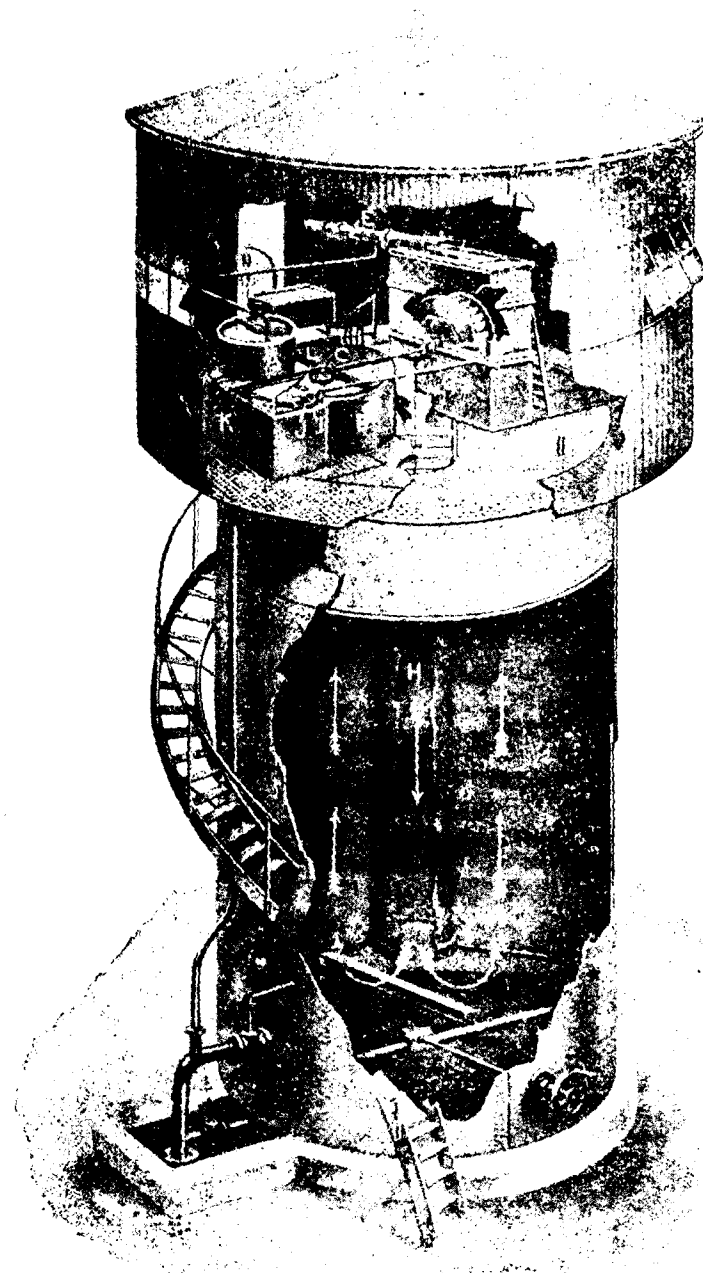
Engine crews are by nature very conservative and it is often very difficult to get them to work with a moderate Boiler water level particularly if they have always been used to working with a "full glass".

As for blow-down, some feed waters contain such a large amount of dissolved solids that it is just impossible to blow down sufficient to keep the concentration of the Boiler water below the limit at which priming will occur. Such waters should be avoided if at all possible, but if they must be used, then they should be treated so as to reduce the dissolved solids to the lowest amounts.

SCALE FORMATION

A great deal has been written by various Authorities on the mechanism of scale formation, and most Engineers are familiar with the various types of scale deposited in Boilers by waters of different characteristics.

All natural waters are scale forming to a greater or lesser extent, and the amount and type of the scale deposited by any particular water depends upon the quantity and nature of the scale forming salts con-



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(Lime and Soda Process)

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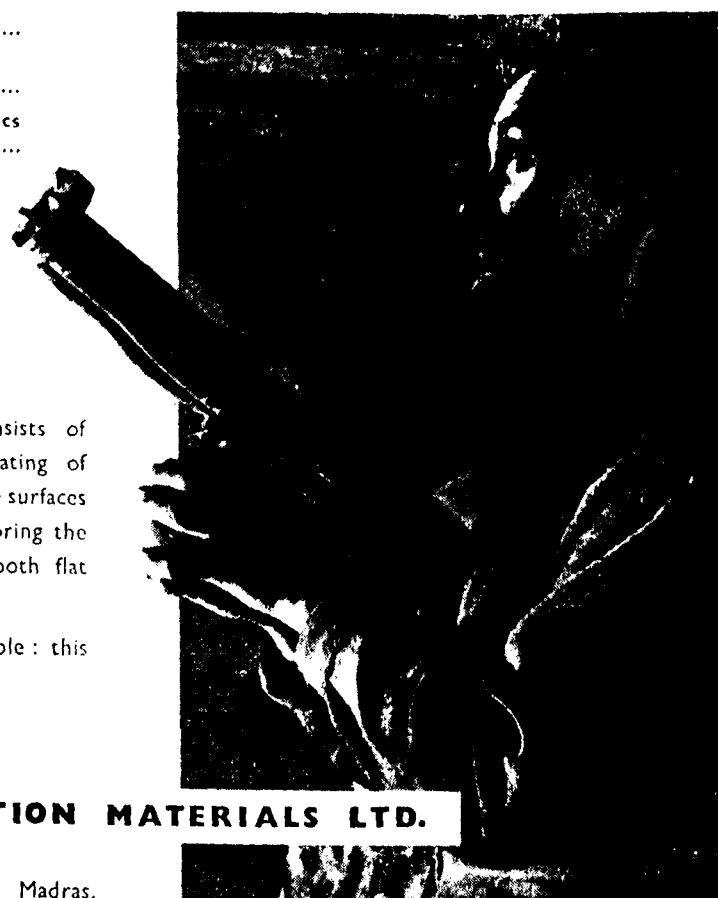
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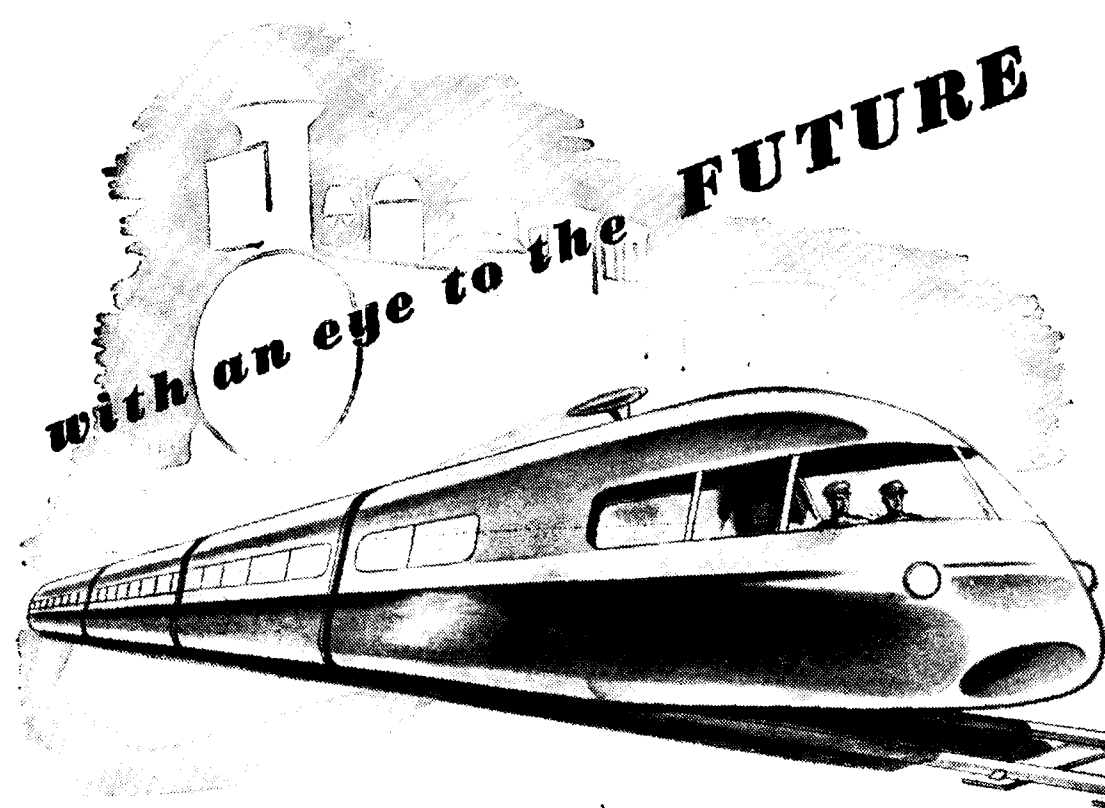
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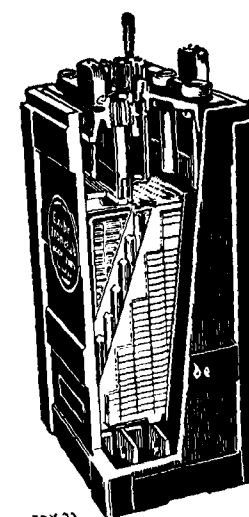
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tained in the water. For instance, water containing temporary hardness only in the form of Magnesium and Calcium Bicarbonates, deposits a soft porous scale which can be removed easily, whilst water containing Calcium and Magnesium Sulphates or Silica, form very hard compact scale which adheres closely to the metal, and is very difficult indeed to remove.

When the heat surface of a Boiler becomes coated with scale, the latter acts as an insulator and impedes the free flow of heat through the metal and as a result, extra fuel is needed to maintain the evaporation, and very often the impendence of the scale slows down the heat transfer rate to such an extent that the metal becomes overheated and bulging results.

Tests on the comparative conductivity of various scales were taken in America some years ago, and the following figures were given by Prof. Schmidt of Illinois University.

Thickness of scale in inches.	Percentage of Fuel lost.	
	Soft Carbonate Scale.	Hard Sulphate Scale.
1/50	3.5	3.0
1/32	7.0	6.0
1/25	8.0	9.0
1/20	10.0	11.0
1/16	12.5	12.6
1/11	15.0	14.3

It is obvious therefore that the elimination of scale from a locomotive Boiler will result in an appreciable saving of fuel, without taking into account any saving from decreased maintenance costs, due to less Boiler cleaning and repair and extra Engine availability.

CORROSION

In Locomotive Boilers corrosion occurs in various forms, depending upon the water evaporated and the construction and design of the Boiler, but in most cases the trouble is due to Oxygen and Carbon Dioxide liberated from the water under temperature and pressure. Corrosion can also be caused by the water being very slightly acid, and this is particularly so with the surface waters which may be quite soft from the scale forming point of view, and yet at the same time may be distinctly acid and therefore corrosive.

Acid waters must of course be treated so that the acidity is neutralized and the water is made alkaline in order to prevent corrosion, whilst the ill effects of Oxygen and CO₂ can be prevented by treating the

water with various chemicals. Experience in the U. K. has clearly shown that a considerable amount of Oxygen can be removed by the use of the top feed type of system and the open type of feed water heater.

METHODS OF WATER TREATMENT

There are two principle methods of treating water for locomotive Boiler feed purposes, and these are generally known as the Lime/Soda process and the Base Exchange process respectively.

A great deal of confusion and wrong thinking exists about the relative merits and demerits of the two systems, and it must be clearly understood that the Lime/Soda and Base Exchange processes are not rivals in the field of water softening, since each process has its own particular sphere of use and application.

When a Softening installation is under consideration, the one process is not always a straight forward alternative to the other. The process to be selected in any particular case depends upon a number of factors, the chief amongst which is the character of the hard water.

In general the Lime/Soda process is the one usually adopted for locomotive feed water treatment, but there are certain types of waters which can be treated equally as well by the Base Exchange method.

It cannot be over emphasised that individual consideration is necessary for each and every installation, and the following brief details of the two different methods may help to give an idea of how each process works and what results can be expected from it.

LIME/SODA PROCESS

All the soluble scale forming substances normally found in water can be removed by the addition of suitable chemicals in definite proportions. Chemical reactions take place between the soluble impurities and the added chemicals whereby insoluble compounds are formed and precipitated. The precipitated matter must of course be removed before the water is used.

This method of softening is sometimes called the precipitation process, although it is more widely known as the Lime/Soda process, since Lime and Soda Ash are the chemicals most generally used.

The chemical reactions which take place in this process may be represented by the following equations:

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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.

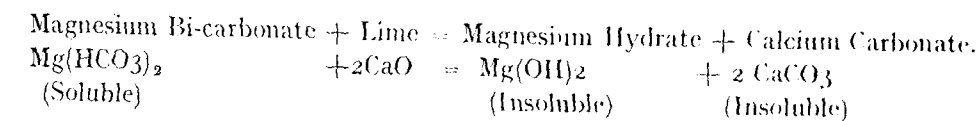
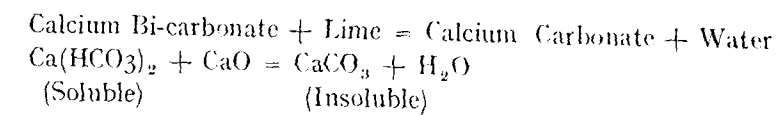
The public can co-operate in the following ways *inter alia* :—

REMEMBER

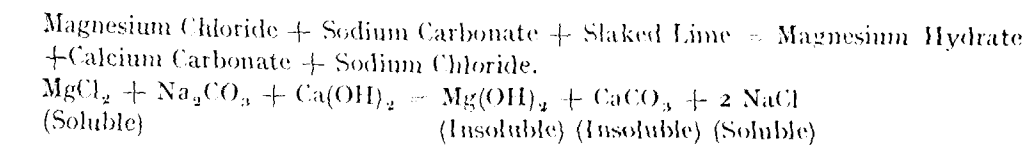
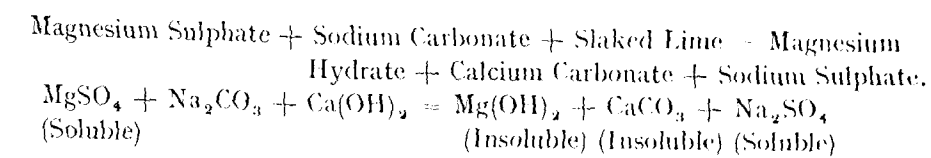
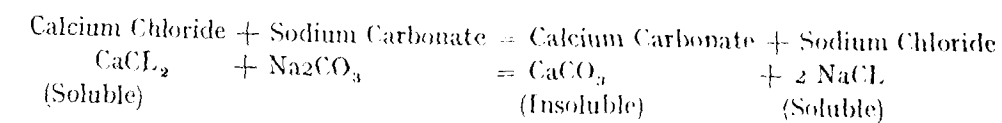
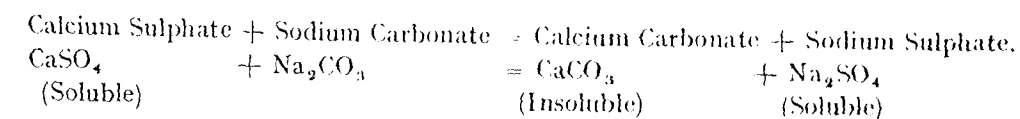
- ★ *that any leakage in the Railway revenue caused by illicit travelling operates to the financial detriment of the Railways in particular and tax-payers in general and to the inconvenience of ticket paying passengers.*
- ★ *that insecure packing, improper labelling and inaccurate marking, lead to compensation 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

Removal of Temporary Hardness due to the Bi-carbonates of Calcium and Magnesium.



Removal of Permanent Hardness due Sulphates and Chlorides of Calcium and Magnesium.



In addition to Lime and Soda Ash used for precipitating the hardness, a third chemical such as Aluminum Sulphate or Sodium Aluminate is used, to coagulate the precipitate and hasten its settlement.

A typical Plant of the Lime/Soda type is shown on page 55 which is the well known type 'K' design, manufactured by Messrs. John Thompson Kennicott Ltd., represented in India by John Thompson Wolverhampton (India) Ltd., Calcutta and Bombay.

This Plant is designed to use Milk of Lime, Soda Ash, Sodium Aluminate, Aluminum Sulphate or other chemical reagents which may be required to adequately soften and condition various waters for boiler feed purposes.

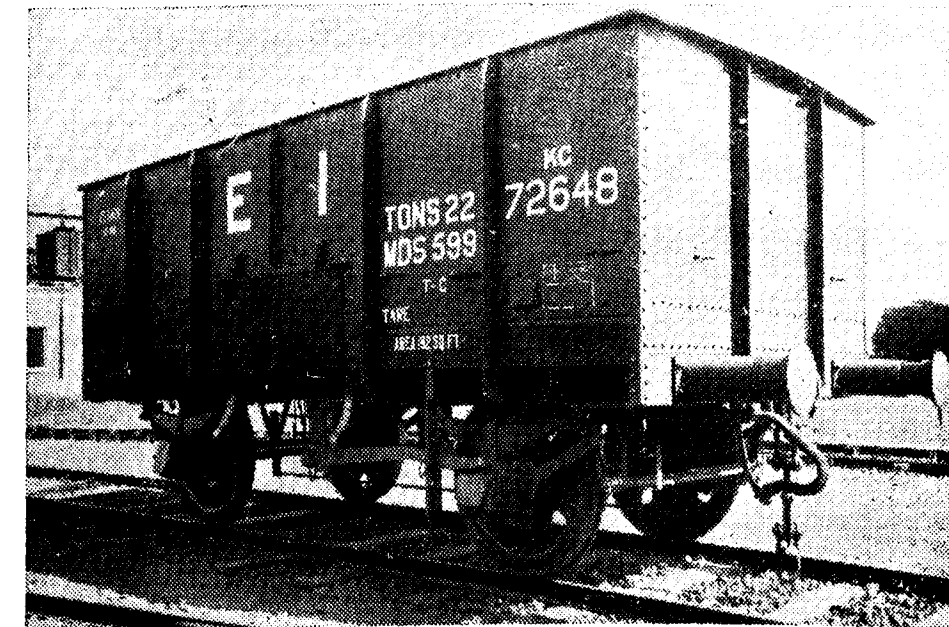
This Plant is unique in that only water is measured and the measured water proportions the chemicals.

Water can be measured with absolute exactness and in the Kennicott Plant the measurement of the incoming raw water automatically proportions the chemical dosage in exact ratio to the rate of flow of the raw water.

It will readily be appreciated that the amount of water entering a Plant may vary considerably and unless the chemical dosage is strictly proportioned the treated water will either be undertreated or over-treated. The former condition means that the hardness is not completely removed and partially treated water can sometimes be more dangerous than a water which is not treated at all. Over treatment can also cause considerable trouble to say nothing of the chemicals which are wasted.

When the chemicals and raw water meet in the downtake mixing chamber of the Kennicott Softener, they are intimately mixed by chemical agitation. This feature is most important, as it results in a more complete chemical action taking place and in the better settlement of the hardness forming salts. The Milk of Lime in the Chemical Tank is maintained in a state of perfect agitation by means of the mechanical agitator which rotates continuously in the bottom of the tank whenever the Plant is in operation. This agitation of the Lime is most essential, in order to ensure that the correct quantity is added to the incoming water and that this quantity is of uniform consistency.

STEEL WAGONS



This illustration shows
one of the open type wagons built for
the East Indian Railway Company.



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Equilibrium Float controlled Valves operate on the raw water inlet to the Softener and are so arranged that the Plant can stop and start automatically in unison with the demand for treated water. After softening and settlement, the final water passes through a Woodwool Filter contained in the Main Reaction Tank. This Filter removes the last traces of precipitate so that the water going forward to service is quite clear.

The precipitated hardening salts fall to the bottom of the Main Reaction Tank from where they are removed at intervals by means of the Kennicott Patent Revolving Sludge Gear which enables sludge to be discharged to drain through a Sluice Valve, without stopping the operation of the Plant.

The illustration shows the Chemical Proportioning Gear on the top of the Main Reaction Tank, but this Gear can also be arranged at ground level if so

Calcium and Magnesium Bi-carbonate	become	Sodium Bi-carbonate.
Calcium and Magnesium Carbonate	„	Sodium Carbonate.
Calcium and Magnesium Sulphate	„	Sodium Sulphate.
Calcium and Magnesium Chloride	„	Sodium Chloride.
Calcium and Magnesium Nitrate	„	Sodium Nitrate.

With this process there is no chemical precipitation of the hardness forming salts, and therefore no reduction in the quantity of the total dissolved solids originally present in the hard water. From the Boiler feed point of view, this is a great disadvantage, since it increases the amount of blowdown required to keep the Boiler water concentration below the priming limit.

Removal of Temporary Hardness due to Calcium and Magnesium Bi-carbonates.

Softening Medium.	Hard Water Containing.	Exhausted Medium.	Softened Water Containing.
-------------------	------------------------	-------------------	----------------------------

Na_2Z	$+ \text{Ca}(\text{HCO}_3)_2$	CaZ	$+ 2 \text{NaHCO}_3$
Na_2Z	$+ \text{Mg}(\text{HCO}_3)_2$	MgZ	$+ 2 \text{NaHCO}_3$

Removal of Permanent Hardness due to Calcium and Magnesium Sulphates, Chlorides and Nitrates.

Softening Medium.	Hard Water Containing.	Exhausted Medium.	Softened Water Containing.
-------------------	------------------------	-------------------	----------------------------

Na_2Z	$+ \text{CaSO}_4$	CaZ	$+ \text{Na}_2\text{SO}_4$
Na_2Z	$+ \text{MgSO}_4$	MgZ	$+ \text{Na}_2\text{SO}_4$
Na_2Z	$+ \text{CaCl}_2$	CaZ	$+ 2 \text{NaCl}$
Na_2Z	$+ \text{MgCl}_2$	MgZ	$+ 2 \text{NaCl}$
Na_2Z	$+ \text{Ca}(\text{NO}_3)_2$	CaZ	$+ 2 \text{NaNO}_3$
Na_2Z	$+ \text{Mg}(\text{NO}_3)_2$	MgZ	$+ 2 \text{NaNO}_3$

Obviously the quantity of Zeolite in a Softening Plant, and the water will only continue to be softened until such time as the Sodium content of the Zeolite has been exhausted and replaced by Calcium and

required. In many cases this is preferred so as to facilitate supervision, inspection and chemical charging.

BASE EXCHANGE PROCESS

Fundamentally the Base Exchange process consists of passing hard water through a bed of softening medium known as Zeolite.

The hardness in the water is due to Calcium and Magnesium Salts, and Zeolites all have the unique property of taking away Calcium and Magnesium and substituting Sodium in their place.

Therefore if a hard water contains Calcium Bi-carbonate and Magnesium Sulphate, the softened water will contain equivalent amounts of Sodium Bicarbonate and Sodium Sulphate.

The more common impurities in hard water are transformed by Base Exchange treatment as follows:

Zeolite which is used in the softening process is obtainable in many forms and all commercial Zeolites are complex compounds. Therefore for the sake of simplicity, the softening medium can be designated by the chemical formula Na_2Z and the reactions which take place during softening can then be represented as follows:

Magnesium. When this state is reached, the water leaving the Softener will be just the same as when it enters, and the Zeolite must be regenerated in order to renew its Sodium activity.

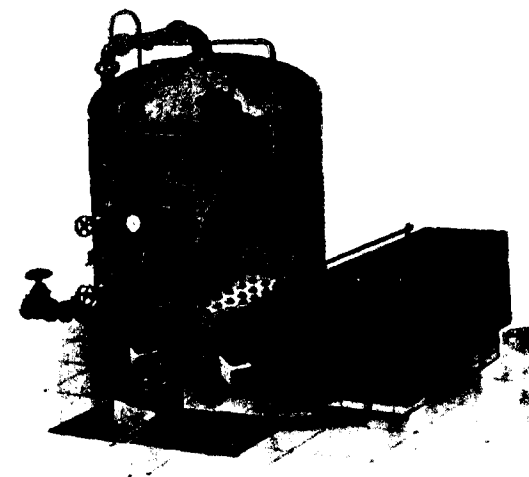
Regeneration of the softening medium is quite easily carried out by passing a solution of Sodium Chloride (common salt) through the Softener and there-

Exhausted Medium.	Regenerating Solution.	Regenerated Medium.	Waste Effluent containing in Solution.
CaZ	$+ 2 \text{NaCl}$	$= \text{Na}_2\text{Z}$	$+ \text{CaCl}_2$
MgZ	$+ 2 \text{NaCl}$	$= \text{Na}_2\text{Z}$	$+ \text{MgCl}_2$

The effluent which passes to drain during regeneration is quite clear and easily disposed of and the Zeolite after regeneration is once more in the active state.

The average Base Exchange Plant is simple and easy to operate and very little attention is needed, even though the incoming water may vary in hardness, since the softened water always remains zero to the soap test right up to the time when the Zeolite needs regenerating.

A Plant usually consists of one or more cylindrical mild steel shells containing the Zeolite, and on the outside of the shells are pipes and valves to control the various operations. Such Plants are made in all sizes to give capacities ranging from a few gallons up to many thousands of gallons per hour.



Kennicott-Kenzelite Base-Exchange Water Softener

The above picture shows a typical Base Exchange Plant as manufactured by Messrs. John Thompson Kennicott Ltd., and in the picture a portion of the Softener body is cut away to show the interior. In the bottom of the body are bronze nozzles set in concrete and arranged to collect the softened water over the full area of the Zeolite bed. Above the nozzles are two layers of graded gravel supporting the Zeolite bed, and alongside the Softener, is a Brine Tank to prepare the regenerating solution of common salt.

(Continued on page 32)

by reversing the normal softening process and replacing the lost Sodium. The chemical reactions during regeneration are as follows:—

For larger installations, the salt can be stored in a Brine Saturator from which a saturated solution can be withdrawn to a measuring tank for use as required.

WAYSIDE TREATMENT

In some cases a watering point is not very much used or the take-off from it is not sufficient to justify the installation of a full scale softening Plant, but at the same time it is very essential that the water should be treated in some way to prevent scale formation and this is generally accomplished by adding an alkali to the water, such as Sodium Carbonate, Caustic Soda, Sodium Aluminate, etc., the chemicals to be used depending on the water to be treated, and here again each installation needs individual consideration.

In addition to the alkali an inhibitor is also added to prevent scale depositing in the pipelines and valves before the water reaches the Boiler, and the latter the temperature deposits the temporary hardness, whilst the alkali precipitates the permanent hardness in the form of sludge which can be blown down in the normal manner.

There are various types of wayside treatment plants, each applicable to a certain set of site condition. The chemicals are usually added to the rising main to a Storage Tank by means of a bypass feeder, chemical pump or a plant of the displacement type working on the Venturi principle.

Plants of the wayside treatment type are applicable to a low capacity watering station, but they must not be installed indiscriminately and the nature of the water to be treated is the deciding factor as to whether a Plant can safely be installed or not. If the hardness of the raw water is excessive, then it is unwise to install Plants of this type, owing to the amounts of chemicals used and the amount of sludge deposited in the Boiler.

It will be obvious to Locomotive Engineers that the elimination of scale, corrosion and priming can produce appreciable savings, but it is very essential in order to obtain the full benefit from softening that a complete

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(Continued from page 31)

section of a railway must be equipped, so that there is no danger of a locomotive picking up soft water in another.

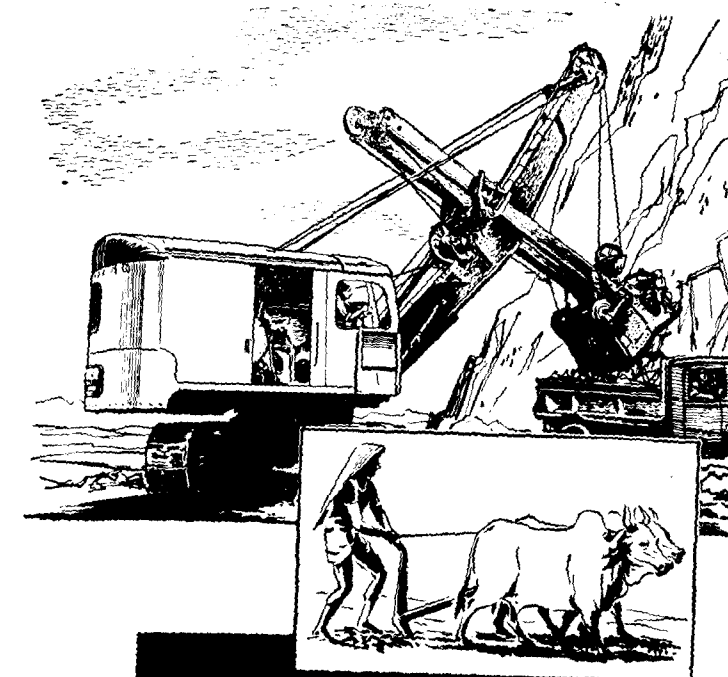
The theory and practice of water treatment in general and for Railways in particular is a very highly specialised field, and in a brief article of this nature, it is only possible to touch the fringes of the subject. Before deciding on any installation the economic aspect must receive primary consideration, and this is a very difficult matter, because so many of the savings resulting from water treatment are intangible and figures applicable to one railway do not necessarily apply to another. It is therefore impossible to generalise, but

it was demonstrated some years ago by the American Railway Engineering Association that the overall damage done by every pound of scale deposited in a Boiler was equivalent to 13 cents. Also some years ago a well known British Railway investigated the damage done by scale in Locomotive Boilers, taking into account the life and maintenance of the engines, and they found that for every ton of permanent hardness salts entering the Boiler, damage to the extent of £.85/- Sterling was caused, whilst every ton of temporary hardness caused damage to the extent of £.15/- Sterling. These figures held good some years ago, so with the present costs so much increased, the savings today are likely to be appreciably more.

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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IOAX 14

American Railways—Practice & Performances

Vis—4—Vis British Railways

By Saroj B. Biswas

(Continued from July issue)

TO all intents and purposes, America is a land of potential passenger reserve with a high standard of living. The people are exceptionally rich and enterprising enough to see new country and to gain fresh and novel experience. From 1900 to 1949 the motor cars have increased from 8000 to 44,120,000. Every adult has got a car there and the road mileage during that period increased from 15,000 to 157,400. Petrol being abundant is cheap and the people pay less in taxation than in Europe. In the sequel, the common people turn over to road transport which they find cheaper and more convenient as well. Moreover the competition from air is another potent factor to reckon with. The people being not satisfied with the speed of trains and being seized with the craze of 'Speed', 'speed' 'more speed' are deserting to air-liners which now carry atleast 45% of the combined first class Railway and Air travels. Air-liners are now offering 3 d a mile for the coach class or third class passenger which constitutes about 55% of the total air travels by the principal air-liners of the U.S.A. Air service attracts people more and Air-Passenger travel now-a-days is about 20% higher than it was in 1948. But possibly the principal factor contributing to the progressive fall in the passenger revenue of the U.S.A. Railways is the outlook of the management. The development and prosperity of America are closely linked up with the development policy evolved and pursued by her Railways. From the inception the different Railway authorities concentrated exclusively on building high capacity wagons for providing cheapest possible transport to the country needed then for its advancement and with the help of their highest paid workers they succeeded in transforming their country into the most powerful industrial nation in the world. From the beginning the Railway there ignored the aspect of passenger traffic and what they cared more was the revenue ton miles earned per goods train and they have been rewarded in this endeavour with a gross revenue of 105 dollars per average wagon load. The consequence is that American Railways are predominantly freight carriers and that for long distances, freight revenue is their mainstay. In this sphere road, water and air transport have failed and will fail to supplant the Railway. At present passenger traffic is

provided on 60% of the route mileage of her Railway which works out on the average 7 trains a day over a mile of the Railway.

The present passenger revenue is 10% of the total freight revenue against 30% in 1912. The loss on passenger revenue is covered by 7.5% of the takings of the total ton-miles but the position is somewhat different in Great Britain and India. The percentage of the Passenger revenue of the British Railways in 1951 was 17% of the total freight revenue as against 42 on the Indian Govt. Railway and this British percentage of passenger receipt was as high as 67 in 1938 and 62 in 1939 but in India the percentage has remained all along more or less steady fluctuating between 40 to 44.

In the U.S.A. the receipt from a passenger mile of 2.6 cents is nearly twice that from a ton mile and for every passenger mile the U.S.A. Railways earn 18.5 ton miles while on the British Railways the income from a passenger mile of 1.25 d is a little above half the revenue per ton mile. For every 10 passenger miles the British Railways operate 11 freight ton miles.

The gradual decline of the passenger traffic has re-oriented the outlook of the Railways and taking a realistic view. Their present policy is not to go regain what has been lost but to retain what is still with them and to attain that objective they are tireless in their efforts to provide a service which, as regards safety, speed, comfort and other amenities of life bow to nothing in the world. Passenger fatalities on the U.S.A. Railways in 1951 were 4.11 per 1,000 million passenger miles, and 5.52 in 1950 and 6.91 as compared with 13 per 1,000 million passenger miles by air in 1951, 11.5 in 1950 and 13.2 in 1949. The average of both these modes of transport — air and Railway — for the last 3 years tips the balance in favour of the latter by $\frac{3}{2}$ to 1 death per Railway travel. This shows that safety is not always the sole appealing criterion to a passenger who sets more store on speed and its advantages.

The year 1951 was a year in which the American Railways reached the peak of operational efficiency. From 1939 to 1951 the productivity of her Railways has increased by 37% which is double that of other manufacturing industries of that country including the steel. The operating ratio of the Railways has dropped from 88% of the first 8 months of 1950 to 77% in 1951 against 76.8% of our E.I.Rly. during 1951-52. Her class 1 Railways transported an average of 21767 net ton-miles per freight train hour — the highest record — which is 50% above the figures of 1941 and 300% higher than that of 1920. The average Number of wagon per freight trains was 60 against 50.3 of 1950 and 35.6 of 1920. The transport of an average ton on the American Railways is 476 miles — 65% higher than that of 1931 and 100% higher than in 1920. Compared with 1939 the originating tonnage in 1951 was up by 50% and mileage by 70%.

Despite the handicap due to inability of new wagon delivery by the manufacturers on account of shortage of steel, the Railways have coped with this increased traffic by moving per day, more net ton miles per serviceable wagon, and to this productive freight service 75% of the motive power is harnessed. This colossal freight traffic is conveyed in freight trains 125 loaded wagons (four-wheelers) about a mile long with

a gross tonnage of 12,000 and this figure has lately been improved upon to 14,500 tons by Norfolk and Western Railway of Steam Traction. All these achievements were feasible among other causes, due to the excellent behaviour and performances of the locomotive. The average speed of the freight train in 1951 was 17 miles per hour or three percent higher than that in 1941 and 65% higher than that in 1920. The average passenger train speed appreciated from 31.1 M.P.H. in 1931 to 38.7 M.P.H. in 1951. The average of passenger train speed on the Pennsylvania and Santa Fe Railways was 44 and 46 M.P.H. — a figure which has not even been attained by French National Railways which work the fastest service in Europe. The average daily engine mileage of the freight and passenger service is 126.5 and 295.5 respectively. Even this record is bettered by the Norfolk and Western Railway whose Ja class engine (4-8-4) working "Pow Hattan Express" regularly attains a monthly mileage of 15,000 — a figure which has lately been lowered only by the Electric traction of S.N.C.F. France.

Looking at this bright picture, the fact should not be overlooked that the British Railway have since 1939 maintained a steady progress. The Table below shows the respective improvement achieved on the Railways of these two Anglo-Saxon countries.

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TABLE No. 2 - Vide RAILWAY GAZETTE OF 15-8-52

		BRITISH RAILWAY			AMERICAN RAILWAY		
		1938	1951	% of Increase.	1938	1951	% of Increase.
1. *Net ton miles (Millions)	...	1667.3	3229.2	97	316910	678904	114.2
2. Net ton mile per mile of road per day	...	2290	3241	41.5	3742	8270	121
3. Wagon load (tons)	...	5.6	6.9	23.2	26.2	33.61	26
4. No. of loaded wagons per train	...	22	23	4.5	47.1	66.6	27.3
5. Train Load (ton)	...	125	162	29.6	759	1301	71.4
6. Speed Freight Train	...	9.15 M.P.H.	8.39 M.P.H.	9.2 decrease.	16.6 M.P.H.	17.66 M.P.H.	2.4
7. Net ton miles per freight train hour	...	968	1197	14.5	12473	21767	74.5

It is perceived from this table that the U.S.A. net ton miles is 16 times the British total of 1938 and 26 times of the same of 1951 and that the U.S.A. Rail traffic is $2\frac{1}{4}$ times denser than the British traffic of 1951 and 1.4 times of that of 1938. Expressed in terms of net ton miles the hourly output of the U.S.A. Railways is 11 times the British output of 1938 and $17\frac{1}{2}$ times than that of 1951. It is also singular that the output of ton miles on the seven individual Railways of the U.S.A. viz., 1. The Pennsylvania 2. New York Central 3. Chesapeake and Ohio 4. Union Pacific 5. Santa Fe 6. Southern Pacific 7. Baltimore and Ohio exceeds the output of the British Railways. So much so the Pennsylvania with its mileage of 10040 turns out twice the ton miles of the British Railways.

But with all these superior figures the British and the Indian Railways forge ahead of their American sisters in wagon turn-round-an index of operational efficiency. The wagon turn-round of the British Railways is roughly 10 days and was 8.5 days on our E.I. Railway and 4.6 days on our E.P. Railway during March 1952 against 15-17 days of the American Railways and this long period is due to the distances between traffic centres and the practice of forming long heavy trains and long loading and unloading time allowed in order to counteract road competition.

All these records and attainments are substantially due to the change over of the motive power from steam to Diesel electric which is 70% of the Railway operation in the U. S. A. at present at a fuel cost of one half of that of other motive power in freight working and two thirds of passenger working, and also due to modernization in operation and shunting, last but not the least due to the fine maintenance of the power and equipment of the U. S. A. Railways. The engine failure is few and far between. The percentage of steam locomotive found by the Bureau of Locomotive Inspection, defective of the total was

12.9 against 8.3, of the Diesel traction; the percentage of wagon awaiting repairs is 5.3 out of the total stock against 7.7, of the British Railways. The U. S. A. locomotive position is equally note worthy. The percentage awaiting repairs of the total stock is 12.8 with regard to steam locomotive and 1.2 with regard to the Diesel as contrasted with 18.3% of the net stock of the British Railways. But this tremendous increase of productivity which is associated with long distance traffic has not gone hand in hand with 'smalls' traffic and financial position of the Railways. On the contrary, the U. S. A. Railways are losing the 'smalls' traffic to the intercity road transport, of the 'smalls' traffic which was in 1929, 25% of the total commercial traffic, has now dwindled down to 8% of the latter. The capacity of an American Railway wagon is often as high as 90 tons and the average wagon load is 60 tons and the Railway finds it profitable not to cater to that traffic as it loads lightly and is expensive to handle, so the 'smalls' logically diverts to road and to water in some cases. The average amount charged for the haulage of a ton of freight per mile lags far behind the rise of wholesale and retail prices of commodities. Since 1939 the Railway freight rate has increased by 67.6%, the cost of supplies by 130% and the wholesale price index ranges from 100 to 234, the consumers' price index leapt from 100 to 187, the average annual income of a Railway worker having been doubled in course of the last 10 years to 4342 dollars, the wage bill has been on the constant increase and in face of the parlous situation the Railways have perforce to rest content with a small margin of profit which in 1951 amounted to 603 million dollars with a return of 3.7% on the total capital at charge in contrast to that of 13.8% earned by the 45 industries of the U. S. A. Evidently, inspite of tremendous drive and enhancement of productivity and efficiency the U. S. A. Railways failed to keep pace with the ever rising cost of opera-

tion due mainly to rapid climbs of heavy burden of wages. The result is, in a period of economic plenty for reasons beyond control, the U. S. A. Railways though not languishing are not flourishing. To mend the situation, a year ago, the Association of American Rail Roads, appealed to the Federal Govt. for enhancement of freight rates and in deference to that appeal, the Federal Govt. through Inter State Commerce Commission authorised the Railway to increase the freight rate and charges by 15% with effect from May 1952 until February 1954. It is too early to forecast the result of this enhancement but some calculation has been upset by the strike of Steel workers and iron or miners lasting for 52 days, and

by a slump in the coal production this year. There has been a drop in the production of bituminous coal by 11.6%. Still the future outlook augurs well for the Railways. The Railways have been able to strengthen their fiscal and financial position since the enhancement of freight rates in May last. The net operating income of the Railways has gone up by 15.9 % and this improvement has been most prominent and noticeable with regard to the Pennsylvania, and Santa Fe Railways whose operating earnings have looked up by 32 % and 43 % respectively. To add to this the Railways have been able to reduce the staff by 6 %. The future improvement and operating result will be watched with keen interest.

TABLE 3

COMPARATIVE ANALYSIS

		British Railways.	U.S.A. Railways.
1. Mileage	...	19580	225000
2. Total Number of Employees	...	610090	1226,400
3. Operating Ratio	...	91%	77%
4. Average distance a ton of freight hauled	...	76 miles.	476 miles.
5. Total tonnage of freight carried	...	26 crores of tons.	268 crores of tons.
6. Number of passengers carried	...	99 crores	65 crores
7. Average speed of passenger trains	...	16.7 M.P.H.	38.7 M.P.H.
8. Maximum scheduled speed of passenger train	...	63 M.P.H.	84 M.P.H.
9. Of £.100 spent on buying steel the delivery cost, transport cost of raw materials and of fuel represent	...	£ 12	£ 15
10. Total delivery cost of Steel Rail transport represents	...	10%	10%
11. Increase of freight rate since 1939	...	125% =	67.6%
12. Hump Radius	...	600	2400
13. Capital Expenditure in 1951	...	£ 72 million	£ 504½ Million
14. Total Investment	...	Rs.1640 crores	23 billion dollars including depreciation.\$

* On the British Railways the average speed of Electric Train is 21 M.P.H.

= Excluding the enhancement of 15% in May 1952.

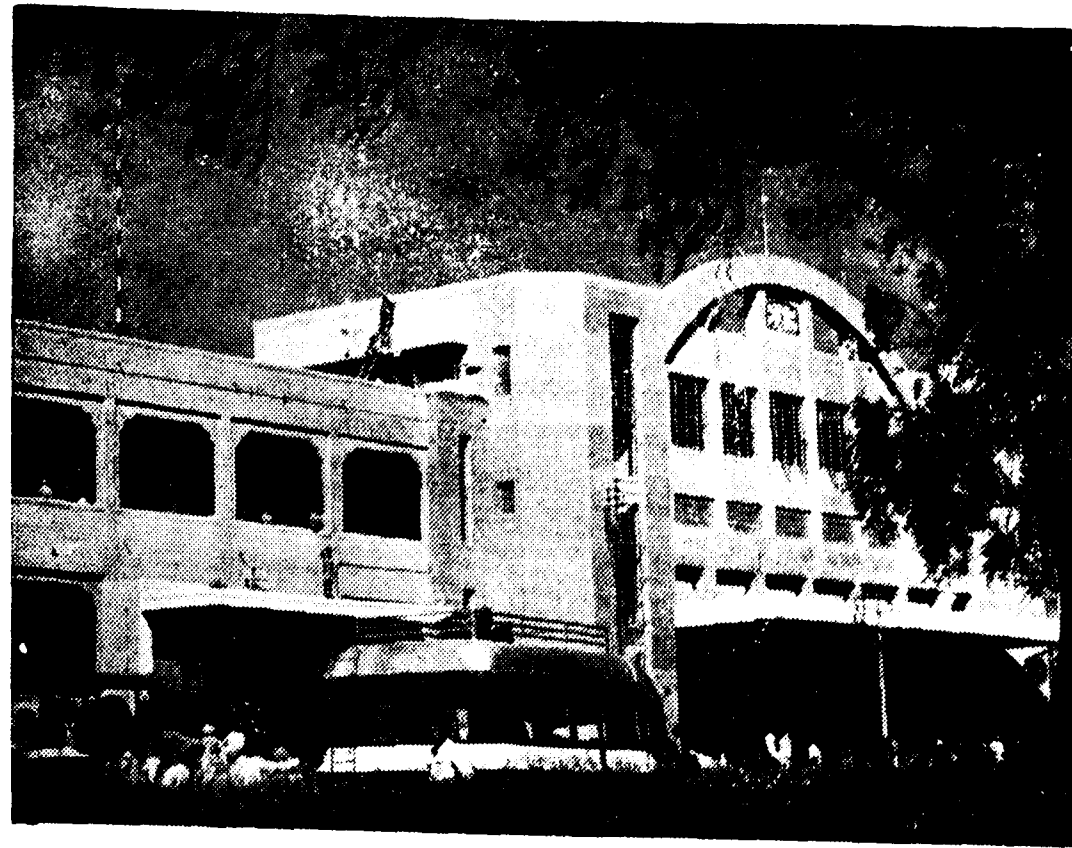
\$ One Dollor is nearly Rs.4-14-0.

(Concluded)

Materials obtained from divers numbers of Railway Gazette 1951 and 1952 and Railway Age 1952.

+ Excluding enhancement of 15 % in May 1952.

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late on the run and run. Such kinds of particular or special type of facilities suited the specific nature of commodities is another method of fighting road competition.

The railway administrations of foreign countries are unanimous in affirming the possibility and desirability of developing the use, the container-system for transporting goods in bulk and in full wagon loads from door to door, and thus effectively overpowering road competition. In Holland this method is continually increasing in importance. Switzerland introduced it recently and have obtained satisfactory results. Belgium is doing the same with both open and closed containers. Containers are very useful for fragile goods requiring careful handling and costly packing; e. g. glass, pottery, paper articles, toys, furniture, machine parts, etc. The method can be extended to the transport of liquids, powders, and goods in bulk such as wine, industrial liquids, cement, lime, etc. Use of containers for wine is becoming very popular in France, which is noted for its vine-yards. In many of these countries traffic lost has been recovered because of containers. In the matter of transport of mineral waters one supplier is enabled to supply several clients in the same locality or nearby cheaply by loading several containers into the same wagon, each of lot of containers being addressed to a separate client.

Different sizes of containers can be used to suit the commodities transported. They may be of different cubic capacity, and may be made of different materials, and may be of different build, plan or specification. So far no container of more than five ton capacity or of 90 cubic feet has been used in any of these countries. A weight capacity or a volume capacity may be prescribed, according to the nature of the stuff for which it is required. For the transport of green vegetables and fruits loose or in bulk wooden containers with locking arrangements and special fittings for addresses and labels for journeys between the Nilgiri Hills and the plains were used on the ex-South Indian Railway and found very successful. Coonoor and Ootacamund are the regular stations and Mettupalayam the occasional station, from which the Hill Vegetables (English Vegetables grown on the hills) used to be despatched to hundreds of stations on the plains. Through the course of nearly a century this cultivation has established itself on the Nilgiri Hills, and a regular stream of traffic in these green vegetables, especially on the shandy days at Ootacamund Coonoor and Mettupalayam had been built by the ex S.I.Ry. But the common basket with the lid stitched on to it was the

container. The baskets were subject to rough handling and pilferage at the intermediate handling junctions. Complaints were numerous. A stage was reached when something had to be done. By way of experiment two containers were devised and given to two individual consignees for use and they were to report on their experience after three months. One was of bigger size than the other. They were made of three-ply-wood with battens along all the edges inside, and the faces were well secured. The sender had one key in his possession and the consignee had the duplicate key. The metallic address label could swing about a hinge, and bore the addresses of the sender and the consignee on its two faces, and it could be fixed in the desired position. Pilferage was impossible without breaking the container. As all the six faces had several small holes bored for the free ingress and egress of air, the vegetables kept well, and were fresh at destination. These wooden containers were specially designed to contain just the normal or average quantity of a normal family's requirements of vegetables to last for a week. The empties could be sent back to the booking station. The tare weight of the container was kept very low by the use of compressed plywood held fast by battens. The users expressed great satisfaction at the results, but somehow the idea was not followed up and extended to all consignees. The senders could have put such containers in use; but as the business is in the hands of poor people who cannot afford any investment, the system died a natural death. Ootacamund and Bangalore are the two stations where this wooden container is well worth a trial again.

One point to bear in mind with regard to these containers is that the tare weight of the empty container must be kept down to a minimum consistent with the strength required to contain the stuff, for in many instances the weight of the containers is also paid for at the same rate as for the commodity contained. When the containers are of heavy weight, they can be used only between stations which have crane arrangements to lift and transfer them to or from road-hauliers, and which have suitable roadways parallel to the sidings on which these loads could be kept.

A rating principle is involved in the use of these containers whether made of steel sheets or wooden planks. Each container has its tare weight, which together with the nett weight of the contents gives the gross weight for charge as for the contents. If the contents happen to be a high-class (higher rated) commodity, the charge for the container's tare weight is also at the same high class rate, that is as for the con-

tents. If the commodity inside the container is a low class one, the freight charge for the empty container is at the same low class, that is as for the contents. For example, on the Indian Railways *Tea* comes under 10th Class at .97 pie per maund per mile, whilst *Cement* comes under 3rd Class at .58 pie per maund per mile. The same container, when used for the carriage of tea becomes chargeable on its tare weight .97 pie per maund per mile, but only at .58 pie per maund per mile when used to carry cement. So much so, the different users of the same container have to pay different charges for the same distance, which will certainly be viewed with disfavour by the clients. This was one of the adverse features of the experimental use of the containers on the ex-S.I.Ry., which contributed towards the failure of the experiment. It would be desirable to have the tare weight marked on each of the container in maunds, and to have on the railway's tariff a fixed rate for the use of the container, either on a maund-mile basis or a lump sum per 100 miles or fraction thereof, both for its loaded direction and empty-running direction, the contents being charged separately on their nett weight as per tariff classification.

The closed type of container used in Holland has a tare weight of 1200 Kilograms and an internal capacity of 12 cubic metres, and can contain a maximum load of 5000 Kilograms, and measures 3 m. X 2 m. X 2 m. The open variety is of tare 900 kg., same internal capacity of 12 c.m., same maximum useful load of 5000 k.g., but measures 3 m. X 2.1 m. X 1.4 m. The containers used in France are of slight variations in size and tare weights and cubic capacity. These containers are all fitted with rings so that they can be hoisted by crane. The Dutch Containers are also fitted with runners to make it easier to move and load them. These containers are transported on special wagons equipped with transverse rails to accommodate three containers per wagon. In France it is left to the clients to build any special types of containers adapted to their requirements. This would mean the construction of special type stock by the railways concerned; it would pay to do so in the long run.

In Belgium and Switzerland privately owned contained containers are encouraged so that the capital invested in them will force their owners to stick to the railways for their transport, and even remain faithful to the railways. There are other means of encouragement also. One kind of encouragement is in the share-

of some benefits granted by the administrations to the owners, e.g. Switzerland carries registered containers free when empty. Holland does not favour this idea, for they think this implies preferential treatment and would lead to loss of other transport. France gives this encouragement, but insists on guarantees being given that their traffic is not diverted to lorries or barges. In their opinion clients are better able to build containers meeting their particular requirements than the railway administrations; special type containers ensure maximum saving in packing and handling. Transport made in privately owned containers is made at the usual wagon rates reduced by a certain percentage according to the distance carried and the type of container used.

On some continental countries the handling of the containers from wagons to vehicles or vice versa and road transport to or from the client's premises are left to the client, the use of the railway's crane or tackle being charged for in addition to the cost of transport. Some countries allow the clients free use of the lifting gear; in other countries the railways themselves do the handling and road transport, using tractors and bogie trailers, the two together doing the transport and all the handling very rapidly. These operations are charged for at a small fee added on to the transport cost.

In order to get complete wagon loads, each wagon being designed to take three containers, the containers consigned by different consignors are grouped together on the same wagon, if need be, with the consent of the clients. Containers are picked up from stations en route to complete wagon loads, and containers are even set down at intermediate stations from full wagon loads. Each container is charged for according to the rate for the goods it holds under the full load rate. Such grouping of containers is in some cases done by ancillary companies in large towns, who get into touch with all the consignors and induce them to coordinate their programmes. This results in a reduction of cost of transport per ton. In short the use of containers is encouraged in all possible ways, and the tendency to use containers is very marked and definite in those countries. The high tonnage giving a low cost and qualifying for the lowest rates is obtained, not by increasing the size of the container, but by increasing the number of containers loaded on the same flat wagon.

The United Nations-Transport and Communications (III)

By N. Muthukrishna Iyer, B. A. B. L.,

Association for United Nations, Tanjore, Madras State

(Continued from July issue)

INTERNATIONAL Telecommunication Union deals with international relations in the realm of telephone, telegraph radio and also in a number of other means of communication to permit a free movement of traffic in news from one country to another and to achieve a certain degree of standard in instruments and methods of communications; and to permit the people of the world to enjoy many of the benefits of modern science. Television the most talked of means of communication today is being used as an instrument for the popularisation of science in the U.S.A. England, and France. Ship to shore and shore to ship communication is obligatory on all member states of this Union; today more than 50000 ships are equipped with radio and these are nearly 3000 coastal stations radio direction finders and radio beacons to give them weather reports and help them on seas.

The World Meteorological Organisation facilitates among other things world wide cooperation in establishing net work of stations for making meteorological observations or other geophysical observation and to further the application of meteorology to aviation, shipping and other human activities.

The Expanded Technical Assistance programme operated jointly by the U.N. and its specialised agencies has already proved its value as an aid in the development of the economics of all countries of the World, including national and international transport and communications. By the end of 1952 over 1500 U.N. experts of more than 60 different nationalities had been employed to render assistance in more than 55 countries and about a 1000 were actually in the field on that date; a total of about 2700 fellowships had been awarded for training courses in 45 countries and about 900 fellows were studying at that time; All projects which contribute to the economic and social development of underdeveloped countries (eg. transport and communications including road transport, railroad, transport, inland water transport, ports and shipping, postal communication etc.) are eligible for technical assistance under the programme. A number of experts from the U. N., F.A.O., I.C.A.O., UNESCO, W.H.O. etc. visited India in 1950 and made recommendations on transport

tation and civil aviation; in June 1952 a survey of U.N. experts studied Pakistan among other things transportation, aerial surveys etc., in Columbia the experts advised on railway operation cost and rate problems, and harbour terminals; in El. Salvador since 1951 the U.N. experts are engaged in the fields of port traffic and development, inland transportation, post and telecommunication; experts in road building have been sent to Ecuador; two shipping experts have come to India to assist in building up an Indian merchant marine, the design of merchant vessels and the development of shipyards and minor ports; Iran had in 1952 the benefit of technical advice in matters of railroad operation and maintenance, port development, telecommunication; a group of 12 inland water transport experts from Burma, India, Pakistan, Thailand and Viet Nam spent 3 months in Europe and North America studying river and canal transportation.

"The proper circulation of news is a social service second to none." This is particularly true if poverty is to be abolished and world peace preserved. In the report "World Communications" published by UNESCO one of the points made clear is that countries where illiteracy is high are poor in communication facilities; universal schooling is hampered by lack of adequate rural transport and communications. Millions of peoples in vast areas of the world have little or no modern means of communication: enjoyment of the right to information requires that technical facilities shall exist for receiving information. The number and circulation of news papers and periodicals, news agencies, schools of journalism, distribution of radio transmitters and receivers, developments in television, number of cinemas, film production and film imports and other basic information—the main source of ideas reaching people every where—depend upon efficient transport facilities which act as links between peoples to serve peace and international understanding. Lower international postal rates for newspapers, books, magazines, printed music and maps will be more widely applied as a result of the decisions taken by U.P.U. in 1952, consequent on the recommendations made by UNESCO. Technical assistance is also given by

(Continued on page 45)

Public Relations Organisation on the Southern Railway

ERA OF PUBLICITY

WE are in an era of publicity. For a huge Transport undertaking like the Railways, the value of publicity can never be underestimated. Now that the Indian Railways are fully nationalised, the need for an efficient public relations organisation is all the more keenly felt to counteract the various fissiparous tendencies that pull the Railways towards various directions. Take for instance the recent accident on the Pakala-Dharmavaram section of the Southern Railway. It was simply left to the imagination of the Press correspondents of Madras Province to snatch the initiative from the Administration and bring out reports based on conjectures. The public are still ignorant of the real causes of the accident and all the goodwill accrued to the Railways over long years of solid service is suddenly lost by lack of proper explanation at the proper time on the causes of the accident. Similar accidents of more serious nature do occur in advance industrial countries like England and America but the efficient Publicity Organisation in those countries effectively pull their weight and counteract the negative effects that influence the people. People little realise what an intricate and elaborate circulatory system railways are to our National economy. Without them the country's economic life will stand paralysed. It is only Rail transport which can carry Food grains, coal and other vital needs from one part to another and it is no exaggeration to say that the efficient working of the Railways determines the very tempo and amplitude of our economic life and

activity. Only an efficient public relations organisation can bring out this aspect boldly to the public. The recent instances of stoppage of trains by certain class of people to achieve certain objects can only be counteracted and the harmful effects it cause to the country as a whole can be averted if only the Public Relations Organisation is tuned to the national needs.

PUBLIC RELATIONS ORGANISATION ON THE SOUTHERN RAILWAY

The Indian independence brought to the forefront the immediate need to re-shape the relations between the public on the one hand and the railway management administered directly by the national government responsible to the people on the other hand. In order to assess the full significance of this change of outlook, one must only recollect the insensitiveness of the government under British rule to the public opinion with regard to the rate policy and the treatment of the third class passengers during the pre-independence days. It was no wonder those days, Mahatmaji took it upon himself as a religious duty to travel in third class till he breathed his last so that the cause of third class passengers might receive better consideration at the hands of the authorities. A better expression of the manifestation of the new spirit cannot be given than our Railway Minister who said :—

“ The one object of this nationalised service is and should continue to be to give the maximum satisfaction to the public. I am only too painfully aware

(Continued from page 43)

UNESCO for meteorological and radio broadcasting; it has extended its help in the reconstruction of the war damaged Bosscha observatory in Indonesia to be able to play again an important part in advancing astronomical knowledge to help air and ocean navigation.

Co-operation between nations is not a new idea; there is huge volume of goods exchanged between countries; better means of communications have helped nations to share ideas; exchange of information about the cause and cure of diseases has made it possible to stamp out epidemics in some countries and keep them from spreading to others; international agreements on morse code, lighthouses, channel buoys and other aids to navigation have helped to make the

seas safer for men of all countries. Never before has it been so evident that the economic regions of the world and their problems are inter-dependant and that it is impossible to say that one has priority over another or to postpone the solution of some problems pending the solution of others. The growth of an international ethic of mutual aid and the demand for a better life are the two forces that solve the social problem of the world today. The main goal of the U.N. is a more secure peace based on more equal opportunity and higher standard of living for peoples in all parts of the world and to this end the U.N.O. and all its specialised agencies work.

(Concluded)

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RAILWAY EDUCATION IN INDIA (II)

WITH regard to the Higher Transportation Education, our larger Universities must deem it one of their primary duties to provide at least one College of Transportation situated under ideal surroundings, such as in close proximity to a major workshop or the Head Office of a Railway Zone. This college should give full facilities for advanced technical training in the varied aspects of transportation by railway — Track-engineering, rolling stock engineering, mechanical engineering applied to steam, oil, and electric engines, the commercial side (salesmanship of transport), the operation side with special reference to safety, signals and interlocking, the financial side including accounts and audit, the publicity and public relations side, etc. The College should grant to these various studies all the dignity and thoroughness of university teaching, and the satisfactory conclusion of such studies should form a direct and natural opening for transportation as a profession even as the Medical College, Law College and the Teachers' College are the portals through which to enter the professions of Doctor, Lawyer and Teacher.

Another feature of the college should be the more systematic provision of technical education of an ad-

vanced nature for the men already in service. It would be in the best interests of the country if the college can be run under the joint auspices of the University and the Zonal Railway Authority. For then the entire railway and its equipments would become, as it were, the laboratory for the college, and there need not be duplication of equipments in the regular laboratory of the regular General Engineering College of the University or in that of the Transport Engineering College. To some extent specialists professorial staff also can be saved, or at any rate such specialists professorial staff can be interchanged to the mutual benefit of both the colleges and to the mutual benefit of the professorial staff themselves.

The railways should in future directly encourage our larger Universities and Technical Colleges to undertake teaching of transportation in its varied branches of working. Even in our Engineering Colleges of the present day the attention given to the special equipment of the civil and mechanical engineers intending to enter railroad work is rather limited, and as for the commercial and operating sides of railroading the

attention and effort is nil. The courses in railroad technique and practice that are offered at the few schools available, manned and run by a few railways in India, are of course great efforts in themselves in the right direction, but they have to be improved and placed on a more scientific and rational footing. They were started under a wholesome impulse, but for want of sustained enthusiasm and continued and growing interest have become or are on the way to become formalities. A few of them have fallen in standards, and the training obtainable from them involve at best only mugging up the rules published by the railways, taught by Instructors who have not the abiding interest in, or complete rational understanding of, the railway organism and its components parts, how they are linked and correlated with one another, how each does its allotted function, and rarely provide the requisite lively technical preparation for a good railway career, — good for the employer, good for the employee, and good for the railroad-user. They have got to be thoroughly reformed in the light of the new spirit of the times. Of course it is a great thing we have a nucleus upon which to build up suitable technical institutions at these centres.

The various Railway Clubs, Institutes, Employees' Associations, and other like organisations scattered over the country could have done much for pulling up the technical efficiency of their members in their jobs; but none of them comes in for a word of praise for any genuine effort in this direction. They are more in the nature of Trade Union Organisations pledged more or less to fight their rights, rather than their obligations, and have never so far been known to have taken any efforts to improve the mental, moral, intellectual or technical equipments of even their own members. If only they will see their duty in this direction at least now, they can achieve brilliant results much sooner; for in such an event the will of each staff to learn and make himself indispensable in service comes in, which is the first requisite for acquisition of knowledge. Having made himself very efficient and indispensable to service, the power of his position to dictate his own terms, or at any rate to get the wrongs righted becomes unassailable. No doubt any administration would also welcome such demands coming from such employees.

The study should be alternately theoretical and practical. What is learned in the class room should be tested and verified in the laboratory. And what better laboratory than the actual railway itself — its stations, offices, shops, lines, etc? The combination of the theory class with practical working on the rail-

road or at the station, office or shop would be highly beneficial, both mentally and morally, to the student. Each will clear up the doubts entertained in the other and carry conviction to the learning mind and dispel ignorance. Above all, the 'swollenheadedness' developed in the early stages of learning, especially in the theoretical class would be levelled down when in contact with practical difficulties while 'doing to achieve successful result'. The limitations and difficulties that beset 'practice' will vanish in the explanations of the class room. The theoretical and the practical are complementary and supplementary to each other. The two together make a complete whole, and have a harmonising or cementing influence on the trainee. Neither should be excluded. The trainees should be made to maintain detailed diaries of the work done, observations made, difficulties arisen, remedies and explanations offered, and the conclusions drawn. These diaries should be perused critically by a competent authority above to gauge the worth of each trainee and to correct him then and there. The importance of daily diaries cannot be exaggerated.

The Higher Transportation Course should be a post-graduate course and should be open only to those youths, who possess the requisite innate qualities demanded by the peculiar nature of this industry. The acquisition of the initial degree in the art, literature and general sciences, ensure the foundation of a broad culture, upon which the superstructure of railway technology could be built up with confidence. Any technical study for a profession must have for its foundation the rock-bottom of a cultural study of the sciences, arts and literature; for then and only then will the desire for genuine service will be awakened in the individual. Surely there must be a fairly severe physical test, not only prior to his entering service, but even prior to admission to such courses of study, for we do not want to waste our efforts on imbeciles and deficient. The physical test must cover eyesight, hearing, general conditions of health, powers of endurance, etc.—the first two more especially in the case of safety staff, as they are most intimately connected with signals, on which safety of trains so largely depends. This is not to say that the other aspects of the test are unimportant—in fact the emphasis is on a man perfect in body and perfect in mind, for a sound mind and a sound body are both essential for the production of best results. A sound mind can reside only in a sound body—*mens sana in corpore sano*.

The Railway College should provide courses of training on the following subjects:

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1. Mechanical, civil, and electrical engineering —to cover permanent way, rolling stock, traction and tractive power of various types, and all types of signals, interlocking and communications,
2. Operation (including movement of vehicles, engines, trains),
3. Commercial side of transportation, virtually salesmanship, including rating and routing,
4. Accounting and Auditing,

all with distinct reference to railroad work. As his already been said above the college should keep close liaison with the engineering departments of the University, the Railway, and the State. Instead of duplicating the engineering aspect, the regular engineering college of the University may be strengthened and equipped with the requirements of the Railway Engineering also, such as needed for construction and maintenance of the permanent way, construction of locomotives and other rolling stock, the various types of communication instruments, etc.

One who aims at specialising on the mechanical side should have some knowledge of the civil side of railroading also, as also of the fundamentals of the Commercial, Operating and Audit sides. In fact one who specialises in any one of the six subjects named above, must have at least a non-detailed knowledge of the other five subjects, in as much as they are all very intimately inter-related with one another. Such knowledge of the auxiliary or subsidiary subjects will certainly promote functioning properly in his own sphere, at any rate make him see things from the other operative's point of view also and prevent him from doing things in a way wrong to the other. There will be greater cooperation and coordination and between the various limbs of the common body. It is a necessity in these advanced days when the questions of high speed, weight of vehicles and engines, the materials they are made of, superior methods for passing trains with maximum safety, the increasing volumes of traffic carried, the track capacity, the frequency of train service, etc. are all so inter-related to each other. This is what they insist on in the more advanced countries of the west, of course for very sound reasons.

Detailed syllabii should be drawn up for each of the six subjects named above with special emphasis on the essentials. The general outline of these subjects is given below :

1. Departments, their organisation and inter-relation.
2. Permanent way, construction and maintenance.
3. Locomotive and rolling stock, construction and maintenance.
4. Traction, steam, internal combustion, diesel, and electric.
5. Terminal facilities.
6. Operation of trains, safety rules.
7. Signals, interlocking and communications.
8. Passenger service and fares.
9. Freight service and Rate structure.
10. Railway economics.
11. Accounting, Audit and Statistics.
12. Claims, Claims Law and Liabilities.
13. Accidents, laws pertaining and liabilities.
14. Coordination with other forms of transport.
15. Side shows and auxiliary activities (ports, wharves, Catering, godowns, etc.)
16. Law relating to transport.
17. Publicity and Public Relations.

These subjects may be taught, especially the more important ones bearing directly on transport, in the railway schools also, though in a less advanced manner in the matter of theory, but with more attention to details of practice, and procedure. The post graduate students at the University College will do them in a more advanced manner together with the rationale behind every rule and legislation.

Associated with these railway subjects and basic to them would be taught the more general subjects in their applied nature with particular emphasis on railway transportation such as Mathematics, Surveying, Mechanical traction, Drawing, Shop Work, Physics, Chemistry, Economics and English, leading to the Degree of Bachelor of Science in Transportation, with special and subsidiary subjects, just as you have today in the Universities' *Bachelor of Science* Degrees with Physics (Main) and Mathematics and Chemistry (Subsidiary), or Mathematics (Main) and Physics and Chemistry (Subsidiary) or with Economics as Main and History and Politics (Subsidiary). The suggested College of Transportation of the University may train for the B. Sc. Degree in Transportation with :

(Continued on page 51)

INDIAN ENGINEER REPORTS ON U. S. VISIT

By Jaiboy Joseph

MADRAS—"Because of the general high living standards it is difficult to distinguish between employer and employee! in the United States in the ordinary course," observed Mr. D. J. Batliwala, Chief Mechanical Engineer for Southern Railway, Madras, in an interview with *American Reporter*.

Mr. Batliwala visited the United States last year to study the railroad system under the Point Four Programme.

Illustrating his point he said: "Since both locomotive drivers and company bosses own cars, it is difficult to tell who are the top men when spotted outside work hours. Towards the end of my stay I was however able to tell the difference a little. If a man owned a Cadillac instead of a Ford, he was obviously more wealthy."

Mr. Batliwala's programme took him to various important railroad centers, and wherever he went he was impressed by the cordial relations existing between American employers and employees. Among the many protections to labour he mentioned the Bureau of Safety which enforced safety acts and investigated the causes of accidents with a view to carrying out collective measures.

As an instance of the general efficiency of American labour he cited the case of the bus driver-motorman who apart from driving the bus also is responsible for issuing transfer tickets, collecting fares and directing newcomers to their destinations.

American railroads cover seven times the mileage of Indian Railways and are faced with severe compe-



Mr. D. J. Batliwala
Chief Mechanical Engineer, Southern Railway

tition for road traffic. Free competition and no monopoly are the country's policy. Mr. Batliwala said he admires the manner in which companies face

(Continued from page 50)

- (i) 'Permanent Way and Works' as Main, and 'Operation', 'Traction Power' and 'Rolling Stock' as subsidiaries, or
- (ii) 'Operation and Commercial Railway Revenue' as Main, and 'Permanent way', and 'Rolling Stock' as subsidiaries, or

- (iii) 'Traction Power' and 'Rolling Stock' as Main, and 'Operation', 'Way and Works' as subsidiaries.

The students specialising in one branch acquiring an all round general knowledge in the other allied subjects of transport. A two years' course after graduation might be sufficient. (To be continued)

177292

this competition. "There is no way out, except by constant improvement. During my stay in Washington the Pennsylvania Railroad Company were ready to introduce four luxurious trains bought on a fifteen-year instalment system, which really goes to prove that railways will go any length to face competition."

Mr. Batliwala marvels at the automatic block signal system, interlocking traffic control and automatic train stop and cab signal systems in America. He also was impressed by the increased storage facilities in goods trains and the comforts of passenger travel.

Reporting other developments he said: "Although diesel or electric locomotives are the order of the day, I was impressed to find the Norfolk and Western Railway using coal burning steam in all locomotives like in India."

He added that Indian Railway Workshops compare favourably with American workshops in equipment, planning, scheduling and shop methods. However, the American shops are much advanced in the welding technique. They also have a system of material control which saves time.

Asked about the manner in which fares were fixed in the United States, Mr. Batliwala said: "Although there is free competition and no monopoly, fares cannot be increased arbitrarily. Companies have to obtain permission from the Inter-State Commerce Commission for any change in fares, which are investigated by the Bureau of Traffic."

Railroads have their own association known as the Association of the American Railroads, Mr. Batliwala said: "It is a body of the principal railroads of U.S.A., Canada and Mexico for more efficient and economical handling of matters of common concern in the whole field of railroading."

Himself a deeply religious person, Mr. Batliwala was glad to notice the religious feeling of the American people. Churches are filled on Sundays, and he was happy to note that many employers give workers time off to observe important religious ceremonies.

"I could not help but feel that the prosperity of this great country is due not only to its being blessed with natural resources but also because its people are God fearing," Mr. Batliwala concluded.

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RAILWAY DEPARTMENTS

"THE ACCOUNTS DEPARTMENT" (V)

By A. H. Pearson

IT is often thought that a public utility concern, whether administered by private enterprise or by the State, is not a full-fledged commercial undertaking. Now a railway system, which is a public utility concern, and which in a country like India appears to enjoy a monopoly, is primarily a business proposition, being run on a profit and loss basis. To determine whether the operation and finances of a railway administration are being run on a sound basis, a railway, like any other trading concern, must maintain its accounts. The department responsible for keeping the intricate accounts of a railway system — which accounts differ considerably from the accepted system of book-keeping and accountancy maintained by commercial undertakings — is the Accounts Department.

The entire Accounts department is under the executive control of the Financial Adviser and Chief Accounts Officer. Subordinate to the Chief are one or more Deputy Chiefs and the various Senior and Junior Accounts Officers attached to Divisions, Workshops, Stores Depots and Construction Projects. At the headquarters office under the Chief and his Deputies, as well as in the subordinate Accounts offices spread over the whole system, is a large nucleus of trained personnel consisting of senior and junior accounts, inspectors sub-heads and routine clerks.

The essential functions of this Department briefly may be described as follows:—

- (a) the internal check of transactions affecting the receipts and expenditure of the Railway;
- (b) the prompt settlement of proper claims against Railway;
- (c) maintaining the accounts in accordance with the prescribed rules;
- (d) helping the Administrative Departmental Heads and other principal officers with financial advice when required; and
- (e) ensuring that there are no financial irregularities in the transactions of the Railways.

The income, or revenue, of a railway comes from two main sources; the money paid by passengers for

journeys by rail — technically known as coaching earnings — and the freight realised in cash from merchants and traders for the transport of goods offered by them for despatch from one destination to another — known as goods earnings. Every time that a passenger buys a ticket at a station booking office, or when a merchant pays freight in cash for goods tendered by him for despatch, a commercial transaction takes place. Now each one of these transactions is recorded in the initial accounts of the station according to the prescribed accountal procedure.

The cash collected at each station as a result of the sale of tickets and realisation of freight charges, and from other miscellaneous sundries, is transmitted every day to the Divisional Cash office, or the Chief Cashier's office at headquarters, and thence on the Railway's bankers. The accounts summaries of each station's transactions are sent to the Traffic Accounts Office, where with the aid of a large and experienced staff, the station summaries are classified and The Accounts Officers attached to Divisions, Workshops and Stores Depots are required to constantly scrutinise all items of expenditure incurred by the various departments, and advise the departmental officers concerned when amounts allotted to various heads of accounts are being spent too fast, or are likely to exceed annual allotments. Similarly, the Chief Accounts Officer at headquarters by reviewing the expenses of a railway as a whole, must ensure that money allotted to be spent, is being spent economically and wisely.

A recent innovation in railway finance is the formation of a new organisation known as the Finance Department. This is under the control of a Deputy Financial Adviser, who, with his staff, functions under the Chief Accounts Officer. This department is required to co-ordinate the entire budget and financial work of the railway, advise the administration on all matters relating to finance, scrutinise all proposals for expenditure from the aspect of financial prudence etc.

A railway's annual budget is a forecast of what expenses are likely to be incurred in a forthcoming year, i. e. expenditure on construction of new lines or projects, purchase of stores, new locomotives, rolling stock, structures for providing additional passenger amenities at railway stations etc. The departments

concerned are first required to prepare their budget estimates for forthcoming requirements, and it is the Finance department that must carefully check all proposals, keeping in view the principles of economy, and whether new proposals are financially sound, and transferred into a big Receipt Book called the Traffic Book, the total of which is agreed with the cash credits at the Railway's bankers. The check on the factual authenticity of all revenue earning transactions at each railway station is maintained by regular periodical inspections conducted by Inspectors of Station Accounts, who carefully check every entry in the various accounts books and registers of a station. The reports of these Inspectors are then sent to the Traffic Accounts Officer for his scrutiny and check.

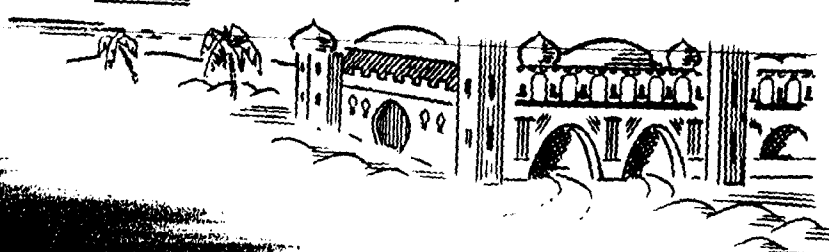
The activities of a railway in its day-to-day working fall into more or less well-defined categories according to their importance. Broadly, these are expenses incurred in the maintenance of structural works, such as track, buildings, bridges, etc., maintenance and supply of locomotive power, carriage and wagon stock; the Traffic, Stores, Electrical, Medical, Accounts and General departments etc.

Every item of expenditure for each of these departments is recorded and allocated under certain heads of

accounts, known familiarly as 'Abstracts.' Detailed rules as to how the various items of expenditure under each abstract are to be allocated are contained in certain codes.

Now the Accounts department is not there merely to ensure that items of expenditure are duly allocated under the prescribed abstract, but also to see that the expenses incurred by various departmental officers are within the limits sanctioned annually in the budget allotments. This is achieved by periodical financial reviews being prepared and scrutinised by the competent authorities. It is only after check and scrutiny by the Finance department and with the concurrence of the Chief Accounts Officer and the General Manager, that a railway's total budget estimates can be passed on to the Ministry of Railways.

To give a detailed description of the functioning of a Railway Accounts department would require several volumes, but even a digest indicates the importance of the department in doing its job of accountal, check and advice on railway finances, and this can only be gauged when one realises that the cash value of a railway's annual transactions is reckoned in crores of rupees.



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COGS IN THE WHEEL—II

By Ajax

LENGTH of service counts towards seniority, that is to say, the longer one has been in employment, he would be ranked high in the roster and those below him would have shorter service to their credit. And, as age is a determining factor in regard to employment in Government service — the rule is 25 years at the time of entry — service and age should go hand in hand.

While this is generally true, there are exceptions — and these would appear to be large — where age and length of service do not constitute a favourable factor towards ranking of seniority. Either the one or the other lags behind, and in such cases one has to look to other means of adjusting an employees' position. But of this later.

What I am at the moment concerned with is the principle under which seniority is reckoned in the official cadre. So far as Class I and Class II services of an all-India nature are concerned — I am particularly speaking of the railways — overall seniority is not affected when one officer is transferred from one zonal system to another, although, I admit such transfers are generally rare. Nevertheless, the principle governing seniority position remains unaltered and so I do not propose to dilate on this matter.

But when it comes to the question of Class III staff, i.e., subordinates whose range of pay extends up to Rs. 500/- per month, seniority is governed by a number of factors. The first criterion is departmental, the second, categorywise, and the third exact designation and nature of work. These ramifications contribute to compartmentalise the staff and there are groups with perhaps only a dozen or less of workers who have their seniority regulated amongst themselves.

The Central Pay Commission has to a large extent rationalised and simplified the pay scales on the railways. It is not my intention to go into the merits or demerits of the recommendations — certainly there have already been implemented and so are a *fait accompli*. Roughly speaking, the pay scales have been reduced to about a dozen or so within whose ambit the whole pay structure has been accommodated. Homogeneity has also been achieved on an all-India basis.

One does not generally bother about seniority in the early stages of his career, but when it comes to being stuck up at a certain point for a number of years, naturally he begins to think — and think seriously — of his position and of his future. What are his prospects of further promotion? Would a change of line be profitable? If so, how could this be had? Why should an employee be stuck up at a certain pay level for an inordinate number of years? Are not the service conditions expansive enough to give equal opportunities to all? If not, what are the snags and how to get over them?

These are some of the questions that one asks say after the first ten or fifteen years of service. I would particularly take a group of workers, viz., who are called "Office staff" or "ministerial" staff to demonstrate what I mean. I hate the word "ministerial" but until a better one is coined — they are now dignifiedly called "Class III" — we have to bear with it. Ministerial staff are staff whose duties are entirely clerical, in other words, those who are confined to desk work.

The different pay scales for these staff are: —

Rs. 55-3-	85-4-93	EB 4-125-5-220
„ 80-	5-120	EB 8-160
„ 160-	10-220	
„ 200-	10-300	
„ 260-	15-350	
„ 300-	20-400	
„ 360-	20-500	

The large majority of office staff are in the lower two pay scales — in fact, a proportion has been laid down to the effect that the number of posts in the higher grades, barring the lowest, should not exceed 25 per cent of the total number in an office or department, which means that there is a progressively lesser number of posts as you climb up the ladder. In many smaller establishments there are no posts in the higher grades beyond Rs. 160—10—330. In the nature of things advancement of clerical staff is confined to the lower two grades with a possible inclusion of the third category as well in certain offices. Posts on Rs. 160 and above are declared as selection posts and automatic promotion from the next lower scale is not permissible unless through a positive act of selection.

(Continued on page 56)

Fifteenth August—What it means to us

By T. A. Narayanan

THE DAY OF DAYS

IT is the Day of Days, a red-letter day in the annals of our country, the appointed day, the day appointed by Destiny for India to take her rightful place among the nations of the world, the day of rebirth of a Great Nation; a fateful moment for India, for Britain, for Asia, nay for the whole world. It is the day on which a new star arose, the star of freedom in the east, a new hope came into being, a vision long-cherished materialised. It marks the end of one era and the beginning of a new one. It signifies Mother India released from bondage and free to enter into the comity of nations as a free and equal partner, as a new power with untold potentialities for determining the political, social, cultural and spiritual future of humanity. On this fateful day Britain gave the charter of liberty to one-fifth of the human race and parted from India, a parting as between friends, who had learnt to honour and respect each other even in disagreement.

(Continued from page 55)

Seniority against each of these pay scales is separately maintained and the criterion is date of confirmation in the particular pay scale.

A report has recently gained currency that it is the intention to permit promotions to a wider range of scales without the process of selection which is intended to alleviate the present somewhat anomalous position whereby advancement of clerical staff is rather restricted. If this is done it will be a welcome change from the rather perennial practice which it is time to revise or abandon.

When it comes to the question of transfer or staff from one office to another a stipulation is made that if the transfer is in the interests of the administration, then seniority will not be adversely affected, that is to say, the employee would retain his original position in the new office. But if it is a transfer at the employee's request a condition is enforced that he would take his position *vis-à-vis* the new office at the bottom of all staff of the same category or group.

I for one cannot see the logic in this differential treatment. How could the second case also not be

THE DAY WROUGHT A CHANGE IN MEN

On that memorable day six years ago each one of us personally felt as one suddenly released from his prison-cell, like the bird that found the cage-door suddenly thrown open for her, or like one suddenly finding himself rich beyond measure. Standing for a while on the threshold of the prison or the edge of the cage, each one of us surveyed the vast expanse of the unlimited blue horizon, and felt buoyed up with an indefinable feeling that surged and welled up within us. "Had I the wings of a dove, I might fly across my Dear Ind from end to end surveying from above my dear brothers and sisters, who had all simultaneously come out of their cells into the open, and longed to kiss them as dearly as they longed to kiss me" so was our feeling on that festive day. I did inwardly fly and see them all in my mind in one vast assemblage kneeling down in humble prayer to that Providence that gave us the Deliverance; and every one of us, man, woman and child had the

considered in the interests of the administration? After all is he not working for the administration, and is not his work important? A possible explanation would be that employees in the transferred office would clamour that their position would be affected by the superimposition of another worker from a sister office. It might also be argued that the employee seeks a transfer for personal reasons, may be climatic, domestic, health reasons, or some other cause, and so he should suffer for the advantage he gains. It might also be that he seeks a transfer for speedier advancement as he thinks that there may be more number of posts in his direct avenue of advancement. Whatever it is when an employee is transferred and does the same kind of work why should he lose seniority simply because he has had, may be on personal grounds, to ask for and accept a transfer. The main consideration should be work and if he does that alright he should not be made a victim of irrational rules.

And, again when it comes to be a case of transfer from one category to another, why should it be said that seniority will not be maintained intact.

These are snags which vitiate efficiency.

image of the Mahatma carved in our minds. What day can be more glorious to us?

AHIMSA THE NEW WEAPON

That day proclaimed to all the world what may be achieved by the strength of non-violence, by satyagraha and suffering, by that new philosophy of action, the power of soul-force, the astounding feat of a 'naked fakir'—*naked* because of transparent honesty, naked of guile, and *fakir* because of utter selflessness and voluntary poverty. The secret of this philosophy of action lay in his unswerving faith in the eternal verities, call it what you will, God, Truth, Nature, or Moral Principles—a course of self-purification by non-violence in thought, word and deed. He believed in the essential and basic unity and goodness of all beings, and that the only right principle of conduct for man was non-violence and love—the philosophy of action based on love. The outstanding marvel of the century is the faith inspired in millions of people that Truth shall prevail, unbacked, though it be, by big battalions and batteries, that you shall win over your adversary by putting him on his innate honour and inner good sense, which is ever present in every human being, by relying on his good faith, by taking violence on oneself, if need be, with a cheer, and never deigning to return it. Here is the most convincing proof than man's inherent nature is to trust, is to be good, honest and faithful to his trust.

GREATNESS OF THE BRITISH RACE

History has perhaps no parallel, whereof the ruled achieved their freedom with the consent and agreement of the ruler, whereof the ruled were progressively tutored in the art of modern democratic rule by the very rulers themselves, whereof all the long fight between the rulers and the ruled was perfectly constitutional and by negotiation, and whereof sweet concord continued to exist even after separation. That such an event should take place and become a reality in the twentieth century under a canopy of thick war-clouds, when the rest of the world was enveloped in an atmosphere of mutual distrust and suspicion and fear, is the wonder of wonders. It speaks volumes to the greatness of the rulers as well as to the greatness of the ruled. It proves beyond question the sincerity, the sagacity, the statesmanship, the greatness and magnanimity of the British race, which the world suspected for a brief moment. Britain has now established her claim for the first place amongst the benevolently imperial powers; for no greater proof is needed to show that she held India

more as sacred trust to be discharged immediately India attained majority and the ability to govern herself. Imperialism obtains a new definition from this day. Imperialism must be benevolent imperialism and is to be ended at the earliest—that is the object-lesson to the other imperialist nations—France, Holland, Portugal, etc.

GREATMEN, THE PRODUCT OF GREAT TIMES

August also means that Great Men are discovered when Great Emergencies arise. Extraordinary circumstances draw forth extraordinary powers and abilities. Independence had been lingering far too long; it came on us somewhat suddenly; we were feeling it was still far away, whilst really it was round the corner. Two Great World Wars, a far-seeing party in power on the British Gadi, and a strong, shrewd and sound English Gentleman with British Tact and German Thoroughness as the Viceroy—and it came with lightning suddenness. Our long and arduous struggle gave us a Gandhi, a Nehru, and a Patel. The age of Gandhi is still with us, not gone yet; but the age of Nehru is already born. August 15th marks the entry of Pandit Nehru on the world stage, whereon he is destined to play a wonderful role in the art of peace and unification of the world as One Power and One Order. This erstwhile prisoner of Britain, but with unimprisonable momentum and ideology, has in a moment become the Nation's Arch Leader, nay the Leader of Asia and the East, and perhaps the Greatest Leader of Peace in the world. The first prime minister of Free India has in the moment of its birth become the foremost champion of peace and world federation. He has a lasting and enduring message for the east and for the world. The unification of mankind is his pet theme. He commenced operations on 15th August. Today he is India and India is he; Asia looks up to him and the world is stunned at India's performances.

NOT AN UNMIXED PLEASURE

But alas! 15th August is also a day of sorrow and mourning, a day of poignant grief. It began with an un-natural division of what God and Man had made into one. The repetition of the day painfully reminds us of a Divided Mother, Brother divided from Brother, Sister from Sister. Freedom did not come to us in the full glory of a United India; there was a rift in the lute — a tragedy that set brother against brother, and disfigured the fair face of this nation and cast a deep gloom in our hearts. The less we remember of it the better for both of us. But still more poignant

grief was in store for us, when the vile hands of a mischievous child put out that Light of the East, the Father of the Nation, the Founder of that New Philosophy of Action, the Apostle of Peace and Non-violence, Mahatma Gandhi, He whose tribe appear on earth but once in thousands of years. The Ideas of August are fraught with as much pain as pleasure. How strange that pain and pleasure are doled out to us by Him in equal measure, almost in the wake of each other! The saddest event quickly follows the gladdest — it was a very heavy price that we paid for this liberty.

THE CALL TO DUTY

The day calls to us to gird up our loins and work as we have never worked before. Paper plans, lip sympathies and platform orations will not usher in the millenium. We are like him that suddenly found himself rich beyond measure. Those riches may be used or abused. We may drink of this wine of freedom to invigorate ourselves to greater, better and nobler work in the cause of our dear Motherland; but woe unto us, if ever we should get intoxicated by drinking too deep. This freedom is freedom to make or mar our Destiny. This freedom is the highest privilege combined with the highest responsibility. Therefore pledge thyself today, if thou hast not taken the pledge yet, to bend all thy energies to fulfil this high responsibility. Our enemy is not so much outside as inside us. Hundreds of problems stare us full in the face and clamour for concerted action in the immediate present, right now. We have to build a Nation on strong and sure foundations, which may be achieved only by disinterested, selfless service night and day. That is the clarion call of August 15th to every Indian. Our immediate attention and diversion of energies must be to the Five Year Plan, the offspring of the best brained fathers in India, the child that promises to take us to the Promised Land of plenty, overflowing with milk and honey, a plan designed to drive away the spectre of famine from this rich ancient land. If we are true to our own great impulses, we should depend on the essential tenets given to us by the Great Mahatma, and first eliminate our poverty, our wretchedness and strife and vouchsafe to every citizen of Free India that fullness of life and that inner freedom to grow and develop, which the vedic seers termed "Swarajya" — Swarajya within and without.

THE TASK OF THE RAILWAYMEN

Fifteenth August has a special significance for us, railwaymen. Railways form the backbone of a nation,

the main arteries through which the lifeblood of the nation flows, the highway of communication for intellect to meet intellect, the essential means for the growth of agriculture, trade and industry, the key to all industries, often called the industry of industries. And that is in our hands. Surely we are not going to betray such a great trust. We become heroes and live for ever in minds of generations yet unborn, if we serve aright; but we shall become criminals and traitors, if we serve not aright. Whatever be our station or status in this great mechanism, whether we are the basic power-generating engine, or only the mere bolts and nuts that bind the various parts of the engine together, we are essentially as important as any other part in this great organisation and must do our part well. Haven't we heard that for want of a nail the kingdom was lost? "If I cannot bear a forest on its back, you cannot crack a nut" — so said the squirrel to the mountain. Let us have the optimism of the energetic squirrel, and not the pride of the lethargic mountain. Every one of us, be he a pretty clerk driving quill in office from morn till eve, or a Booking Clerk selling away tickets at the counter, or a Goods or Parcel Clerk, weighing, receipting and loading, or even the most important Superintendent; the ordinary gangman that looks to the level or joints of rails on the track, or the dignified Inspector of Way and Works, the one is useless without the other, the honest and selfless work of each one of us goes to swell the ocean of service required to meet the needs and satisfy the wants of 350 millions and make them grow full and contented, rich, healthy and happy. That is the surest form and way of nation-building. We are all nation-builders, each in his own humble way. Hundreds of our brothers and sisters pass through our hands or on our tracks every day. While yet life exists in us, it is within our power to serve those interests well and make them all grow rich, happy and contented. Only let your hands stroke in the right direction. Strikes or deliberate inertia, much less wreaking harm on ourselves, have no place in Free India. On the other hand every one of us can and must contribute, each in his own sphere, big or small, his quota of honest, selfless, sincere work. Work, Karma, is our doctrine. Nishkama Karma, work without any attachment to the fruits thereof — is our ideal, ages old and clung to very tenaciously for ages. There is no better or richer field for service than the railway. In no other field have we such great and varied opportunities of service, and to such large numbers of our brethren. Let us catch time by the forelock and render it in full before it is too late, for life is short. That is the lesson the 15th of August signifies to us, Railwaymen.

NILAKANTAN—THE RESERVED

By Socrates

JUST as I entered the cubicle, I was greeted with the remark "why did you take the car? Send it back at once, quick."

I wanted to explain, but he would not listen. "No arguments, obey," said he.

But I felt I must have my say and so I remonstrated saying "I had instructions to take the car and speed away to deliver this letter to you. Here it is."

My friend opened the letter and said with a heavy thud of the fisted hand on the table, "this could have waited." But as I did not know the contents or the urgency of the letter, I said I could only carry out orders.

By the time I climbed down the steps of the Northern Block of the Delhi Secretariat, and looked for the driver, the car had disappeared—perhaps it was already on its way back—I learnt later that as a result of a telephone message received from my chief, a chaprasi had been instructed to wait at the entrance for the arrival of the car and tell the driver to return immediately.

A few months later when I was again summoned to Delhi for special work in connection with air evacuation of the Punjab, I was one of the very first to feel elated at the appointment of Nilakantan as a new Member of the Railway Board in charge of rail transport of the refugees from the West.

Nilakantan did yeomen service to the country and the stricken people of the partitioned Punjab. As Secretary of the Railway Board for a number of years he had already gained intimate knowledge of every aspect of rail transport, and knew the difficulties of traffic movement not only in peace time but also in war time. So he was the most fitted man for the job.

Think of those troublous days, the long trek of people denuded of all their belongings, young and old, women and children, rich and the poor, the multimillionaire and the street beggar, the landed aristocracy and the tiller of the soil, all wending their lonely way overcome with grief and sorrow on foot to a supposed place of safety. In short large mass of humanity uprooted. "Thou art dust and unto dust thy shall

(Continued on page 61)



Sri V. Nilakantan
Member (Staff), Railway Board

return." It is here that the equality of man is demonstrated.

Nilakantan tackled the job with his usual thoroughness and earned a good chit.

A feather to his cap; his next assignment was the General Managership of the East Indian Railway, an equally difficult position, i. e., from the Western sphere to the Eastern area. Calcutta welcomed him warmly. He was the third Indian General Manager in succession.

The very first act that he did on assuming charge was to send round a chit to the Departmental Officers who were to go with him in the "Inspection Special"

SOUTHERN RAILWAY

PUBLIC LETTERS PREFERRING CLAIMS FOR COMPENSATION

In view of a very large number of letters bearing on Claims having to be dealt with daily, considerable delay occurs in connecting letters from Claimants to the relevant files when the claimants do not furnish full Invoice or Way-Bill particulars and this Office precious reference.

Claimants are requested to assist this Administration to avoid such delays by invariably :—

- (1) Quoting in all their communications INVOICE NUMBERS in the case of Goods and WAY-BILL NUMBERS in the case of parcels, instead of giving Railway Receipt numbers ;*
- (2) Furnishing the date of booking, names of forwarding and destination stations and full description of the consignment ; and*
- (3) Quoting previous references, where available, from this office acknowledgment cards or letters.*

Claimants are also requested to address separate letters on claims pertaining to different consignments ; but there is no objection to these separate letters being put in the same Cover.

Chief Commercial Superintendent.

Nationalisation of Air Transport Industry

ADDRESSING the first meeting of the Air Corporations the Minister for Communications, Shri Jagjivan Ram, justified Government's decision to nationalise the industry and appealed to the Members to work the new undertaking in public interest. The Minister said :—

“ It is a great privilege and pleasure to address you on this momentous occasion. Although the Indian Airlines and Air-India International were set up on the 15th June, 1953, to-day the Two Corporations are meeting for the first time. The Members have undertaken a great responsibility but with this responsibility can be seen new vistas and new potentialities in the field of Air Transport. It is my sincere wish and hope, I am sure all of you share, that the two Air Corporations will contribute not only to the development of aviation in India but will add to the general development of our nation.

(Continued from page 59)

telling them that it was his wish that they should not dress up for dinner in the usual European style. This cut across the tradition that had long been established.

His first official engagement was to attend the christening ceremony of the “Malaviya Bridge” till then known as the “Dufferin Bridge”. His speech at the function was short and the photograph that was taken with his wife beside him was a dignified one. She was in her South Indian style of dressing in a silken saree of 18 cubits dressed so immaculately that it reminded one of the figure of the goddess “Lakshmi”.

For the short period—a little over a year—that Nilakantan was the General Manager, he administered the Railway with the impress of his personality. The thoroughness that he displayed on every occasion earned for him the distinction of an able administrator. At times he showed leniency in his dealings where he felt it was called for ; at other times he was stiff necked and maintained the dignified poise he was used to ; where sympathy was needed he had no hesitation to mellow it with mercy, and the adroitness with which he tackled piquant situations was characteristic of the person. These qualities endeared him to one and all alike. His apparent reservedness was

PAST SERVICE LAUDED

After the Parliament's decision to nationalise the Air Transport Industry, I trust now there will be no misgivings in any quarter regarding this scheme. Now there is no time for scepticism. We have all to co-operate and do our best to make the scheme successful. As you are undoubtedly aware, the decision to nationalise the industry was taken after careful consideration. Civil Air Transport is an important means of communications and serves a vital function of the country's defence needs in emergencies. It is of great help in the maintenance of law and order and supply of goods and services in the case of natural calamities. This does not imply that private Airlines have not come to the rescue of Government in times of emergencies. One has only to recall the commendable part played by the Air Operating Companies at the time of the partition, the Kashmir invasion and

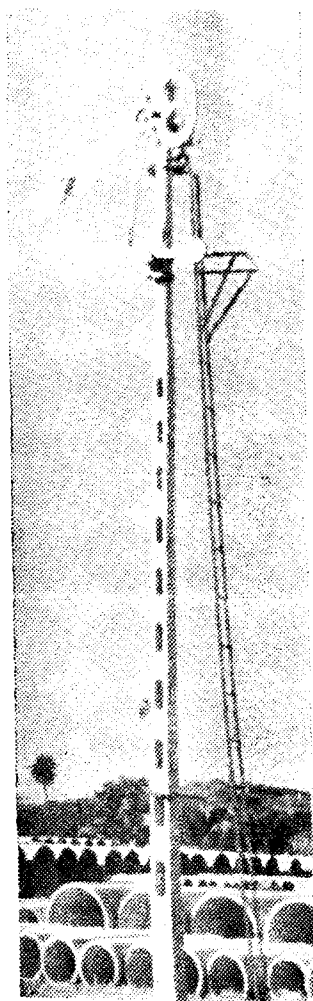
generally the sign of deep thought that he expended on grave matters affecting the life and destiny of millions of railwaymen. When he spoke it was words of wisdom borne of long experience. It was sometimes difficult to understand the trend of his mind as he gave no inkling to it at discussions across the table. This is a trait which the labour leaders were unable to unmask.

Back to Delhi he was raised to Member (Staff) and is still adorning that chair ably. The Permanent Negotiating Machinery is his handiwork. He has thus earned the unstinted admiration of every railwayman.

An early bird both at home and in office—and a late returner to house—he wanted to have the satisfaction of leaving no arrears at his desk. His orders and instructions are brief and to the point. Verbiage and bombastic style are not his.

A good sportsman he loves to have a game of tennis. It was during his General Managership that the sports activities of the East Indian Railway were re-organised and enlivened and a Sports Officer appointed. A regular reader of the “Bhagavad Gita” and a strict vegetarian, his lunch used to be simple—biscuits and coffee. He never missed saying his prayers in the morning and in the evening.

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the Assam Air Lift. The role played by them in these campaigns and in the case of floods and other natural calamities is not only praise-worthy but will be always remembered with gratitude. Let us bear in mind that it is not only Government's solicitude for the deteriorating economic condition of the Air Lines that led to this step. The question of future development was the main consideration. The Air Transport Inquiry Committee had visualized the stage when the Air lines would have to re-equip themselves with more modern aircraft. Though no suitable new aircraft had come into the market at that time the committee felt that an eye should be kept on the development of new type of aircraft so that the Companies might be in a position to take that decision at the appropriate time. During the last year, more than one type of aircraft suitable for the operation of internal services has come into being. It is desirable that the types of aircraft which are regarded as old are gradually replaced by new type of aircrafts. We have to keep pace with newer developments.

One deduction stands clear—that the future development of civil air transport and its operation without a heavy burden on the National Exchequer could only be maintained by re-organising the industry in such a way that the number of operating units is reduced to the absolute minimum. Careful thought was given how this should be done. Voluntary mergers did not appear to be feasible. It was, therefore, clear that the initiative in this matter lay with Government, which came to the conclusion that the industry should be owned by the State—more so when the State had to find the money required for the replacement of aircraft and also the future development of the industry. In my introductory speech on the Bill which was introduced in the Parliament, I had referred to the advantages of operation by a unified organisation. I do not want to dilate nor repeat what I said except that this decision to nationalise the industry was taken after careful deliberation and Government feels confident that it is in the best interest of the country.

TRIBUTE TO TATAS

Apart from these theoretical considerations, I feel confident looking at the personnel of the two Corporations, that the scheme we are embarking upon will meet with success. We are fortunate that some of the best talents in Government and private enterprise have joined us. I need hardly emphasize the yeoman services of the house of Tatas and of Mr. J.R.D. Tata in this enterprise. Then, there are some members who

have considerable experience of running business enterprises. From the Government side, we have officials who have made their mark in their allotted field. The Chairman of the Indian Airlines, Mr. B.C. Mukherji put up the Sindri Fertilizer Factory—one of our earliest ventures, and made it a marked success. I have no doubt that he will use that experience with profit in this new undertaking. We have also a labour leader of All-India fame, who will ensure that while running the industry in the interest of the public, the employees get a fair deal.

You are all responsible persons and any advice from me would be unnecessary. However, I would make this appeal. Whatever your differences and to whatever school of political thought you may belong, I have no doubt that the future of the Corporation would be uppermost in your minds. Your one objective should be to see to it that the industry services the public economically and efficiently and all our decisions are arrived at only from this angle of vision. To the Government servant I would say—re-orientate your outlook, avoid delays and have a wider approach. The Corporations are public utility-cum-commercial bodies not civil service organisations. The entire idea in not running them departmentally is to give the Corporations, a new outlook so that these may take quick decisions. The Members drawn from business, I expect will work for this under-taking in the same spirit and measure as they would do for one of their concerns avoiding wastage and bringing to bear their experience upon every problem. They must place their experience of industrial management at the disposal of the Chairman. I would appeal to all Members to see that the rights of the workers are amply safeguarded. The workers are no longer serving a body of shareholders but the State Corporations which have no profit motive but whose only objective is to serve the best interest of the public. In fact, the success of this undertaking can only be ensured if all the members exhibit the necessary team spirit and view everything from one objective, namely, the development of civil aviation in the interest of the nation, and I am sure you all have that interest at heart.

Though the Act provides for directions being given to the Corporations in certain matters, the intention of the Government is not to interfere with the working of the Corporations. Interference on the part of the Government will be the minimum necessary to ensure safe, efficient and economic service to the public and a fair deal to the employees.

(Continued on page 64)

Great scope for Builders of Steam

Locomotives and Wagons

INDIAN RAILWAYS 1954-55 ROLLING STOCK PROGRAMME

Under its 1954-55 rolling stock programme the Indian Railway Board is calling for tenders for the following equipment :—

Broad Gauge

- (b) 20 "WHG" heavy goods 4-8-2 + 2-8-4 locomotives
- (a) 100 "WG" goods locomotives
- (a) 50 smokebox tube plates for "WM" locomotives
- (a) 50 firebox back plates for "WM" locomotives
- (a) 50 firebox throat plates for "WM" locomotives
- (a) 50 firebox wrapper plates for "MW" locomotives
- (a) 100 frame plates for "WM" locomotives
- (a) 50 frame cradle casting for "WG" locomotives
- (b) Ten boilers for "WG" class locomotives
- (b) 45 steel fireboxes
- (a) 2,000 four-wheel open (heavy) wagons, without wheels and axles
- (a) 2,000 four-wheel open wagons, without wheels and axles

- (a) 2,000 four-wheel covered wagons without wheels and axles
- (a) 10,000 complete wheel sets, 16 ton axles, for coaches and wagons
- (a) 4,000 complete wheel sets, 10 ton axle, for wagons
- (b) Four self-propelling, steam-operated transportation travelling cranes
- (b) 26 electric motor coaches, all-metal, complete with wheels and axles, ready for service
- (b) 24 electric trailer coaches, all-metal, complete with wheels and axles, ready for service
- (b) 24 all-metal lightweight railcars, third class, complete with wheels and axles, ready for service
- (b) Ten four-wheel tank wagons for the transport of anhydrous liquid ammonia, complete with wheels, axles and roller bearings, ready for service
- (b) Ten four-wheel tank wagons for the transport of liquid chlorine, complete with wheels, axles and roller bearings, ready for service
- (b) Six bogie well wagons, complete with wheels, axles and roller bearings, ready for service

(Continued from page 63)

You have an interesting agenda before you, the most important being consideration of arrangements necessary for taking over the undertakings of the existing Air Companies on the appointed date and for carrying on their separations for an initial period of three months. I have no doubt that you will apply your minds carefully to the consideration of this subject so that the Air Services are maintained at least with the same efficiency as at present. Well begun is half done and I would request you not to leave any stone unturned in making the changeover as smooth as

possible. We must satisfy the sceptics that the Corporations can run the Air Transport Industry successfully. On behalf of Government I take this opportunity of assuring you that your recommendations will always receive our prompt and careful consideration.

Finally, I wish you God speed and good luck and pray that God may guide us along right lines to enable the Corporations to serve the best interest of the country."

- (b) 30,000 tons rolled plates for steel trough sleepers—90R (B.S.S.) rails.

Metre Gauge

- (b) Ten "YM" locomotives
- (a) 100 "YP" passenger locomotives
- (b) 13 boilers for "YB" class
- (a) 2,000 four-wheel covered wagons without wheels and axles
- (a) 1,000 four-wheel open high-side wagons without wheels and axles
- (a) 500 four-wheel open wagons with side and end doors
- (a) 1,600 complete wheel sets, 10 ton axle, for coaches
- (a) 6,000 complete wheel sets, 12 ton axle, for wagons
- (b) Nine self-propelling, steam-operated breakdown travelling cranes
- (b) Seven self-propelling, steam-operated transportation travelling cranes
- (b) 16 self-propelling, steam-operated transportation travelling cranes
- (b) Six self-propelling, steam-operated transportation travelling cranes
- (b) One diesel self-propelling transportation travelling crane
- (b) One diesel self-propelling transportation travelling crane.

2 ft. 6 in. Gauge

- (b) Ten "ZE" heavy goods locomotives
- (b) Five diesel locomotives for general service

- (b) 60 bogie coach underframes complete, but without wheels and axles

- (b) 100 bogie covered wagons, complete but without wheels and axles

- (b) 100 bogie open wagons, complete but without wheels and axles

- (b) 30 bogie rail and timber wagons, complete but without wheel and axles

- (b) Ten bogie hopper wagons with centre discharge, complete but without wheels and axles

- (b) 280 complete wheel sets, 6 ton axle, for bogie coach underframes and hopper wagons

- (b) 920 complete wheel sets, 8 ton axle, for wagon stock.

2 ft. Gauge

- (b) Three diesel locomotives for general service.

Also :

tons

- (a) 3,500 steel plates
- (a) 1,200 steel sheets (assorted)
- (a) 2,100 spring steel (assorted)
- (a) 1,750 spring steel (assorted)
- (a)—List FP/4—A
- (b) —List FP/4—B

Quotations should be submitted by September 1, 1953, for all items in List FP/4-A and by October 1, 1953, for all items in List FP/4-B. Offers for each item in either part should be submitted separately. They should be addressed to the Director of Railway Equipment, Railway Board, New Delhi. Manufacturers in the United Kingdom, Europe, and North America can obtain further details of designs and specifications from the India Store Department, London.

WOMEN'S PAGE

YOUR CHILDREN AND YOU

By Dolly Shahani

PROBABLY, after reading the title you will think, "Oh! one more article on children. I have read so many on the same hackneyed subject. I am pretty fed up." But no, this is not an article on children, it is an inventory about yourself to see what sort of an adult you are. How do you treat those over whom you have power and control? Are you a good administrator in your own sphere, do you allow those under you to be happy to develop completely or do you just unnecessarily curb little pleasures, nag, refuse petty requests and enforce discipline where none is necessary?

There is a desire in all of us to try and be the supreme monarch in whatever little sphere we can. We like to lay down the law, to exercise our power of authority. This desire becomes more pronounced if we have been subjected to undue discipline and criticism at any time of our lives particularly as children. We try to take out the injustice done to us in the earlier years by those who then had authority over us. This becomes a vicious cycle. A harsh mother-in-law is so because she was roughly treated by her own mother-in-law, till all that was fine and sensitive in her becomes bitter with resentment. In turn she becomes a bully to compensate for her earlier mal-treatment. And so it goes on.

Ultimately this power to wield authority is most common when dealing with children. Almost every one has authority over children, no matter, in what walk of life he or she is placed. The majority of people in the world have children, from the average house-wife down to the beggar in the street. How then do we use our authority? This is important. Do you make it easy to obey? Is there a constant struggle between you and the children? At the end of the day, do you feel completely fagged out? Or are the children scared of you, timid as rabbits? You have to find the happy medium, if you want your children to develop fully and to derive the greatest pleasure from parent and child relationship. Yes, I mean, pleasure, the 'joys of parenthood' is not a myth, that does exist outside books and poetry. But it has to be cultivated with intelligent, thought effort, and above all, infinite patience and understanding.

(Continued on page 67)

You have to learn to concentrate on really important habits and you will make it easy to obey.

Rebellion is desirous and natural in every normal child but when there is continuous resistance all is not well.

Now let us analyse continuous resistance. When and why does a physically well child fight?

1. When he is always being corrected.
2. When his wishes are repeatedly denied.
3. When he does not receive enough attention.

Little Kaka gets to believe that what-ever he does is wrong and that it is impossible to please his mother and father and therefore he sees no reason why he should try.

Peter takes a vicious pleasure in annoying everyone because he thinks getting adults angry and unhappy is a fair game since they spend their time making him angry and unhappy or so he feels.

Many requests are refused automatically. "Mummy, let me help you to peel the gooseberries for the jam."

The response is an abrupt unthought answer.

"No, you'll make a mess." The result is that Rekha is not only an unhappy, thwarted child, but she learns that her ideas are never any good. Try to say "no" as seldom as you can and soon you will find that the occasions when you need to say it are very few.

Most unhappy are boys and girls who are short-charged on affection. These ones only know their parents when there is something to be done—lessons, bath, eat their meals, drink milk etc. Their parents have time to read the papers, go to a meeting or club, clean the house, play bridge or tennis, but never time to read to Gita or Vivek or listen to the talk about the child's world. They are lonely children. Nothing is more sad than loneliness in childhood. They may even get to believe that their parents do not like them. Children who feel this way try to test their parents' affection and gain their attention by rebellion and disobedience. It is as though the child were

THE OVERLAND IS A MOBILE MANSION

By T. A. G. Hungerford

With vast distances to cover and a travel-conscious people to serve, Australian Railways are out to make every post a winner in its drive to attract passengers and several lines are operating new trains that are making a common-place of quick, clean and efficient travel.

THE inauguration of the Overland service between Melbourne and Adelaide, capitals of Victoria and South Australia respectively means that almost the entire distance of the 2,000 miles between the Victorian capital and Kalgoorlie, Western Australia, falls away smoothly and swiftly beneath the wheels of some of the world's most modern diesel electric locomotives and their luxurious passenger carriages.

(Continued from page 66)

saying, "You don't care to spend time with me when I am trying to please you. I'll be naughty and make you take notice of me!"

You may be feeling baffled and thinking, why does my child fight with me, but I am not like that. Well, just give yourself a check up and find out how you stand. Take a pen and pad and make a note each time you correct or command your child during the day. Note how many of his requests you refuse and how many you grant. Then write out exactly how much time you spend doing what he wants you to do. You will be surprised. A mother who tried, found out in three hours, she turned down two requests, said "don't" to her little daughter six times and gave ten other assorted commands. Next put down how the child behaves, everything he does, which you dislike or which you and he agree about.

Next check up how much time you spend with your children and how you behave during this period. This should be the time when your child becomes acquainted with you and looks upon you as an interesting and agreeable friend not as an unfamiliar boss.

Then make a list of all the good things about him. His daily habits—eating, sleeping, toileting, washing, dressing. Think of his general disposition, his ability to get on with strange grown-ups and other children.

Think of his physical skills, budding creativeness, think of his helpfulness, the numberless times he has done little errands, odd jobs of call, fetch and carry or at least his interest in helping you. Think of his affection and generosity, his growing vocabulary, his curiosity (though sometimes those endless questions quite drive

The Overland, striking in the blue and gold of the Victorian Railways, is a train to stand comparison with the blue riband railway services of the world.

The locomotives, largely Australian made at Clyde, near Sydney, New South Wales, are powered by 16-cylinder General Motors diesel engines. Gone are the shuddering start, the noise and fumes and coal grit of the thundering steam locos; travel on the Overland

you mad), his developing initiative and responsibility. Now resolve to grant his more reasonable requests and spend more time with him. Then make a list of his faults and bad points. Pare it down to three or four of his worst ones. Choose your ground. Concentrate on helping him to overcome these shortcomings, or eliminate them. For the present, forget the other little faults, you can return to them later on.

Two ways to judge when to refuse a request. Firstly, is it physically harmful or dangerous to the child? Secondly, does it interfere with the rights of the others?

The first is easier, for example running across the street or playing with the bread knife or matches is definitely dangerous, whereas playing in the drawing room is not. The second yardstick calls for self restraint and clear thinking on your part. Using ash trays as toys is not so bad as destroying some one's book. Eating a slice of cake just before dinner is harmful whereas eating an orange is o. k.

Correct a few faults instead of everything the child does. Try to show which kind of behaviour is not acceptable. Respecting the child's wishes will teach him to respect yours or help him to do something he does not wish to do. This teaches him the principle of give and take which is so essential for harmonious living.

With a little thought and effort, your child can become a co-operative, pleasant, cheerful and one of your very best friends.

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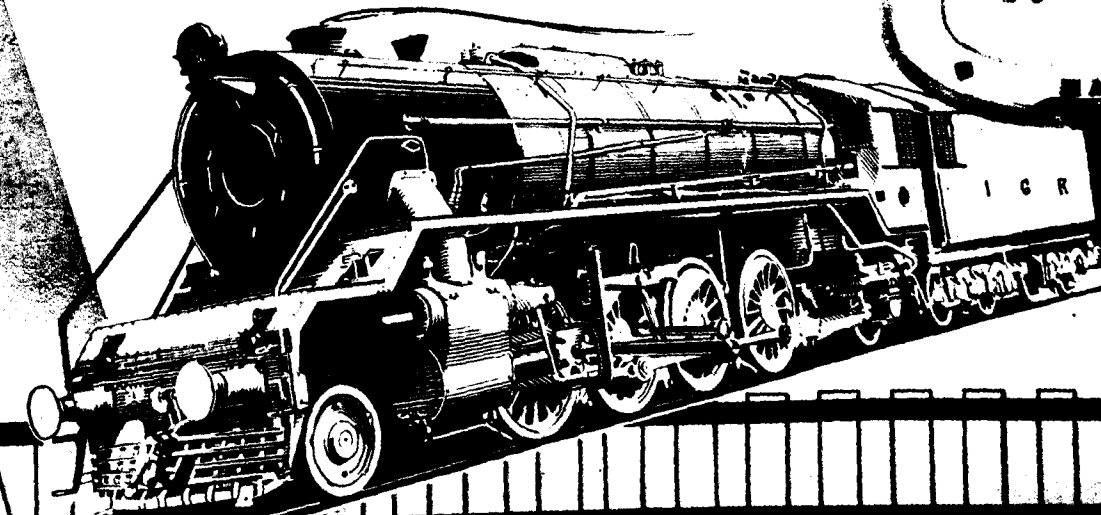
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SOUTHERN RAILWAYS

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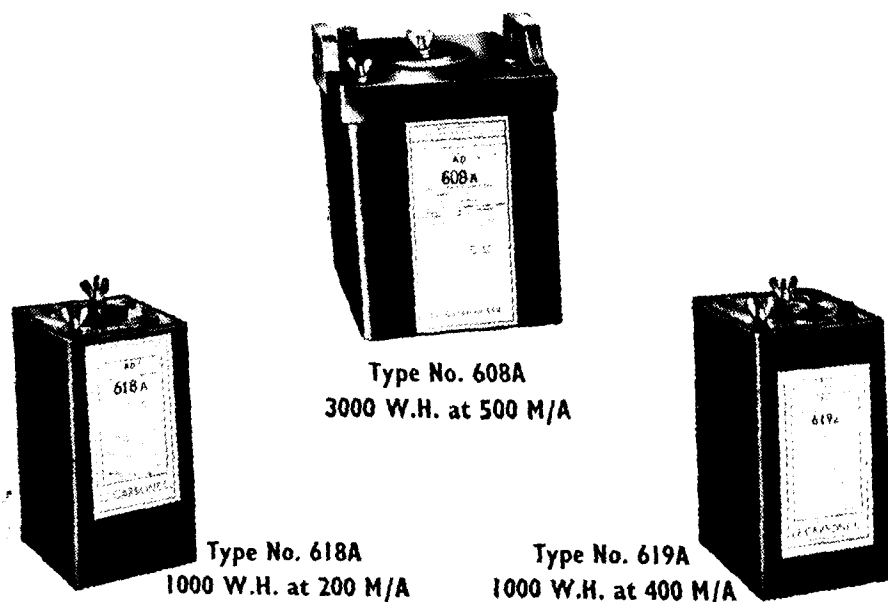
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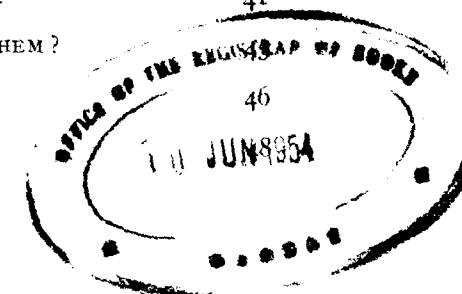
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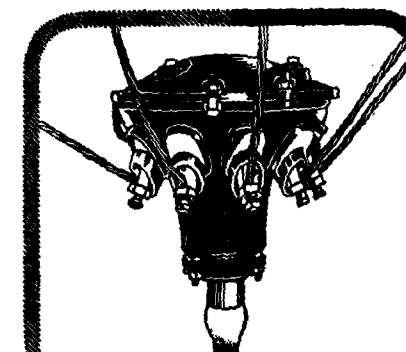
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SOUTHERN RAILWAYS MAGAZINE

VOL. V
NO. 3

SEPTEMBER

ISSUED
MONTHLY

SECURITY MEASURES ON RAILWAYS

THE Railway Ministry in a press note released early this month announced the appointment of Mr. B. N. Lahiri, retired Inspector General of Police, Uttar Pradesh, as Security Adviser to the Railway Board, with his headquarters at Allahabad. The object of enlisting the services of a highranking and experienced Police Officer is for the purpose of reorganizing the Watch and Ward Forces on Railways and to improve its organisation, control and discipline so as to make this force more effective in preventing the losses to the Railway administration caused by thefts and pilferages not only of commodities and merchandise while in the custody of Railways for transit but also of railway property in the way of stores, carriage furnishings and fittings, electrical apparatus etc. The Security Adviser will also examine the existing security arrangements on Railways and will maintain a close touch with the Police authorities of various States to secure effective collaboration between the District Police, the Railway Police, the Railway Protection Police forces and the Watch and Ward force.

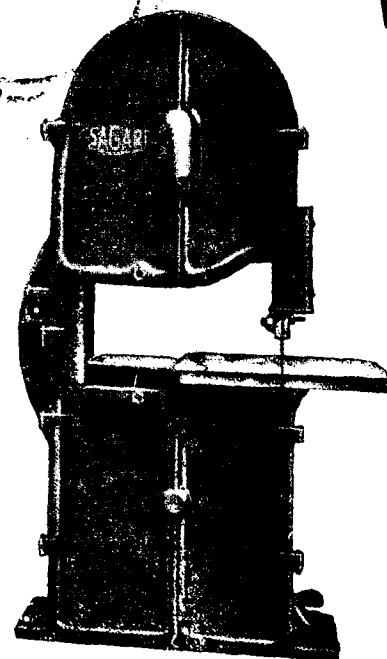
What is the extent to which the Railways are losing from thefts and pilferages? From the Railway Ministry's annual Report for the year 1951-52 it is seen the Railways dealt with 34,641 compensation claims for goods stolen, and the amount paid out was Rs. 60,21,307. For parcels and luggage lost and stolen the figure was 33,824, and the amount paid out was Rs. 40,03,911. Another interesting feature of these statistics is that for goods stolen, the ex. B. N. Railway accounted for 17,418 cases for which Rs. 23,90,579 was paid out, the ex. E. I. Railway paid out Rs. 27,76,844 in 12,505 compensation claims and the Southern Railway for 1952-53 paid out Rs. 14,550 in 1474 compensation claims for both goods and parcels. Then again under the category of parcels and luggage lost or stolen, the ex. B. N. Railway accounted for 10,031 claims and paid out Rs. 12,57,455, while the ex. E. I. Railway paid out Rs. 13,12,888 for 6229 claims. The annual financial implications from thefts and pilferages of railway property, stores, furnishings, fittings and electrical components are not readily available, but it can be assumed that in this respect the situation has reached grave proportions.

The Railway Ministry's figures quoted indicate that thefts and pilferages on railways are costing the nation losses to the extent of a little over ten million rupees annually, and that of this enormous amount the ex. East Indian and Bengal Nagpur Railways (now mainly covered by the regrouped Eastern Railway) have contributed the major portion of the loss amounting to approximately eight million rupees. This obviously leads to the inference that

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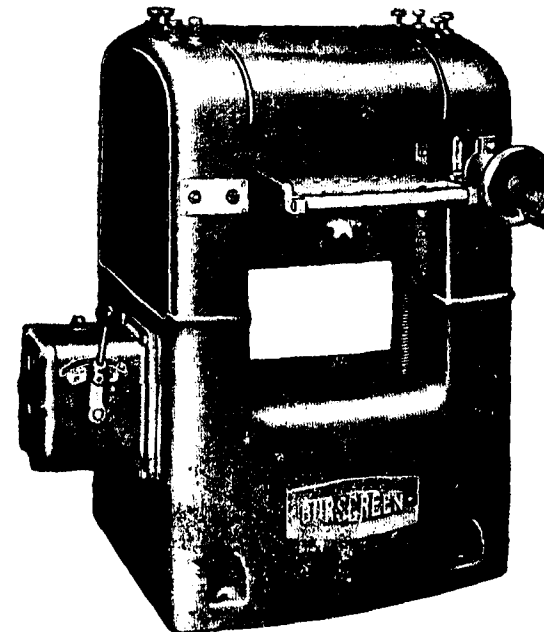
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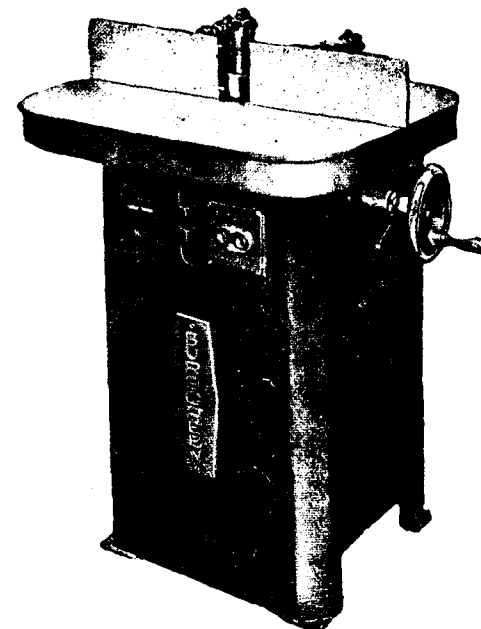
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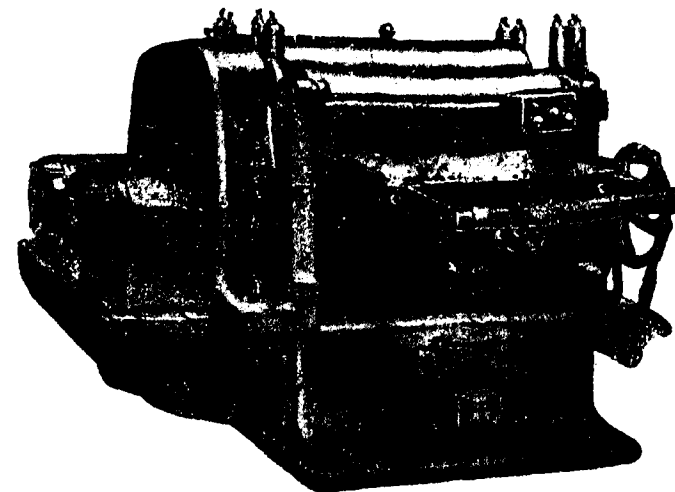


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the incidence of railway crimes is highest on that portion of the nation's territory served by the Eastern Railway.

A more detailed analysis of the incidence of thefts and pilferages on Railways would be interesting to peruse. We can surmise that goods, parcels, luggage, railway property etc. are stolen from passenger and goods trains while in transit, from station yards, from parcels and goods sheds and platforms; while railway store depots and workshops are the sources from which railway property disappears. Which of these categories provide for the highest incidence of crime would be interesting to know, but as the details are obviously available with each Railway administration and the Railway Ministry, it can be assumed that the authorities concerned are tackling the problem vigorously.

Turning again to the Railway Ministry's Annual Report for the year 1951-52 we find that the total bill paid by Railways for Police Forces, Watch & Ward and contribution to State Governments for crime and order amounted to Rs. 4,14,51,067 and this, coupled with the loss of ten million rupees paid out by Railways for claims on account of thefts, makes one realise the gravity of the situation.

The Railways are truly faced with a problem that is assuming alarming proportions, and even though it cannot be said that a high incidence of crime is a peculiar feature of Railways only, the Railway Ministry in announcing the special measures that are now being taken to find better ways and means of improving security measures on Railways to reduce these appalling losses, have realised that the crime situation on Railways cannot be allowed to deteriorate any further.

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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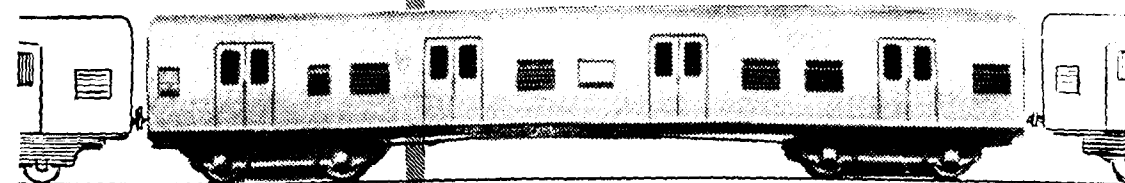
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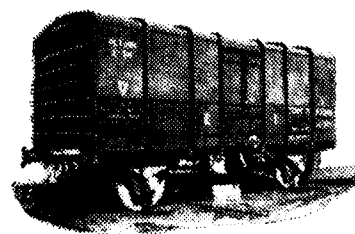
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NOTES AND COMMENTS

OUR GM OPENS CANTEEN FOR BASIN BRIDGE RAILWAY WORKERS IN THE LOCO SHED

OUR patriotic General Manager Mr. T. A. Joseph, performed the pleasant ceremony of opening the Railway Workers Canteen for the Basin Bridge Workers recently. Sri D. J. Batliwalla, the popular Chief Mechanical Engineer presided over the function. In a brief speech our General Manager said "whatever be the national economy, be it capitalism, socialism or communism, they are only methods of distribution of national wealth which entirely depends on production. Production is therefore the primary criterion of national wealth. The distribution is only secondary. On an ultimate analysis of this problem of economic system all must agree that "production" is primary and all must pay the highest attention to that. It therefore behoves us, the productive workers to be willing workers. I do not advocate honorary work or a demonstration of the honorary or other work. I suggest "willing work" is the key note of production and thence to national prosperity".

He also advocated cooperative running of the canteen instead of the administrative show and referring to the present economic condition he said many commissions and committees had investigated and produced voluminous reports which were perhaps seldom read, much less to talk of adoption or execution. He promised that he would see to the provision of more canteens at other centres as funds become available. Synchronising with the opening of a Canteen in the Basin Bridge Loco Shed, the Workers had installed a statue of Mahatma Gandhi in front of the Canteen. Shri S. Gurusamy, M. P. and Railwaymen's leader unveiled the statue and said:—"Fight injustice without fear, utter the truth without reservation and work for the common prosperity without remorse".

* * * * * * * * *

VICTIMS OF MULACALACHERUVU TRAIN

SMASH

With Mr. N. Muthu Reddy, Assistant Station Master as Secretary, a twelve-man committee has been formed in Pakala to assist the injured and dependants of deceased in the recent train smash in preferring claims and also for rendering financial help to them. The Committee has issued the following appeal for funds:—

"The heaviest of train tragedy in South India occurred in a relatively remote locality. Sympathies of the citizens go to the injured and the relatives of the victims. Two trains entered the block section, a thing believed to be impossible. The toll of death mounted to 68 and the injured about 70 including 26 railwaymen on duty dead and 25 injured. It is a pity that on the section noted for slow moving speed, this ghastly tragedy has occurred and the speed of the colliding trains can be better understood by the escape with minor injury of the Muslim lady and child who pushed out by the male member which provided conclusive evidence that the trains themselves were not running at break-neck-speed. It is really the impact or momentum of the heavily loaded wagons behind that pushed the passenger bogies which apart being sandwiched, were smashed to smithereens. And if a Muslim passenger could foresee the crash and push his wife and child out, the Engine crew could have easily jumped out too, to save their lives. Obviously struggling to control the train with the limited brake power they preferred Hero's death and remind of "Casablanca". They deserve to be remembered and respected. The men are dead and have parted from us (their colleagues). In view of this, a Relief Committee has been set up to help the families of victims. The contribution may please be sent to the Secretary, Relief Committee, Southern Railway Employees' Union, Pakala, (Chittoor District).

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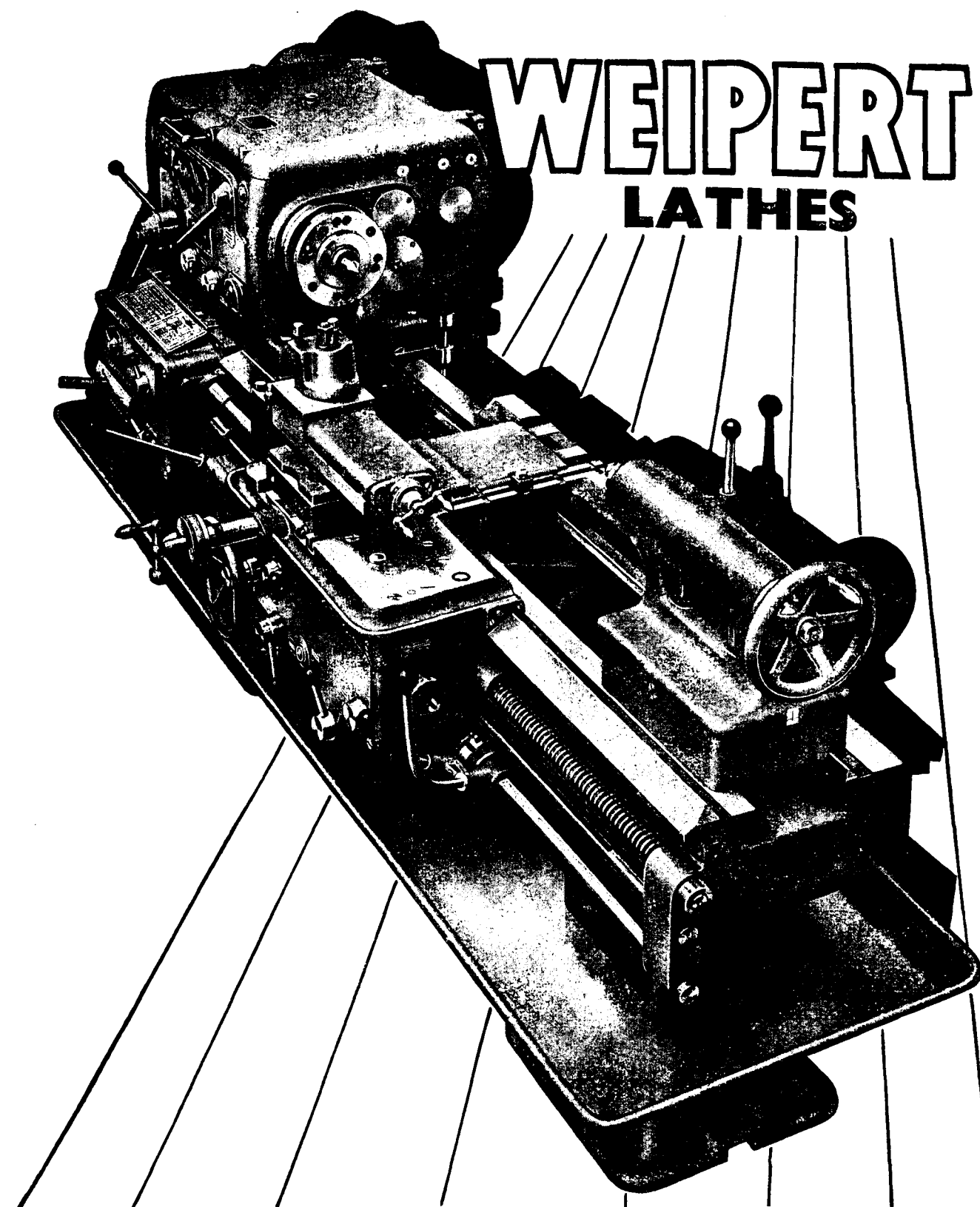
RAJAMANDRY FLOODS

Once again nature had been unkind to the province. The river Godavari was in floods and many railwaymen have lost much. The General Offices Clerks in the Head Office at Park Town, Madras are doing brisk work of collections from their colleagues to help the victims. Our Chief Operating Superintendent, Major S. R. Sarma who was visibly moved by the devastation is doing his utmost to collect as much as he can from the Officers on the Southern Railway and help the victims. All our sympathies go to the sufferers in the floods.

* * * * * *

INDIAN RAILWAYS RESEARCH CENTRE

Thanks to the patriotic vision of our Prime Minister Nehru, within a few years of our attainment of freedom, a chain of research centres have sprung all



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over India. The Indian Railways comprise one of the largest single undertakings in the world; nay they are one of the world's five largest Railway systems. In recent years, the urge towards national self-sufficiency together with the enlarging of activities in the field of design and manufacture, have brought in their wake the need for more applied research in Railway Technology. These are, to help to try out under actual working conditions improvements that make for greater efficiency in performance and safety in operation. To develop indigenous resources and techniques and so produce eventually a better job at lower cost.

WHAT IS RAILWAY RESEARCH?

Railway research is chiefly a means for the successful application by trial and adaptation of the fundamental discoveries, inventions and innovations of science to the promotion of a mode of transport. In this it draws upon the experiences of allied industries and reaches, in its scope, beyond the efficient engineering of devices that keep trains running, to the physiology of passenger comfort and staff welfare.

REORGANISATION OF RESEARCH

The Ministry of Railways have reorganised the research sections of the Central Standards Office started in 1935, and established a separate Directorate of the Railway Board in the headquarters at Lucknow and two Sub-centres at Lonavla and Chittaranjan. The Lucknow centre carries out research on fuel, the dynamic effects of vehicles on track and bridges and riding quality and performance tests on locomotives and Rolling Stock assemblies and components. The Lonavla Sub-centre will tackle problems on Buildings, Foundation and Concrete Engineering as applicable to Railways; the Chittaranjan Sub-centre will function in close co-ordination with the Locomotive Works in conducting chemical and metallurgical studies on points, water-softeners, lubricants, bronzes, metals and metal processing.

WHAT HAS BEEN DONE SO FAR?

The evolution of the present Indian Standard Locomotives, proportioned, amongst others, for better combustion of low grade non-coking Indian coals of high ash content is the outcome of the patient research made over 20 years. The design of coaching

and goods stock and track components; the standardisation of Civil, Mechanical, Signal and Electrical Engineering practices and specifications are some of the outstanding works to the credit of the Research Centre. The cause of constant sinking of some of the Godavari Bridge Piers—a source of anxiety to engineers for over half a century—was diagnosed and the speed restriction over the bridge partially removed by the work of the Research Centre.

PRIDE OF INDIA

The future opens with a good prospects for the Centre. Research on Permanent-Way, Bridges, Building, Concrete, Foundation Engineering, Locomotives, Carriage and Wagons are some of the major items which our young and enthusiastic men are working at. We are sure that this research centre will grow from strength to strength and be a pride of India in the years to come.

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A TRAIN TO KILL WEEDS

The Central Railway have just brought into use a train which has been specially designed to kill weeds; in general on this railway weeds along the track are not such a nuisance that special measures to keep them under control are required. In fact, in most places, the regular cleaning of the stone ballast which is a feature of the system of track maintenance adopted, is sufficient to keep the weeds from growing as there is no earth amongst the ballast for them to take root. But on one of the branch lines on the metre gauge section, which has hitherto not been fully stone ballasted, the presence of weeds lead to bad track conditions; during the early part of each monsoon the weeds grew freely; in due course they were pulled up and this process left the surface of the moorum boxing (the technical name for moorum when it is used in place of ballast) and the cesses rough so that when rain fell the water did not drain away readily, but formed puddles and softened the whole of the sub-formation. It was therefore decided to try and prevent the growth of weeds by the use of chemical weed-killers.

For some time experiments in the use of weed-killers have been made; the commonest form of chemical

used for this purpose was a chlorate which unfortunately has the dangerous property of drying on the vegetation and forming an explosive mixture. If by any chance the rain stops for a few days the vegetation dries up and then if a naked light is taken near it there is a flash of flame which may be intense enough to cause severe burns to any staff working near the track. The use of chlorates has had to be avoided on this score for several years. The weed-killer to be used must not be poisonous to human beings or to cattle.

There are quite considerable areas of railway land which are infested with weeds and which should be kept clear. The commonest one is called Xanthium and it is an importation from the Punjab; it has large dark green leaves, is useless as feeding stuff and chokes all grass when it starts growing, and can be most easily recognised by its seeds, which are contained in a small hard case about half an inch long, the outside of the case being plentifully supplied with sharp curled spikes which catch in the hair of cattle. Cattle coming from the Punjab nearly always bring some of these seeds with them, and the Government of Madhya Pradesh are so alarmed at the spread of this particular noxious growth in their State that they have made rules requiring all holders of land to take steps to eradicate it. One method, of course, is to pull it up by hand while the plants are still young, before the seeds have formed and while the ground is soft, and then when they have dried, to burn them. This however is an expensive remedy.

Manufacturers of chemicals have developed a new kind of weed-killer, one which can almost be said, kills with kindness. While experimenting with artificial manures it was found that certain chemicals stimulated the growth of roots so much that the plant above could not keep pace, and died. This principle has been developed now, and weed-killers to suit various types of weed, have been produced. Their action is to spur the roots to such activity that the plant kills itself trying to grow fast. The experiments made on the railway during the previous three or four years at least gave promise of success. Samples of the weed had to be collected, for the same chemical formula does not do the same amount of good (or harm) to all. In general two different mixtures are required for complete eradication; one attacks Xanthium, the wild pulses and such-like bushes, the other goes for all varieties of grass. Each one has to be applied twice; the first application is best made when

the monsoon has established itself, when it is raining steadily each day and when the plants are just beginning to grow. If there is not sufficient rain after the first application the treatment may not be successful as the chemical is not washed down into the soil, and the roots properly. The second application, if all goes well, should be made about ten to fourteen days after the first, and a few days later the unwanted vegetation withers and dies. In station yards the mixture of chemicals and water has so far been made with a spray, and as has been already stated, the results were distinctly encouraging.

When it came to spraying a branch line nearly a hundred miles long it was quickly realised that hand operated sprays were out of the question. A scheme for mounting old water tanks on open wagons was devised and discussed with the Mechanical and Operating Departments; the Mechanical Department offered an old engine tender which was quickly and easily converted into a spraying truck; extension pipes were fitted to the outlets which had previously provided the water connections to the engine. A number of old water tanks were mounted on open trucks and connected up so that even on the run water could be fed from them into the tender of spraying truck. The beauty of the whole arrangement, from the Engineering Department point of view, is that when the spraying has been done, the connecting pipes can be removed and the trucks and tender handed back in their original condition to the departments who normally use them.

It is still too early to say whether the scheme has been a success; we must wait and see if we can reach the end of the monsoon without having to put on large gangs of extra labour to remove weeds. In previous monsoons the weed growth has been so thick that the weeds being crushed between the wheels of the locomotive and the rails formed a slippery mess and caused the locomotive to slip and fail. If this can be prevented, and the necessity of pulling the weeds by hand avoided, then the experiment will be deemed successful.

The idea is not new; in America there are several companies who operate weed-killing trains at so much per mile and guarantee to kill all weeds within spraying distance of the track. If we find that this mechanical application works, then we can try putting a pump on the train and using it in station yards to reach ground further away from the tracks.

IN THE GALAXY OF RAILWAYMEN—II

ALAGESAN—THE ALERT

By Socrates

"MEMBERS of Parliament are very essential" said Sri Alagesan the other day in reply to a supplementary question in the Council of States.

Who is and who is not essential is a problem that has been vexing the human mind ever since creation. Nothing in this world is permanent and if one goes out another steps in. Even if a portion of the earth is wiped off by an act of God there springs up in another part of the globe a new lump. That is the universal law.

Alagesan was quick in replying to the questioner and equally quick was the Chairman of the Council of States, who raised the issue, to have a hearty laugh over the incident.

That shows Alagesan's trend of mind. He is perhaps the youngest in the "Cabinet", or, for the matter of that, in the House of the People. I can compare him to the agility and quick mindedness of one of the earlier Cabinet Members who is now in the land of the departed, viz., Sri Shanmugham Chetty. Shanmugham was noted for his versatility and the manner in which he coaxed and cajoled the members of the House as Finance Minister, and earlier in the pre-independence days as the Chief whip of the Congress Party, and for sometime as the Deputy President of the then Legislative Assembly.

But it is not enough to say that Alagesan closely resembles the personality, calibre, acquisition and alacrity of mind—and what not—of the late Shanmugham. It is necessary to give a complete and vivid picture of the man in him, of the Deputy Minister, of the Member of the House of the People and last but not the least as the "Great Public Relations Officer"—for is he not in reality the one Public Relations Officer who has got the most to do with the public who use transport?

Those who have had to come in contact with Alagesan will not hesitate to vouchsafe the extraordinary ability that he possesses which he brings to the fore in his dealings with the public, the press and the platform. Although he is not the *de jure* Minister of Transport and Railways, he is the *de facto* Minister, for you will find him springing up from his seat in the



Sri O. V. Alagesan
Dy. Minister, Transport and Railways

House of the People to answer a question and face the volley of supplementaries that pour in from all sides on all manner of problems affecting transport, be it the road, rail or the sea. He is equal to the occasion and cannot easily be unnerved. While his Chief, the Minister of Transport may or may not be present in the Parliament, and if present, may gaze at the gallery, and perhaps wonder at the indefatigable 'deputy' answering questions in rapid succession, Alagesan himself would be unmindful of what his Chief thinks or what impression he makes in the minds of the members of the House. All that he is concerned with is the answer to the question, and that too, in the most precise and convincing manner, brief to the point. Nothing more, or nothing less.

Before entering the House Alagesan would involuntarily invoke the blessings of God and that would give him strength of mind and steadfastness. But before he goes to Parliament he would make a point of studying the files thoroughly from all angles of vision and would even visualise in his mind the various interpellations and be prepared to meet them. Intuition would tell him who the 'intruder' might be.

Touring round the country from place to place and visiting the railways, the workshops and keeping up public engagements in meticulous order, Alagesan is a pleasing personality to befriend. He cannot give offense to any one, and while listening to the pleadings and arguments put before him by the other side, it may be the Chamber of Commerce, it may be an Association of Passengers, it may be one of the labour leaders, or it may be one of the aggrieved railwaymen, he would calmly listen to everything that is being unfolded to him and administer a word of encouragement where it is needed, or a word of caution where that is called for, or a word of advice (may be parental)—although he does not look to be

(Continued on page 12)

old enough for that. In the end it is the personal satisfaction of having attempted to do something in the right direction according to one's light and lead, and the further satisfaction of having been instrumental in assuaging pain and suffering on the part of some one that which ultimately matters. And in this respect Alagesan par excels an ordinary human being.

In the pre-independence days Alagesan was little known; he preferred to remain in the background. Of course one would have noticed him in the lobbies and in the assembly discussions but he was content to be a backbencher. Kindhearted, a smiling face, ever pleasing, he is a good companion both in weal and woe.

Comparatively young in age he is full of vigour and enthusiasm and would not face unpopularity. He is very sentimental, and for that reason, conservative. Whenever a rail accident occurs he rushes to the scene and is the first to offer succour to the ill-fated and

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ON August 15 information was received through the B. B. C. news service of a serious accident which occurred on that day at Manchester on the London Midland Region of British Railways. Two local trains, one an electric, had collided and some of the vehicles were derailed. This part of the line is on a viaduct and one of the coaches crashed through the parapet and fell upside down into a river. 10 passengers were killed and over 60 injured. At the time of writing no further details are available.

On the night of July 18 London and southern England was subjected to a violent storm and heavy rain. This flooded buildings, houses, underground railways, roads and sports grounds. The vivid lightning, which was like an artillery barrage, caused much damage. For London firemen it was like the blitz as they raced with pumping apparatus all over the capital. At one time more than thirty appliances were out dealing with flood reports ranging from private houses to the British Museum. Several hundred weights of masonry crashed into the roadway when Burlington House was hit but no one was hurt. One man was killed when struck by lightning as he walked across Kensington Gardens. When a house at

Hornchurch, Essex, was struck by lightning, a telephone receiver was blown out of a woman's hand and smashed against a wall, a television set blew up, a fire started in the roof and several tiles were blown off it. As the storm reached its full fury during the afternoon houses were struck in Wallflower Street, Shephards Bush, Norfolk Crescent, Sidcup, Kent, Worple Road, Wimbledon, Hadley Road, Harolds Wood, Essex, Melrose Avenue, Cricklewood, and many other places. Water poured into part of Brimsdown Power Station which supplies current to trolleybus services in North London. On the Underground, Surrey Docks Station was flooded and the whole of the section between Shoreditch and New Cross, on the East Section, was put out of action because of the danger of electrocution through water. The London Transport Railways operate on the positive and negative conductor rail system and not overhead collection as in this country.

Surrey Docks Station is on a part of the London Transport System which has an interesting history. A deep level tunnel under the River Thames had been for many years an unattained dream. An attempt had been made as early as 1807 when a Cornishman named Richard Trevithick sunk a shaft at

(Continued from page 11)

unfortunate passengers. This was demonstrated in the recent accident over the Southern Railway near Hubli where he, together with the General Manager of that zone, rushed to the spot within a few hours of the occurrence of the accident.

I had occasion to enquire of some of my friends as to what they thought of Alagesan and I am glad to record here that every one of them without an exception gave a chit of admiration, honour and integrity to him. They were all pleased at the manner in which he was tackling railway matters,

and although Alagesan would not thrust himself before an audience, he would keep himself informed of all that takes place on Indian Railways. He is a doughty champion of the cause of railwaymen, and would it be news to the readers when I say that he is 'union-minded' too?

Quiet at home, all attention to vital matters, quick in grasping the essentials of a problem, Alagesan is a man to be studied and copied by railwaymen in India who have to plod on unceasingly from year's end to year's end.

Rotherhithe. It will be recalled that Trevithick was associated with the steam engine and preceded Stephenson. The tunnel three feet wide and five feet high, was driven a quarter of a mile. There was no known method of supporting the roof with the result that it caved in as soon as the bed of the River Thames was approached.

Sir Marc I. Brunel started work on the Thames Tunnel, from Wapping to Rotherhithe, in 1825. He was assisted by his son I. K. Brunel when he was only 21 years old. An elementary form of iron shield was employed. The work was started with a new shaft lined with bricks and hoops. Water again broke into the tunnel. Brunel's son inherited his father's genius and took to the profession as a duck takes to water. During one of the many floodings he was an inspiration to the workmen by proceeding into the flooded tunnel by boat. Even when the most experienced were losing heart he led them on and his example was undoubtedly the main factor in the successful completion of the work. It was opened in 1843.

The tunnel was never a success and it remained semi-derelict for many years. In 1865 the East London Railway Company was formed with the intention of utilising the tunnel. The first section of line was opened from Wapping to New Cross in December 1866 and rolling stock was provided by the former London, Brighton and South Coast Railway. Later the line was extended from Wapping to Shoreditch. There was some goods traffic otherwise the main passenger traffic consisted of workmen's fares. It was really a poverty stricken backwater, the surroundings were dingy and were not improved by steam trains the smoke and steam hanging about for hours. Electrification took place in March 1913 and trains of the former Metropolitan Railway ran from Shoreditch and New Cross. There was also another service from Hammersmith to New Cross via Aldgate and St. Mary's, a station now closed when Aldgate East Station was remodelled. Wapping Station, the north side of the Thames tunnel is a curious place. It is entirely underground and the walls of the tunnel are covered with ferns and other plants while water spouts trickle down the walls on to the narrow platforms. Communication with street level is maintained by lifts. The street level station is a temporary wooden hut for the original buildings were destroyed in one of the air raids. The original Thames Tunnel section is 26 chains long consisting of two

parallel tunnels with communicating arches. The gradient falls at one in 40 at each side with a few yards of level track in the middle. The tunnel is kept dry by constant pumping. With the formation of the London Transport Executive the Metropolitan trains were withdrawn and District Line stock operated. The stations were also made brighter in appearance and as much done as possible to make cheerful surroundings which are naturally gloomy.

On June 22, John Elliot, Chairman of the Railway Executive, opened a new British Railways booking and information office known as the British Railways Travel Centre, in the West End of London. It is situated on the ground floor of Rex House at the corner of Lower Regent Street and Carlton Street, near Piccadilly Circus. The whole of the side in Carlton Street and much of the Regent Street side is windowed to show the interior which is air conditioned and brilliantly lit. There is ample counter space and comfortable seating and the equipment includes a projector for showing travel films. The Centre, which was opened to the public on June 24, is the first British Railway office to sell tickets and reservations by all British, Irish and Continental routes. An expert staff, including interpreters will be available to help the traveller.

The Mersey Railway has recently celebrated the golden jubilee of its electrification. The railway runs from Liverpool Central under the River Mersey to Birkenhead where it branches to Birkenhead Park and Rock Ferry. The line was first proposed in 1825 but it was not until 1880 that the main portion of the scheme, a tunnel under the Mersey, was taken up. Experimental bores were first made and then the main tunnel was started. The line was opened officially by the Prince and Princess of Wales on January 20, 1886.

The distance from Liverpool Central to Rock Ferry is $3\frac{1}{2}$ miles and from Hamilton Square to Birkenhead Park $1\frac{1}{4}$ miles. The tunnel is 26 feet in extreme width and 19 feet high from the rails. It is lined throughout with some 38,000,000 bricks set in cement. In all there are three tunnels under the Mersey, the rail tunnel, a ventilation tunnel and a drainage tunnel. At first the railway was well patronised but as the years passed traffic fell. The tunnel was becoming increasingly foul owing to steam operation and it was realised that something must be done quickly to prevent the line shutting down altogether.

Powers were obtained in 1900 to convert it to electric operation. In July 1901 a contract for the complete electrification of the line was signed and this was the first example of an English steam railway to be so converted. The first electric train ran at 6 a. m. on Sunday morning May 3, 1903. The Mersey Railway was one of the first to use colour light signals and automatic train stops. The line is track circuited throughout, with power operation of points. At Liverpool Lime Street trains reverse themselves automatically during the slack periods of the day. From January 1st 1948 the undertaking was taken over by the British Transport Commission and it is now part of the London Midland Region of British Railways.

The inaugural run of the "Elizabethan" took place on June 29 which operates non stop until September 12 between London (Kings Cross) and Edinburgh (Waverley) conveying through coaches to Dundee and Aberdeen. The 392½ miles to Edinburgh are covered in 6¾ hours entailing an average speed of 58 m. p. h. and making the run the world's longest daily non stop journey. The northbound train leaves Kings Cross at 9-35 a. m. and reaches Edinburgh at 4-20 p. m. The Aberdeen portion arrives at Dundee (Tay Bridge) at 6-44 p. m. and Aberdeen at 8-38 p. m. Scheduled timings for the southbound train are:—

Aberdeen	dep. 5-50 a. m.
Dundee (Tay Bridge)	dep. 7-45 a. m.
Edinburgh (Waverley)	dep. 9-45 a. m.
Kings Cross	arr. 4-30 p. m.

The service is thus 21 minutes faster northbound and 22 minutes faster southbound than that given last summer by the "Capitals Limited" which it supersedes.

Although the streamlined "Coronation" before the war took only six hours between London and Edinburgh, with two stops, the "Elizabethan" has the fastest schedule for the non stop working. "The Flying Scotsman" began to run non stop to Edinburgh in 1928 taking 8½ hours. In 1939 the time was seven hours. The "Elizabethan" is made up of eleven coaches weighing about 400 tons and is worked by one of the class "A4" Pacifics with corridor tender. As before on non stop runs the crew from Haymarket Depot, Edinburgh, travel as passengers from Kings Cross to Tollerton, north of York, where the Kings Cross men are relieved the latter return to the train and continue as passengers to Edinburgh. The stock used is that built for the East Coast route

by the L. N. E. R. after the war and redecorated for the new service. Both restaurant and buffet cars and ladies retiring rooms with attendants are included. Seats are reservable in advance.

Detection of flaws in rails has always been difficult especially when they occur at the ends of rails, between fishplates. In the United Kingdom the method used is visual and has the disadvantages that only when cracks have grown to a considerable size is it possible to see them and then only if they are not concealed by dust and dirt. Often only quite large cracks are discovered after derailed joint inspection entailing thorough brushing and cleaning.

Recently the Audigage flaw detector, a product of Branson Instruments Inc., of Stamford, Connecticut, U. S. A. has been produced and London Transport Executive is using one of these instruments. It comprises a small, battery operated ultrasonic frequency generator and receiver, carried in a 11½ lb. pack on the operator's back, a crystal in a special holder on the end of a long handle and a pair of headphones. The crystal is applied to the head of a rail and the presence of a crack is indicated by a lowering of a continuous tone produced in the headphones by a perfect rail.

The instrument is operated by three 1½ Volt and two 67½ Volt batteries and it contains three 1U4 valves mounted on a shock proof sub panel in the main housing. Mounted on the housing are tone and volume controls, milliammeter for battery testing, socket for the headphones and multipoint connector for the crystal. The main on and off switch is a mercury contact in the crystal housing and switches on only when the crystal container is held in the verticle position as for use. The set is placed in a knapsack, control panel upwards, the headphones plugged in and the crystal cable connected so that it trails over the operator's shoulder. The crystal is placed on the rail head on which a thin film of oil has been placed to ensure good contact, tone and volume controls adjusted to suit the operator who then moves the crystal along the rail surface. The ultrasonic beam travels down through the rail until it meets a surface that will reflect it back to the receiver. This would normally be the bottom of the rail but in a cracked rail the wave is reflected by the flaw and a change in tone is produced in the headphones. The degree of change is regulated by the distance of the crack from the top of the rail: if it is near the top there will be a great change in tone. The fishplates

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SIGNALLING AND INTERLOCKING

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

Chapter 9. Point Connections.

IT has been explained in Chapter 1 that this work is mainly intended for those not in the Signal and Telecommunication Department. It is therefore not intended to go into the technicalities of signal and point connections but rather to describe their general principle of operation and the main parts involved.

Where two tracks join together, the rails have to be laid down so as to ensure that the vehicles can run on either line as desired. The junction is effected by means of points. There are two rails, called switch rails, free to slide, which are planed down to a sharp edge. The position of these rails determines the direction of a vehicle which runs over them in the facing direction. Points are generally classified as facing points and trailing points. They are called facing points when a train travels towards them in the direction which admits of its being run to either of the diverging lines. A train running from one of the two lines in the converging direction is said to trail through the points. They are therefore called trailing points. So far as possible crossovers and other points that are used for shunting are laid in a trailing direction, it being standard practice to reduce the number of facing points in a main line to the minimum.

As has been explained in Chapter 1, the distance from which points can be manually worked by rodding is limited by friction, the weight of the rodding etc. Legislation is also imposed to prevent

the distance being exceeded. Paragraph 6 of the Ministry of Transport Requirements (United Kingdom) lays down a distance of 350 yards. The Manual of Instructions for the installation and maintenance of Signalling and Interlocking, Indian Railways, lays down a distance also of 350 yards for points worked by one lever and locked by another and of 200 yards where one lever performs both functions. An Addendum to this paragraph issued in 1935 increased the distance to 500 yards and 300 yards respectively when levers with a longer tail were used.

At any pair of points, should both of the switch blades be close against the main rails (these are called stock rails) a vehicle in running over them in the facing direction would mount one or both of the blades and possibly damage them. There is also the possibility of the vehicle coming off the rails. Should both the blades be standing away from the stock rail, a vehicle running over them in the facing direction would drop off the rails. However, at ordinary points, one blade or switch must be tight up against the stock rail whilst the other must be standing away from its stock before a vehicle can run over them with safety. Both switches must work together. Legislation requires that there shall be at least two connecting rods, commonly called stretcher rods, joining the switches together. These rods are designed so that the switch that stands open is about

(Continued from page 14)

do not affect operation as the bolt holes give a quickly recognised tone. London Transport has been using the instrument for about three months. In the first three weeks of use some 15 miles of rail were inspected and several minor defects discovered which would not have been revealed during visual inspection.

A period when speed was frowned on in high places is recalled by some of the items displayed at the "Royal Journey" exhibition at Battersea Wharf. A letter from Osborne in the exhibition from Queen Victoria's equerry, the Hon. Alexander Gordon complains that a railway director had given "the

gratuitous piece of information, which very naturally alarmed her Majesty, although it was probably incorrect" that on one journey the train had been "driven at the rate of 60 miles an hour". The letter said that on no account in future was the speed of the Royal train to be increased to make up lost time.

A more drastic expression of displeasure is a notice of a Shah of Persia's journey from Victoria to Portsmouth in July 1873. The Shah was alarmed by the speed of the train. As soon as he set foot on the platform he demanded the immediate execution of the driver!

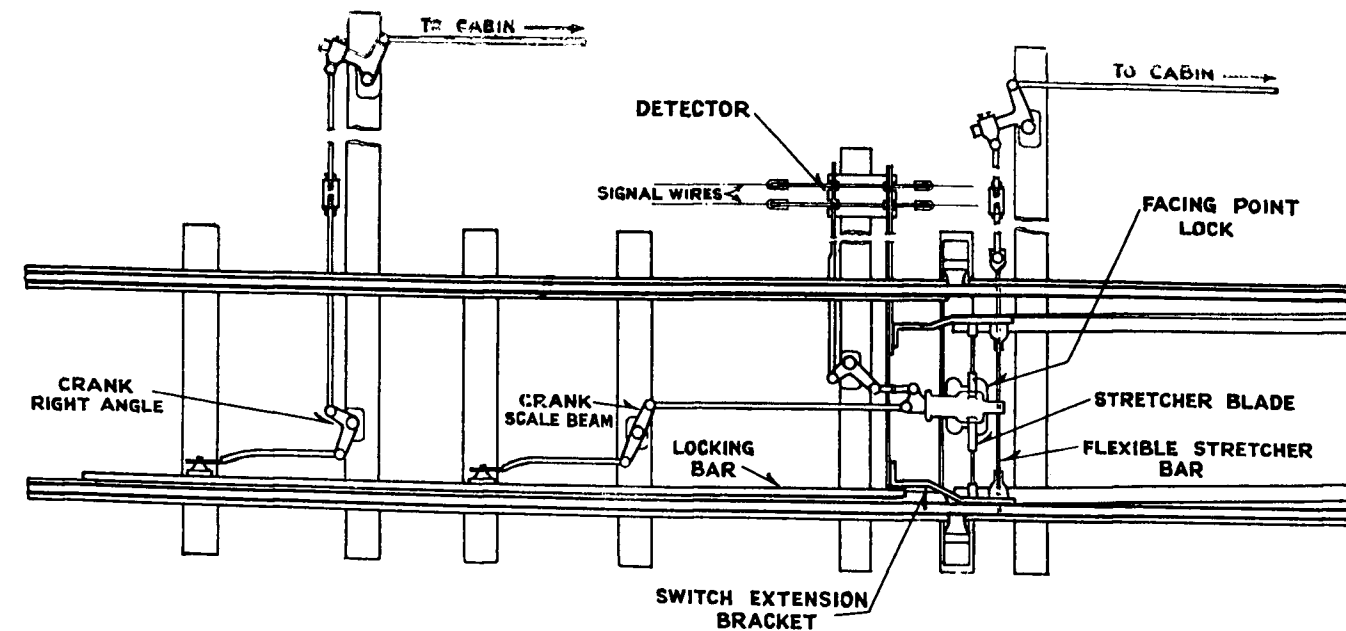
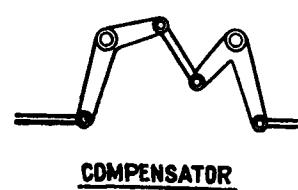
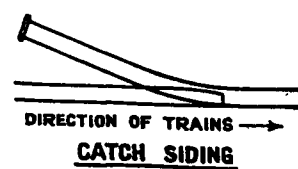
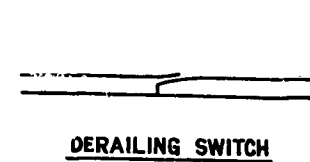
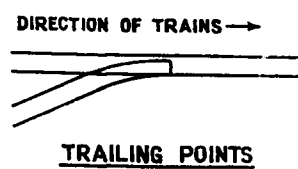
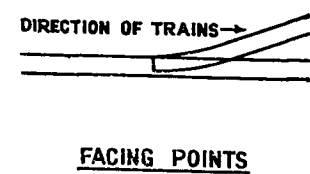
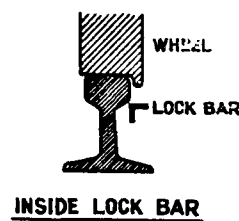
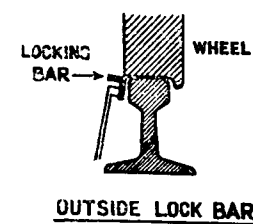


DIAGRAM OF FACING POINT LAYOUT.



4 inches from the stock rail at the tip of the points. This is for standard gauge, 4 ft. 8½ inches, it is more broad gauge and less for metre.

Where points are run over in the facing direction by passenger trains, legislation compels the provision of facing point locks, locking bars and detectors. The facing point lock prevents the points from being moved either by accident or by anyone attempting to operate them from the signal box so long as lock bolt is in the bolted position. It also ensures that the point switch is locked tightly against the stock rail even though the rodding may have accidentally become disconnected. The switches are connected together by a stretcher bar about 5 inches from the tip of the switches. This stretcher works in a casting bolted to the sleepers and the locking bolt enters notches into the stretcher blade there by locking it, and the switches, either one way or the other. It may here mentioned that points are referred to as lying normal or reverse. The normal position is determined by the largest number of movements required to be performed over those points in one position. For example, if during a 24 hour cycle 50 movements took place in one position and only 20 in the other then the position requiring 20 movements would be the reverse position.

On some railways the stretcher bar is solid, on others a split stretcher is used. In this latter case one bar is secured to each switch while they are rivetted

together in the middle. The facing point lock bolt is driven in and out of the stretcher, to lock or unlock the points, by being attached to the locking bar. This is a device for preventing the signalman from unbolting the facing points whilst a train is standing or running over them. There are two classes of lock bar, inside and outside. The inside lock bar is fitted to the rail so that it engages with the flange of the wheel while the outside bar engages with the tread of the wheel. The lock bar is generally composed of tee or angle section iron and the length depends on the length of the greatest distance between the wheels of the vehicles in use on the line. These lengths vary and the British standard is 40 feet. Generally the usual length is from 40 to 42 feet. The bar is supported by short levers or rockers which work on pins fixed in clips bolted to the rail. It is so arranged that when the bar is moved in the same direction as its length it rises slightly. This is effected by the rockers moving in an arc of a circle. Normally the bar is down clear of the wheel flanges but when it is moved it rises up higher than the flanges so that should any wheels be on the bar it is impossible for it to be moved up to unlock the points.

Every facing point has to be provided with a point detector. This is a casting or box like construction fixed outside the track but close to it, usually on the end of the sleeper. There are two detector blades, one fixed to each switch and they both enter the casting or box. Also in the box are other slides fixed at right angles to those coming from the point switches. These slides are attached to the signal wires so that they travel backwards and forwards as the signal is pulled off or replaced to danger. The point detector slides have knuckles cut in them, either to correspond with the normal or the reverse position, as the case may be. The signal slides have projecting pieces or dogs fixed to them. These travel through the knuckles in the point detector slide when the signal is pulled off. It therefore follows that if the points were lying the wrong way, or incorrectly set, the signal could not be pulled off as there would either be no knuckle, or an imperfect knuckle, which would prevent the slide or dog entering it. If there are two or more signals reading over points, the dogs and knuckles are generally of different size and section. The point detector slides are adjusted so that if one or the other switch is gaping by ⅜" the signal cannot be pulled off. As a further precaution, the position of the facing point lock is also detected. This is also done by a slide which passes through the same

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detector. If the facing point lock is not correctly home, locking the points, the signal cannot be pulled off since there would be no knuckle in the detector for the signal slide to pass through. It will thus be seen that every precaution is taken with facing points. In the first place, in the signal cabin, the signal lever cannot be pulled unless the concerned point levers are in their correct position. At the points the switches have to be lying the correct way, and properly locked, before the signal arm can be lowered. The points are securely locked by the facing point lock and the signal slide passing through the detector. It is also impossible to move them while the train is passing over them. At all points one or more steel tie plates are used. These are laid on top of the sleepers and the slide chairs, on which the stock rails rest and the switches work, are bolted to it. The facing points lock and detector is also secured to it.

The point switches are worked backwards and forwards by cranks which are in turn operated by rodding which is connected to the tails of the point levers in the signal cabin. With circular rodding it may be hollow or solid and is generally 1¼ inches in diameter. Some railways use rodding of tee or channel section. The latter section is practically standard on British Railways. The rodding runs on rollers secured to frames fixed to bases buried in the ground. The type of frames and bases varies with different railways. When there is a run of rodding exposed to the sun or open air it continually varies in length owing to variations in temperature. Unless some means is found to compensate for this variation in length it would be impossible to keep the points properly adjusted. For this purpose a compensator is used although the same purpose can be achieved by placing the cranks in the run in a certain manner.

Trailing points which are not used for shunting are generally left unlocked. There is no locking bar or facing point lock provided. The point lever in the cabin is merely locked by the signal lever reading over them. If a shunt back signal is placed at them then a facing point lock and locking bar would be used. It is not usual to detect shunt signals since the facing point lock itself is a species of detector for the lever working it cannot be fully operated unless the facing point lock plunger has correctly entered the knuckle in the split stretcher and travelled its full length. Where trains travel over trailing points as a trailing move only it is quite usual not to bother to work them

The Evolution of Railway Security

By Maj. H. L. Finnimore, Supdt., Watch & Ward, Western Railway.

THIS year, 1953, our railways have celebrated their first centenary. On such an occasion it is customary to see and hear something about the centenarian and our railways, with justifiable pride, have put themselves on parade. An excellent exhibition at New Delhi has recently concluded and the exhibits are now to be displayed around the country in special trains; newspapers and magazines have devoted special editions to the railways and all aspects of their work have had a healthy airing; all except one, railway security. Expressing his views on the general aspect of security in the Journal of the United Service Institution of India in 1950, Major-General Sheodatt Singh, Director of Intelligence Army Headquarters said, "It is a matter of regret that we as a nation in India are not security minded. We are simple and do not keep even our family secrets. There is, therefore, great scope for training our national character to be more security minded". The progress that has been made in railway security in a hundred years does not show the General to have been wrong in his assessment of our security consciousness. It would however, only be fair to state, in regard to railway security, that there were special circumstances, as will be seen, which encouraged security "laissez-faire".

It was in 1882, within thirty years of the inauguration of railway operation in the country and while the volume of goods carried was still a long way from what it has grown to be today, that the Government of India enunciated the principle that railway companies were responsible for the protection of their own property and the goods that they transported. One

result of this statement of policy was that railway companies were compelled to employ chowkidars. Each department on each railway engaged that number of chowkidars that was deemed necessary for the protection of its property and it was natural that the traffic department, which was concerned with the custody of the goods each railway carried, employed the largest number. No special qualifications were considered necessary for chowkidars, and they were appointed without reservation and with as little discrimination as other inferior staff.

During World War I the security protection that was afforded by the railway chowkidar proved to be inadequate. Thefts from goods in transit were very frequent and there were many complaints from the public. The first recommendation of the Railway Police Committee that was especially appointed by the Government of India to examine the position in 1921, was that each railway should have a Watch and Ward organisation as a separate unit of the railway. This recommendation was implemented only to the extent that an officer, designated the Watch and Ward Superintendent was specially recruited for each railway from the Indian Army or the Indian Police and the chowkidars of the traffic department were placed under him. Later, the chowkidars of other departments as well were put under his control. The separateness of the unit in any of the factors that make for a separate entity, such as separate recruitment, training, and discipline rules, and executive powers for the fulfilment of its task, was not established. The subordination of the unit to and its association with one or another of the formal depart-

(Continued from page 17)

from the cabin. There is no connection to them at all, the first wheels of the locomotive pushing the point switches over from one side to the other. These are known as unworked points

In order to isolate sidings from running lines so that vehicles standing on them cannot escape and foul a passing train derails are used. These consist of a single switch which, when open, would

(To be continued)

cause a vehicle to drop off the rail and derail, if it started to move. Derails are also used on a running main line when heavy gradients are experienced and it is necessary to trap wagons or carriages that may have become disconnected from the train and might run back and collide with a following train. Trap or catch sidings would more generally be used where there is room to provide them but where there is not a derailing switch only is used.

ments on each railway, pushed its individuality and its utility further into the background. The original precedent of appointing only officers of the Indian Army and the Indian Police to be Superintendents, was also in time either forgotten or overlooked, and was not again resurrected until 1948.

In a hundred years of railway operation therefore, railway security has advanced two stages. The first stage was where, following the policy decision by the Government in 1882, chowkidars were appointed by the railways, and, the second stage where, following the Railway Police Committee report of 1921, separate Watch and Ward Officers were recruited and the chowkidar, given a distinctive uniform, was henceforward called a watchman. That the results from these first steps in security are inadequate today can be seen from claims compensation figures. Our railways pay now in claims each year what, in the immediate pre-World War II years, they would not pay in almost a hundred years. Of its own property that is stolen each year from the railways there is no accurate assessment, but there can be little doubt that the value is considerable. Of only one item, coal, the value runs to many lakhs of rupees. When progress in other departments of the railways in India has kept pace with developments in other countries, what is the reason for the comparatively slow progress in the sphere of railway security?

It is an historical fact that the inauguration and the expansion of railway transportation took place during the period of British preponderance in India. It was British capital and British enterprise that built and ran the railways, and till the twenties, the railways were officered almost entirely by the British. In the public mind there was a continuous identification of the railways with the government. Among railwaymen too there was a considerable consciousness of the powers that were exercisable by officers and senior subordinates. It is therefore understandable that railway property and the goods the railways carried had, until recent years, the protection of the goods of the master. Their security was taken much for granted and the railway watchman was considered more a gesture than a necessity. Judging from results such an attitude was not unreasonable. Excluding the World War II years and the post-World War II years, it was only during the last years of World War I and a couple of years thereafter, that railways suffered to any considerable extent from the depredations of the dishonest. The incentive there-

fore for stepping-up and improving railway security did not exist.

During the past fifteen years there has been an increasing change in the mental approach to railways. There has been a growing awareness of their public utility aspect and with that growth has come a lessening of the regard in which railway property was previously held. No longer are railways regarded as something apart or as an instrument of rule of a bureaucracy. The railways have lost their one time sacrosanctity and are now identified as part of the life and the toil of the people. As the knowledge of public ownership spreads it is to be expected that the protection previously afforded to railway property and the goods the railways carry, on the basis of the master's goods, will increasingly disappear. What then is to happen?

The reorganisation of railway Watch and Ward is under active consideration and it is intended that the Force that will emerge on each railway in the future will be in a position to perform its task more effectively. But however much Watch and Ward Forces on railways may be re-organised and strengthened, a really high standard of security will not be attained till all railwaymen develop a greater sense of security consciousness. Just as the health of a nation does not depend alone on the number of its doctors and its hospitals but on the general concept of physical fitness that is held by its people, so also does the security of railway property and the goods that railways carry depend not alone on protective forces but also, and to a greater extent, on the level of security consciousness that prevails among railwaymen. It is more than ever necessary today as, on the one hand, the old concept of the master's goods diminishes and, on the other hand, public ownership of the railways is increasingly realised, that security consciousness spreads and intensifies. How is this consciousness to be aroused and sustained? The answer to this question, if it can be found, will conserve expendable railway property, save more than five crores on the railway budget, and will earn for the railways an inestimable amount of goodwill from the mercantile and trading public.

A probable solution would be to form among railwaymen an all-India Association of Railway Wardens and Custodians. It was the St. John's Ambulance and similar associations which, by sowing widespread

a knowledge of first aid, created and fostered in many countries first an appreciation and then an urge for physical fitness. In the era of the motor car and other fast moving traffic, it has been the formation of "Safety First" associations and the rules they have propagated, that has helped so much to keep streets and roads free from accidents. An Association of Railway Wardens and Custodians, open for membership to railwaymen of all ranks, could well provide that security consciousness which is so urgently needed today. Departmental rules for the protection of railway property and the goods that railways carry,

are many but few railwaymen know them all. Properly put together they would form a sizeable booklet, the knowledge and practice of which could be a requisite to membership. Effectively and attractively organised from the highest railway level and to include the humblest railway workman, such an association would afford every railwayman, whatever his status, a proud opportunity of identifying himself more closely with the protection of his railway. One thing is fairly certain, that railway security will only complete its evolution when the bulk of railwaymen make common cause with it.

NEW LINE ON WESTERN RAILWAY

The Railway Board has decided that a traffic survey should be carried out by the Western Railway for a metre-gauge railway line from Raniwara to Bhiladi. The line will be 43.6 miles in length, and would connect the Kandla-Deesa line with Raniwara. When completed, it would join the metre-gauge system in Jodhpur with the metre-gauge systems in Saurashtra and Kutch.

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PUBLIC LETTERS PREFERRING CLAIMS FOR COMPENSATION

In view of a very large number of letters bearing on Claims having to be dealt with daily, considerable delay occurs in connecting letters from Claimants to the relevant files when the claimants do not furnish full Invoice or Way-Bill particulars and this Office previous reference.

Claimants are requested to assist the Administration to avoid such delays by invariably :—

- (1) *Quoting in all their communications INVOICE NUMBERS in the case of Goods and WAY-BILL NUMBERS in the case of parcels, instead of giving Railway Receipt numbers ;*
- (2) *Furnishing the date of booking, names of forwarding and destination stations and full description of the consignment ; and*
- (3) *Quoting previous references, where available, from this office acknowledgment cards or letters.*

Claimants are also requested to address separate letters on claims pertaining to different consignments ; but there is no objection to these separate letters being put in the same Cover.

Chief Commercial Superintendent.

INDIA NEEDS MORE ROADS

INDIA has at present 2,55,000 miles of roads of which about 36 per cent. are surfaced. This is not sufficient for a big country like India with an area of 1,139,000 sq. miles. There is an urgent need for more roads, and as the Prime Minister put it, "roads of all kinds, not only very up-to-date and bituminised or cemented roads but roads of any kind to open out vast areas of this country which are closed up today and to which you cannot go unless you walk or ride some kind of an animal, either a horse or an elephant".

From the point of view of defence and peace-time progress alike, roads are indispensable. They can help to tap the country's potential wealth and solve its food problem. In India for every 100 acres of land sown there are 50 acres lying uncultivated. The main reason for this is that it is uneconomic to cultivate these lands due to the lack of roads linking them with marketing centres. On the other hand, it is only by providing an easy access to raw materials that India can become industrialised. The development of roads must, therefore, precede all rural or industrial development in this country.

BLUE-PRINT FOR ROAD DEVELOPMENT

India's Chief Engineers in 1943 prepared a blueprint for road development. Popularly known as the 'Nagpur Plan', it visualised the development in a period of 10 years of a total mileage of hard-surface roads from about 66,400 miles to 1,22,600 miles; of low type roads from about 1,12,000 to 2,07,500 miles and the improvement of existing roads, wherever necessary, so that the road system would cater for anticipated traffic needs for the next 20 years. The objective underlying this Plan was that no village in a well-developed agricultural area should remain more than five miles from a main road, while in a non-agricultural area no village should remain more than 20 miles from a main road.

The Nagpur Plan still forms the basis of all road planning in the country. The Planning Commission have embodied the principles of the Nagpur Plan in the first Five-Year Plan.

SIGNIFICANT STEP

In 1947, the Central Government assumed complete financial liability for the maintenance and development of a system of trunk roads of about 13,400

miles, classed as national highways, or "main highways serving predominantly national, as distinct from State, purposes running through the length and breadth of India which together form a system connecting (by routes as direct as practicable) major ports, foreign highways, capitals of States and including highways required for strategic movements for the defence of India".

This significant step was taken in recognition of the fact that in the development of roads a national conception was necessary. It was also hoped that by relieving the States of expenditure on this item they would be able to devote greater attention to the improvement of district and village roads.

This mileage of 13,400 included at that time approximately 1600 miles of 'missing' road links and about 120 'missing' bridges over very large rivers in addition to many other bridges large and small. The progress of development of this system during the last five years although slow owing to the prevailing financial stringency, shortage of labour, materials and trained personnel has been steady, balanced and continuous. During the five years ending 1951-52, a total expenditure of Rs. 930 lakhs was incurred by the Central Government on the development of this system and Rs. 1,311 lakhs on maintenance and repairs. As a result, 160 miles of new roads and 17 very large bridges, besides numerous smaller bridges, were constructed and 1,315 miles of road were improved.

TEMPO OF WORK INCREASING

The current Five-Year Plan for the period 1951-52 to 1955-56 provides Rs. 27 crores for the development of national highways, of which about Rs. 3 crores were spent in the anticipated expenditure during the current year is Rs. 4½ crores. The tempo of work is increasing and will reach its peak between the third and the fourth year.

The work in progress on three important highways are worth of mention. On the Bombay—Ahmedabad section of the Bombay-Rajputana-Delhi highway 120 miles of new roads with bridges are under construction at a cost of about Rs. three crores. On the Calcutta-Siliguri highway improvement and construction of 82 miles of missing links are in progress. This will cost Rs. 125 lakhs. Some 75 miles of missing links are also nearing completion at a cost of about Rs. 65 lakhs on the Orissa section of the Bombay-Calcutta highway.

The two important highways that have recently been completed are the Jullundur-Pathankot and the Assam Access highways. The former which links Kashmir with the rest of India cost Rs. 2½ crores and was opened to traffic in 1952. The Assam Access road which had to be realigned after partition to provide road connection with Assam entirely through Indian territory cost Rs. 106 lakhs and was opened to traffic in 1950. Modernisation work on this road costing another Rs. 30 lakhs is still in progress.

There are at present under construction 20 major bridges of more than 22,000 running feet, and costing altogether Rs. 3.40 crores. A few of the important ones are the Gowtami-Godavari, Pennar, Palar, Champavati, Mahanadi, Brahmini and Baitarani. Some of these bridges are being built to designs which are new to India and the Palar bridge near Chingleput will perhaps be, for a short time after completion, the longest pre-stressed concrete bridge in the world. The construction of 410 miles of new sections of national highways is in progress and, in addition, 1320 miles are being improved.

The Five-Year Plan provides for the completion of the work in hand and the taking up for construction of 450 miles of new roads and 43 very large bridges besides a large number of small bridges. In addition, about 2,200 miles of roads are to be improved. Of this programme about two-thirds will be completed by 1955-56, and the rest will be in progress.

HELP TO STATES

The Central Road Fund was created in 1929. From this over Rs. 32 crores have so far been allocated to State Governments for road development. The Fund is now a powerful source of help to the States as it provides something like Rs. 4½ crores annually for aiding the development of roads other than national highways. During the Five-Year period 1947-48 to 1951-52, a total expenditure of Rs. 721 lakhs was incurred from the Central Road Fund in Part 'A', 'B' and 'C' States and schemes costing in all Rs. 1,628 lakhs were approved by the Government of India. Some hundreds of road development works are in progress in the various States financed from the Central Road Fund either wholly or partly, and for these a provision of Rs. 3.74 crores has been made in the current year. Grants aggregating nearly Rs. 150 lakhs from the Central Road Fund Reserve have recently been offered to States having poor communication facilities and they have been invited

(Continued on page 24)

to put forward proposals for suitable road and bridge schemes which could be financed from these grants.

According to the schemes envisaged by the State Governments and to be financed by them, the mileage of metalled roads will increase from 10,007 miles in 1950-51 to 12,453 miles by 1955-56 in Part 'A' States and from 7,588 miles to 8,120 miles in Part 'B' States. During the same period the mileage of unmetalled roads will be reduced from 2,199 to 757 miles in Part 'A' States and 526 to 206 miles in Part 'B' States.

The road development plans of Part 'C' States are being framed to provide for the construction of as many new roads as possible for opening up areas, which are at present inaccessible, while improvement and reorientation of the existing roads to meet the changed administrative requirements and the economic development of the areas is also being emphasised.

The Roads Organisation have formulated a 'model scheme' for village road development on a co-operative basis and has made an initial offer of a grant of Rs. 15 lakhs from the Central Road Fund Reserve as a contribution towards specific projects. There is considerable scope for the development of village roads on co-operative basis by mobilising the local population for executing local projects.

The above programme is exclusive of likely road development under the community development projects. Tentatively it has been estimated that 16,000 to 17,000 miles of *kutcha* roads will be constructed in the village units falling under those projects.

OPENING UP LAND-LOCKED AREAS

The Transport Ministry assumed administrative control over road development in all Part 'C' States (except Coorg). Andaman and Nicobar Islands, North-East Frontier Agency, and Sikkim from April 1, 1950. Since then a total expenditure of Rs. 195 lakhs has been incurred on road development and Rs. 159 lakhs on maintenance and repairs up to March 31, 1952. The anticipated expenditure during the current year on development works is Rs. 180 lakhs. Most of the roads which are being constructed in the newly-formed Part 'C' States are designed to open up 'land-locked' areas and to facilitate the physical and economic integration of these States as well as to meet the changed administrative require-

RAILWAY EDUCATION IN INDIA (III)

THE college should have a laboratory, uptodate and well-equipped, with working models of every mechanism in use. There should be an engine shop and a carriage and wagon shop, an engine, carriage or where an engine, carriage or wagon can be taken off into parts and reassembled, and their inner working can be demonstrated. The models of tracks, with fully equipped signalling arrangements, manually operated, mechanically operated, and electrically operated together with the various types of stations according to signalling and interlocking arrangements, will be very helpful to teach safety operations in reception, despatch and passing of trains. The best thing is to give the college a 10-mile (or more) stretch of full size railway with stations of different types of signalling and interlocking with engines, coaches and wagons, with a small workshop at one of the termini, rather than permit the trainees to experiment and learn on the actual railway line where public traffic is handled. There is nothing like doing for learning; learning by doing is a good old efficient method.

The college should have a library and reading room of the latest pattern, where shall be gathered a large number of volumes on the technical subjects pertaining to the subjects taught. The reading room should regularly subscribe for the latest and uptodate technical journals of the world dealing with the transport subjects handled in the college. The free use of the library and reading room should be encouraged both on the part of the teachers and the trainees, so that they may know what is happening in the rest of the world in the field of transport, and so become uptodate in their knowledge.

As often as possible lecturers or experts from other railways should be invited to deliver lectures on various subjects connected with the transport and transport world. The officers of the railways should

take a very active part in guiding the courses, their syllabi, etc. to the requirements of each department.

Every course shall culminate in some form of test or examination written or oral, for whatever be the evils of the examination system it has to be adopted to gauge the worth and comparative merits of the candidates. It would be preferable to an examining body or committee of the senior officers of the railway, who should take a delight in setting question papers and valuing them occasionally. Being men who are from day to day in the thick of problems arising out of situations actual at stations, they will be able to lend a practical air to the questions, and know exactly what they want from their future personnel. And the teaching and training in the class rooms and lecture halls will naturally bend towards such aims.

Besides being a teaching body the college should also be a centre for reasearch work with testing plants, appliances, reference books, etc. where an earnest effort can be made to contribute to the enrichment of the sum total of the world's knowledge or the world's contribution of new knowledge can be assimilated or tested and improved upon, or experiences can be pooled to theorise and test the theories, and thus build up fresh knowledge.

The college should run a Magazine of its own, which shall record not only all the activities of the college, but shall contain original articles on various subjects, on the new theories conceived in the minds of enthusiasts, and results attained by patient labour, and so on and so forth. Its pages must be open alike both to the teachers and the taught.

As for the other function of the college, namely the Refresher Courses for those already in service, who are ambitious to learn more or whom the

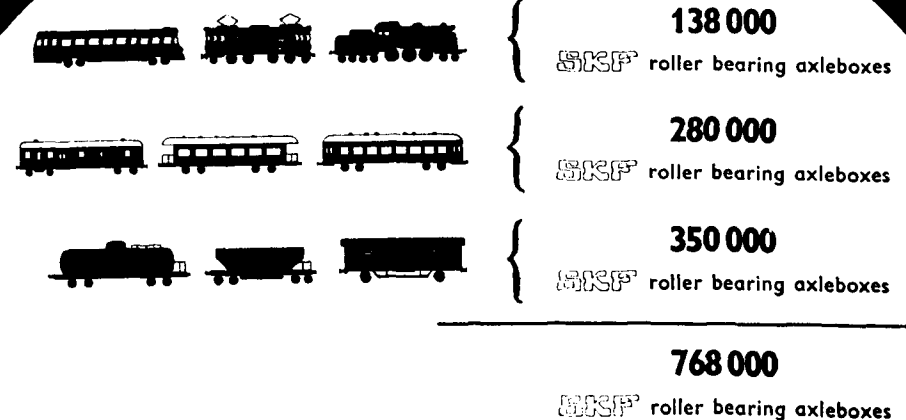
(Continued from page 23)

ments. Amongst the important roads under construction are also several that are being tracked through jungles and mountains in the tribal areas and frontier tracts of Assam.

The Central Government's plan also provides Rs. 4 crores for the development of certain roads of inter-State importance, other than national high-

ways, which are required to link up some of the isolated States in India and to meet the administrative and strategic needs. These roads are the Passi-Badarpur road together with the Assam border-Agartala road, which will provide through road connection between Shillong and Agartala, the Pathankot-Jammu road and the West Coast road in Bombay and Madras States.

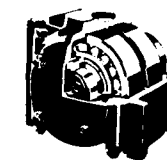
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administration wants to equip better, this has to be carefully planned, because these are men actually engaged on work, and they have to be relieved by equally competent men, before they can be got at the school or college. They should be brought in in convenient batches at a central place, if taking them to the school or college will involve tedium, cost and long journey. They should be brought in at stated intervals and given a course of lectures, accompanied by practical training or demonstrations in the laboratory or model room. As many courses will have to be devised as there are categories of jobs; perhaps in some rare cases it may be possible to club together two or more categories for the same common subject, e. g. Safety Rules for Station Masters, Guards and Drivers. In all important cases taking the examination must be made compulsory, and those who pass must be given a certificate; and this event shall find a place in their Service Records. Those who pass creditably must receive encouragement at the hands of the administrators. Perhaps it would promote a healthy rivalry and make for rapid improvement, if the system of prizes, commendations and merit certificates be introduced, or if due cognisance is taken of their merit while making promotions, for which merit is essential.

The courses of training and the system of examinations should also afford the sure and quick means of excluding or detecting the incompetent and the useless. There must be in the system of training devised a barometer to gauge the ineligibles. There was a time in this country (and it was not in the remote past) when anybody and everybody was considered suitable enough for railway service. That time is long past. But that generation of staff is still in service, though fast vanishing. Railway service is technical service, lot of technical skill of a specific variety is required to discharge the specialised functions of a railway. Even within its fold a railway may exercise discretion. A man suitable for commercial work on the railway may not be quite so suitable for operation work. He that is suitable for yard work may not be quite so suitable for indoor work. One may be clever at rates and routing, but not so for arranging train movements, economic marshalling, or train control. A lot of weeding out on transplantation will be found necessary. There must be a small organisation competent enough to test for the existence or absence of the required faculties in the personnel. It must have facilities for labelling who is fit for what and who is not fit at all for railway service.

The railways to which the college or school is a subsidiary or adjunct must place at the disposal of the

authorities of the Institution a few scholarships, medals and prizes, both for freshers and refresheres, the winning of which will in course of time, as traditions are built up, be deemed as marks of honour dignity and prestige, to promote a healthy rivalry amongst the staff.

One factor that made for good and efficient service by the Indian Railways in the past, though they were in their infancy, was the special preference given to sons of employees. According to the views of the present government this was deemed preferential treatment, and special consideration has been done away with. It may appear sound, and the applicants who are not sons of employees may feel complacent over the government's decision, but the fact cannot be overlooked that a valuable asset, a natural psychological factor fraught with great potentialities for the good of the country, has been thrown away. In the principle "first preference to sons of employees, all others factors being equal", there is much more than appears on the surface. The son of an employee inherits the father's tastes and love for the father's profession—the reasons are psychological. If the father's service has been of an approved nature, the son's application merits a sincere consideration. The father's blood runs in the son's veins. The father and son have been in perpetual contact with each other ever since the son came into this world. The child is born and bred, lives, breathes and moves in the father's railway atmosphere. Every thought, word and deed of the father smacks of the railway atmosphere. His entire blood is railwayish blood. His heart beats in the railway way. The railway has through years become his second nature. The railwayishness has entrenched itself in him. Naturally, he becomes when coming of age more fit for a railway job than the lay father's son. Why throw away such a natural asset, and such an upbringing and ability? Why not harness such natural power, easily and cheaply obtained, such a natural background, not give-able at all by clusters of universities or synods of professors, why not press it into the service of the nation? The receptiveness is there in plenty; a little scientific training or tuition will soon shape and fit it to perfection.

As important as the initial professional training for the recruits to the railway service fresh from the schools and colleges, if not more important than it, are the refresher courses of training and technical education for the men already in the various categories of service. They should be not merely refresher courses but also courses designed to fit the eligibles to do greater tasks and shoulder higher

responsibilities, courses designed to discover latent talents and to equip for higher posts, according to a carefully well-thought out plan. The college or school attached to the railway for staff training must have an organisation suited to these special courses. In this matter it may be very difficult and expensive for a railway to assemble all its staff, or even a very appreciable number of them at the school for refresher courses. The school is far away from many stations, and much time would be lost in travel to and fro. The District Officers will have to find relief for the trainees while the trainees are away at school for the refresher courses. The trainees being in regular service may have to be given the usual travelling and other allowances. Even if it is possible to gather them all, the school cannot satisfactorily cater to such a vast number. The suggestion to overcome all these difficulties at once is to take the school to them, say to their District or Sub-District Head Quarters. Two bogie saloons or carriages can be fitted up as class rooms to hold about 30 with folding stools, blackboards etc. and placed in charge of Senior Lecturers—one carriage to move from centre to centre on the Metre Gauge, and the other to move from centre to centre on the Broad Gauge. The itinerary of each carriage can be planned beforehand. While the school on wheels is at Guntakkal (say) as many staff as possible from Guntakkal and stations around Guntakkal will be gathered at other than the peak periods of traffic and the refresher classes conducted, the gathered staff being invited at the end of the course to freely question and get their doubts cleared. This series of lectures will go on until nearly all the staff in and around one centre is done with. The school will then move to another centre and repeat the courses. Thus the whole line can be covered according to a programme. In certain centres the school on wheels may not be necessary. There may be suitable railway buildings such as the Institutes and Clubs, where class-rooms and lecture-halls can be improvised. Such improvised class-rooms and lecture-halls may be sufficient only for the non-technical courses. In the case of the technical courses, such improvised rooms may not be sufficient, as models of tracks, carriages, engines, etc. may have to be fitted up for practical demonstration during lectures. Hence it would be highly desirable to have furnished and equipped lecture-halls on wheels.

A suggestion was made to the writer sometime back that there must be at the Head Quarters of each Railway an Organisation for Correspondence tuition, which will also be a Doubts Clearing Bureau. Doubts

and problems that confront staff in actual practice in their day-to-day work at stations and yards, which could not be cleared satisfactorily by the local experts should be passed on to the Bureau, which should be able to offer correct and satisfactory answers within a reasonable time, contacting the Departmental and other higher authorities, where necessary. It was alleged that doubts are not as a rule kept in mind by staff for clearance when suitable opportunities offered, but that they go uncleared as also that wrong practices go uncorrected, sometimes with uncanny consequences. Free expressions of opinions and doubts must be encouraged, as some of them might contain potential causes of accidents or drain in revenue. Where knowledge, wisdom and efficiency are concerned, there should not be any inferiority or superiority complexes. Both are equally harmful, especially in the world of transport matters.

The Correspondence tuition has its virtues no doubt. Instruction sheets from time to time in the hands of staff for study and periodical references are very valuable, for the written word is more authoritative and can be a constant companion, whilst oral tutitions often escape from the minds. Further, as Bacon said 'writing maketh a man exact'. Instruction sheets can reach everybody, even those who could not attend the oral lectures.

After all is said and done, the hard fact remains that safety really and ultimately lies in the hands of the Class IV staff; also the avoidance of Claims Compensation. As someone remarked, Classes I and II handle papers, Class III handles transport, and Class IV handles lives, limbs and commodities. How true! And yet how few amongst us realise it in our deeds! More serious attention than at present is essential for their recruitment, training and equipment. Time was when the uneducated and the unlettered had to be recruited and given what little training and equipment of knowledge they could pick up. But conditions have changed considerably; educated ones can be obtained, and such can absorb and assimilate more of the technical fare necessary. Courses of training—initial at the time of appointment, refresher courses in the middle of their careers, and promotion courses prior to their elevation to higher posts—all these are essential and feasible for them too. Only all instruction has to be in their local regional languages. Their number is legion, and so several centrally situated schools are necessary. Each District must have a school at its Headquarters, what used to be called the AREA

(Continued on page 28)

Growing Wellbeing of Railway Workers

By Vasile Gandila

Dy. Minister of Railways of the Rumanian People's Republic

THE all-Rumanian conference of railwaymen, held in Bucharest on March 12-14 this year, constituted an event of outstanding importance for the development of the Rumanian railways. At that conference attended by nearly 800 delegates and 700 invited frontrank stakhanovites. State-Prize laureates, etc. Gh. Gheorghiu-Dej General Secretary of the CC of the Rumanian Workers' Party, Chairman of the Council of Ministers of the Rumanian People's Republic, enounced an extensive plan of action for raising transport work to the level of the tasks required by the national economy in full progress.

Based on that plan, also on the suggestions advanced by the participants in the Conference, the Government and the Rumanian Workers' Party issued jointly a decision for the advancement of the Rumanian railways and the raising of the living standards of the railway workers.

In compliance with the provisions of the decision, the Ministry of Railways has taken a number of measures tending to raise the acting capacity of the rolling stock, repair shops, depots, railway lines and telecommunications as well as of the construction-sites. On numerous station premises works are in course for increased loading and unloading capacity; on others such works have been duly terminated.

Simultaneously are being experimented several proto-types for radio-communication between the engine-driver and the marshalling chief also between the engine-driver and the signal-system operator.

At two of the Railway Ministry's construction plants work is under way for the erection of additional pre-fabrication workshops with a view to accelerating railway building. Likewise, preliminary plans are under study for the erection of a new locomotive works and one of railway wagons scheduled to operate at full capacity by 1956.

One of the outstandings tasks assigned by the decision is to form an increased number of high-level technical cadres, to promote the qualification of newcomers, to incessantly raise the material and cultural standard of all railway-workers.

Previous plans of training new medium and high technical cadres have been expanded. Already the rolls for acquiring higher professional training number 67,000 students, the full number as per plan for 1953.

Recently, in Cluj and Iasi projects were started on for the opening of two new institutions for training highly qualified railway engineers and specialists.

As from May 1, a new wage and salary scale has been introduced for the operating railway personnel. The new wages and salaries are fixed in accordance with the category of the work unit, place of work and assignment, and are scaled along a progressive scheme which takes into account qualification, degree of responsibility, importance of task, etc. In addition to the basic wage scale and prizes, the new remuneration system holds out a line of stimulative inducements, such as monthly cash extras in consideration of long-standing employment and monthly extras for raised qualification. Finally, monthly and annual-

(Continued from page 28)

SCHOOL. The activities of the several Area Schools will be guided and controlled from and by the Central School or College. Each Area School must have, besides the class room or lecture-hall, a bit of a model yard with running roads, sidings, points and crossings, signal equipments, etc. The emphasis must be more on the practical side than on the theoretical.

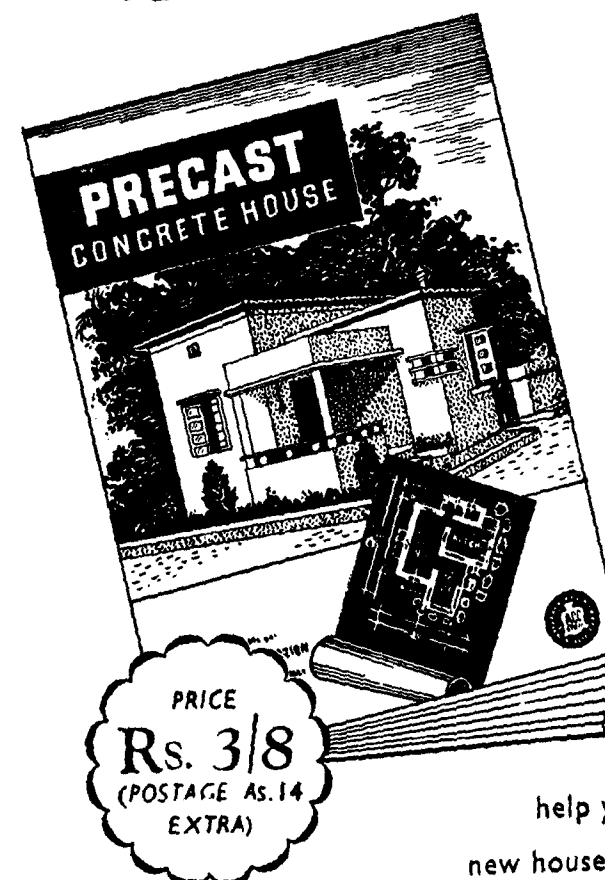
One great handicap is the absence of suitable textbooks on the various subjects written to

carefully planned syllabii. Railway Officers with insight and enthusiasm must come forward to write such textbooks, and the administrations must encourage them to write good ones.

Some food for thought has been offered herein in regard to railway education. It is hoped that the authorities will give thought and perfect the schemes of training for their staff in this most important national task.

(Concluded)

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prizes for flawless execution of the numerous basic railway tasks rewards the merits of the vanguard elements.

Its underlying principle being the socialist principle of remuneration in accordance with the quantity and quality of work rendered, the new wage scale noticeably raises the earnings of the railwaymen. Take, for instance, a pointsman. Since May 1 this year he has been receiving a ground wage increase varying up to 65 per cent, apart from the supplement for long-dating employment, the prizes and the monthly fixed reward for perfect work. The wage of a shunting chief of 6 years service is now 84 per cent higher, not counting prizes and the annual award for faultless work, award equalling a month's ground wage. A locomotive stoker with 6 years of service behind him is now drawing a salary raised by 56 per cent and, in addition, a monthly bonus of 10 per cent of his scale wage for improved qualification, plus a progressive reward for economy of fuel.

The new wage scale is a demonstration of the concern of the people's democratic regime of the Rumanian People's Republic for the advancement of the Rumanian railways and for the steady improvement of the railway workers' living and working conditions.

This concern is reflected also in the field of protecting the railway workers' health. This year a number of 37,000 railway workers will be sent on rest vacations to various mountain and seaside resorts. Stakhanovites will be sent to spend their holidays together with their families in specially retained villas. A number of villas have been reserved to accomodate railway women-workers, mothers of small children.

Further, the Railway Ministry has this year sponsored the establishment of summer camping colonies of its own, for the benefit of over 4,000 young pioneers, sons and daughters of railway workers. Likewise, 4,500 railwaymen's children will be sent to mountain and seaside resorts, at the expense of major railway establishments.

Striving for the continual advancement of the Rumanian railways, incessantly raising their own living standards, the railway workers in the Rumanian People's Republic are resolved to complete their assignments for the first Five-Year development plan in only 4 years and thus contribute to the flowering of their country, to strengthening the gigantic front of peace, democracy and Socialism.



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A brief description follows of the machines on display and of the accounts and statistical work to be demonstrated on them.

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The feeding, positioning and ejection of cards is automatic, as also the gang punching of information in one or more groups at a single stroke of the punch key. Other important features are the facility of rectifying involuntary errors before the card is punched, the automatic spacing of columns not to be punched, and the automatic repeat punching of cards as a whole.

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the only positive method of verifying the accuracy of punching.

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The Feature has invaluable uses in the correction of partly wrong punched cards and for the reproduction of damaged cards or of packs of cards for which the volume and incidence of work do not justify a more costly machine which can be used only for reproducing cards.

AUTOMATIC VERIFIER

This machine, which completes the link in the unique Powers-Samas method of 100 per cent independent verification, senses the punched cards at a speed of 200 cards a minute and inserts a distinctively coloured card wherever there is a card containing an error. At the same time, all the cards are automatically punched with a small hole at their extreme end to indicate that they have been mechanically verified, thus entirely eliminating the human element of hazard from the checking procedure which is also carried out immeasurably faster. During this process, the machine records the number of cards verified and the number of cards containing errors, so providing a ready and reliable analysis of the punching output and accuracy.

As a subsidiary operation, this machine can also pair two similar packs of cards.

AUTOMATIC SORTER

Groups cards in numerical sequence according to any desired classification at a speed of 40,000 card passages per hour, at the same time counting each batch of cards.

The operation of the machine need not be stopped to replenish the card magazine, fresh batches of cards being filled as the Sorting proceeds automatically. Various devices and attachment can be fitted to the Sorter for special sorting processes without impeding the speed of the machine; one such, the SHUTTER DELAY MECHANISM illustrates on the machine on display the facility of rejecting Master cards not

required in a particular tabulation, for example, Balance cards for unmoved Accounts.

POWERS FORTY TABULATOR

Some of the outstanding features of this machine, which from a 40 column card has the large printing capacity of 55 sectors in each line of which 25 may be letters or figures, and 30, figures, including Indian Currency, with full facilities for automatic addition and subtraction, will be of interest.

Each printing sector of the newly introduced Numeralpha unit is constructed to print FORTY different characters, providing the complete alphabet and separate numerals 0 to 9, and leaving extra positions available for special characters, such as arithmetical signs, or for the automatic printing of special words or names. This innovation eliminates the use of composite characters for both figures and letters, such as a modified 8 and S and of course, simplifies alphabetical punching.

In addition to devices for the ready feeding and positioning of Roll and Interfold printing paper, the machine is fitted with the exclusive Powers-Samas LEDGER POSTING equipment, comprising a SHEET FEED ATTACHMENT which enables printed forms such as Ledger Sheets, or Statements, including carbon sets, to be automatically fed into the Tabulator, positioned for printing and automatically ejected without any interruption of the normal running of the machine.

Linked with this is the DESIGNATION INDICATOR which shows by means of illuminated figures in a small frame the essential designation particulars of each card, such as the Account Number, as it is about to be printed. It thus greatly facilitates Ledger posting particularly where pre-numbered ledger sheets are employed, the operator being able to verify that the correct Ledger Sheet is being fed into the machine.

Preparatory mechanism has been built into Tabulator for connecting a SUMMARY CARD PUNCH when required. At each total stroke of the Tabulator this machine will automatically punch a Summary or Balance card which may contain all or part of the alphabetical or numerical information printed by the Tabulator without interrupting the normal working of the latter machine.

The following work will be demonstrated on the Powers-Forty Tabulator:—

(a) A Provident Fund Accounting Scheme for Indian Railways, comprising the rapid and accurate production of Personal Ledger Sheets and Annual Statements to Members, and a complete and ready reconciliation between the Provident Fund Accounts and the General Books; the calculation of Interest on the Accounts is completely automatic.

(b) Invoicing for Agencies, including the addressing of Invoices.

(c) Electricity Billing incorporating the printing of a convenient Receipt stub, and the addressing of bills.

(d) Stores Control.

(e) Trade Statistics.

POWERS THREE TABULATOR

This machine has been especially designed to provide a larger capacity and a higher standard of performance than has previously been possible by a machine its price class.

Its unique design enables it to be made available at low cost in a number of varying standard units within the capacity of its 35 Sectors, ranging from alphabetical to numerical printing, with automatic addition and subtraction of quantities and amounts (in various currencies) and the printing of totals and balances as required. There is thus a unit combination to meet all normal accounting and statistical needs at minimum cost.

Examples of work which can be done on this Tabulator will be shown as follows:—

(a) Pay Roll

(b) Electricity Billing

(c) Sales Analysis

(d) Progress Records of Jobs

(e) Labour Cost Analysis

PRE-PUNCHED CARD FILES

Sets of pre-punched cards will be shown to illustrate the economy in time and labour coupled with

guaranteed accuracy which can be achieved in the work procedure preparatory to actual tabulation as under:—

(a) Electricity Billing—a pre-calculated file of cards representing a Ready Reckoner for cost of energy consumed at various rates.

(b) Pay Roll—A Ready Reckoner for wages at different rates of pay.

(c) Invoice items—a price list for various quantities of standard items.

REPRODUCING PUNCH

Automatically reproduces a new set of punched cards from an existing set at a speed of 130 cards per minute. The reproduction may be complete, partial or transposed. The machine on display incorporates GROUP GANG PUNCHING and CARD OPERATED SENSING devices, by which it is possible to reproduce information from one set of cards into another and at the same time gang punch information from Master cards interspersed throughout the pack.

Among other operations, a Master Rate Extension of Piece Earnings will be demonstrated.

INTERPRETER

This machine mechanically translates the punched holes in a card into plain words and figures and print them on the face of the card at a speed of 75 cards a minute. The interpretation may be in part or whole and in a different position to the columns concerned.

INTERPOLATOR

Automatically compares two separate related packs of punched cards and groups, interleaves or segregates them, according to the agreement or disagreement of the designations punched in them. Alphabetical as well as numerical punching including Indian currency amounts, can be compared.

In illustration, Balance cards will be merged with Interest cards for the Railways Provident Fund scheme, and Name and Address cards with Item cards.

MULTIPLYING PUNCH

Performs direct multiplication of quantities and amounts without the prior need of reducing the multiplicand to the lowest currency unit. The machine senses the factors already punched into the card, multiplies, adds or subtracts them and punches the result into the card. The speed of operation varies from 600 cards up to 1,800 cards per hour according to the extent of the factors involved.

An important example of the use to which the machine can be put will be demonstrated in the calculation of Interest on individual Members' Railway Provident Fund Accounts.

Interest will be calculated monthly on the Monthly Balance of Members' Contributions, added to the Interest accrued up to the end of the previous month, and the total Interest To Date punched into the card. Interest is only credited to Members' Accounts at the end of the year, but the Powers-Samas method avoids an accumulation of work by making a progressive calculation of the Interest payable so that at the close

of the year, the total amount payable is immediately available.

Interest on Bonus will be calculated in the same way with certain modifications.

HAND PUNCH

A simple, efficient, auxiliary machine for perforating the card in the same way as the Automatic Key Punch except that the operation of feeding and removing the card is manual.

SPOT PUNCH

The Spot Punch is designed for recording information on Powers-Samas cards whenever and wherever it originates. The correct positioning of the punched holes is guaranteed because the punch operates only when its special pilot pin has passed through the small locating pilot hole provided in the card. These pilot holes do not affect the use of the cards in the various types of Powers-Samas machines, and all spot punched cards are immediately ready for sorting, tabulating and other machine operations.

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There is a TURNERS Asbestos Plaited Packing for every need. The range consists of commercial and special qualities manufactured for use at all temperatures and pressures, and with acids, petrol and oil.



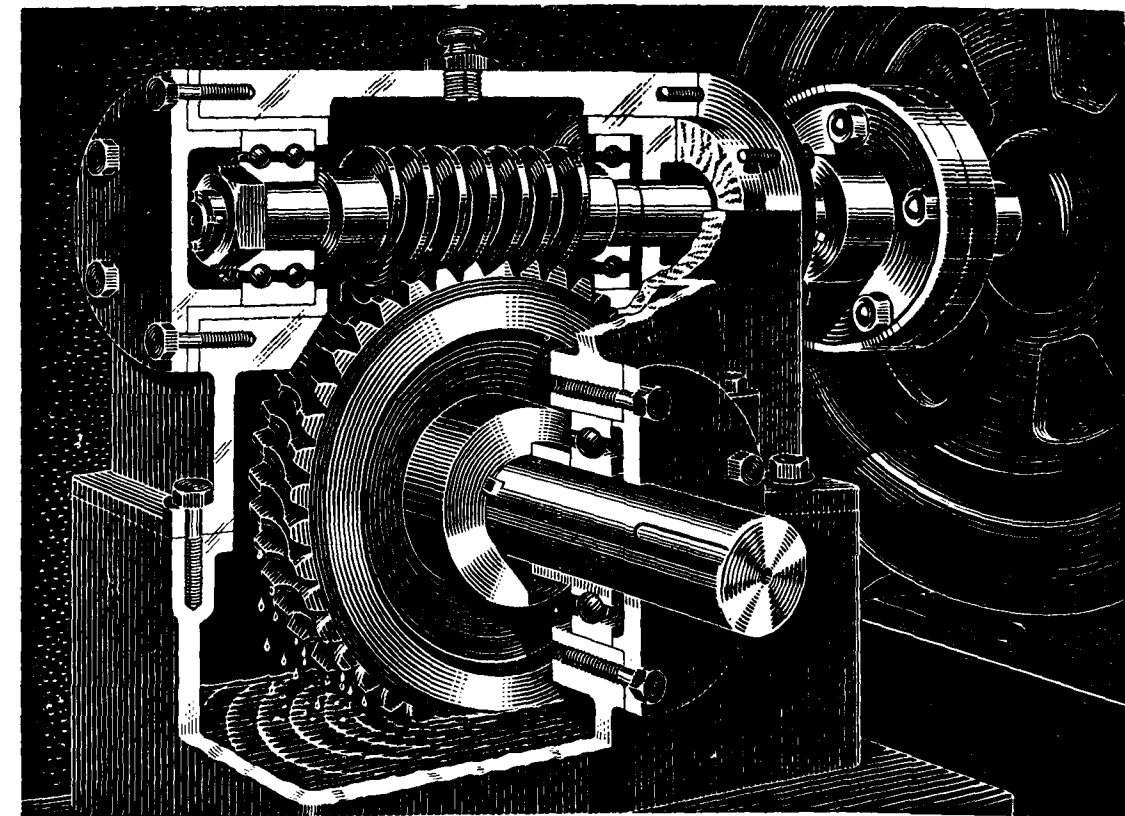
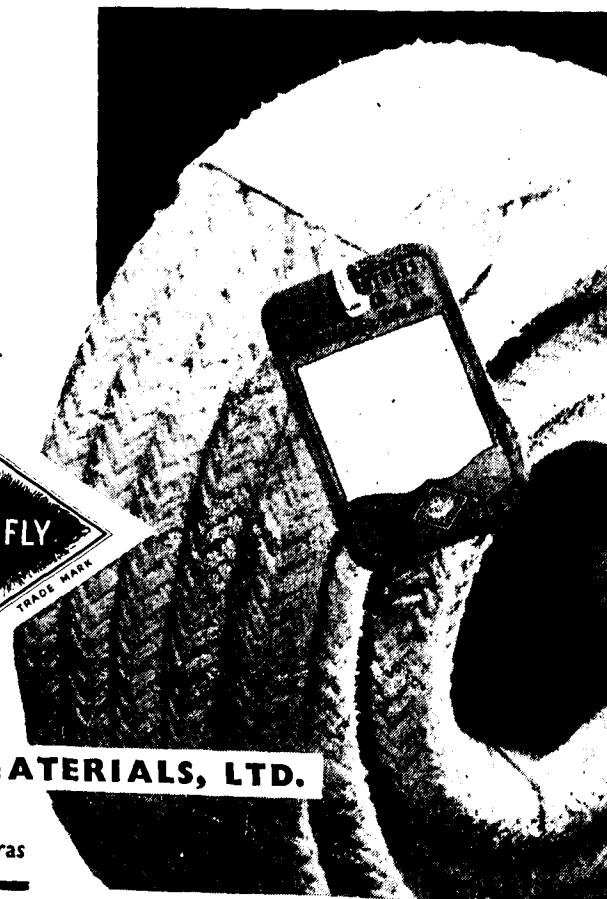
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In a properly lubricated gear system, the metal surfaces of the gear wheels are separated by a thin film of oil. Under heavy loads, the great pressure on the gear surfaces 'squeezes' the oil film to a few molecules in thickness.

Yet this minutely thin film of oil, transmitting the entire load from gear to gear, must never break. It must not rub off as the wheels go round, or fly off at high speeds. If metal-to-metal contact occurs between the gear surfaces, they may weld together and the machine will seize up.

Plain oil isn't enough!

To meet the exacting demands of modern machinery, it's little wonder that old-fashioned oils have been replaced by Gargoyle Industrial Lubricants. These

modern lubricants have tremendous affinity for metal. They cling fiercely to metal surfaces, forming a lubricating film that even extreme pressure cannot break.

Three main ingredients go into making these oils. The first: careful selection of crude oils with high natural affinity for metal. The second: scientific incorporation of additives which increase this affinity, and give great 'anti-weld' properties.

And the third ingredient? Every engineer knows the answer—experience. Eighty-seven years of experience go into every drop of oil we sell. Perhaps we can put this experience to work on your lubrication problems!

For every industrial application, correct lubrication by Standard-Vacuum offers four vital benefits:-

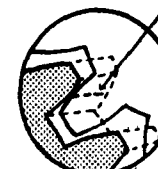
-  **Reduced power consumption;**
-  **More continuous production;**
-  **Decreased maintenance;**
-  **Lower lubrication costs.**

Whatever the load ...

a LINE of oil has to take it!

At any moment while gears rotate, contact is limited to a microscopically narrow line of oil. The pressure on the oil is enormous — but thanks to 87 years of lubrication experience, Gargoyle Industrial Lubricants can take it.

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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

Our CCS Addresses the Watch and Ward Force

"I need not tell you that we have gathered here this evening to celebrate the Annual Day of the Watch and Ward Organisation.

I am told that it is customary for the Head of the Department to speak on such occasions and to give a brief review of the performance of the force in the previous year.

As you are aware, the Watch and Ward Organisation was, till recently, working under the General Manager. It was thought that more co-ordination was necessary from the point of view of claims. It was, therefore, decided to transfer control of the organisation to the CCS and I took over control sometime in September 1952.

On my taking over, I had first to decide whether the day to day working of the Watch and Ward Force was to be under the control of the departmental officers or the officers of the Watch and Ward Department. The decision was taken that such control was to be handed over to the concerned District Officers of the several Departments. We have been watching the working of this arrangement so far and taking stock of the position, so that re-organisation could be thought of and introduced, if found necessary or desirable.

The liaison between the Watch and Ward and the Claims Section of the Commercial Department has



Sri S. R. Kalyanaraman



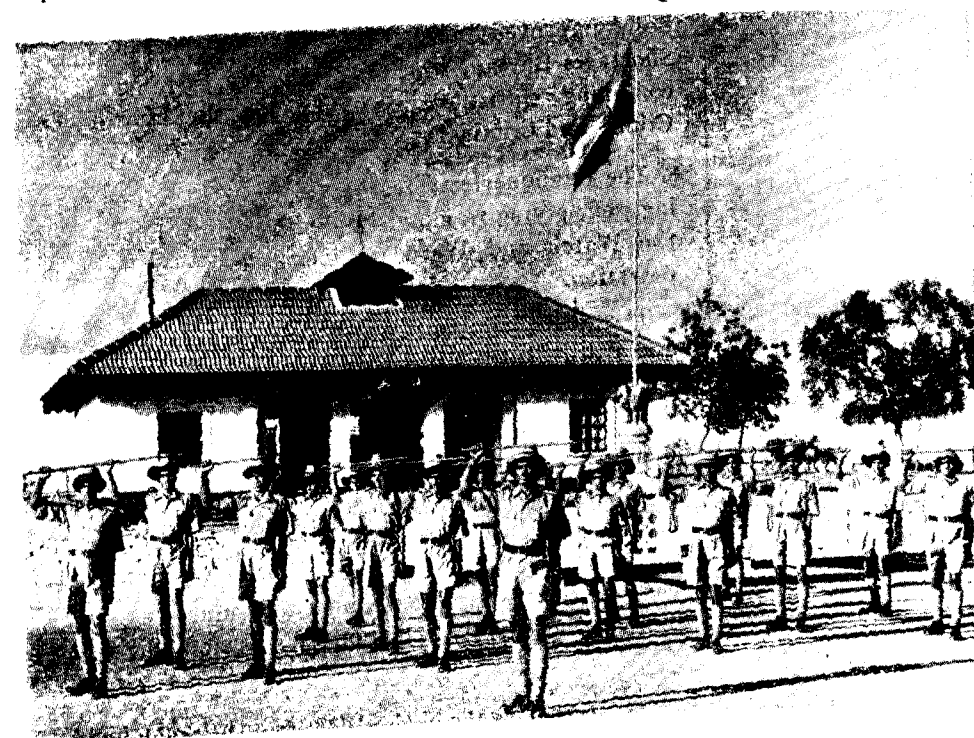
Seal Checking is an important public utility service performed daily by Watch and Ward Havildars of the in order to fix within a reasonable time and distance responsibility if and when any goods wagon is tampered with.

Havildars are seen in Seal Checking competition during the Annual Day Celebration in April 1953



Watch and Ward Football and Hockey Teams. Winners of the All Indian Football Tournaments held at Madras and Presidency Football Tournaments at Pondicherry and Aruppukottai, and the Golden Rock Inter Shop Hockey and Football Tournaments

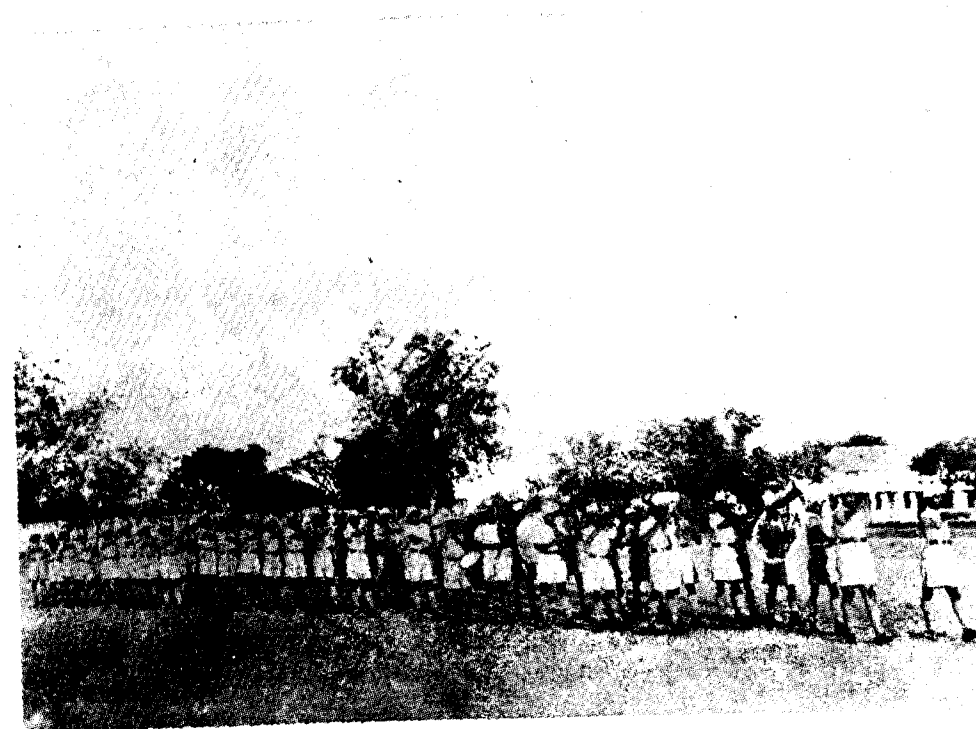
Sri T. A. Joseph, General Manager, presides over the Watch and Ward Annual Day Celebrations of 1953 at Perambur—Madras. Srimathi T. A. Joseph distributing prizes and the trophies



Lathi Drill. How to use the lathi, if necessary, when attacked by gangs or criminals trying to rob Railway property goods and parcels

Headquarters Training Centre Provides facilities for training the Watch and Ward personnel in Squad Drill, Lathi Drill, Discipline, Watch and Ward Routine, Prevention and Detection, Fire Fighting and First Aid, Physical Training and Games. Games form part of the training

Route march by company of smartly dressed Watch and Ward trainees. The Watch and Ward brass band and bag pipes sections accompanying





Sri Srinivasan bending the iron bar

been improved by the creation of the Crimes and Shortages Bureau, which is doing very useful work in compiling statistics and helping in the location of Crimes and Criminals.

The Headquarters Training Centre is also functioning well, giving training, not only in drill, but also in the Watch and Ward routine and prevention and detection.

The discipline, morale and smartness of the Watch and Ward Force has risen high as evidenced by the very smart turn-out that we have witnessed a few minutes ago.

Though I have been the head of the Watch and Ward Department, I am glad to be able to say that I had but very little burden to carry on that account, as the general working of the organisation has been very efficiently managed under the guidance of the Superintendent, Watch and Ward and his three Regional Assistants.

I congratulate the entire Watch and Ward Force on their good performance during the year. I also congratulate the winners in the several events this evening for their excellent show, and Mr. Platel specially for retaining the Championship Shield for the Madras Region".

JAI HIND

SITUATION WANTED

T. A. NARAYANA IYER, B. A., L. T.,
Asst. Commercial Supdt. (Retd.)
Southern Railway, Trichinopoly.

- With 28 years service in both traffic departments.
- Has wide experience as Traffic Inspector, Commercial Inspector, Goods Supervisor etc.
- Has wide experience as a Teacher of Railway Subjects (Transportation and Commercial) to Railway Staff.
- Was Asst. Traffic Supdt., Central Staff Training School, Southern Railway, Trichinopoly.
- Will be of great use where Transport problems are involved.

SERVICES AVAILABLE

RAILWAY DEPARTMENTS

"The Personnel Department" (VI)

By A. H. Pearson

STRICTLY speaking, it cannot be said that the Personnel Department is a complete and separate entity of a railway system, as every railway department must have its staff or personnel to carry on the functions expected of it. But in one sense it can be said that there is a Personnel Department, as the officers and staff who do the work of this department are engaged almost exclusively in dealing with what is usually known as 'establishment matters'.

Concisely the term 'establishment matters' can be said to include the 'conditions of service' under which every railway employee is engaged and works throughout the period of his service, irrespective of the department in which employed.

Now what are the 'conditions of service'? There comprise amongst others, such things as recruitment, appointment, rates and scales of pay, leave benefits, increments and promotions, admissibility of various kinds of allowances—overtime, travelling, house rent, dearness etc.—provident fund and gratuity benefits, disciplinary and conduct rules, rights of appeals, etc. Details of 'establishment matters' are to be found in a two-volume Code, known as the State Railway Establishment Code, and it is this code that is found on the table, not only of every officer and staff of the Personnel department, but also with practically every other railway officer.

The work of the Personnel department in a railwayman's service starts practically from the time he fills in an application for employment; and as soon as a railway employee gets a letter of appointment he becomes the possessor of a service record. This dossier is not kept by the employee but by the staff of the Personnel department, as contains a complete history of each man's service from date of appointment till the day he ceases to be in service as a result of retirement, resignation, discharge, dismissal or death. This service record contains such initial information as the employee's full name, father's name, nationality, religion, caste, date of birth, appointment, home address, designation, rate and scale of pay, and so on. The service record also has blank pages on which are subsequently recorded increments and promotions, extent and nature of leave taken,

punishments if any, and various forms of declarations that may be required under the rules.

The maintenance of each railwayman's service record may seem somewhat simple on the surface, but the actual entry of an increment, leave taken, promotions granted and so on, it usually the final act in a successive chain of events. This is due to the fact that there is a variety and complexity of rules governing the conditions of service of each employee.

Most of the major railways in India passed from company to State management at a certain stage, and today all railway administrations are State-managed—(apart from certain Light railways). Because of this transfer of administration the personnel employed on those railways at the time were usually given the option of electing 'company' rules or State Railway Rules. These two sets of Rules differed in extent and content on certain aspects of a man's 'conditions of service'. Then as time went on even the State Railway Rules were subject to alterations and amendments to suit the changing conditions. Then finally came the recommendations of the Central Pay Commission.

As new rules were promulgated, the complications and complexities which the officers and staff of the Personnel department had to sort out naturally increased, and posed considerable and weighty problems. Because of this, the Personnel men had to be masters of each set of rules as they came into force, as well as have an extensive knowledge of the old rules.

The Personnel department functions under the control of a Deputy General Manager (Personnel), who, however, does not have the administrative rank of a Departmental Head. He is however directly answerable to the General Manager, but also works in close liaison with other heads of departments, more or less in the nature of an adviser on Personnel matters.

At headquarters the Deputy General Manager (P) is assisted by a number of Senior Personnel Officers, as well as a larger number of Assistant Personnel Officers. In addition, there are the supervisory

and clerical staff. At Divisional headquarters there is a Divisional Personnel Officer assisted and one or more Assistant Personnel Officers, apart from the supervisory and clerical staff. At larger workshop centres there is also a Senior Personnel Officer and one or more Assistants with office staff.

In the last decade of railway history there has been a considerable and rapidly widening scope of labour legislation and railway trade unionism. With railway unions fostering a more active vocal and solid approach to the problems and grievances of employees, relations between the employer—in this case the Railway Administration—and the employees, have assumed a vital aspect. Through the medium of the railway unions problems, grievances, discontentment both of an individual, and especially of a collective type, are brought to the notice of the high ranking railway executives and even to the General Manager, through the Deputy General Manager (P), if not direct. By these 'direct contact' means frequent meetings and discussions are held between the Union officials and the Railway executives and solutions to employer-employee problems found. This reorientation in the relations between the executive and the employee has helped to foster of feeling of cordiality and goodwill amongst all ranks of railwaymen.

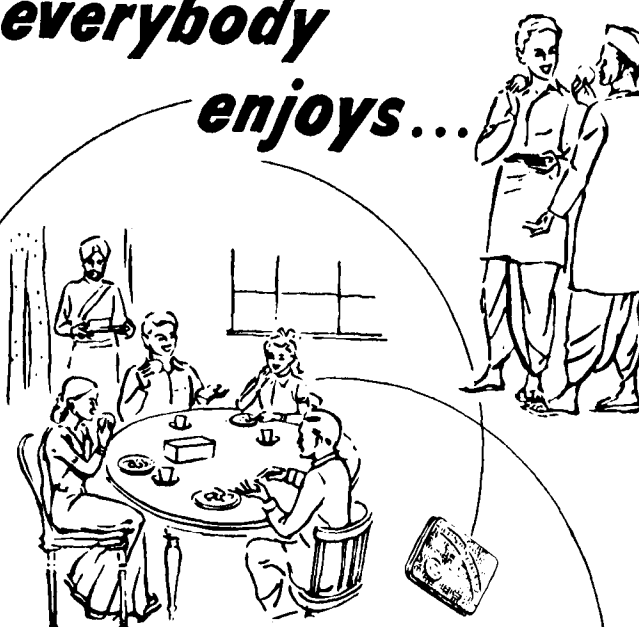
These are only some of the problems that arise in the day-to-day functioning of the personnel department. If the railwaymen as a lone-wolf or in a pack has a grouse, a criticism, or a demand for better 'conditions of service' it is for the Personnel men—who too are railwaymen—to listen patiently and do all they can to change a disgruntled fellow railwayman into a man who knows that he is in a service which gives him the best, and to whom he in return will give of his best.

Revision of British Standard Specifications

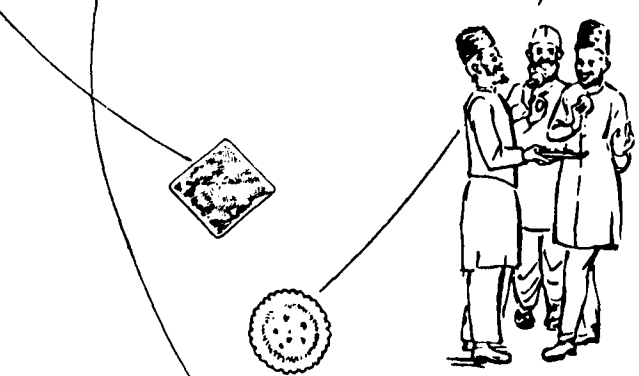
The new British Standards covering Vulcanised Rubber and Polyvinyl Chloride (P. V. C.) insulated cables and flexible cords will be issued by the British Standards Institution in a few days. These new standards represent the culmination of extended and patient experimental work carried out over a period of years by Members of the Cable Makers' Association.

It is well known that the Cable Makers' Association was the first body in the world to standardise Electric

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To ensure that its reputation is maintained, the C. M. A. requires of its Members a rigid observance of the quality provisions, both technical and manufacturing of the Standards and Formulae of the Cable Makers' Association. This high standard is maintained by periodic testing of samples of cables over a wide range of types selected at random by the C. M. A. Technical Staff.

The reduced thicknesses of insulation and sheathing included in the new British Standards make it even more important that the cables used should be produced by a Member of the C. M. A. The superior manufacturing technique and the longer experience of C. M. A. firms in the production of all types of cables, combined with rigid process control and inspection, ensure that cables to the new specifications will be manufactured economically and to a consistently high standard.

Users may rest assured that the C. M. A. has satisfied itself that the reductions in thicknesses of insulation and sheathing in the new British Standards can be made, so far as its Members are concerned, without detriment to the pre-eminent standard of quality, long service life and high technical and mechanical performance characteristic of all C. M. A. products.

This new development gives further evidence of the obligation which the C. M. A. accepts to introduce progressively technical developments which enable its Members to reduce the prices of their products, whilst at the same time maintaining the C. M. A. reputation for the highest standard of quality.

2,800 WATERMEN ON NORTHERN RAILWAY

In reply to a question Shri Alagesan said that on the Northern Railway there are 2,800 watermen, of whom 1,478 are employed permanently and the others temporarily for the hot weather months only.



Losenhausenwerk of
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MATERIAL TESTING MACHINES of all capacities for static and fatigue tests under oscillating, undulating and alternating loads on specimens of material component parts, and structural units.

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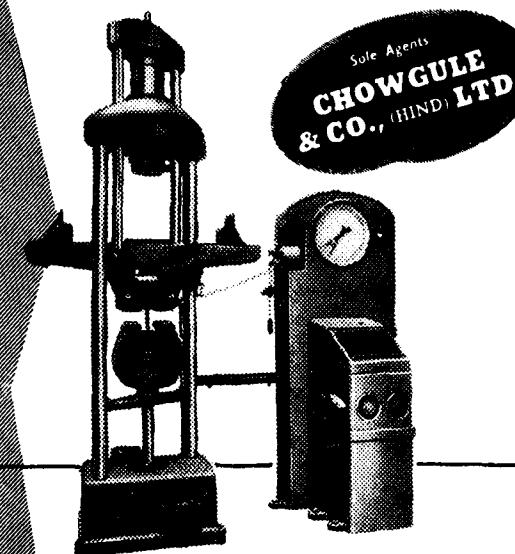
CHAIN TESTING MACHINES for stretching and tensile tests on chains, ropes, and cables of all kinds.

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Integrated Indian Railways—What is wrong with them?

EFFICIENT AND IMPROVED TRANSPORT

IN April 1951, exactly two and half years back, the Southern Railway was integrated and with the experience gained in the working, other Railways in India were also integrated in 1952. We have now six compact zones based on the economic unity of contiguous regions and natural flow of traffic. In spite of strong opposition from the Technical men in charge of the affairs of the Railway, the re-grouping was pushed through like a non-stop express and in the words of the then Minister for Railways at the time of integration of the Southern Railway :

“Efficient and improved transport at an economic cost can be assured only by the larger capacity of an integrated wider organisation. The Southern Railway is being launched on its new career for the purpose of achieving this objective”.

Have we achieved the objective the Minister had in view or atleast are we on the road to achieve this?

TRADING INTERESTS DISSATISFIED

Here is the answer. The ‘Hindu’ of Madras, known for its moderation wrote editorially on September 11th about the restriction of ore exports from Madras Port, caused by Transport bottleneck on the Southern Railway. After explaining in detail how the export of ores as dollar earners are necessary for the well-being of the economic life of Southern India it said:—

“Much of the confusion and indecision in the economic life of the country is directly traceable to the un-co-ordinated official policies. As for transport bottlenecks which are alleged, there is no inherent and inescapable reason why they should be allowed to develop only in the regions served by these two ports. It is for the Railways as the Tamil Chamber points out, to utilise the available wagon supply more equitably”.

The restriction in the export of ores due to transport bottleneck is not the only exception. As pointed out in the editorial of this Magazine for August '53 “Industrial and trading interests are apparently far from satisfied with the transport facilities now available on railways for moving raw materials and manufactured products from production to consuming points. ... and unless the Government plans progressively to increase the Railways capacity

(Continued on page 46)

to move increased traffic that will be offering as a result of the rapidly expanding industrial potential, commercial interests will obviously have a legitimate cause for dissatisfaction”.

TRANSPORT BOTTLENECK

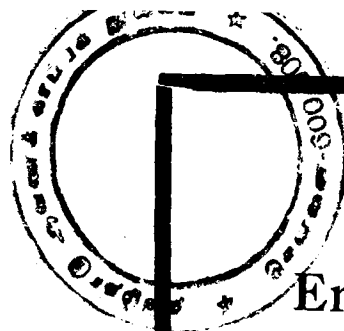
The spokesman of the Railway Administration has stated recently :

“Transport bottleneck is a term hurled at us constantly. Reference is to our inability to move traffic offering currently. Admittedly our operating capacity has its limits. Expectations beyond these limits are just our bad luck. The question for us is this:—Are we working to full capacity? Statistics of operating results answer the question. The answers are often not to our credit. Now we have enough wagons to carry more traffic. Despite the slump there is still traffic awaiting to be moved. Our power position is being improved. We must make full use of our wagons and engines. We must avoid delays to them. We must load wagons fully and run full-load trains. In other words, neither wagon space nor engine capacity should be wasted. Our turn-round for wagons and engines should be good. For, they have their job to do. When they are idled or delayed that job suffers. In turn our operating performance is poor”.

ORGANISATION AND LEADERSHIP NEEDED

It can therefore be inferred that if we improve the operating performance for which there is great scope with the present stock of engines and wagons say by 25 percent we would have done the greatest service to the nation; for, it is on the efficient transport that everything else depends; full employment, starting of new industries, cutting the overhead charges of the existing industries to bring down production costs and so on. The rank and file of railwaymen have responded wonderfully to the cause of the nation. What is really wrong then with the integration? The problems of organisation and leadership were not given the attention it deserved. Take for example the Regional offices of the integrated Southern Railway. The Minister of Railways stated in Parliament :

“The Regional offices will be given adequate financial and other powers to enable them to deal effectively with most of the work arising in the Region. The



Erode Station Superintendent Passes Away

We deeply regret to record the passing away of Mr. G. P. Ellore the Station Superintendent, Erode, early this month, due to heart failure.

Forty-eight year old, bespectacled George Paul Ellore hails from Kolecherry — a village in Ernakulam. Soon after his graduation from the St. Joseph's College, Trichinopoly, he joined the ex-South Indian Railway service in the year 1929 and was

confirmed in 1933 as Station Master at Tambaram. From Tambaram was transferred to Villupuram where he worked upto the end of July. Again he was transferred to Madras Egmore as Enquiry Officer which post he held till he was appointed as Assistant Station Master, Cochin Harbour Terminus. After working

again as second S. M. in Madras Egmore, and Salem, he was transferred to Tanjore on promotion as Station Superintendent early in 1950. During his tenure of office in Tanjore, Mr. Ellore won the admiration of all people not only from the Railway Staff

but also from the members of the public.

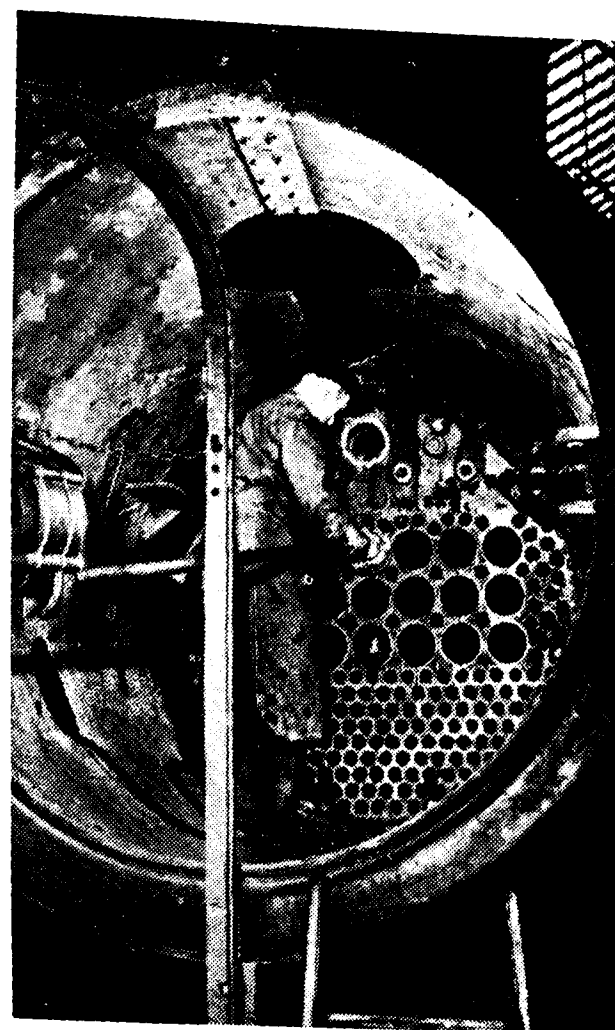


Late G. P. Ellore

Advisory Committee. He played no small part in these Committees and in his passing the Southern Railway loses an important link. The gap by him is hard to fill.

We take this opportunity to convey our sincere condolences to Mrs. J. Ellore in her bereavement.

While he was in Tanjore, he was on the Adjudication Committee as well as Southern Railway Seniority and Labour



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