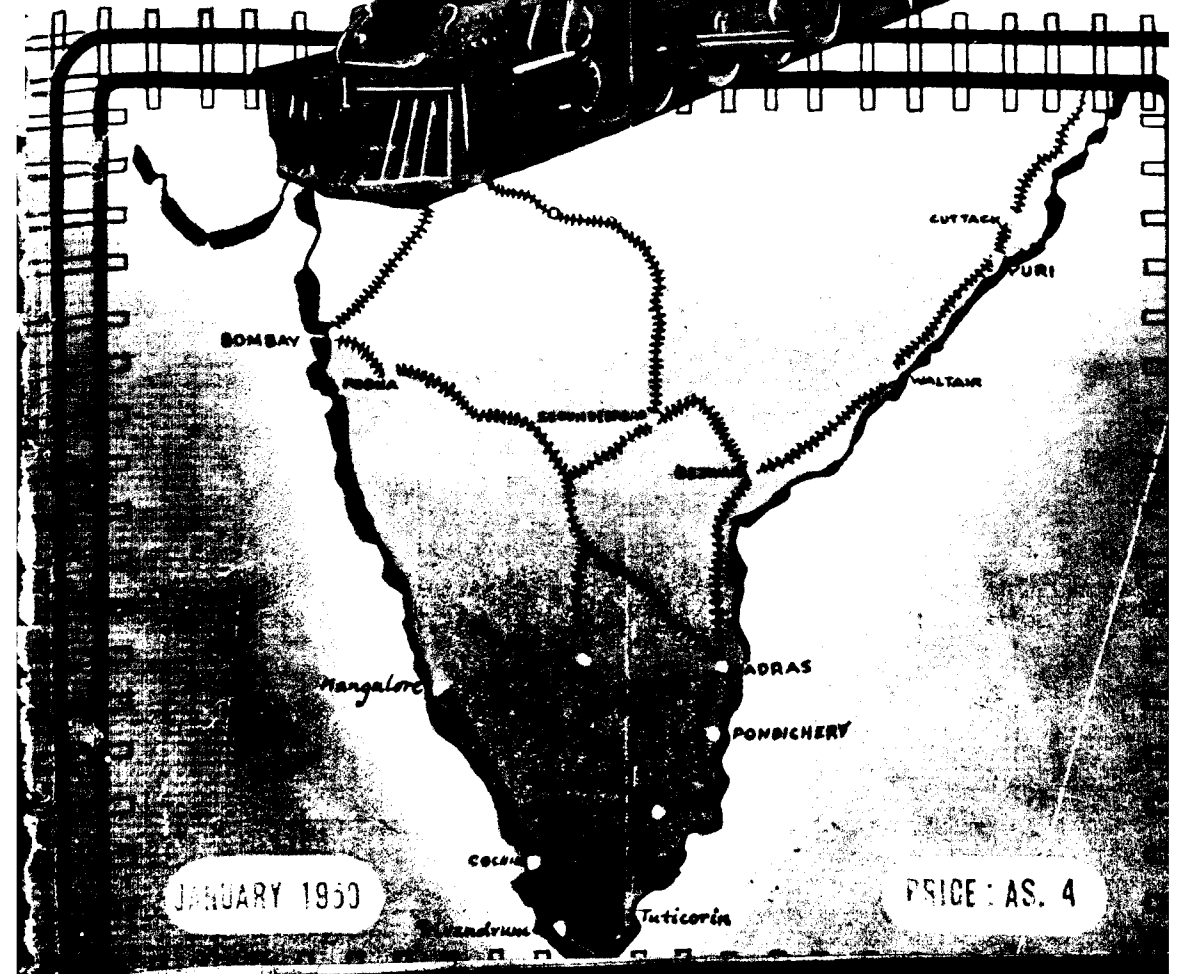
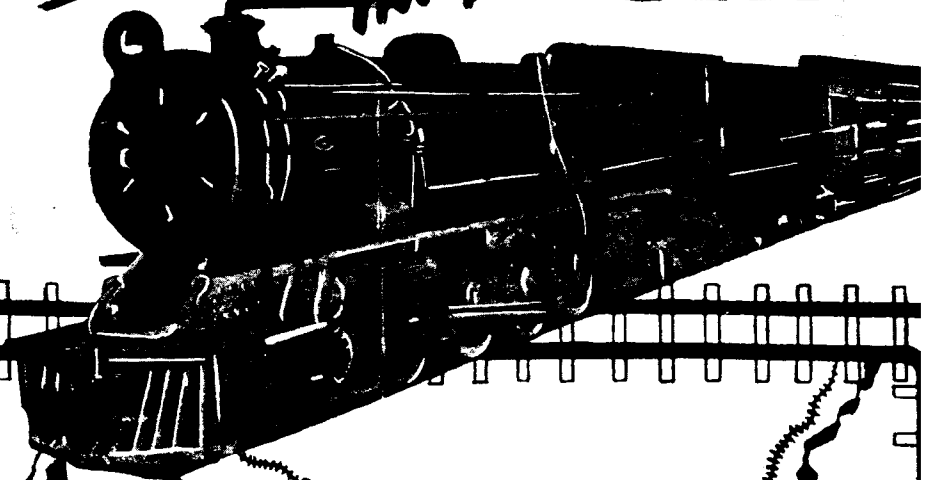


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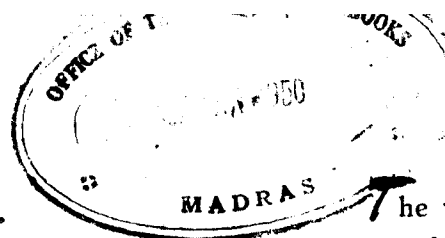
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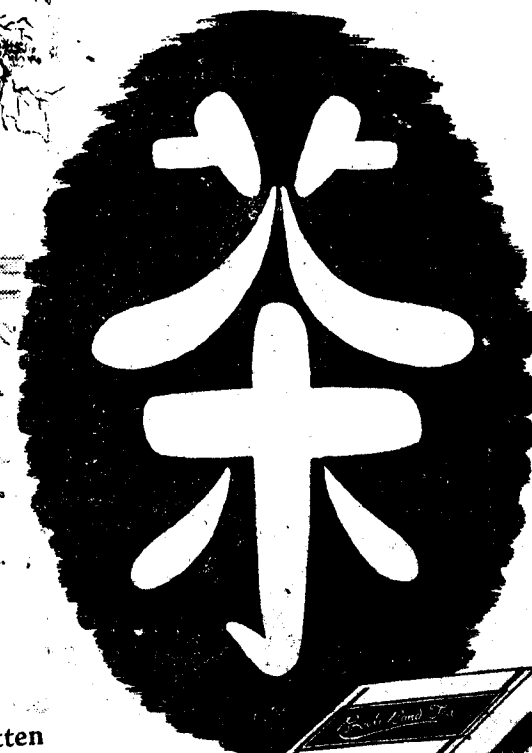
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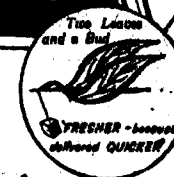
The word TEA, like the plant itself, came from China. Pronounced 'Chah' in Cantonese and 'Tay' in the dialect of Amoy it provided the root of the word meaning tea in almost every language.



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ब्रुक बांड or ப்ருக் பாண்ட்
and in many other scripts, but
always means unchanging quality,
fine flavour and garden freshness.



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Southern Railways Magazine

VOL. I
NO. 7

JANUARY 1950

ISSUED
MONTHLY

Railways on the Up-Grade

The Railway Board's Annual Report for the year 1948-49, recently issued, disclosed some very encouraging features of Railway operation, and indicates that our Railways are definitely on the up-grade both in earnings and operating efficiency.

Government Railways made a net profit of Rs. 19.98 crores during 1948-49. Net revenue was Rs. 42.24 crores, and gross traffic receipts amounted to Rs. 213.10 crores, passenger traffic accounting for Rs. 83.83 crores and goods traffic for Rs. 108.29, the balance being from other coaching and miscellaneous earnings.

The ordinary working expenses came to Rs. 160.41 and the appropriation to the Depreciation Fund to Rs. 11.29 crores. Interest charges were Rs. 22.36 crores.

During the year under review the Railways carried 1,180.6 million passengers and 82.6 million tons of goods. The average amount earned per passenger per mile was 4.6 pies and per ton per mile was 9.5 pies. Passenger earnings increased by 19.8% over the 1947-48 figures, which was the highest recorded so far.

New lines were opened to public traffic to the extent of 157.82 miles, and surveys of various projects aggregating 500 miles were sanctioned. Nine new lines were under construction but no new lines were sanctioned or constructed during the year.

Salaries, allowances, provident fund and gratuity paid out to staff of Class I Railways totalled Rs. 82.5 crores as against Rs. 66.5 crores in 1947-48, the increase being mainly due to implementing the Central Pay Commission's recommendations. At the close of the year there were 589 grainshops serving 6,13,000 ration card holders, each ration card holder getting an average relief of Rs. 24.3 as against Rs. 22.4 during the previous year.

In spite of almost country-wide labour, restlessness being prevalent during the year 1948-49 and even after, the Railways were fortunate in being almost free from labour trouble. There was only one serious strike, that of the locomotive staff on the South Indian Railways. Man-days lost on account of strikes was approximately 0.2% of the total number of man-days worked during the year.

Towards the close of the year, proposals were being finalized for the setting up of a Joint Advisory Committee for Railways comprising representatives of the Railway Board and of Railway Labour for

(Continued on page 193)

Notes and Comments

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Railway Magistrates' Conference

The South Indian Railway Magistrates' Conference took place in the Board Room of the Egmore Railway Station during last month with Mr. P. S. Gopala Ayyar of Madura in the Chair. Magistrates from Coimbatore, Vridhaachalam, Tiruchirappalli, Mathurai, Villupuram and Egmore attended. Mr. S. Ramaswamy Sharma, Deputy Chief Commercial Manager, M. & S. M. Railway attended the meeting on special invitation.

The highlights of the Conference were sending of a deputation to Mr. K. Santhanam, Minister of State for Transport and Railways for representing the views of the Association on the question of privileges. There was some discussion about the question of entering of identification marks in the Season Tickets in the case of illiterate persons and it was resolved that the individual Magistrates might correspond with the District Operative Superintendent on the matter. The Conference, at last thanking the General Manager, M. & S. M. Railway, for sending their representative Mr. Sharma, came to an end with a vote of thanks duly proposed by Mr. C. R. Venkatachari, Secretary.

Iron and Steel Movement

During the first ten months of last year nearly 7½ lakh tons of iron and steel, representing a substantial quantity in excess of production during the same period, were moved from the factories by the Indian Railways. This satisfactory movement position was revealed at the quarterly meeting of the Standing Committee of the Central Board of Transport which was held in New Delhi last month with Mr. Y. N. Sukthankar, I.C.S., Secretary, Ministry of Transport, in the Chair. Among others

present were Mr. S. Chakravarti, C.S.I., Deputy Secretary, Ministry of Transport, Mr. D. Sethna, Chief Controller of Railway Priorities, representatives of the Central Ministries of Railways and Industry and Supply and of the industry, including the Tatas and the Indian Iron & Steel Co.

The total despatches of iron and steel during the first 10 months from January to October 1949 by the Railways were 7,22,878 tons. The production during the same period was 6,45,606 tons of steel and 57,463 tons of pig iron, making up a total of 7,03,069 tons. The excess despatch over production would indicate that in addition to movement of the entire current production stocks left with the factories were also moved to the extent of 19,810 tons.

It may be recalled that the Central Board of Transport in November last year accepted that certain topmost national priorities or objectives should be satisfied in full by a 100 per cent transport provision. These national objectives in relation to transport should, *inter alia*, subserve the achievement and maintenance of food production and distribution in industries accepted to be of national importance. It was decided that steel, textiles and cement should be three basic industries to start with for which 100 per cent transport facilities should be provided.

The Chairman informed the Conference that the movement position in the last quarter of 1949 was satisfactory and the demand for wagons had been met hundred per cent. The wagon requirements of the period, both for raw materials for iron and steel as well for the finished products, were 80,346.

The Committee approved the movement programme for the first quarter of the next year.

The main features of the Central Board of Transport Meeting held in Madras on January 6, 1950 under the Chairmanship of Mr. N. Gopalswami Ayyangar, Minister for Transport and Railways are as follows: Important among the new rail projects discussed related to the Chamrajnagar — Satyamangalam—Coimbatore and the Quilon —Ernakulam links.

The question of linking Chamrajnagar one of the terminal stations of the Mysore Railways, with Coimbatore, a junction on the South Indian Railway, assumed importance with the extension of the Bangalore — Mysore line to Chamrajnagar over 15 years ago. This project was considered in July 1948 and later by the Central Board of Transport at whose instance detailed traffic and engineering surveys are being carried out by the South Indian Railway. The surveys cover two alignments viz. (1) Chamrajnagar — Satyamangalam — Mettupalayam (89.83 miles) and (2) Chamrajnagar — Satyamangalam — Coimbatore (101.46 miles). Both these alignments cover a ghat section of about 23 miles. Though, according to a preliminary appreciation the alignments are considered financially unremunerative, it is not expected that this railway will necessarily be an annual loss or even that it cannot pay the minimum return, usually expected on remunerative schemes. The Board agreed that the Ministry of Railways should, after further examination, get a fresh appreciation of the prospects of the project. After receipt of this report, the project will be reviewed further by the Central Board of Transport.

As regards the Quilon—Ernakulam link (100 miles) it has been urged that the need for the project is urgent in view of the existing inadequate and costly means of transport available for passenger and goods traffic in the area proposed to be served by the new

link. The Transport Minister of the Travancore — Cochin Union said that in view of the integration of the two States and the necessity of connecting the two State capitals, namely Ernakulam and Trivandrum, the project should be given a high priority.

After a discussion of the various aspects of the schemes, the Board recommended that in view of the present financial position, the question of ordering an engineering and traffic survey of this project be considered in 1950—51. The Board also considered the Mangalore — Hassan railway project. It was decided that the scheme should be held over pending the final decision on the siting of a major port on the Marmagao —Cochin Coast.

We would request the Ministry of Railways not to shelve such projects of very high commercial importance on the plea of economic drive.

Railway Coaches Due from Pakistan

Pakistan-owned N.W. Railway owes 177 Railway coaches to India as against 126 which are to be sent by the Eastern Punjab Railway to Pakistan, an official of the E. P. Railway disclosed at New Delhi this month. Besides these coaches, there are nine locomotives also, which Pakistan has to return to the East Punjab Railway the same official added. These coaches are to be adjusted between the two Dominions, in continuation of the exchange of Railway properties agreed upon at the time of partition of India. According to the same official, the hitch in the exchange of these coaches is the "exaggerated" number of coaches which Pakistan claims from India. This matter is likely to be discussed at the next Inter-Dominion Conference if and when held.

Solution of this problem without any hotch-potch adds to the

statesmanship of the leaders of both the Dominions.

Claims on M.S.M. Railway

It has been decided by the M. & S. M. Railway Administration that with effect from January 15 1950, claims for amounts less than Rs. 5 will not be entertained. A similar arrangement is already in force on the South Indian Railway. The public are aware that Railways have been making special effort to expedite the disposal of claims for compensation in respect of goods damaged, lost etc., and that much progress has been made in this direction. Whether the claim is for a large amount or for a small amount, enquiries have to be instituted by the Railway. Particulars of booking conditions, risk notes held, nature of damage or deficiency, remarks obtained at the time of delivery etc., have to be obtained before a decision can be taken regarding the settlement of the claim. All this takes time and the public are consequently put to inconvenience. The Railway are still faced with an enormous number of claims pending disposal and when attention has to be paid equally to large claims and to petty claims, all of them suffer unavoidable delay. Hence is the decision of the Railway Administration not to entertain claims for amounts less than Rs. 5.

This decision, we hope, should result in quick disposal of claims within reasonable time.

Locomotives for Indian Railways

The U. S. "Peter Dal" arrived in Madras harbour during last month with 36 broad gauge locomotives for Indian Railways. Out of these twelve are for the M. & S. M. Railway, 19 for the B. N. Railway and five for the Eastern Punjab Railway.

Retrenchment on N. S. Railway

About 35 workers belonging to the Engineering Department of the Nizam's State Railway have been retrenched and more workers are expected to be retrenched within a very short time according to unofficial sources. Sri. B. Mallikarjuna Rao, General Secretary of the N. S. Railway Employees' Union, in a statement to the Press described the retrenchment as "a strange new year gift to the workers" and said that the "unwarranted retrenchment had cast a cloud of gloom over the Railwaymen and aroused great surprise in union circles as it ran contrary to the world."

If this statement of the General Secretary is to be factual, we apprehend that the N. S. Railway Administration would be heading towards disaster thus causing unprecedented inconveniences and difficulties to the travelling public. Already the Railwaymen are panicky about the re-grouping of Railways although the Hon'ble Minister had assured that there won't be any such need for retrenchment.

Railwaymen's Demands

A call to Railway workers throughout India to strike on March 9, as a protest against the Government's policy of mass retrenchment, wage cut and increase work-load has been issued by the All-India Union of Railway Workers. The decision in favour of one-day strike of Railwaymen on March 9 was taken by the Working Committee of the All-India Union of Railway Workers at its meeting on December 31. The meeting, it is reported, was attended by representatives of G. I. P., B. B. & C. I., E. I. R., S. I. R., B. N. R., M. S. M. and East Punjab Railways Workers' Unions. The meeting also resolved to affiliate the All-India Union of Railway Workers to the Rail and Road Transport

Workers' Union International of the World Federation of Trade Unions.

We would request the All-India Union of Railway Workers to refrain from any sort of strike at the moment as the country is facing around economic crisis. By such unconstitutional means, nothing could be achieved except increasing the difficulties and inconveniences on unprecedented scale to the general public. We believe good senses would prevail upon the leaders of the AIURW.

Mr. Vasist in Bangalore

With the integration of the Mysore State Railway with the Indian Railway there would be better service as a whole not only to Mysore State but to the whole of India, said Mr. Vasist, Member, Railway Board at a social organised by the Chamber of Commerce last month. He appealed to the merchant community not to have any misgivings about loss of facilities owing to the change-over.

Referring to the question of over-crowding in trains, Mr. Vasist said that that could not be remedied overnight. The India Government were endeavouring to obtain more engines and coaches and were examining a scheme for establishing a coach-building factor in India and he hoped that this scheme would materialise soon. Perhaps, Bangalore might itself be the centre for establishing the factory. He also added that it was hoped that the first locomotive manufactured at Chittaranjan factory would be put on the rails in March 1951 and that at the end of five years they might manufacture 120 engines and 50 boilers.

Mr. Vasist assured the Chamber that the suggestion of the Chamber to run a Goods Express from Bangalore to Bombay once a week would be examined, provided there was enough of traffic to justify the same. Earlier Mr. Y. Gopalakrishna Setty, President

of the Chamber of Commerce welcomed Mr. Vasist.

Wireless Circuits on Indian Railway

The construction of several important wireless and telecommunication circuits have been completed on the Indian Railways during the year 1949. Apart from serving as an alternative means of communications, these circuits it is stated, provide considerable relief to the heavily congested land lines.

The administrative communication links on the G.I.P. Railway connecting Bombay and Delhi and Trichinopoly and Villupuram on S. I. Rly. have been completed. The telecommunication lines on the East Indian Railway between Moradabad and Delhi are nearing completion.

The six-year (1949-50) replacement programme for a special type of wireless transmitters estimated to cost Rs. 22 lakhs has, on consideration by the Railway Board, been postponed as the present sets are stated to be still serviceable and can, with proper maintenance and supply of spare parts, be kept in service for some more years. Arrangements have, however, been made to supply eleven new transmitters to make up the deficiency in the number of sets already sanctioned to the Railways. These would facilitate the establishment of projected wireless-telegraph circuits.

The Railway authorities have arranged with an Indian manufacturing firm for the supply of a special type of very high frequency radio equipment for radio-telephone communication between the yard master, shunters and gunners. The equipment is expected to be installed in the marshalling yard at Moghalsarai on the East Indian Railway.

With a view to providing better facilities for communication to check frequent thefts of essential stores at certain centres on

the Bengal Nagpur Railway arrangements are being made to provide radio-telephone service at Tatanagar to form a circuit with Khargpur, Adra and Chakradharpur and also for wireless telegraph circuit between Adra and Khargpur on the B. N. Railway.

Railway Tele-communication Committees consisting of representatives of Posts and Telegraphs Departments and Railways have been established at many important centres. Meetings are being held periodically and it is stated they have resulted in bringing about commendable liaison and collaboration between the Railways and the Posts and Telegraphs Departments and in improving the efficiency of Railway Circuits.

Re-Grouping of Railways

The Committee on the re-grouping of the Indian Railways is expected to make its report by January. The Financial Commissioner for the Railways, Mr. A. K. Chanda, who is the Chairman of this Committee, has submitted a highly-interesting note to the Government on the working of the British Transport System. Following the nationalisation of the British Railways Parliament did not put them in the hands of a Government Department but created, instead, an independent public corporation to administer the new system on the pattern of the British Broadcasting Corporation.

Under the British plan the four main line Railways, each with its own technique and traditions, have been welded into a single working unit. For operational purposes the British Railway System has been divided into six regions, five in England and one in Scotland, responsible to the executive through the Chief Regional Officer.

Under this plan all unnecessary territorial dislocations are deliberately avoided. The British model might be adopted in India with advantage.

Reduction in Railway Fares Unlikely

Addressing the Pressmen in Bombay on January 8, the Minister of State for Railways and Transport said that he did not see any immediate prospect of a reduction in railway fares including that of the Third-Class. Mr. Santhanam added "We want to stabilise our position first before offering a reduction in Railway Fares." Government had earmarked Rs 15 crores in 1949 for improvement of Railway Stations and increasing amenities to passengers. In the coming Budget they proposed to allot Rs. 3 crores. In future, not less than Rs. 3 crores would be allotted every year for providing more amenities to Third Class passengers and also improving stations, lighting and sanitation, platforms etc.

Mr. Santanam, entered into an elaborate defence of the reclassification introduced recently. Government found that the 36 pies per mile paid by the First Class passenger before the war could no longer be spent by that class of passengers and hence they had reduced it to 24 pies per mile. Government would abolish First Classes in all the lines where there was no demand. Mr. Santanam said the Government were trying to increase tourist traffic by opening a Tourists' Branch in the Railway Administration to do propaganda. At the present moment, they were concentrating on encouraging foreign tourists with a view to earn more dollars. The question of internal tourist traffic would be taken up later.

The Railways of India

On this historic occasion when India attains the status of an Independent Sovereign Republic, taking her honoured place in the Comity of Nations, the Railways of India look forward with hope and confidence to an era of useful activity by making their full contribution to the social and economic development of the New Republic.

India's Railways now belong to her people. They are no longer controlled by vested interests. They are owned by the people and are worked by them. The common man has a stake in the Railways in that their revenues go into the general coffers and Railways are administered on behalf of the people by their own representatives. It is in this context of national interest that the part which Railways play in the economic life of the country should be viewed.

The Railways of India have been described as the country's greatest asset. This will be appreciated when we realise that the Railways cover a length of nearly 24,000 miles and have a capital outlay of about 740 crores of rupees. In 1948-49, their gross earnings amounted to 233 crores of rupees. The Railways thus constitute the largest commercial and public utility undertaking of the nation.

In any well-ordered modern society, an efficient system of transport is essential. The success with which the transport system works will be reflected in the general well-being of the people at large. In order to achieve this success, it is of the utmost consequence that the Railways should work with the maximum efficiency. The active co-operation of the public is urgently required by the Railways in their endeavour to contribute to the economic revival of the country.

Railway Administrations are now seriously engaged in devising ways and means of improving their service and thereby enhancing their usefulness. Their paramount interest at present is to make travel more comfortable—particularly for the Third Class passenger, who contributes most to railway revenues. Every effort is being made to provide better amenities to passengers by putting on additional trains, additional coaches to trains, improving the condition of Waiting Rooms and Restaurants, Platforms etc., arranging for the supply of drinking water etc. Efforts are also being made to build more coaches of an improved design and to make available a larger number of locomotives.

While the Railways are straining every nerve to improve their service, they cannot make much progress, without the co-operation of the public who are not only the users of the service provided by the Railway, but are also the owners of the undertaking. The gains and losses of the Railways are those of the people themselves. Ticketless Travel is unfortunately an evil which the Railway Administrations have not been able to eradicate completely, in spite of all the measures taken by them. The ticketless traveller is an anti-social element and is an obstacle to national advancement. He not only deprives the State of its legitimate revenue, but also deprives fare-paying passengers of their due rights. The extent to which ticketless travel prevails may be gauged from the fact that in 1949 nearly 7 lakhs of ticketless passengers were excessed on the M. & S. M. Railway. On the S. I. Railway the number excessed was 9½ lakhs. These figures, it will be appreciated, do not include the number of ticketless travellers who escaped detection. Railways welcome the co-operation of the public in creating a strong opinion

against the prevalence of this anti-social activity. By strongly discouraging ticketless travel and by assisting Railway Staff in detecting such cases, they will be rendering an invaluable service to society.

Though the present financial situation of the country calls for stringent economies, the Railways do not propose to curtail the provision of essential amenities for the public. They fully hope that the measures now adopted by

them will lead to better conditions of travel.

After years of struggle and tireless endeavour, our country has achieved her goal of Independence. It is now for her citizens to build up a stable and progressive state. The Railways, as an integral part of the country's economy, confidently hope to rise to the occasion and serve the Nation in her march towards progress, enjoying the good-will and co-operation of the public.

(Inserted by the Public Relations Officer, M. & S. M. and S. I. Railways.)

OUR IMMEDIATE TASK



On this historic occasion, when India attains the status of an Independent Sovereign Republic, let us recall with pride that the Railways constitute the Nation's biggest industry. Efficient transport is a vital factor governing a country's economy, and it is particularly so in India, where major industrial schemes are contemplated in the near future. Railways will doubtless be the chief mode of transport for a long time to come and their stability and advancement depend not only on the efforts of the Railwaymen but also on those of the public. It is needless to remind the public that India's nationalised Railways belong to them. They can help Railways by:

1. Discouraging ticketless travel which is causing leakage of a large volume of legitimate revenue.
2. Safely packing, securely labelling and clearly marking consignments before tendering them for rail despatch, thereby minimising the possibility of damage, pilferage, etc. en route.
3. Promptly loading and off-loading waggons, so as to make them available for further use.

Railways Welcome the Goodwill
and Hearty Co-operation of the Public

Press-Button Railway Control

More than 9,000 passenger trains and 12,000 freight trains, running over the 15,000-mile track in the London-Midland region of British Railways, are now controlled by the most Modern Electric Installations and apparatus.

Manchester, Derby, and Crewe are the main centres of the new traffic-control scheme. Train movements in the Crewe region, for example, involve approximately a million train miles a week over 2,400 miles of line. All this is controlled from one room equipped with 27 desks, 21 of which are provided with keyboards, each having a capacity for 36 control circuits and 10 Railway exchange lines.

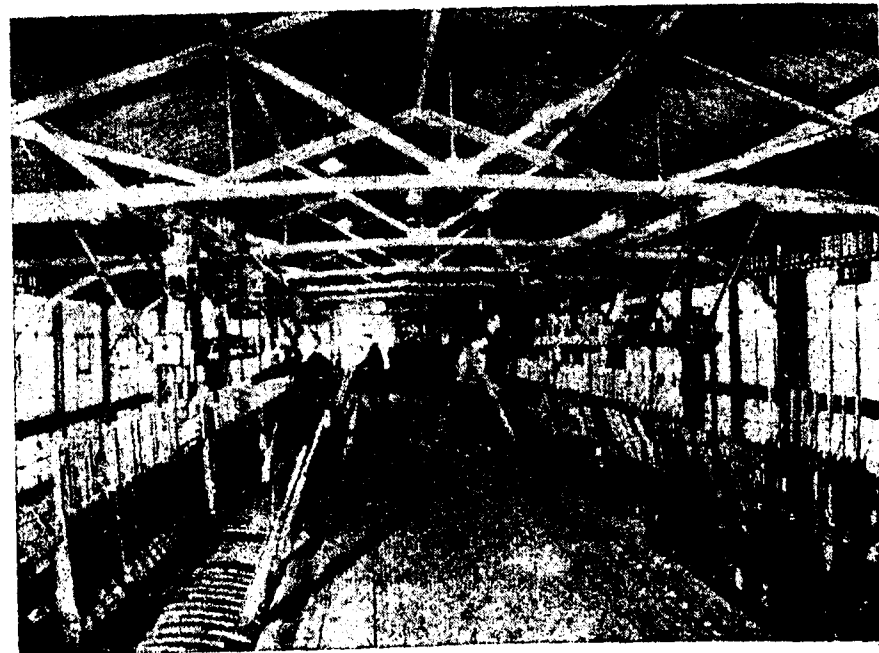
New press-button signals have also been installed in Waterloo Station, London, Britain's biggest and busiest terminus. Gone are the frames of heavy steel levers and the noisy bells which clanged all day in signal boxes. Rows of winking lights in one single room

at Waterloo Station do the work of seven Signal Stations of the old type.

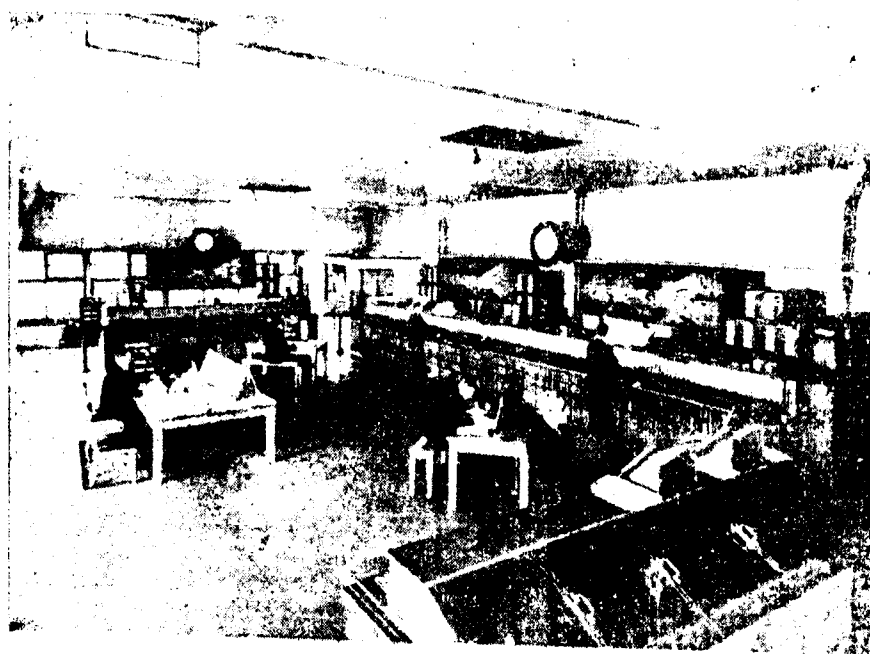
More than 1,700 trains pass that signal box a day. When a train is ready to leave, the foreman on the platform presses a plunge which flashes on a white light in the signal room next to a red one representing in the diagram the train ready to leave. When the white light is flashed, the control room supervisor pushes over four tiny levers which electrically operate points, pushes over two more levers for signals—and the train is off.

Then he presses a button which tells the next box what type of train is on its way and its destination.

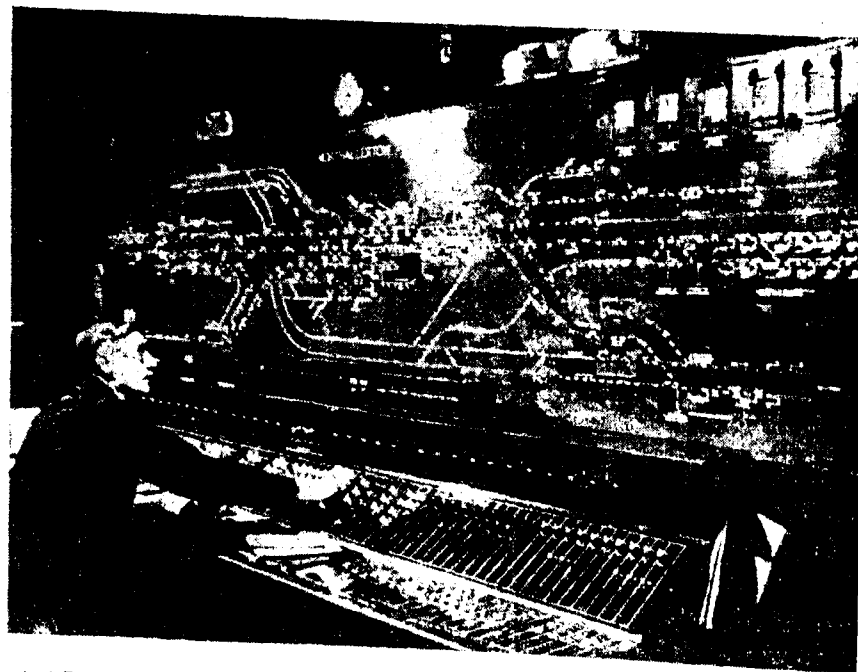
Lights coming on above the levers pushed over before the train started confirm that the correct points and signals had been operated, while other lights follow exactly the movement of the outgoing train two-and-a-half miles out of the section.



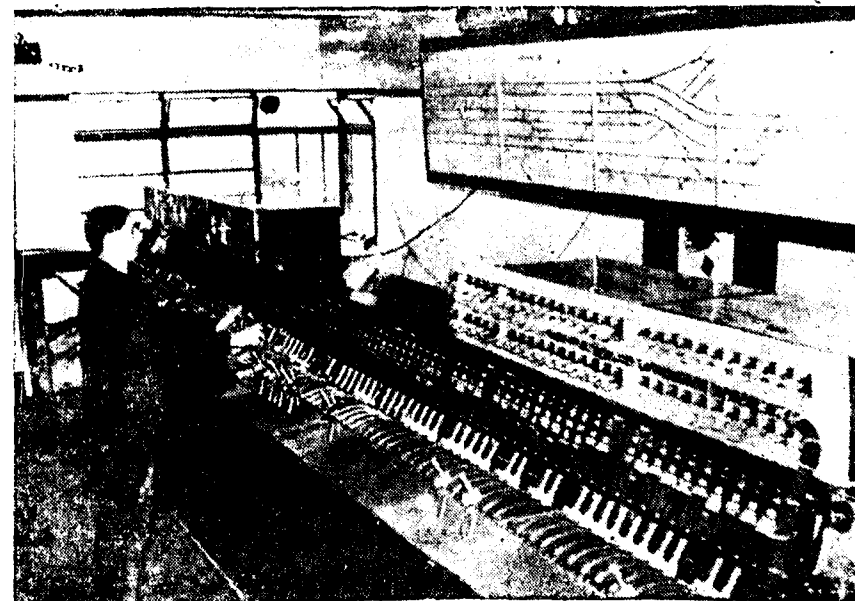
One of the old manually operated Signal Boxes at Waterloo Station, a great contrast to the present all-electric plant.



The Control Room in the Modern Signal Box at Waterloo Station showing the Three Sections of the 300-lever all-electric locking frame, and the Illuminated Diagrams behind.



Control Panel in the Signal Box at Northallerton Stations. The Illuminated Diagram gives some Idea of the Complex layout which the system of relay inter-locking makes it possible for One Man to control.



View in the main Controlling Signal Cabinet Harrow on the Hill where everything works by Electric Power in contrast to the old fashioned manhandling of long powers.

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Modern Developments In Rail Coach Construction

G. KRISHNASWAMY RAO, B. E., A. M. I. E.

The technique of coach building has progressed a good deal within the last decade or so. Old and orthodox ideas in design are being given up and to-day we find in most of the advanced countries like the U. S. A., Switzerland and the U. K. lighter and faster Railway Coaches of greatly improved design.

Most of the Railway Coaches in use in our country are of the older type of construction. A heavy steel underframe with truss work is employed over which wooden body is mounted. The wooden body is of massive construction but contributes very little to the strength of the Coach. The sections of wood used are much thicker than would be necessary from an economical engineering point of view. As a result, the underframe has to be strong enough to support such a massive body without undue deflection.

The trend in modern design has been towards lighter all-metal integral type of coaches making use of just the sections required to give sufficient strength. But light-weight coach is not implied less-safety to passengers as some might imagine. On the other hand, these all-metal light weight coaches are safer and also have the following advantages:—

- a) In case of accidents they do not go into splinters as in the case of wooden coaches. This results in less injury to the travelling public.
- b) Fire hazard is practically eliminated as very little wood is used.
- c) In case of accidents due to collision, the metal coaches are less susceptible to telescoping as the entire dynamic load is absorbed by the steel

body. At the most, the body may get distorted but the passengers will be comparatively safe.

- d) The light-weight coaches permit higher speeds with the same engine or the same engine can haul more coaches.
- e) Metal being easily adaptable for mass production with tools and jigs, greater number of coaches can be manufactured in a shorter time and for lesser cost.
- f) The physical properties of metal used being known quantities, only economical sections can be used in the construction of coaches thereby eliminating wastage of material. Quite a good quantity of wood goes as waste during the construction of wooden coaches.

The speciality in the integral type of all-metal construction is that the entire body itself acts somewhat like a girder and the conventional heavy underframe can be dispensed with. The body which is designed as one with the bottom chassis, is a shell which takes all the buffing and vertical loads. Besides, by allowing certain amount of loads to be taken by the skin also as in the "stressed-skin" monocoque or semi-monocoque construction, further economies can be effected. Basing the design on these principles quite an appreciable amount of weight can be saved. This saving in weight can be augmented further by the use of Modern Materials which can be stressed to a greater degree.

In foreign countries lightness is achieved by using more and more of the light aluminium alloy in Rail Coach construction as in airplane manufacture. As far back

as 1933, the Pullman Company of U. S. A. built all aluminium coaches which were exhibited at the "Century of Progress" Exhibition in Chicago in that year. The Swiss National Exhibition in 1939 demonstrated developments in the use of aluminium for coaching stock. Coaches built in Switzerland for the Visp Zermatt line and the Bruning line in 1924 with aluminium covering for skin were reported to be still in good order in 1945.

Another technique in coach building has been developed by the Budd Manufacturing Company of Philadelphia (U. S. A.). They have specialised in the use of Stainless Steel for Rail-Coaches and are turning out stainless steel coaches in large quantities. They use special portable spot welders for attachment of thin stainless steel skin to the frame work all-over. Here in India, stainless steel is not being produced on a large scale and secondly the use of stainless steel will be prohibitive in cost. The Tata Iron and Steel Company have developed a kind of low alloy high tensile steel which has anti-corrosive properties.

This is called "TISCOR" and seems to be best suited for Railway coach building on account of its highly favourable properties. The American equivalent of this alloy "CORTEN" has been used with advantage by the American Manufacturers of coaches and wagons.

The full benefit of light-weight construction can be realised only when the entire coach and the underframe are designed as one as in integral design. Stronger materials, improved methods of manufacture and better engineering analysis are factors which contribute for light construction.

Here in India, the problems facing the Railways are very many and this is only expected in view of the vastness of our country. The utmost demand of the day is for more and more of Railway coaches. If large numbers of coaches are needed in a short time, there is nothing to excel the all-metal integral type design. It may very well be said that the future of Rail-Coach building in India depends on the Integral type design.



10 Ft. All-metal Integral Coach built by Hindustan Aircraft Ltd.

British Locomotives for India

Four metre-gauge locomotives for use in India have just been completed by the well-known British Firm of W. G. Bagnall Limited, of Stafford.

The locomotives are of the four-six-two type superheated and have cylinders of 15 inches diameter by 20 inches stroke fitted with piston valves having inside admission. The boiler is fitted with 90 solid drawn steel small tubes, of two inches outside diameter and 18 solid drawn steel flue tubes of 5½ inches outside diameter.

The boiler barrel is 16 ft. 9-1/8 inches long, telescopic in three Rings, the smallest being of 4ft. ½ in. inside diameter at the front end. The firebox is of the Belpaire type and is 5 ft. 10½ inches long outside at the foundation ring and 5 ft. 6 in. wide outside. The internal firebox is of copper, 5 ft. 2½ in. inside by 4 ft. 10-1/16 inches wide inside, thus giving an area of 25 sq. ft. The firebox is fitted with copper water space stays having tell-tale holes.

The locomotive is fitted with rocking and drop grates which are hand-operated and the ashpan is of the hopper type with a bottom door. It is also fitted with danger

doors at each end. The firebox is fitted with three arch tubes which carry the fire-brick arch. The superheater is of the M. L. S. type. Soot blowers are fitted on each side of the locomotive and two muffled safety valves are located on the steam stand on the firebox roof. The steam valves are fitted to the steam stand which has a master shut-off valve.

The engine and tender brakes are operated by vacuum cylinders and the ejector is of the SJ type. Lambert wet sanding apparatus is employed.

The leading four-wheeled bogie is of the normal Indian design with volute side control. The side play allowed is 5½ inches. The hind truck is of the same type as has previously been successfully fitted to the two-eight-two type locomotives supplied to the Mysore and Jodhpur Railways and is of a distinctive type which provides for the loading on the springs to be constantly carried centrally on the axle bearings.

The tender is of the six-wheeled type, having a water capacity of 2,200 gallons and a coal capacity of 180 cu. ft. The engine in working order weighs 44.975 tons and the tender 25.3 tons.

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All-Metal Third Class Carriage

The first of a series of improved all-metal broad-gauge Third Class coaches in which principles of aircraft construction have been applied, has been completed by Hindustan Aircraft Limited for the Ministry of Railways, Government of India. The steel structure is specially treated to resist corrosion and ensure long life and maximum moving dimensions Indian Railway standard specifications have been used in the 70 ft. long body. The coach with its thin partitions, made possible by the use of steel, provides more room inside than in the present wooden coaches and it will be noted from the general layout that lavatories have been located at both ends of the coach in place of passenger seats so as to minimise the danger of injuries during collisions. Door steps have been built to the same width as the door, so that there will be no difficulty in boarding or alighting from the coach. The external appearance of the coach has been considerably improved by the addition of rounded fairings which keep the underframe out of sight.

The coach is made up of two large and two small compartments one of which has been designed for women. Special features of the women's compartments, include safety bars for windows, inside door latches, expanded metal frames for the door windows, and illuminated sign boards. Each large compartment has seats for 25 passengers and each small one for 13 passengers. In determining these figures the latest requirement of the Railway Board, which is for a minimum side width of 21 in. to each passenger, against the previous 19½ in. has been taken into account; there is also more floor area to each passenger. Two

lavatories for each of the large compartments and one lavatory for each of the small compartments are provided.

Broad seats and bunks have been arranged on a three-tier system in which the seats are installed in the transverse direction with two berths over each long seat. Small fixed ladders give access to the berths. In addition to the berths, which can be used for luggage during daytime, there are a number of full-length luggage racks. The small sub-compartments with long seats are situated along one side of the coach, opposite to the individual seats; there is a longitudinal aisle between. The single seats are expected to be popular with short distance travellers and the sub-compartments should be suitable for long-distance travel.

The lavatory compartments are fitted with stainless-steel flushing-type lavatory, a gravity cock, coat hooks, and a shelf; wash basins and mirrors are also provided.

To allow easy access, doors have been widened, and more space is provided in the doorway. The windows have been increased in number and are located to give maximum comfort to passengers and ventilation to the compartment. Each window is provided with a glass and a louvre shutter and has gravity safety catches at the top and bottom, one exhaust roof ventilator has been provided over each top bunk in all compartments.

A special feature is the provision of electric fans with individual switches, and the interior of the coach is brightly illuminated by electric lamps. Though the

coach is basically of all-metal construction, care has been taken to insulate the inside of compartment from outside heat. Ventilated air space provided between the outside skin and inside paneling prevents the heat being transmitted to the interior of the coach. Hard cement-like oxy-chloride compound is used for flooring as

heavy wear and tear is expected, and will facilitate washing.

The interior is finished in dark green, light green and white colours with brown lines to break the monotony. The exterior sides and ends are finished in gulf red and the standard black of the roof has been replaced by aluminium to facilitate reflection of heat.

(Railway Gazette, London)

SUSPENSION OF TRAINS ON BROAD GAUGE

The South Indian Railway Administration has recently announced in the press that temporarily certain train service on the Broad Gauge section is being suspended with a view to meet the

heavy pilgrim traffic expected at the Kumph Mela Festival at Haridwar commencing in February 1950. It has become necessary for all Indian Railways, says the S. I. Railway Administration, to contri-

(Continued on page 196)

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Ancient Capital of Mayurbhanj

Khiching, now a small village in the Western Frontier of Mayurbhanj, was the site of the ancient capital of the State in the 10th and 11th Centuries A. D. It may be recalled here to our readers' minds that this State was integrated last year with Orissa Province in accordance with the merger policy pursued by the States Ministry. Likewise several small States in Orissa were integrated in the year 1947 very smoothly.

It takes four-hours-and-a-half to drive from Balasore on the Calcutta-Madras line to reach the village, which bears the silent history of the ages of its temples, pillars, monuments, mango topes and tanks. Under the patronage of successive generations of Bhanj Rulers the town was adorned with a number of temples and a local school of culture known as the "Mayurbhanj School" developed to high eminence. The traditions that came into being long after the desertion of the capital are found

to be after the heroes of the Mahabharata and the people of locality still adhere to the belief that the places known as *Virata Garh* and *Kichaka Garh* were actually occupied by the king Virata and his famous wrestler, Kichaka of the Mahabharata fame. The place was abandoned in the 16th century and the once beautiful capital was reduced to a heap of ruins.

The first exploration of this historic site was taken up in 1907-08 by Mr. N. N. Bose of Calcutta under the patronage of Maharaja Sreeram Chandra Bhanj Deo. The explorations, though desultory, yielded results sufficient to encourage future archaeologists. The work was again taken up in 1922-23 during the rule of Lieutenant Maharaja Purnachandra Bhanj Deo and excavation work in a regular and systematic form was started under the supervision of Rai Bahadur R. P. Chanda, Superintendent, Archaeological



Monolithic Pillars of Khiching.

Section, Indian Museum, Calcutta. The thick jungle which enveloped the ruins was cleared and there appeared a large number of images and finely carved pieces which clearly showed that Khijjingakotta or Khiching was a prosperous town where Brahmanism, Buddhism and Jainism flourished side by side. A local school of sculpture grew up which, while assimilating the best elements of the art of Orissa and



Excavation has revealed the remains of a group of old temples, of which two were very elaborately ornamented. The bigger one of these two which occupied the central position is the Bada Deula of the Great Temple in all its splendour.



The Museum and Restored Temple, Khiching.

Upper India, possessed newer elements derived from the direct observation of Nature. The ruins extended far beyond the limits of the village and pieces of sculpture lay scattered all over the place.

Restoration of Temples

As a direct result of the excavations hundreds of stones and images were unearthed and a regular Department of Archaeology was started for the conservation and restoration of the ancient monuments. The dismantling of Kutaitundi temple or the temple of Nilakantheswar was undertaken and the whole structure was rebuilt with the old materials. After the restoration the temple compared favourably with the best temples of Bhubaneswar. Similarly, Chandrasekhar Temple was also restored to its former excellence. The reconditioning of the Chandrasekhar and Kutaitundi temples being over, the present Maharaja suggested the construction of a new temple on the Khiching style. By 1935-36 the construction of the foundation and plinth was over, when the possibility of constructing the temple with old materials of the original temple lying scattered all over the compound was considered. The experience gained from the restoration of the above two temples helped Mr. P. Acharya, State Archaeologist, and Mr. S. P. Bose, Curator of the Khiching Museum, to work out the new suggestions. Local masons were trained up and by patience and ceaseless work for over five years and by following the old method of construction the restoration work was brought to completion at a cost of about Rs. 80,000. In the restored temple, missing stones have all been replaced by uncarved and plain ones just to show at a glance the missing links and to give a greater relief to the original pieces of sculpture.

His Excellency Sir John Hubback, Ex-Governor of Orissa,

Presenting Mr. Railwayman

"The Booking Clerk"

BY A. H. PEARSON

Before you can travel in a train as a Passenger you must have a ticket, and this ticket you can only buy from the Railwayman known as the Booking Clerk. You will find him in the Booking Office behind a brass or iron-grid window, ready to serve you as soon as you come up to the counter.

How does the Booking Clerk spend his working day? If he is working at a large Railway Station with heavy passenger traffic and the continuous system of booking, he will work an eight-hour shift. At smaller stations with a lesser volume of traffic, where the system of 'intermittent' booking is in force, the Booking Clerk will work a 12-hour shift, and will open his booking window to sell tickets to waiting passengers from half-an-hour to an hour before the arrival of a passenger train, and will close it after the departure of the train.

When the Booking Clerk starts his turn of duty, he must first check the entries in a register known as the cash settlement book, to ascertain the opening and closing numbers of each class of ticket for various destination stations. The closing numbers of the tickets entered in this register must be checked with the opening numbers of the tickets in the ticket tubes.

Tickets are stored in a ticket case, containing sloping pigeon-holes, known as ticket tubes. Each tube contains one class of ticket for a particular destination. The Booking Clerk knows his ticket case so well, that on demand of a ticket for a particular station, his hand reaches out swiftly to the correct tube, slips out the ticket, date-punches it, and passes it out to the passenger, first collecting the fare.

Let us step behind the counter of the Booking Clerk selling Class III tickets. The moment he opens the shutter protecting his ticket window, there is a scramble and a hum of voices. Hands are thrust into the small opening with money and there is a clamour of requests for tickets. The Booking Clerk sees mostly the head and shoulders of the passenger on the other side of his ticket counter, but it is more than enough for him to study the human parade.

Selling tickets to passengers who know exactly what they want, and ask for it without hesitation or vagueness, is easy work for the Booking Clerk. But this is always not the case, and day after day in those long lines of passengers waiting for tickets are the people that provide the little irritations and pin-pricks in the day's work. For instance, a villager, who travels rarely, will ask for a ticket for some way side station, hand over short cash, and then look puzzled when he is told to pay more. It takes quite a lot of patient explanation to convince him that he is not being cheated of the few extra annas required. Then there is the man in a hurry. He pushes his way through the waiting crowd, gets near the ticket window, and creates quite a stir, by demanding to be served first. This often results in a noisy altercation in the passenger queue with the Booking Clerk waiting till it is over.

There is also the passenger who wants a ticket to some way-side station for which perhaps printed card tickets are not available. The Booking Clerk will then have to prepare a ticket on the blank paper ticket form. This requires the aid of fare and distance

tables, rapid calculation, etc. which takes a little time. But the passenger is not always reasonable or understanding and often gets petulant for being kept waiting, and may pass a few nasty remarks about the quality of the Booking Clerk's work.

Then, there are the members of the begging fraternity. These people think that tickets are handed out gratis to their kind, and they will ask for tickets to the destination desired, offering nothing in payment. The Booking Clerk gives this tribe short shrift, although they often waste some of his time by their charity whines.

Often there will be a passenger desperately anxious to get a ticket to his desired destination, but the fare is short of the correct amount. The ticket is naturally refused until he pays up the correct fare, but he will try pleading with the Booking Clerk to just do him a little favour this time and it won't happen again. Then, there is the man who can be called the 'short-change' menace. He will ask for a short journey ticket, produce a ten-rupee note, get the correct change, but hurriedly take it up, and after a few minutes will return to the counter and protest that he has been 'short-changed.' But this type never gets away with this trick.

The Booking Clerk working in the Upper Class Booking Offices has a less harassing time, as the upper class traveller is usually one who knows what he wants and asks for it politely. But even here, the Booking Clerk may be up against the unreasonable type, who will

rush up to the ticket window ask the Clerk to work out the fare for a destination about a thousand miles distant, and involving transit over two or three railway systems. The passenger thinks that the Booking Clerk is a mechanical 'ready reckoner' and expects the answer within a couple of minutes.

The Booking Clerk does not merely sell tickets and collect the cash for each. In the welcome gaps between trains, he has to tot up his cash, and make sure that the cash in hand checks with the sales. At the end of his shift he posts into the cash settlement book every ticket sold during his turn of duty. He must see that his total is correct, as in the rush of selling up to a couple of thousand tickets during his duty hours, he may have over-looked something, and later when accounts checks are made and shortages are detected, he will have to make good the shortage out of his own pocket.

His turn of duty is over, but he does not always leave his work and worries connected with it, back there in the booking-office. Some day he may have made a miscalculation on a blank paper ticket, and when the Traffic Accounts Office checks up on every ticket issued, the error may be spotted. And the Booking Clerk who made the error, is presented with an undercharge memo, which means he must pay up for his mistake. But as the years go by, his experience makes him expert at his work, and reduces the margin of error in the day's work.

(Continued from page 174)

dealing with points in dispute between the management and workers. This Committee is now functioning.

The retrospect is indeed heartening, and given the same conditions as were obtaining during the year 1948-49, the prospect for the current year should be one of better achievements both in earnings and operating efficiency.

visiting Khiching in January 1941 observed: "I am particularly



The Kutaitundi Temple, Khiching "A Gem and Masterpiece of Architecture." Reconstruction completed in 1931-32.

interested to see that the method employed for rebuilding the main temple is that which in all probability was used for its original construction. I admire the patience and skill with which what was once debris is now being restored to its proper place."

The one speciality of Khiching temples is that they are built entirely of Mabni Granite stones, a rare feature in India.

A Dak Bungalow has been built near the temple and the Archaeological Museum adjoining the temple contains marvels: sculpture and domestic articles used by ancients. For years past successive generations of Professors and Students of Indian History, Governors of Provinces and eminent Historians and Archaeologists of India have paid visits to Khiching, the mirror of the glory and heritage of the ancient Rulers of Mayurbhanj.

Sir W. H. Lewis, visiting the temple site recently, observed: "In the reconstruction of the temple the Maharaja undertook a difficult task and has carried it through with complete success whether from the archaeological or artistic point of view." (I. I.)

(Continued from page 191)

bute coaches to enable Northern Railways, to run special trains. As all the coaches available on the S. I. Railway are already in service, our share can be met only by suspending certain trains and by reducing the number of coaches on some other trains. We are also compelled to abolish Upper Class accommodation in a few trains. This reduced train service will come into force from about the first of February 1950.

It is regretted that it has become necessary to resort to this expedient and it is hoped that the public will appreciate the Railway's difficulty and put up with these inconveniences for the time-being. Normal services will be restored as soon as the coaches return from North India. The train services that are being suspended and those from which Upper Class accommodation is being withdrawn will be notified from time to time.

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The Cheat on the Ganges Banks

BY P. A. N.

Krishna Aiyer was a pious soul. From his childhood days he had been taught the good lesson that it was more blessed to give than to receive. So, his mind was after giving charities of all kinds. He would never fail to push a copper into the tin of a beggar whenever he was approached by one. If he did not have a coin with him at such moments, he would at least say a few comforting words to the poor fellow and pass off. That was enough soothing to the beggar. He observed all important religious days and took a special delight in feeding the Brahmin Pundits and showering on them all sorts of valuable presents. But he was told by the Pundits that the highest form of charity any one could do in this world, was to present a Brahmin Pundit with the offering of a cow. Krishna was quite prepared to do that in Madras itself but the Pundits said that he should either go to Benares or Rameshwaram to do that! To go so far, for the mere sake of this charity, was not a welcome idea to Krishna. He would wait for some days, some months, or even some years to do it, he consoled himself. After all, where was the hurry? Was he not young, was he not counting to live up to a ripe age in life according to even astrological calculations, leaving aside fitness of this one robust physical constitution? So he would wait, thought he.

Days passed on as days always do. Then a few friends of Krishna once told him that they had arranged a tourist party to visit Upper India. Would he not join them? The question was put to him. Krishna took fire at the idea and took no time to give an answer in the affirmative. Yes, he would gladly join them now and the friends went away happy that they

had secured yet another man to the party.

The Grand Trunk Express carried the tourists from Madras steaming majestically northward one fine morning. They all talked about widely on this and that including how the Simla Talks failed.

"Oh, How I would be delighted to see the Taj!" gleamed Govind, the student of the School of Arts.

"Oh, No, how I am looking forward to see the Delhi Fort!" retorted the history-minded chap Vasu.

"That is alright but what I want to see is Muttra, the birth-place of Lord Krishna," yelled the Yadhava youth.

"That is all right for you chaps but what I want to see is the Ganges," said the student of Geography Thanu.

"For me," came the small voice of Hassan, "Kutub Minar is the one thing to see!"

"Damn, you fellows," shrieked the politically-minded Guna, who had already been to prison thrice as a Student Leader.

"I am only looking forward to see the Viceregal Lodge, how big it is and what an amount of taxpayer's money had been spent on it. Besides, I am eager to see that swell-round building known to the world as India's Parliament House in New Delhi.

Thus, each and one, and one and all freely gave vent to their feelings as to what they were looking forward to see in the tour on which they had been now engaged. But poor Krishna, oh, he was all silence. Only his mind was thinking of Benares but his tongue did not express to the crowd about it.

"And now, Krishna, why are you silent? Govind pulled him out to talk.

"Me? Answered Krishna in a quiet tone." "Well, now, I am only eager to see Benares."

"Benares, the Mecca of the Hindus in all the world? Well, boy, you shall see it, I bet," he finished.

Then there was idle chat in the train compartment on other subjects.

The tenth day they left Madras, the tourists arrived in Benares after seeing Agra, Muttra, Delhi, Prayag and Moghul Sarai. They were lodged in a hotel for the night, and all of them save Krishna went to sleep soundly, since the continuous train journey in a third class compartment of war-time accommodation made them so tired. But from the moment the train pulled up at the Benares Station, Krishna was all enthusiasm; for was he not going to accomplish now his dream of dreams? Well, he was all in great spirits about it.

At the hotel, when his friends slept, Krishna befriended the room-boy and asked him all about the Geography of the Benares town and discussed the correct method of visiting the shrines and bathing in the Ganges. With his scant knowledge of Hindusthani, Krishna nevertheless picked up a little of what the room-boy told him. Though it was arranged by the tourist party that all of them would leave for the sacred bath early morning, Krishna was so impatient that at the break of the dawn he decided to go himself. He was suspicious that his friends might break into a peal of laughter if they saw him doing *Godan* (offering of a cow to the Brahmin). So he left alone, alone even before the twilight of the morning was seen. The hour was about four to be sure.

Krishna reached the sacred ghats. The majestic river Ganges flowed in all its glory as it had always been flowing, justifying the verses of Longfellow that "I go on for ever." He stood on the banks with great admiration and even piety. His imagination ran riot at the prospect of his proposed good deed. He looked around himself. Not a soul was there. He was the one solitary figure out in those parts at that hour. Where was the cow? Where was the Pundit? Oh, in this holy spot why should not the Brahmin Pundit be an early riser. He wondered on these lines just he heard the approach of human feet and he turned around. There stood a tall man in a tuban staring at him. Krishna was now reassured a bit he asked the man whether he could find a Brahmin Pundit to whom he wished to offer the presentation of a cow. "That is easy" said the stranger. "You had better have your bath." Then I shall get a cow and I am myself the Pundit to receive it. Hear nobody invests any large amount in buying a cow to present it to the Brahmin Pundits. I myself have a cow you nominally buy it from me for Rupees five and present it to me. That is the procedure, you understand?" he finished.

Krishna was delighted. He thought that the matter was so simple as all that. Thanking the man, he went away for the bath and then returned after ten minutes.

It was still dark on the Ganges banks, Krishna could not even see anything clearly. He stood in expectation to see the Pundit turn back with the cow. And good man, he did return.

Holding the animal in his hand in the foggy atmosphere which obstructed clear vision, he handed over the string which tied it, into the hands of Krishna, and he held it, firmly. Then a few sanskrit words were chanted. Krishna

repeated the words as pronounced by the man he met at the ghats. Then he led the strings slip out of his hands into the hands of the stranger. The animal was then led away.

There was not a happier man in all Benares at the moment than Krishna. He was so delighted at the completion of his long dreamt dream. Now the twilight of the morning came and a fine breeze blew about the place. Krishna's companions too now came up to the ghats and joined him.

"Well, Well, What is the game now? Why is the early visit to the Ghats? they asked of him in one chorus. "You see, I had to perform Godan here and I

thought you chaps would laugh at me if I did it in your presence," Krishna replied.

"But then, lad, at this early hour, who provided a cow for you here?" asked one in the party. "Well, I managed it" replied Krishna proudly.

"That is strange indeed. Come let us have a look at the animal and the Pundit," demanded Govind.

Krishna took them to the near Mantap and said "Look within."

They all looked in. They found no cow inside. They were surprised. Then all of them in one voice yelled with roaring laughter.

"Boy, That is an Ass."

RUBBER TREATMENT INCREASES LEATHER DURABILITY

A simple process for using natural rubber to make leather more durable and more resistant to water and abrasion has been developed at the United States National Bureau of Standards. The process consists of immersing the naturally porous leather overnight in a solution of natural rubber and then vulcanizing the rubber.

The impregnated leather is said to be longer wearing (when used as shoe soles, for example) than untreated leather and from 50 to 100 per cent more resistant to abrasion.

After testing various kinds of natural rubber, the researchers found that Hevea smoked sheet rubber, a relatively inexpensive type, provided the best immersing solution. They also found that a more uniform impregnation was obtained by splitting away the grain layer of the leather and using only the body of the leather in the impregnation process.

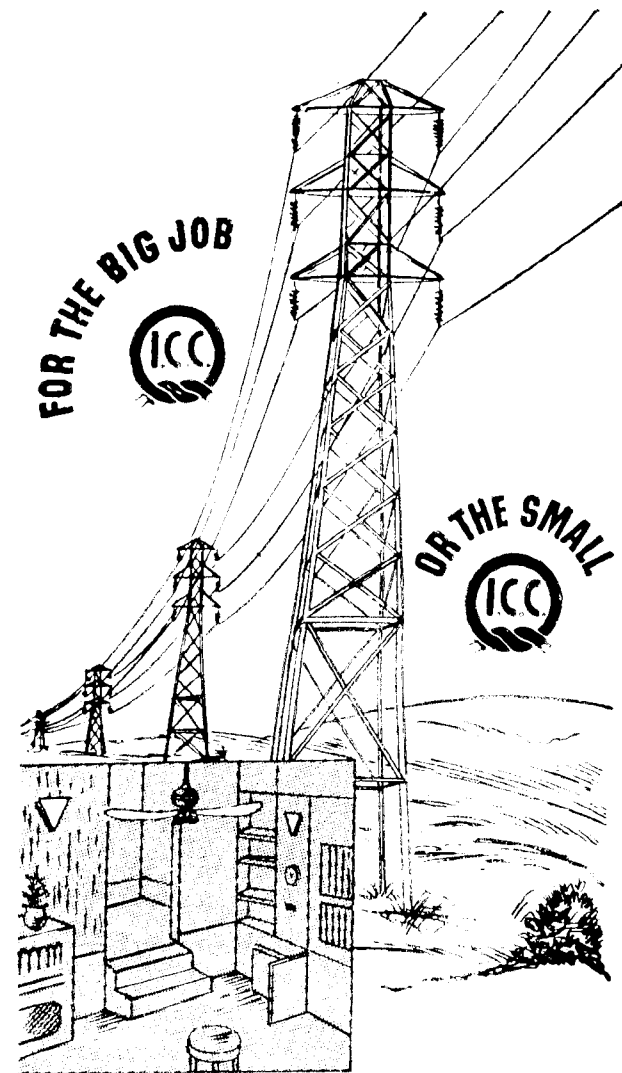
It is believed that the new process will permit the use of substandard leather from steer hides. It is also thought that the split-off grain layer may itself become a valuable by-product for upholstery or other uses.

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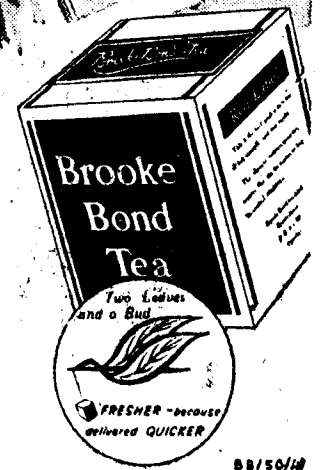
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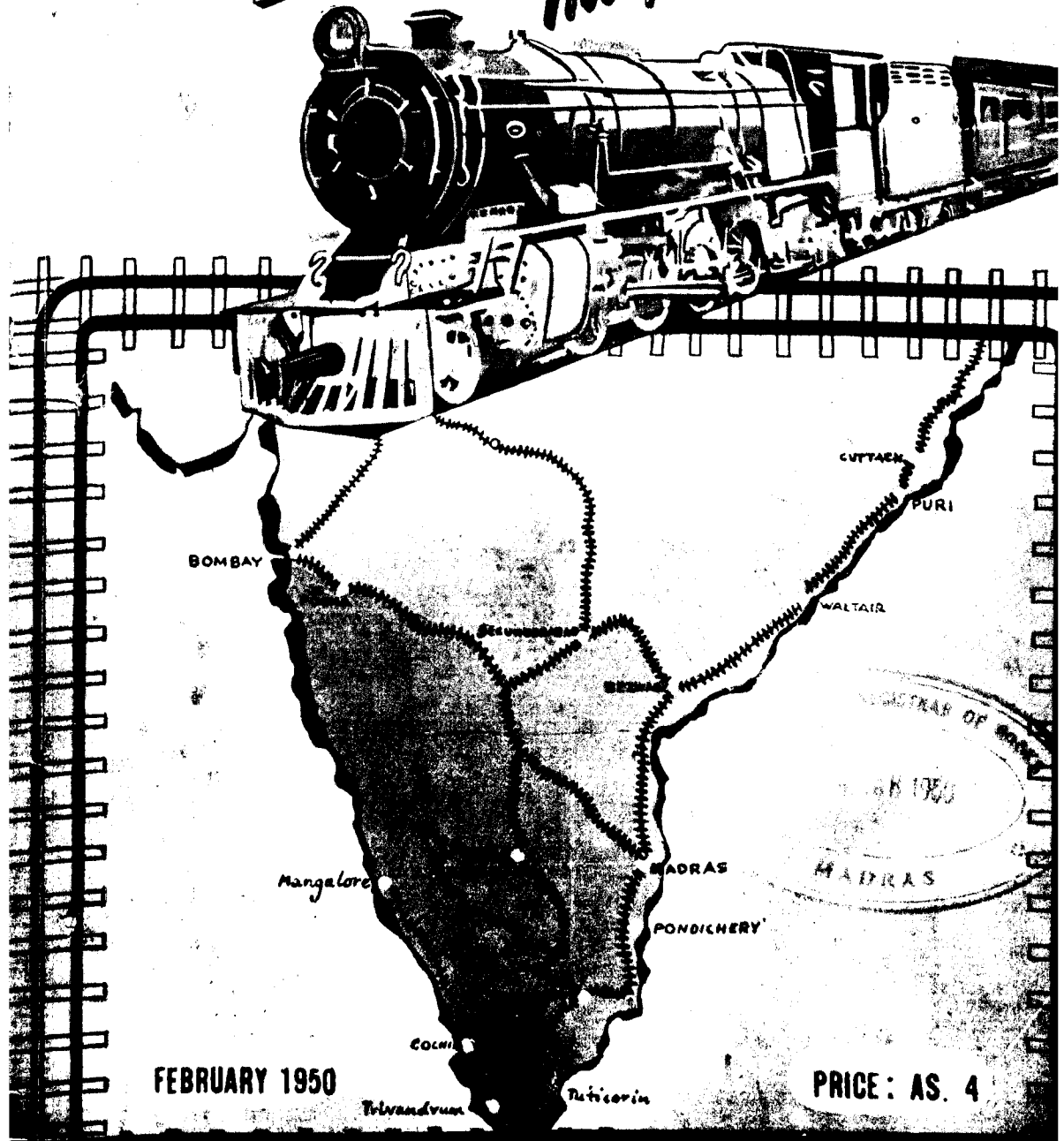
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SOUTHERN RAILWAYS *Magazine*



Southern Railways Magazine

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NO. 8

FEBRUARY 1950

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Railways in the Republic

In a brief reference in his first presidential speech, Dr. Rajendra Prasad, paid a fitting tribute to the Railways in India, when he said that "the Railways which had suffered grievously during the war and immediately after partition, have registered a welcome improvement....."

This welcome improvement is amply borne out by a special article written by the Chief Commissioner of Railways, published on Republic Day, in which he has reviewed past achievements for the two and a half years from the transfer of power from Britain to the birth of the Indian Republic. Briefly some of the most noteworthy of these achievements are the ability of the Railways to handle practically all the goods traffic offered: passenger train punctuality being stepped up from a low figure of 20% in the winter of 1947-48 to 80% in 1948-49, acceleration of important trains by two to three hours: progress in the Chittaranjan Locomotive Works: the enormous increase in passenger traffic from 12,588 million passenger miles in 1938-39 to 31,884 million in 1948-49: improvement in the terms and conditions of service of the 8,50,000 employees on the Railway's pay roll and perhaps the most notable of all these achievements, the completion of the Assam Rail Link Project through rugged country of mountains, turbulent rivers, and cursed with the scourge of malaria. This was accomplished within 24 months, with the goods traffic going through on the 9th December 1949, and the first passenger train moving on the 26th January 1950.

That was the past. What of the future? The programme of what is to come is encouraging. More passenger trains, with coaches providing fewer and wider seats, more knee room, better lighting, insulation against heat, electric fans, etc. with the emphasis on better travel for the Class III passenger. In the way of passenger amenities at stations, there will be new waiting halls, additional booking offices, improved sanitation, better lighting etc.

That the 8,50,000 railwaymen of India are sound at heart, and have the will to work for better achievements in the future, is evidenced by the steady improvements made in the last two years, and given freedom from anxiety by better economic conditions, especially in the way of the ability to get the essentials of life more abundantly and cheaper, the plans for the future will not be promises unfulfilled, but realities accomplished. The Republic of India will then be able to boast of a Railway system providing what every man in the nation desires in the way of safe, speedy and efficient transport.

Notes and Comments

Year in Retrospect

Sri. K. R. Ramanujam, General Manager, South Indian Railway addressing the Journalists at Madras Egmore Station presented a comprehensive survey of the operational results for the current year which indicates an increase of 6.25% in passenger traffic, 8.82% increase in goods traffic and the gross earnings and operating ratio are the former having an increase of 7.2% and the latter having a decrease of 2% as compared with 1948-49.



Sri. K. R. Ramanujam,
General Manager, S. I. Rly.

Class III Express trains have been introduced between Madras Central and Mangalore on the Broad Gauge and similarly between Madras Egmore and Trichinopoly Jn. via Main Line on the Metre Gauge. This new introduction of express trains has received very high appreciations from the public the fact being that these trains link north-east and north-west bound trains leaving Madras Central, Railway Administration

has not been able to restore the full pre-war level of train services chiefly due to dearth of engines and rolling stock although the train miles at present represent 92% of the pre-war level on the Metre Gauge and 99% on the Broad Gauge. We believe this deficiency will be filled up when we get self-sufficiency in locomotive requirements by the end of 1954 when it is expected that the Chittaranjan Locomotive Factory would be turning out ninety locomotives every year and thereby increasing the output gradually to attain the target of 120 locomotives and 50 spare boilers every year.

Another noteworthy achievement of the S. I. Railway during the year has been the introduction of Express Goods Service—a special system of booking and despatch of small consignments of sundry goods between Madras Egmore and Trichinopoly Goods or Madura Junction and vice versa. At present no extra charges are levied for this special service but we presume the administration is considering the question of levying extra charges for this special service. As regards punctuality of trains, less said is the better.

Ticketless travel is the worst crime perpetrated on the Railways. In spite of the administration's twenty-four-hour watch over these nation's enemies, there have been several escapades. This is due to the elastic rules and regulations of the administration. Every month over 40,000 ticketless travellers and 4,000 cases of unbooked luggages are detected according to the official report.

Closer contact with trade interests and fulfilment of their requirements is as much essential as the Administration depute District Officers and Commercial Traffic Manager to meet representatives of trade and industry for periodical meetings. Spirit of the

meeting is more important in so far as the mercantile community is concerned. In this we believe Railway Administration will do all its best as they are the biggest customers of Railways.

In recent months, the S. I. Railway Administration have provided a few special trains for the benefit of pilgrims attending major festivals such as the Velanganni and Kandoori festivals at Nagore, Adiamavasai festival at Rameswaram, Vaikunta Ekadasi festival at Srirangam etc.

There has been marked improvements in the wagon position and the Priority classifications have been suspended with effect from 31st January 1950.

The matter of providing special accommodation for long distance class III passengers has been successfully tackled. Special accommodation is reserved in selected Express trains for passengers travelling over 300 miles on the Broad Gauge and over 200 miles on the Metre Gauge. A Special Ticket Examiner is in charge of these compartments and he helps to accommodate passengers and keep out short distance passengers from such reserved compartments.

Settlement of Claims is the biggest headache of any Railways. In this S. I. Railway has made considerable progress. To accelerate, further powers have been delegated to senior Station Masters and goods Station Masters to afford open delivery of consignments under certain conditions and powers have also been delegated to chosen staff to settle claims upto Rs. 50 at the time of delivery. On 31st December 1949, the S. I. Railway had no claims over six months old and only 85 Claims over 3 months old on that date.

54 new Metre Gauge (Y.G. Type) engines have been allotted to S. I. Railway and 19 of these

engines were expected to arrive in Madras before the end of January 1950. Twenty new B. G. engines (HPS type) have also been allotted to this Railway and these are expected by about June 1950. 37 Metre Gauge and 15 Broad Gauge coaches built in the S. I. R. Workshops at Goldedn Rock were put into service between April and December 1949.

Among other amenities to passengers, there has been security measures on the S. I. Railway with a view to ensure safety of passengers in general and particularly women passengers travelling in compartments reserved for them. Train Examiners at important stations have been asked to help the Inspectresses to demonstrate the working of inside locks and bolts to lady passengers. Train Examining Staff are posted at major stations to rectify any defects in the safety appliances pointed out by the passengers.

The "SOUTHERN RAILWAYS MAGAZINE" takes the opportunity of congratulating Mr. K. R. Ramanujam, General Manager of South Indian Railway for the interests he has evinced in providing all amenities to the passengers in general and especially to Class III passengers. He deserves all appreciations and wishes from the general public.

Review of Work on M. S. M. Railway

Amidst the members of the fourth Estate, Mr. W. G. W. Reid, General Manager, Madras and Southern Mahratta Railway described the amenities that had been recently provided to passengers on the Railway. Several of the Chief Railway Officials were present including Mr. P. A. F. Cory, Chief Operating Superintendent, Mr. P. Subramanyam, Chief Engineer, Mr. Achuta Rao, Chief Electrical Engineer, Mr. B. T. Singh, Deputy Chief Commer-



Mr. W. G. W. Reid,
General Manager, M. S. M. Rly.

cial Manager, Mr. N. Kamalakara Rao Naidu, Deputy General Manager, Mr. V. Jagannath, Deputy General Manager and Mr. R. Gopkrishnan, Public Relations Officer.

Although there has been severe cuts on financial aspects, the plans to provide greater amenities for passengers will be implemented. The Railway had provided Rs. 21 lakhs for works pertaining to such amenities during 1949-50 and had budgetted for Rs. 36 lakhs for the ensuing financial year to provide such amenities. Regarding the position of locomotives and coaching stock, Mr. Reid said it is considered that with the new locomotives ordered by this Railway some of which have already arrived—the position should considerably ease. Twenty-five W.P. Class Broad Gauge engines

for Fast Passenger Service have been allotted to this Railway of which 13 have already been put into service. The other 12, which were only recently received, are being assembled in the shops. For the Metre Gauge, six Y. P. Class engines for Fast Passenger service and 18 Y. G. Class engines for heavy goods service are under order. The Railway Board has placed a bulk order for 100 Broad Gauge Bogie Class II coaches with the Hindustan Aircraft Factory Ltd., Bangalore. Seventeen of these coaches have been allotted to this Railway and of these nine have already been received and put into service at the rate of one per rake on each of the seven Grand Trunk Express rakes, keeping two coaches as reserve for spares. In addition to the above, this Administration has been building coaches in its own shops at an average rate of 30 bogies per year Broad Gauge and 20 bogies per year Metre Gauge for replacing the old stock when they are no longer fit for service and are condemned.

It is heartening to note that with the arrival of the new W. P. locomotives with effect from December 10, 1949 Nos. 1 and 2 Calcutta Mails, Nos. 3 and 4 Grand Trunk Expresses and Nos. 9 and 32 Vizagapatam Passenger Trains had been speeded up and it was expected that Nos. 21 and 22 Madras-Bombay Expresses, Nos. 23 and 24 Madras-Bangalore Expresses and Nos. 10 and 31 Madras-Waltair Passenger Trains would also be speeded up from April 1, 1950. Further it had also been possible for the M. S. M. Railway Administration to attach extra stock to Nos. 1 and 2 Calcutta Mails and Nos. 3 and 4 Grand Trunk Expresses. From April 1, 1950 the Up and Down Calcutta Mails would touch Cocanada from Samalkot in view of its commercial importance:

Passenger Amenities

Additional waiting accommodation for Class III passenger has been programmed to be provided at 16 stations during the year of which work has been completed at five stations, according to the General Manager. Work is in different stages of progress at the remaining stations. The more important at the stations where this additional facility is being provided are Tirupati East, Nellore South, Gummudipundi, Munirabad, Bezwada, Vaniambadi and Kanibennur. Moreover, an estimate has been recently sanctioned for providing overhead covering to a length of 200 ft. over the island platform at Renigunta and it is hoped that the work will be taken up and completed soon.

The M. S. M. Railway Administration has at last given their prior consideration to the much-criticised Refreshment Rooms on the Railway. Apart from the high prices at which eatables are sold in these so-called Refreshment Rooms, cleanliness and sanitation are highly regrettable in as much as their high-handedness. New Vegetarian Refreshment Rooms would be provided at Arkonam, Hubli, Raichur, Sullurpet, Tuni and Bitragunta and a start will be made soon. In the ensuing financial year Vegetarian Refreshment Rooms at Bezwada, Renigunta, Gadag, Bellary, Wathar, Telgi, Donakonda and Hindupur will be radically remodelled or replaced to approach to the standards recommended by the Raman Committee.

At Bezwada, Mr. Reid said, an electrically-operated drinking water cooler to supply cool water to passengers was expected to be ready for use by March 1950 and if this proved successful, similar facilities would be provided at other important stations on the system. Specially designed trol-

lies for the sale of food packets and refreshments had been provided at important stations to facilitate trainside vending. Such trollies had been supplied to Bezwada, Guntakal, Jalarpur, Gudur and Sullurpet and arrangements were in hand for the supply of trollies to other stations.

We also join with the General Manager in extending our tributes and all appreciations to the staff for their onerous task in the extremely trying conditions.

B. N. R.'s Progress

Mr. P. C. Bahl, General Manager of Bengal Nagpur Railway in his Press Conference reviewed the progress made by the administration in providing more amenities to the passengers at large. Unlike previous years, the Administration has concentrated their attention on passenger amenities and they have allocated Rs. 32.9 lakhs for this purpose. Among the extra amenities to be provided are the erection of waiting sheds and waiting-halls at passenger halts where at present there are none. Passenger platforms with moorum surfaces which become dusty in



Mr. P. C. Bahl,
General Manager, B. N. Rly.

summer and slushy in the rains are being replaced by cement, concrete, coal-tar or cement-stabilized soil surfaces. Low passenger platforms are being raised at the more important stations. Before next summer Khargpur will have an electric water-cooler to supply cool drinking water to passengers. Two more water-coolers are to be installed at Cuttack and Bilaspur in 1950-51. The authorities are considering plans to electrify all important and big stations on the B. N. R. where energy is available from the local supply companies and for this a provision of Rs. 2.5 lakhs has been made in 1950-51 for electrifying other stations.

It has been decided to install fans in all Class III coaches on the B. N. R. which were in service for under 20 years. Such coaches number about 200 and a sum of Rs. 2 lakhs was set aside in 1949-50. The provision of electric fans is however, entirely dependent upon the availability of additional train lighting dynamos and batteries as the existing equipment is not capable of taking on the additional fan load. On account of this difficulty only Rs. 42,000 was spent till December 1949 and it is expected that a further Rs. 29,000 will be spent during the remaining period of the financial year. To start with, it was decided to take in hand the work of fitting fans in ladies compartments only. There were 49 such compartments to be dealt with necessitating the use of 187 fans, which 183 have so far been fitted. The balance will be completed by the end of the financial year. It is also hoped to install 96 fans in general compartments of existing stock by March next. A provision of Rs. 4.66 lakhs has been earmarked in the coming financial year. Fans are also being fitted in the 76 new Class III carriages now under construction. So far nine carriages have been turned out of which five have been fitted with 12 fans each.

To facilitate booking, separate booking windows for passengers travelling 300 miles and over have been opened at Khargpur, Cuttack, Puri, Ranchi, Purulia, Bhaga, Kamptee, Gondia and Raipur. New booking arrangements have also been made at Waltair and Vizagapatam.

The B.N.R. recently introduced a scheme of posting a gazetted officer at each important station on orderly duty to ensure more comfort for the travelling public. A beginning has been made with seven stations—Howrah, Khargpur, Adra, Chakradharpur, Bilaspur, Waltair and Tatanagar. These officers are required to make personal and direct approaches to the passengers in order to ascertain their grievances and to invite their suggestions for improvement.

We believe in the coming months the B. N. Rly. will make rapid progress in all directions under the able and gifted General Manager, Mr. P. C. Bahl.

Demands of S. I. Rly. Running Staff

The half-yearly General Body Meeting of the South Indian Railway Loco Transportation Association, Tiruchirapalli was held in the first week of this month Mr. J. Almedia presiding. Mr. C. Woodfall hoisted the National Flag.

The President in his address appealed to the Running Staff to remain loyal to the Government and discharge their duties faithfully. Afterwards the meeting passed a resolution appreciating the manner in which Railway labour had been responding to the call of national leaders but it expressed the view that matters relating to the workers were not being settled. The meeting also resolved that Running Staff should not be made to work for more than ten hours a day.

Transport of Goods on S. I. R.

Facilities for the movement of merchandise on the South Indian Railway were discussed by Mr. T. A. Joseph, Chief Traffic Manager of the Railway during the first week of this month at the meeting of the S. I. Railway Regional Committee at Madras with representatives of Chambers of Commerce in the City. The meeting was held at the Office of the Southern India Chamber of Commerce. Mr. A. M. M. Murugappa Chettiar, President of the Chamber welcomed the Chief Traffic Manager.

The learned CTM pointed out in his usual way that guaranteed reservation of accommodation at intermediate stations had been introduced for first and second class special passengers with effect from the beginning of this month. As regards train halts, he said, it was not possible to introduce new stations in the list at present. The question of introducing an additional train on Salem-Mettur Dam section where service was restricted to day-time at present would, he assured, be considered when the Railway obtained more engines. In regard to the allotment of wagons, Mr. Joseph said that allotments once made to parties would not be cancelled unless the latter failed to use them promptly.

The question of special rates for food-grains transported to Madras by rail from other parts of the country was raised by a representative who urged that Madras had been a pooling centre catering to and feeding various markets in the province. Mr. Joseph said that there were no special rates for the transport of food grains on the South Indian Railway.

Mr. Joseph informed the meeting that insured articles for despatch were only accepted at

Railway Stations proper and not at Out-Agencies.

Reservation of Berths on S. I. Rly.

The Public Relations Officer, S. I. and M. S. M. Railways says in a press note that with effect from February 1, 1950 Guaranteed Reservation of Berths in Class I and Class II Special can be arranged for passengers joining at certain specified intermediate stations on the S. I. Railway by certain important trains. Passengers should apply for reservation to the intermediate Station Master at least four days earlier than the date of the commencement of the journey. Tickets can be purchased ten days in advance of the commencement of the journey and reservation will be arranged in consultation with the Station Master of the starting station at a fee of annas eight per berth. Reservation of berths can be had only, if night journey is involved and passengers are in possession of tickets for 200 miles and above on the Broad Gauge and 150 miles and above on the Metro Gauge.

Similar facilities have also been arranged on the M. & S. M. Railway, for the convenience of passengers travelling from the intermediate stations. How far this would help the passengers without much harassment is worth watching.

Railway Travel Amenities

Mr. K. Nagarajan, Secretary, The Negapatam Railway Passengers Association writes that the first thing to be looked into is the need to stop overcrowding in Third Class compartments by manufacturing more Third Class Coaches and thus providing seating accommodations for Class III passengers. Improvements to stations may wait for sometime.

The introduction of Special Class II has led only to an increase

in fares and we find not much difference between the Ordinary Class II and the special one except the reservation of berths during nights in long-distance trains. In the Ceylon Railway, sleeping coaches are attached to the long-journey trains and convenient berths are available for upper class passengers on an extra payment of Rs. 2 a berth. Sleeping coaches on that model may be introduced in our railways, which will be more convenient for the long-distance passengers during night time. These are the things to be attended to immediately. The Railway Passengers' Associations are always at the door of the Railway Minister and these Associations may be consulted.

German Locomotives for India.

The Government of India have just placed an order with the Krupps Group in West Germany through their Agents in India, the Associated Corporation of Industries (India), Ltd., for supply of locomotives which will be run on narrow gauge lines in India. The first lot of the order three saddle-tank locomotives is expected to arrive here at the end of 1950 or the beginning of 1951. This is the first reopening of transactions with the Krupps Group after the war.

Service First on Railways

Mr. K. Santhanam, Minister of State (Railways) disclosed in Parliament this month the scheme called "service first scheme" had been introduced on the B. N. Railway which provided for the posting of a gazetted officer as an orderly officer each day at each important station on that railway to visit trains and station premises to ensure security and comfort of passengers and to deal

with complaints on the spot. It was an additional duty of the Officer and therefore, no additional cost was involved. All other railways had been asked to adopt similar schemes.

Mr. N. Gopalaswami Ayyangar said that the Railways had built 96 "gunited houses" in Bombay for their employees and 28 were under construction. The cost of gunited houses for class 4 staff varied from Rs. 2,100 to Rs. 2,300.

Leave Rules in Golden Rock Railway Workshop

Mr. S. Guruswami, General Secretary, All-India Railwaymen's Federation in a statement to the press said that a reference has been made to the All-India Railwaymen's Federation by the S. I. Railway Workers' Union about the situation that has arisen in the Golden Rock Railway workshops due to the introduction of a new rule that workshopmen will not be granted leave for less than half a day and that late attendance, even due to the late running of workmen trains beyond half an hour, will be treated as absence for the whole shift. This led to a demonstration recently in Golden Rock, and the workers resolved to give 14 days' time for the Management to remove the newly-imposed restriction.

As the issue is an All-India one the Federation has addressed a strong representation against the new rule, which is calculated to restrict production and impose an undesirable look-out virtually. The Federation appeals to the workshop staff not to precipitate direct action but await the reply to the Federation's representation."



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Railways' Role in National Life

BY A. K. ASTBURY.

Despite the fact that 75 per cent of all steam locomotives made in Britain are destined for export, re-routing of goods traffic, reduction in control districts, a time census and a foolproof communication system have helped British Railways to make an important contribution to industrial efficiency.

The steady improvement in the speed and efficiency of Britain's Railway freight services since the end of World War II is playing an all-important part in the nation's economic recovery, for it is ensuring that goods are reaching the consumer at home and overseas more quickly and more effectively.

While it is true that Britain's general pre-war freight services have not been restored in every detail, substantial improvements have been made in quickening transits and in modernising rolling stock in the face of an increased volume of traffic and in spite of the exports of locomotives and other equipment.

To help in resuscitating the Railways of Europe damaged by war, for instance, Britain sent 110 steam locomotives as part of her contribution under United Nations Relief and Rehabilitation Administration; and since the war 75 per cent, of all steam locomotives made in Britain (apart from those made by the Railways for their own use) have gone abroad, to India, Argentina, Burma, Pakistan, Egypt, the Union of South Africa, Australia, and many other countries.

Export of waggons since 1946, too, has been at a higher rate each year than the best pre-war figure; and since 1946, between one-third and one-half of Britain's production of Railway brake, signal, telegraph and track equipment has been exported.

The Personal Touch

Before the war there were four main Railway Companies in Britain each maintaining its own commercial representative in any one

centre. Now the Railways are all under one central controlling body—the Railway Executive—one agent, instead of four, acts for all the Railways of Britain in any one District. But the Railway Executive is taking care that contact between commercial agent and customer should not be made more remote by the unification of the Railways. Special training courses are held for their agents, and the need for maintaining the personal touch with customers is stressed.

It is in the sphere of actual control and operation, however, that the greatest opportunities for improvements are being taken. Railwaymen are becoming increasingly alive to the possibility of a completely unified Railway transport system, and a beginning has been made, for instance, on the re-routing of goods traffic, sending it on new and shorter routes which cut across the boundaries of the old Companies. There has, for instance, been a saving of 53 miles on the Harrow (near London) to Gorseinon (South Wales) traffic route; and on other routes some savings of 30 to just over 80 miles have been made. Traffic "flows," too, have been merged, so that loads can be sent in bigger and thus more economical "blocks" than formerly.

Control of Movements

The average person knows little of that rather intricate but vitally important matter known generally to Railwaymen as "control": the planning, at central points, of train and traffic movements throughout the system. Yet in this department of Railway working great progress is being made. In the largest region of

British Railways—the London Midland Region, which extends from London to Carlisle, on the Scottish border, and includes Manchester and Birmingham — the number of control districts has been reduced from 42 to 20. This in itself speeds up traffic by extending the period for which a goods train is under the control of one district office. Side by side with this reduction in control districts has come a new telephone communication system which allows constant touch to be maintained with traffic movements throughout the area.

Another interesting aspect of the work of control is what is known as time census. At frequent intervals every station checks the time taken in transit by every waggon (save those used for coal) received during the day. This data is summarised and sent to the Railway Executive, where a nation-wide summary is prepared. This census quickly shows where and how any delays occur, and how best they may be avoided.

Sound Equipment

But no amount of reorganisation and control would be effective without sound equipment. What are the British Railways doing to make up for all those years when maintenance was cut to a minimum and production of equipment—at any rate for the home peace-time market—came virtually to a standstill? They are first of all, building more waggons now than before the war, and a higher proportion of large waggons at that. The new standard mineral waggon (for coal, iron ore, and so on) has a 16-ton capacity, compared with pre-war capacities of eight, 10, and 12 tons.

British Railways have also made extensive improvements in a large number of marshalling yards. In March, at Cambridgeshire,

where there is the largest concentration of sidings in Britain, very high frequency short-wave radio communication has been installed between control tower, sidings, and shunting engines. At Toton, in Southern England, in the up-marshalling yard, five new arrival lines and nine sorting sidings to take some 835 waggons, have been brought into operation.

Such are some of the improvements which made it possible for British Railways in 1948 to carry 115 million tons of general merchandise and 161 million tons of coal; which have made possible such improved average speeds for freight trains as 39 miles an hour for the 10.23 p. m., Stockport to London (180 miles), 38 miles an hour for the 2.55 p. m., London to Glasgow (400 miles) and 36 miles an hour for the 2.40 p. m., London to Carlisle (293).

It is in this way the Railways of Britain are making a substantial, and increasing, contribution to United Kingdom Industrial Efficiency.

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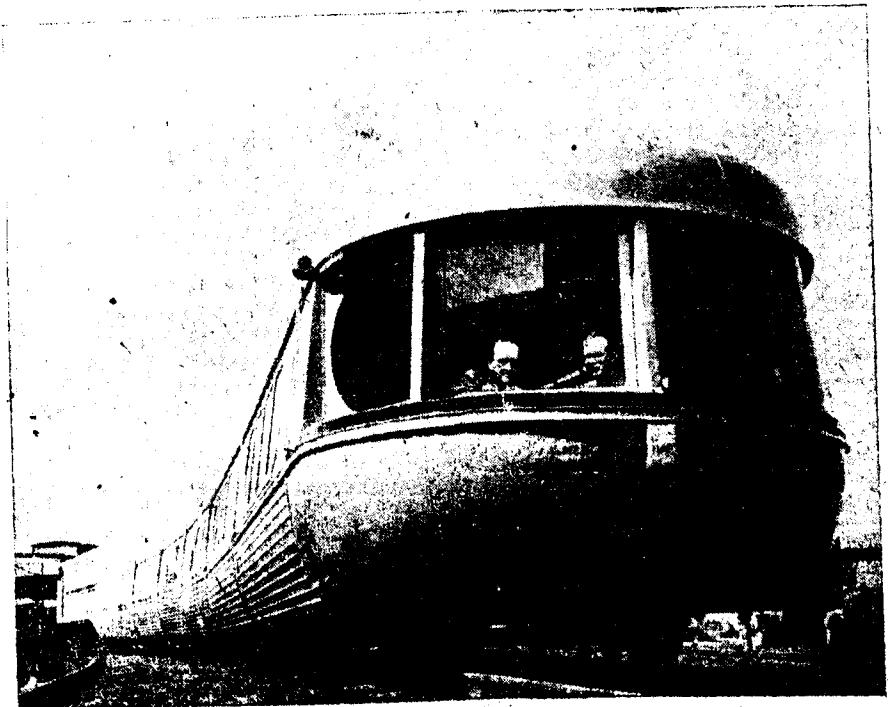
A Revolution on Rails?

The Talgo Train, built by the American Car and Foundry Company, is hauled by a Motor-truck engine, has automobile-type brakes and uses two-wheel trailers for cars.

Far back in the hills of the Eastern Seaboard State of Pennsylvania, staid American farmers were in a state of excitement. For several days in a row a strange apparition—a tiny Tom Thumb of a train which went as fast as the wind—had flashed down the railroad tracks which cut across their fields. It was the first time they had seen a train in slip-covers. Beneath yards of flapping canvas they caught glimpses of gray-painted aluminium cars, with round windows that looked like ships' portholes. Strangest of all, the train had only two wheels per car—and the toy-like cars seemed hinged in the middle.

To Pennsylvania's practical farmers it did not look real. But it was real. In slip-covers for secrecy, the American Car and Foundry Company was trying a new idea: a baby train that would weigh a quarter as much as a standard train but would run a quarter again as fast.

Recently, in its factory at Berwick, Pennsylvania, ACF divulged its secret. Slip-covers were stripped aside and visiting railroad officials looked at the glistening thing in wonder. What they saw was a hybrid on wheels—part bus, part automobile, part truck, with a good measure of air-



This Six-unit train recently built by the American Car and Foundry Company weighs less than one Standard Railway coach and carries about the same number of passengers. Toy-like cars are only 20 feet long, have only two wheels each.

(Photograph—Courtesy of Science Illustrated)

plane aluminium included. And all this had been cast together in the form of a splendid stream lined baby train.

The idea for the Talgo train, as it is called, came from Spain where a similar one was tested during the last war. To New York for a meeting with American Car and Foundry Company Officials soon after the war came a Spaniard named James Mac-Veigh, chief engineer for the Talgo Organisation of Madrid. Would ACF build two big 16-unit trains of the kind Talgo wanted for the high-speed, 500-

miles run between Madrid and the French border?

The ACF Officials, properly skeptical, met Mac-Veigh for lunch at the Engineers Club in Manhattan. Before lunch was over, ACF not only had agreed to build the trains for Spain but was so impressed by Mac-Veigh's amazingly simple designs that it had decided to build a demonstration train for America.

Except for its lightweight engine, the Talgo train is simpler to build than highway busses. Its



The interior of the small, light train recently built by the American Car and Foundry Company looks like the cabin of a large Airliner. This is a view through two cars, joined by flexible rubber diaphragm (arrow).

(Photograph—Courtesy of Science Illustrated)

six aluminium cars are little more than an airplane fuselage cut in six sections and hung at each section to bend around curves. Talgo cars hug the track, have no heavy machinery beneath the floor.

In effect, each little car is merely a lightweight trailer: It has only two wheels and it is connected to the car ahead by a trailer towbar. There are no axles. Each wheel is independently attached and uses automobile brakes. Floors are only 18 inches above the rail: you step down into the train from almost any station platform. The whole

design is so simple that one Talgo car can be assembled in less than 48 hours.

The most surprising thing about a trip on the Talgo train is not the smooth gliding ride which is like that of any fine streamliner. Nor is it the fact that when you walk down the aisle you pass between the wheels which stick up into the car and are concealed by neat housings. Your greatest surprise comes when the train stops at a station and you glance up from your seat to see someone looking at your eye-to-eye, outside your window. (The Talgo train



When the cars of the new train built by the American Car and Foundry Company are uncoupled the simple construction of the cars is disclosed. Note lightweight wheels, spring suspension, and the loadbearing pins which support next car.

(Photograph—Courtesy of Science Illustrated)

is so low that a man standing outside can lean his elbow comfortably on the outer window sill and peep inside).

Crawling down ACF's rough yard tracks at Berwick, the Talgo train gives you a bumpy ride. The short trailer-cars respond to every track jolt. But once out on the regular rails of the Lackawanna Railroad the ride evens out. The little flyer picks up speed, and glides. You see the walls of your car bent at the joint in the middle and you know you are taking a curve. But the train inside seems level and steady. (There is no sensation of riding a toy-size train). The little car wheels, guided by the towbar from the car turning ahead, are ready for the curve before they meet it, so do not slam against the Rail and try to climb over it.

Its designer says the Talgo train can take at 100 miles per hour curves that larger trains have to take at 80 or less. Its top speed on the straightway is given as 120 miles, a speed rarely reached by even the large streamlined trains. How fast it has gone to date neither the designer nor ACF will say. It is probably around 80 or 85 miles per hour.

Already, the light Talgo Locomotive has met one emergency. Five miles from Berwick on its first test run, spook and span in fresh paint, it hit an automobile while making 40 miles per hour.

Apparatus for Hearing Through Finger-Tips

Great interest was also aroused by reports of a new apparatus intended to provide hearing through the finger-tips for totally-deaf people. The device, which also provides a speech medium for deaf-mutes, was described by Dr. Norbert Wiener of the Massachusetts Institute of Technology. The device, which ultimately will be arranged in the form of a glove attachment with a small receiver set, already has given "hearing experience" to some totally deaf persons, Wiener said.

Lightweight though it is, Talgo's engine nevertheless stayed on the track.

When American Railroad executives saw the Talgo train, one important question came to their minds: Can the Talgo train compete with highway trucks?

Since the end of the war the shift of America's freight business from Railroads to trucks has been serious. Continued much longer, it would spell doom for some Rail Lines. Freight trains cost much more than trucks to run, cost more to maintain and lose money on small shipments. Could Talgo-like cars be built to handle freight? Trains of lightweight trailer freight cars would be cheap to build, cheap to run should handle small unit loads economically—if they can do the job at all.

Railway men still dream of the freight car that can be uncoupled from its train; continue its run by highway to a consignee. What would be the result if Florida fruit-growers in the American South could load light trailer cars in their orange and grape-fruit groves, tow them to a Railroad yard and hook them into long trains for the North? Heavy freight cars would continue to move heavy freight (coal, grains, ore). But small shipments such as Florida freights, half of which now move by Truck Lines, might again flood the Rails. (Science Illustrated).



Most industrialists agree on the necessity of having canteen arrangement in their factories, but few can employ experts to plan and run them. Not the least of the problems involved is that of diet selection so that food is not only cheap, appetising and nutritious but also properly suited to the particular part of the country. In this, the Central Tea Board has conducted specialised research, and the results of this work are freely available to all employers of labour. From the same source, the most modern information

on tea making and tea serving is also available. For tea—the drink of comfort, refreshment and sustenance—is still the backbone of the efficient canteen, and this organisation can provide every possible hint on equipment, utensils, staff and administration.



Special pamphlets and brochures on technical aspects of canteen planning and management are supplied free to re-

cognised employers of labour on application to the Chairman, Central Tea Board, 31, Netaji Subhas Road, Calcutta 2.

Presenting Mr. Railwayman

"The Running Shed Foreman"

BY A. H. PEARSON

As a passenger using the Railway for your journeys, you must have seen the locomotive at the fore-end of your train, and perhaps you have wondered what happens to a locomotive when it is not hauling a passenger or goods train. After the engine has completed its prescribed run, which may be from one hundred to about three hundred miles, it detaches from the train and goes into what is known as the running shed.

The running shed is where engines are groomed and kept in good running fettle. Depending on the size and capacity, there may be from a dozen to about a hundred engines homed at a shed, and the Railwayman who is responsible for the smooth functioning of the entire shed organization is the Running Shed Foreman.

Starting his working day at eight in the morning, the Foreman makes a rapid tour of the entire shed and loco yard. He must spend a few minutes with his Fuel Checker to make a quick appraisal of the daily coal position. He has to make sure that there are adequate stocks of all grades of coal, i. e. mail, passenger, goods and shunting on the shed coal stacks.

The repair bays will then receive his attention. In consultation with the supervisory fitting staff, the Foreman will make a quick survey of the engine repair position. In the heavy repair section he must see that all repair jobs are being done with expedition. Repairs on bogie and tender boxes are usually done within 24 hours, and there may be some repair jobs which may take a few days to complete. But the Foreman must ensure that engines are not standing idle for avoidable reasons.

In the light repair section fitters will be busy on minor jobs, like vacuum, gear, injectors, steam-cocks, lapping and tightening of bolts and nuts etc. These jobs are completed within a few hours.

Next he takes in the boiler section, checking up on the engines doing 'shed.' These are of two kinds - hot and cold. After three or four round trips engine boilers must be washed out, as water impurities start scaling boilers. These impurities must be eliminated periodically to enable the engine to 'steam' properly. The boiler then gets a 'hot bath' which removes sludge and sediment. This is the 'hot shed process. The 'cold' shed is a longer process, as fires are dropped, all steam released, and the boiler cooled down, to enable the boiler staff to get right inside it to scrape off the scaly deposits clinging to boiler plates.

To get the maximum mileage from every locomotive in his shed, the Foreman must be constantly on the alert that all grooming and repair jobs are being done within the shortest possible time.

No running shed can function efficiently without an adequate stock of various kinds of spare parts, material, tools, and consumable stores. The Foreman must therefore keep a wary eye on his stock position as, if there is a serious depletion of vital items or parts, it will mean keeping engines idle on the repair pits until the stores are received from supply depots.

Back in his office, the Foreman will check his daily Running Staff, Position-drivers, Shunters, Leading and Second Firemen. He must see that all engine crews, both home

and outstation, are getting their prescribed rest. When the staff position, shows heavy casualties due to sickness and leave, it is then that the Foreman must worry. Traffic is calling for engines to move trains, the engines are there ready in steam, but where are the staff to come from to man the engines? But the Foreman is a man with years of hard practical experience stored up inside him; and although these problems crop up, he can handle them and keep that traffic moving.

Among loco and traffic staff there is a phrase often used, "late on bhar line." 'Bhar' line is the boundary post with the loco yard on one side and the traffic yard on the other, and at the boundary there is usually a tiny cabin, known as the 'bhar line goomty.' In this goomty, time records are kept of

engines proceeding from loco to traffic yards and vice versa. After traffic has called for an engine for a train, the shed shunter takes the loco up to the bhar line, where the driver takes over. It is at this point that the engine gets a final check up by the fitters at the outgoing inspection pit, and drivers will not cross the bhar line until they are satisfied that their engines are running smoothly. If minor defects are found, they will get last-minute attention here, which may give rise to what is known as bhar line detentions. The Foreman must check bhar line time records regularly, and if he finds a spate of these bhar line detentions he must ascertain causes, and take prompt steps to remove them.

The Running Shed Foreman and his Staff play vitally important roles in Railway accidents, because

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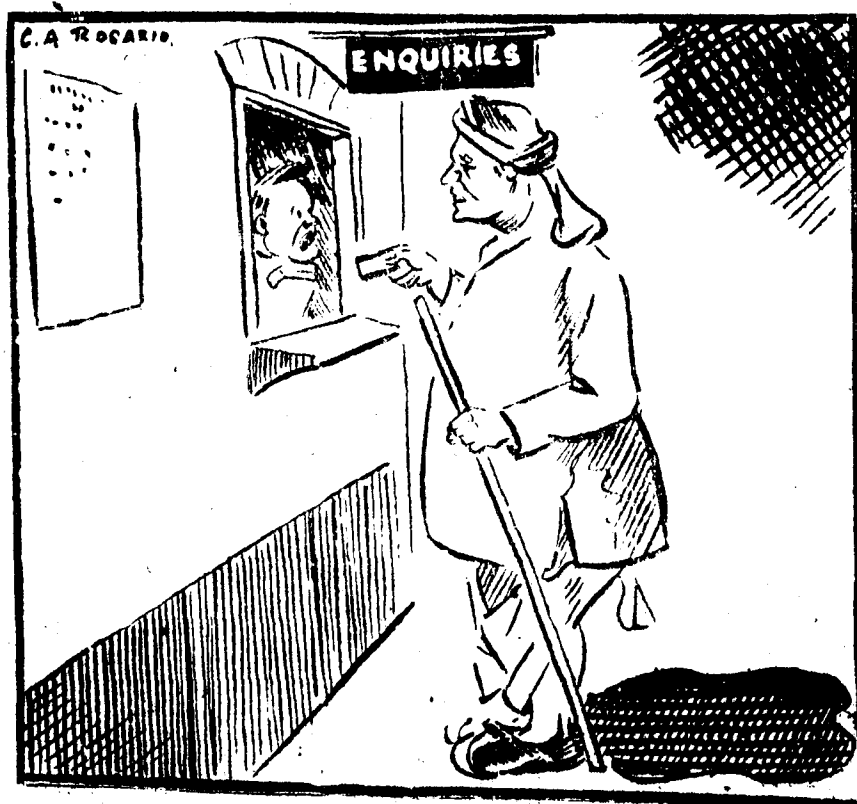
GOVERNMENT OF MYSORE

— BHADRAVATI—MYSORE STATE RAILWAY —

under the control of the Foreman is the Accident Relief Train, known familiarly amongst Railway Staff as the 'Lalgari.' The accident relief train is always 'standing-to', and it is the Foreman's job to see that all its equipment: screw jacks, lifting tools, hammers, wrenches, high-powered petromax lights, etc. and the most important of all, the Medical Relief van, is sufficient and intact to meet an accident call at any hour of the day or night. Within about half-an-hour of the accident siren sending out its eerie warning of disaster, the Foreman with his complete accident gang must be on that relief train, ready to move off to the site of the accident to provide succour both for man and machine.

Besides this, the Foreman has a lot of office desk work to do in the way of statistical returns of engine performance, staff problems, coal and store supplies, and most important of all, to see that the staff working under him are efficient and contented men, who are all pulling their weight to keep the engines out on the tracks hauling the coaching and goods traffic.

So you get a glimpse not only of the Foreman at his daily job, but the hum of activity that goes on amongst the hiss of steam, the clang of metal on metal, the powerful whirl of lathes and drilling machines, the sudden hot glare of huge fireboxes being opened, in a locomotive running shed.



"Tell me, Babu Sahib, will this Platform Ticket entitle me to travel from Bombay Platform to Nagpur Platform?"

Principles of Gauging

R. S. PARIHAR, G. I. P. Rly., MATUNGA

Whenever any batch of components is carefully measured, it will be found that small variations from the size specified on the drawing are always present. In other words, perfect dimensional copy of a bore or a shaft cannot be reproduced by the same operator and even on the same machine. Naturally the amount by which the component differs from the drawing or nominal size depends upon the type and condition of the machine on which the operation is performed, upon the operator's skill and upon the accuracy of measuring instruments. In practice all machining operations consist of removing metal until a given measurement is reached. When a turner is given a shaft, to turn to suit its bearings, he adopts the trial and error method. A skilled turner would obtain a fine smooth fit, while a poor one would make loose job of the assembly.

In large scale manufacture, where a number of turners and machines are employed, turners are given identical 'GO' and 'NOT GO' gauges, so that the finished shafts, when assembled with the 'Bearings' may result in the tightest and easiest fits, allowable for the assembly. The nearer the GO and NOT GO sizes of these gauges are to each other the nearer the components would be to the ideal or theoretical size. 'GO' and 'NOT GO' gauges therefore, serve the purpose of keeping variations within a particular desired limits. These limits are determined either by the designer himself or by the Drawing Office and are shown on the blue prints to guide the manufacturing shop in their endeavour to make components conform to the prescribed limits.

Standard of Accuracy

It goes without saying that the manufacture of 'GO' and

'NOT GO' gauges is a very important factor. The gauges are manufactured by highly skilled workmen and calibrated with accurate precision instruments. Here comes the problem of the standard of accuracy, for even the gauges cannot be produced with no allowance at all for manufacturing error.

It is of no use talking about one tenth of 0.001" if an accurate vernier micrometer is not available. The standard of accuracy is therefore linked with the measuring instruments available in the shop. Suppose components are to be finished to an accuracy of 0.01", the gauges should be correctly manufactured to the accuracy of 0.001", and the instruments to check these gauges should be correctly calibrated to 0.0001". Tool Room accuracy in our country is 0.0001". There are few tool rooms which are to-day equipped to work to a finer limit.

Tolerance

Tolerance on a particular dimension is the difference between the high and low limits of size for the given dimensions. Tolerance on a dimension is allowed for the unavoidable errors in the process of manufacture. There are many factors which are considered before determining Tolerance on a dimension. These are the standard of accuracy to which the shop can work and the function of that part; the manufacturers' price policy, for if the finer tolerances are prescribed, the price due to the superior quality of the product goes up and the quantity naturally drops.

Allowance

Tolerance and allowance are mistakenly used synonymously. Allowance is given to obtain a particular type or kind of fit. If a diameter or a shaft is slightly

larger than the hole diameter, the shaft would not enter in the hole easily and would require to be forced in, whereas if the shaft diameter is slightly smaller, it will only require a push or it will easily fit in. The allowance is the difference in size between the maximum size of male component and size of female component.

Allowance is closely connected and is determined in accordance to the service conditions. There are examples of positive allowance, i. e. the diameter of shaft is kept smaller than the diameter of bearings, where a shaft is running fit and requires lubrication; while a negative allowance is kept to shrink fit a tyre on a wheel centre. By increasing or decreasing allowance between mating surfaces, various kinds of fits, i. e. Force fit, Shunk fit, Push fit, and Running fit are obtained.

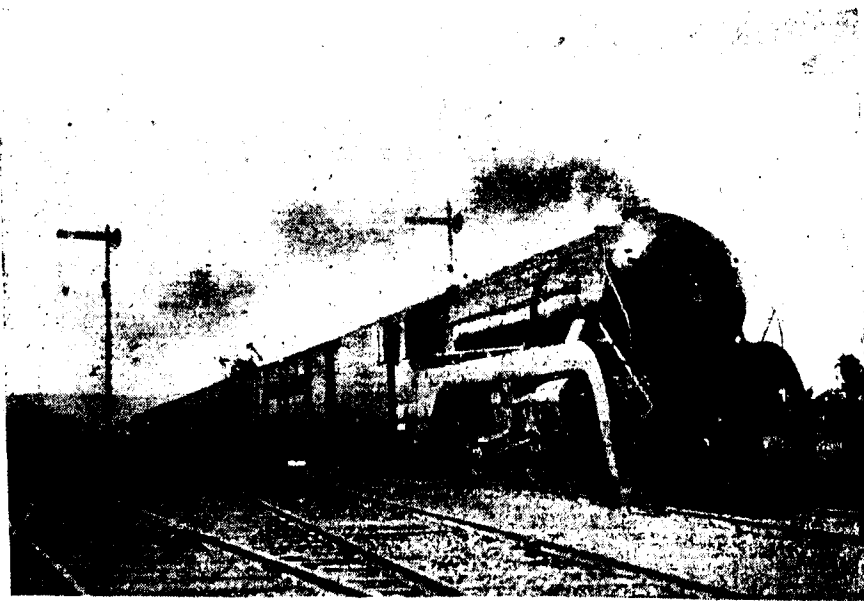
Interchangeability of Components

If the correct use of our gauges is made during manufacture,

and the components are carefully checked during and after production, it can be then relied upon that each component would become interchangeable and any component will fit properly into the assembly. This new method of producing components in bulk was first devised by a French mechanic, La Blanc, making rifles in 1785, and was adopted in the U. S. A. on a large scale in 1798. To-day the method is used in our daily workshop practice. Most of us know that components are to-day mass produced and are kept in stock, ready to use when required. That is how, in times of necessity, the user of a car or a cycle goes in for a particular component, which he can obtain from the market stockist and can replace the broken or worn out part without much difficulty and by paying a meagre sum.

Gauging During and After Production

Gauging during and after production is an important factor to



The above Engine is the W. P. type at work on the Bengal-Nagpur Railway. The Engine is now on its way to Waltair—the Terminal Station of B. N. Rly.

(Photograph—Courtesy of : Public Relations Officer, Calcutta Railways)

have quality and control over production. Gauging during manufacture of a component is performed by the machine operator himself. The finished components are forwarded to the stores through the Inspection section, where the components are again checked by an Examiner or Inspector. The gauges used by workmen are known as shop gauges and those used by Inspectors as inspection gauges. Most of the factories have some form of 'Bonus system' to reward labour for extra work done during the estimated number of hours, in order to increase production. However, this does not mean that in order to raise production of workman can rush through the job and produce more components having poor quality, for the workman has to get his product passed by an Inspector before the workman is credited for the same. Inspection gauges are manufactured with different tolerance to that of shop gauges. The main idea here being that the Inspector's gauges are in comparative less use and their tolerance so determined, that they cover for the wear shop gauges, which are always in constant use. Not to reject any component which has already been accepted by another gauge, Inspector's "GO" plug gauges is a fraction larger than the shop "GO" plug gauge and the Inspection "NOT GO" gauge is kept a fraction larger than the shop "NOT GO" gauge. It is therefore that if the shop "GO" gauge just fits a component (push fit) the Inspector's "GO" gauge will be easy push fit and similarly Inspector's "NOT GO" gauge would not enter a bore were the shop "NOT GO" gauge may even be a force fit. Due to the constant wear on shop gauges, it is possible that gauges may either wear smaller or enlarge which depends upon the type of gauge.

The diameter of plug gauges will always wear small and the

dimension set on a Gap gauge will be enlarged. The Inspection gauge then serves the purpose of constantly checking the wear on the shop gauges. The Inspection gauge, however, has also a limited life and there is also possibility of the Inspection gauge wearing in dimensions. For that purpose a set of reference gauges is made and kept in the Inspection Department. In case of dispute a reference is made to these gauges. The reference gauges are made having the same tolerances as that of Inspection gauges, but finished to a more accurate degree.

In order to illustrate the difference in the shop and Inspection gauges let us suppose that 1" size nominal hole is to be bored with tolerance of plus 0.002". The shop gauges to meet or requirements will be "GO" 1.000 (plus 0.002 or minus .0000) and "NOT GO" 1.002 (plus .0000 or minus .0002), while Inspection "GO" will be 1.000 (plus .0000 or minus .0002) and "NOT GO" size 1.002 (plus .0002 or minus .0000).

Allowance and Limit

There are two systems which are most commonly used for determining the allowance for an assembly of a particular kind of fit on the drawing. The NEWALL system is one of the oldest. On the Railways, however, our work is done to "British Standard Specification." All systems have the same object of setting out a series of tolerances, by the use of which various type of fits can be obtained. Each system is laid out in such a way that it covers a wide range of sizes of shafts and bores, and suitable tolerances can be quickly worked out for a special size not included in the standard specification. The constant adopted in the above two systems are based on the hole and the table is worked out from these premises.

(Continued on page 227)



Gen. Manager delivering the Republic Day Message at Watch and Ward Parade. Superintendent, Watch and Ward (S. I. Rly.) is on the Right.



Gen. Manager introducing the Hon'ble Minister of Railways who is standing on the Left.

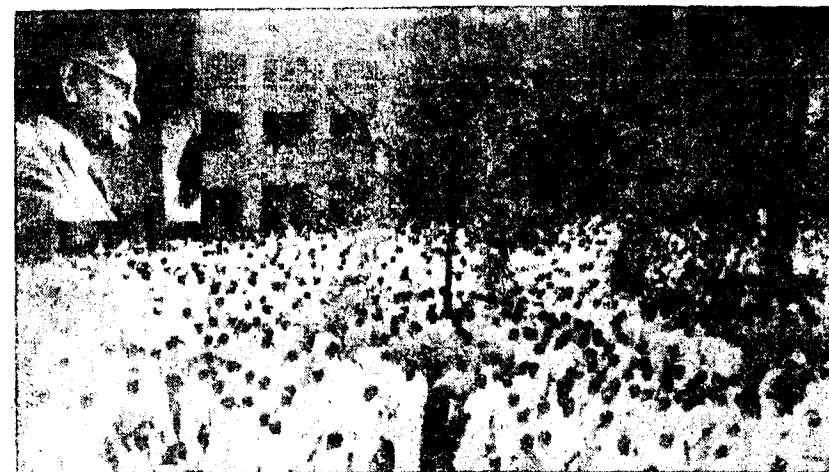
Republic Day Celebrations On South Indian Railway

The Sovereign Democratic Republic Day was celebrated with great enthusiasm by all Staff of the South Indian Railway. Sri K. R. Ramanujam, General Manager took the salute of the ceremonial parade of Watch and Ward, S. I. Rly., Golden Rock. Mr. T. Joseph, Commercial Traffic Manager hoisted the National Flag in Railway Junction Building at Trichinopoly. Sweets were distributed to children.

Junction and General Office Buildings were lavishly illuminated which seemed to an onlooker

nights into days. In a conspicuous place like the top of the Junction Building the Asoka Pillar measuring about 12 feet in height was majestically placed which was made by an employee of the Railway. The symbolical chakra was rotating at the bottom of the Pillar.

The staff of the Madras and suburban stations of the S. I. Rly. celebrated the inauguration of the Republic in a fitting manner. Mr. Ranjit Singh, the District Operating Superintendent, hoisted the National Flag. Sports were con-



The Hon'ble Minister for Railways addressing the S. I. Rly. Headquarters Staff.



Republic Day Illumination, Rly. Office Buildings at Trichinopoly.



Republic Day Illumination of the Trichinopoly Jn. Buildings

ducted for the children of the Staff and sweets were distributed. There was a parade of the Watch and Ward Staff of the Egmore Station.

An Electric Railway Engine was tastefully decorated and



G. M. Taking Salute at the Watch and Ward Parade (S. I. Rly.) on Republic Day. On the Right is Superintendent, Watch and Ward, S. I. Rly.

illuminated and it ran from Beach to Tambaram a number of times. Attached to the engine was an amplifier from which the greetings of the General Manager and an appeal by him to the public were read.



G. M. Saluting the March Past of Watch and Ward (S. I. Rly.) Parade on Republic Day.

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(Continued from page 223)

Technical Terms and their Use

Kinds of fits:—

a) Running fit:—A shaft can revolve easily in its bearing and can also be lubricated. Example, Lathe, Spindle and Head Stock Bearings; a definite clearance is kept between the mating surfaces, so seizing would not occur due to rise of temperature on high revolving speeds.

b) At times expressed as 'sliding fit' clearance is approximately halved to that of Running fit. Example shaft and gear, clutches or similar parts.

c) Driving fit:—At times expressed as 'Tapping fit.' The use of a Fitter's hammer or tapping with a sledge hammer is required to assemble.

d) Force fit:—Components are required to be forced fit for permanent assembly and very severe service. Small parts are assembled with help of a sledge hammer and large parts are assembled on Hydraulic Press. Example Axle and wheel centre.

e) Shrinkage fit:—This fit is also used for permanent assembly and very severe service. The kind of fit is favoured where the force fit is not practical. For example to press fit a tyre over its wheel centre, without heating,

would ordinarily be a rather awkward and difficult job.

British Standard System has provided for fourteen different fit by combining four standard grades of holes and a series of maximum and minimum shaft diameters. The different fits are divided into three main classes and are defined as:—

a) Clearance fit, where there is definite clearance in the bore and shaft diameters: Running fit and push fit fall under this heading.

b) Transition fit:—This covers cases between push fit and driving fit. In such cases at times alternative is made to mechanical fitting when human force fails.

c) Interference fit, where there is negative allowance (obstruction) between the Mating Surfaces. Driving fit, force fit and Shrinkage fits fall under this heading. There are two systems according to which tolerances are prescribed:—1. Unilateral system: Tolerance is prescribed in one direction of nominal size and is generally in positive. 2. Bilateral system: Tolerance is prescribed in both directions of nominal size and is in positive and negative. It is not necessary that the tolerance is positive and negative equally. (R.T.)

Preliminary Engineering Survey

The Ministry of Railways (Railway Board) have authorised carrying out of preliminary engineering and traffic surveys by the agency of the O. T. Railway from Balurghat to Indian Hili, West Dinajpore District, West Bengal. This is an extension of the proposed Metre Gauge railway line from Kumerganj to Balurghat.

"Beggars Can Be Choosers"

BY ALPHA

The electric bell in the outer lobby of my flat jangled suddenly.

"Damn," I exclaimed. I was looking forward to a few undisturbed hours to read over a couple of new novels sent to me for reviewing. I had made myself comfortable for a long session with a large pot of hot tea and a generous supply of cigarettes, when the interruption came.

I opened the door. Outside was a tall, middle-aged stranger, whom I took to be a door-to-door salesman. To my enquiry as to the purpose of his call, the reply came without a trace of hesitation: "Can you spare me a ten-rupee note?"

To say that I was staggered with this audacious request was putting it mildly. After recovering from my shock, I felt prompted to enquire 'whatever for?' but suppressed it. My amazement then gave way to curiosity. Here was a man obviously seeking charity, and naming the sum with the assured confidence that he would get it. From the begging fraternity one expected a trace of whining supplication, followed by the usual hard luck story. But this stranger had made his request as if he were casually asking for a cigarette from a friend. He stood waiting for my response.

My curiosity was aroused. Here was a character worth cultivating. There might be a good story in him; if I could persuade him to talk. I sprang the bait.

"Won't you join me in a cup of tea?"

"With pleasure." Again, his retort came as a surprise. He did not accept my invitation with the nervous alacrity of a hungry and penurious man, but with the courtesy and self-assurance of a social equal.

I offered him a chair, poured out two cups of tea, then told him to go ahead with the crisp, hot toast and scones on a tea trolley within reach. While he was eating, I was storing away mental notes of his appearance.

He appeared to be about forty, clean shaven, with a small bald patch just noticeable on the crown of his head. There was nothing uncommon about his features, but for a slight downward twist to his thin lips, giving the impression that he had something to be bitter about. His well-tailored grey tropical suit, with shirt and tie to match, indicated that he appreciated good clothes. A few frayed edges here and there revealed that his clothes needed attention. However, although I may have been mistaken, I felt that the shabby attire was a deliberate symbol to fit in with his role of charity-seeking. And, the more I studied him, I could not help but feel I had met him before, but could not recall the time and place.

Over the tea we exchanged items of small talk, my object being to make him easy and dispel any feeling of charitable condescension he may think I had towards him. Also, I wanted to lead up to the real purpose of my invitation; to ascertain what had prompted him to adopt this audacious method of begging.

I was groping for an opening to pose the question, not wanting to offend him by direct interrogation, when he seemed to read my thoughts. He smiled and said amiably: "You'd like to know why I adopted the profession of begging, and why I name the exact sum I want."

With relief, I nodded assent.

He continued. "The name is Welkin, not that it matters

though. For the last fifteen years or so, I've been cursed by a malevolent ill-fortune as far as steady jobs are concerned. Somehow, I could never hold one for long. A few months, a year, even a couple of years. Then something would go wrong, and I'd be out on the hunt again. Not that I was a waster, or incompetent. However, I won't bother you with details. Came a time when I got tired of rolling from one job to another, and I was getting on in years....."

Welkin paused, feeling in his pockets for something. I surmised it was a cigarette he was after, which I offered promptly. When he had the cigarette going well, he spoke again.

".....this ill-luck kept hounding me, pushing me around, and I couldn't shake it off. One fine day I decided to quit job-hunting altogether, and try my luck some other way. Musing over ways and means, a cynical thought kept tempting me. Why not trade on the so-called milk of human kindness. Go a-begging. I played around with the idea, distasteful as it was. Eventually I made up my mind. I would at least give it a try. I had nothing to lose, and most I could get was a refusal. But I decided on the surprise attack. I would ask for a specific sum....."

Here I interrupted, using a little flattery. "But you appear to be a man of education and taste, accustomed to the good things of life. Surely, it was galling for you to seek charity, mostly grudging. And there must have been something else you could have tried. A business of your own, writing. Both hazardous, but at least leaving your self-respect intact."

Welkin's reply was a short laugh, sneering and mirthless. "You forget my jin. It had squashed all the self-respect I

ever had. I didn't care a damn for any punctured dignity."

To me, his reasons were not convincing, but I did not want to involve him in argument, so let him continue.

"To get on with my story. Like a seasoned salesman, I planned my begging campaigns. I sought my charity from those who could part with the amount asked for without missing it."

It was my turn to smile. "You were out to sting the rich."

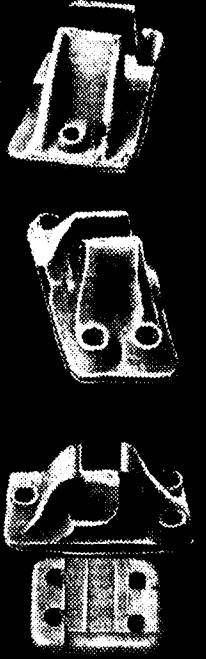
"Why not," he replied, although the common belief is that the poor feel more for the poor. I don't agree. Poverty makes you grasping and mean, and if you do part with anything, it is usually the odd coppers flung to the crippled; maimed or diseased, as a sort of salve to your conscience. If you want charity, big charity, go to the rich. You'll get what you want, or nothing at all." To his sardonic comments, I added: "but surely you didn't always get your ten-rupee note, and must have been offered a smaller sum at times?"

"I was, pretty often. But I never stopped to haggle. It was ten rupees or nothing. Offered less, I merely walked away."

I had to admit that he had nerve to beg in that fashion.

I continued with another question. "What kind of a reception did you get from your potential benefactors?"

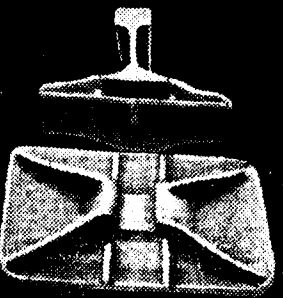
"Mixed, and rather intriguing. Some would raise their eyebrows haughtily and dismiss me with an emphatic 'certainly not.' Others would try and compromise on a smaller sum. Some would try the old, old, moral lecture dodge. Some genial souls would register amazement at my audacity and part with the tenor. A maiden lady in her early forties—not bad looking too—tried to hook me for a husband. Invited me in, offered me refreshment chatted amiably,



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parted not with ten, but with thirty rupees and implored me not to make it my last visit. I could have cashed in comfortably on her open invitation, but I had tried marriage once, and wasn't going to repeat the trial."

"What kind of living did you get out of this? Must have been rather precarious."

Welkin smiled again, a sort of bitter gloat. "On the contrary. I was lucky. I collected enough to keep me in reasonable comfort."

Somewhat, I could not believe this. My incredulous glance strayed to his elegant, but frayed clothes.

"Oh, these!" He crooked his hand towards his suit. "Merely an emblem of the better-class beggar. A little seediness must be displayed to arouse compassion.".....

He paused, rose from his chair, saying, "I think I've outstayed your welcome. Thanks for the tea....."

I had almost forgotten what he had come for, so I took out my wallet, extracted five tens and offered them to him. "You asked for ten. May I add another forty for your rather intriguing company?"

"Why not?" he replied quizzically.

I passed over the notes, which he took and slipped into the inner breast pocket of his coat, and said, "Thanks, old chap. Extremely generous of you."

As we parted at the door I remarked, "Drop in again, whenever you feel like it, for a chat."

His parting shot was, "perhaps, but if I don't, you may hear from me again."

Back in my chair, musing over this unexpected visit, I wondered why he had said 'you may hear from me again.' And, again I felt I had seen this fellow Welkin somewhere before. But for the life of me, I could not place him. Yet, I wished he would call again. I would like to have heard more of his story. There was good material in him for a writer, and if I could have got his whole story, a book could have been born with a title somewhat like "Beggars Can Be Choosers." But those other novels had to be reviewed.

A few months passed. I often thought of Welkin and wondered why he had never called again. A time came when I hardly gave him a thought until a registered package and a letter was delivered to me.

I opened the letter and read.

"Dear A, You were right. We had met before. Remember the meeting at 'The Authors and Journalists Club' when you gave a talk on 'Where to Find Your Material.' I congratulated you, and took your advice. You did the talking, I did the writing. Thanks for the tip. And by the way, enclosed is a cheque for fifty rupees. I've sent similar cheques to all my other generous benefactors, and I think you will have a new book to review. Yours, Signed Richard Welkin."

I opened the package. It was another book for review. "Beggars Can be Choosers." The publishers' blurb said, "Richard Welkin's best-seller...."

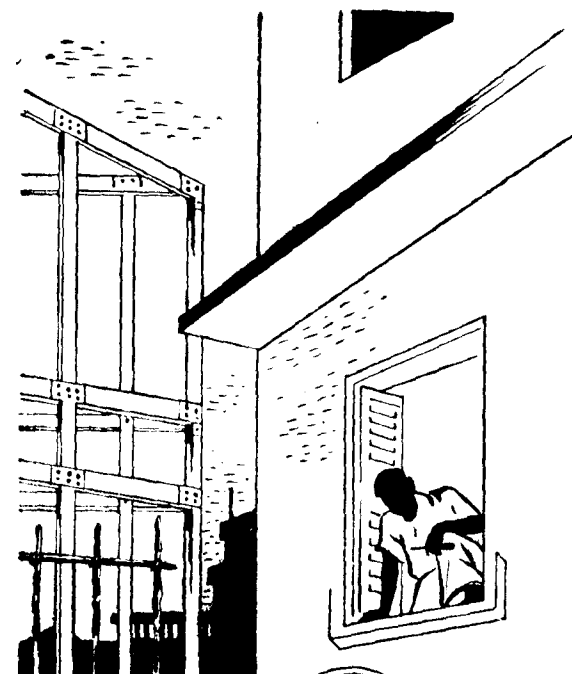
Well, there was a book I could never write.



A new typesetting machine that uses film instead of metal, a device declared by some industry experts to be the most significant advance in the printing art in the last 75 years, was recently demonstrated before a group of scientists and publishers' representatives at Cambridge, Massachusetts, in eastern United States.

The machine, developed by the Lithomat Corporation of Cambridge, is expected ultimately to reduce mechanical printing costs, and it is predicted, may revolutionize newspaper, magazine and book publishing throughout the world.

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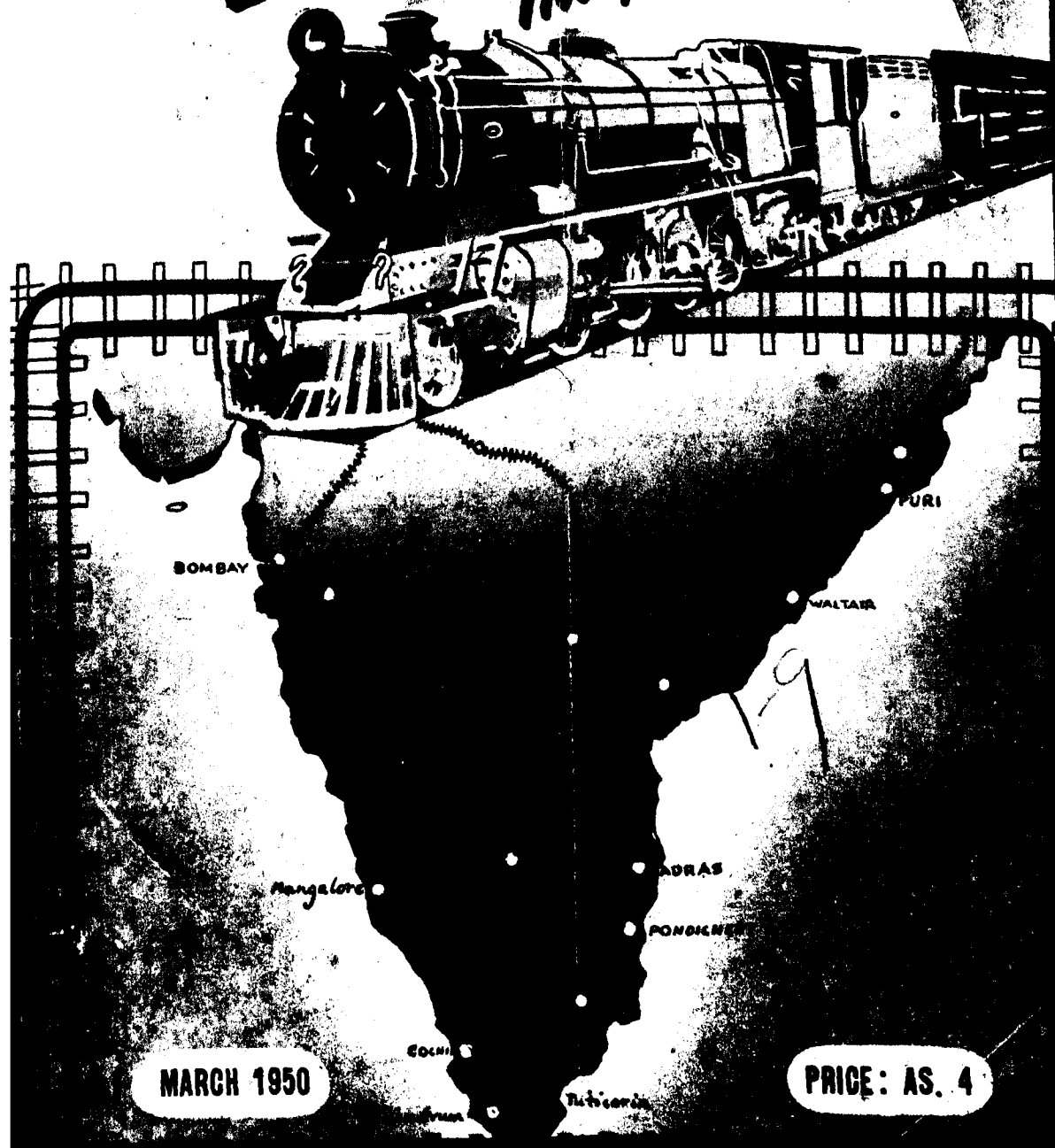
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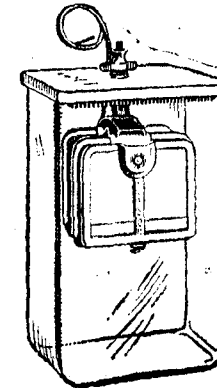
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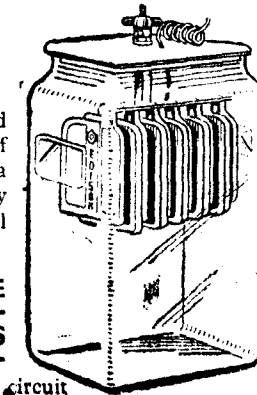
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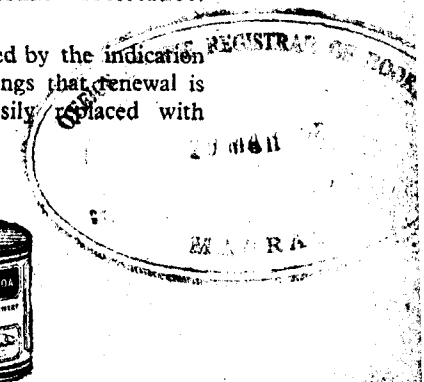
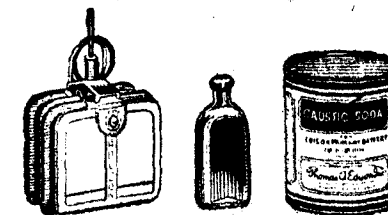
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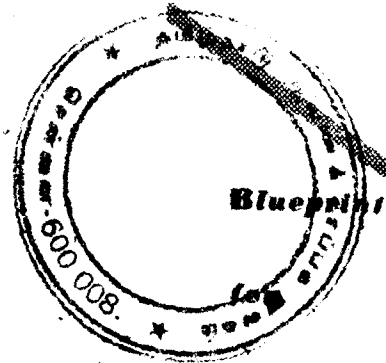
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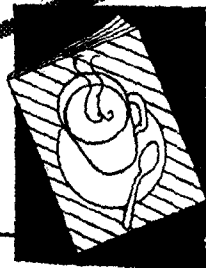


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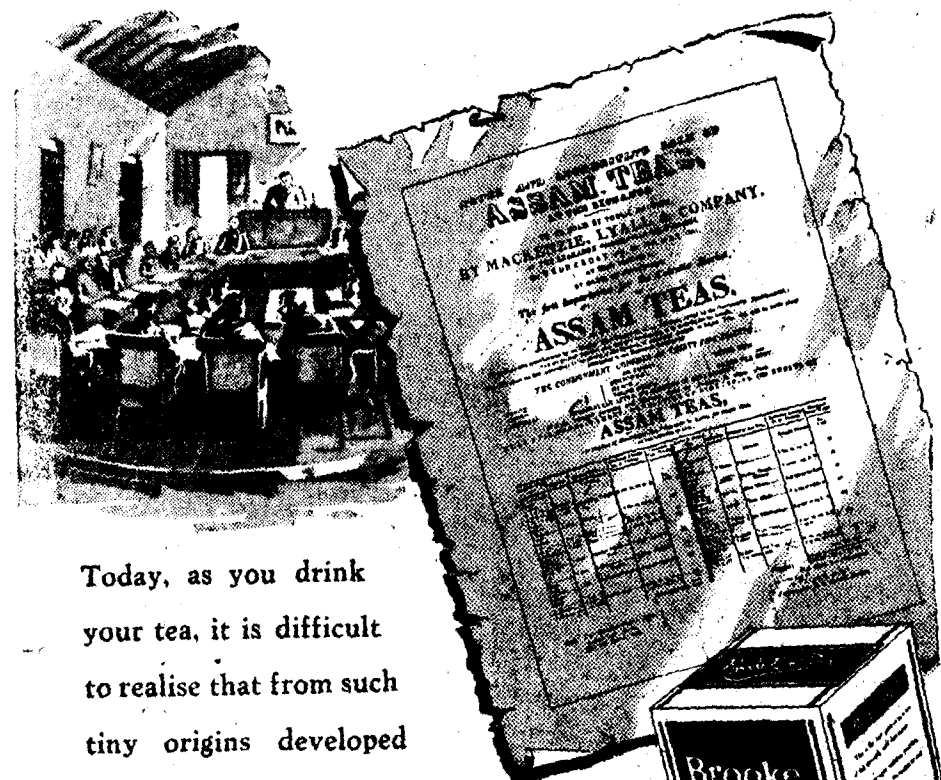
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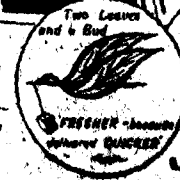
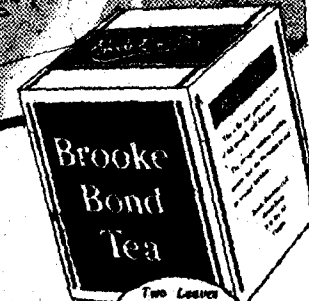
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Southern Railways Magazine

VOL. I
NO. 9

MARCH 1950

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MONTHLY

"Reflections on the Railway Budget"

The first thoughts of the average man towards the Railway Budget for 1950-51, as presented by the Hon'ble Minister for Railways last month, would be that from the financial view-point, the position of Indian Government Railways was sound, and from the operational aspect, considerable improvements had been achieved in the last year; and the year to come promised still better achievements.

Briefly, the commendable achievements are: a surplus of 19.98 crores in finances, improved passenger train punctuality and wagon turn-round, a continuous drive for better passenger amenities, amelioration of railway labour conditions, and an encouraging improved relationship between Railway Management and labour, indicating a new phase of cordiality and mutual co-operation.

The average man reading the Budget speech is perhaps mystified, and not so interested, with figures of earnings and expenditure quoted in crores of rupees, but his attention is immediately arrested by the surplus declared; and the first question he asks is: "what is done with this surplus to improve the lot of the travelling public?"

If the average man had followed up the debate on the Budget speech, he would have found that he was not alone in wondering whether the surplus declared could, or would be utilized, for taking care of the man who uses rail transport, especially the humble class III passenger, who contributes the bulk of the revenue earned by railways from passenger traffic.

During the debate on the Railway Budget in Parliament, almost every speaker emphasised the deplorable conditions of class three travel, and one member trenchantly described it as 'inhuman and cruel.' One can hardly say that this criticism was exaggerated, as overcrowding in trains is still rampant, and it is this overcrowding which makes the lowest class of travel almost 'inhuman and cruel.' When one sees about 80 to 100 passengers crammed into a compartment marked 'to seat 40,' one can imagine the conditions under which the class three passenger has to travel, not only for short journeys up to fifty miles, but even for journeys of twenty-four hours or more.

The obvious reason for this is that Railways do not possess enough passenger coaches to absorb all this traffic, and although new coaches are trickling in, the pace is not fast enough to cope with the enormous increase in class three passenger traffic.

(Continued on next page bottom)

Notes and Comments

Railway Budget at a Glance

A surplus of Rupees fourteen crores in 1950-51 was forecast by the Hon'ble Sri N. G. Iyengar in presenting the Railway budget for 1950-51 in the parliament of India last month. He stated that the Railways had made a remarkable recovery in their working and were moving rapidly towards the attainment and maintenance of a progressive standard of operative efficiency and public service. The so-called bottleneck in rail transport, he said, is no longer even a mentionable contributory factor to such malaise in the economic sphere in production or distribution as now prevails in the country.

The punctuality of passenger services has gone up. The wagon turn-round has shown great improvement. Priorities Organisation which in the past years came in for much criticism has now ceased to exist and rationing has been almost replaced by free and equal opportunity to all for obtaining transport. The drive for the betterment of amenities available to the travelling public was being continued with the utmost vigour. Work had commenced in the new factory for the manufacture of locomotives in India. The arrangements for establishing a factory for the manufacture of all-steel welded passenger coaches were well forward and the conditions of railway

labour had been ameliorated and the relations between Railway Management and Railway Labour had entered on a new phase of cordiality and mutual co-operation.

Ten States lines covering a route mileage of over 8,500 will come under the control and management of the Centre with effect from 1st April 1950 as a result of the Federal Financial Integration.

The wagon position on the broad gauge is a great deal easier but that on the metre gauge is not so satisfactory. In view of the financial stringency the purchase of about 1,000 Metre Gauge wagons only has been provided for in the budget. As regards coaching stock, with a view to relieve overcrowding in passenger trains, 350 coaches are now on order out of which 50 have been delivered. 407 coaches have been provided for in the budget year out of which 50 will be from Messrs. Schlieren of Switzerland, to a design which provides wider seats, more leg-room, better lighting, wash basins, mirrors and insulation against heat. The remaining coaches will be obtained partly from Messrs. Hindustan Aircraft Ltd. and partly from the Railway Workshops.

The Hon'ble Minister reaffirmed Government's desire to deal with Railway Labour not only justly but generously and indeed to set an example in this respect for other industrial undertakings.

The average man knows that Railway Administrations are faced with many problems of a complex nature to bring them up to the standard expected, but he passes judgment on Railway Working by what he sees with his eyes and the experience he undergoes when he travels. If that experience is more or less always unpleasant and uncomfortable, his criticism is severe, and the problem he would like tackled first is that of giving him more coaches and more trains, and it is hoped that the money set aside for this purpose in the years to come, will give him what he desires so much.

He referred to the setting up of the Joint Advisory Committee containing representatives of organised Labour and the Railway Board with a Chairman nominated by the Ministry of Labour for examining and removing the anomalies arising out of the application of the Central Pay Commission scales of pay. Legitimate grievances of labour other than these which come under the description of these anomalies are also being separately redressed. The conditions of employment have been further improved, viz. the leave rules have been liberalized and the Provident Fund scheme has been extended to lower categories of railway employees whether permanent or temporary. Daily rated employees in railway workshops have now been brought on to the monthly rates of pay on the scales recommended by the Central Pay Commission. The conditions regarding over-time work and holidays have also been standardized.

Regarding the Re grouping of Railways, the preliminary investigations for this purpose have been completed and a plan is in the making. It envisages the welding of the different systems into one railway undertaking, divided into as small a number of major zonal administrative units as possible. The Minister stated that when the plan was completed, trade, industry and other interests concerned would be consulted before the Government took a decision.

In conclusion Sri N. G. Iyengar paid glowing tributes of appreciation to all Railwaymen and expressed gratitude for the help received from the Members of the Railway Standing Finance Committee and the Central Advisory Council for Railways and ended by saying "Indian Railways are doing well and will do better."

S.I.R. TTE.'s Conference

While everywhere there is a cry of a shortage and demands for more production the surplus earnings of the Railways in this country this year had shot up ten times, an unusual phenomenon which had happened for the first time in the annals of the Railways, and that too especially after the country had been partitioned and this will be announced very shortly by Mr. N. Gopalswami Ayyangar, Railway Minister and you have a right for just demands. Thus observed Mr. S. Guruswami, General Secretary of the All-India Railwaymen's Federation, presiding over the First Conference of the Travelling Ticket Examiners of the South Indian Railway held at the A. R. High School, Madurai last month.

The salient features of the Conference are:

That the travelling Ticket Staff should all be classified as Running Staff. This stand is maintained on the grounds that these men are as much responsible for the safe conduct of travelling public as the Train Crew. Justice Raja Dakshya has himself classified this category as the other Running Staff. The grade of pay of Rs. 100—185 has been recommended for the Travelling Ticket Checking Staff by the Central Pay Commission but not accepted by the Railway Board. Further the higher grade has not been put into operation in the S. I. Railway, where Senior Travelling Ticket Checking Staff with more than fifteen years service are placed in the lowest grade of Rs. 60—150.

Transport of Cattle

The management of the S. I. Railway will shortly introduce as an experiment for six months a new system to carry cattle in a special van, attached to a goods train once a fortnight to all

stations from Madras Beach to Trichinopoly and vice versa on the main line via Tanjore. Cattle can be booked at intermediate stations also.

The charge will be As. 2 per animal per mile in small lots subject to a minimum charge of Rs. 5 per animal. Should the experiment succeed it will be extended to other sections of the railway. One attendant will be allowed to travel by the same goods train on payment of third class fare. The actual date of the introduction of the new systems will be announced.

SIR. SMS' Council

At a meeting of the South Indian Station Masters' Council held at Srirangam last month, a resolution was passed requesting the General Manager to grant recognition to their Council and afford facilities for their first Annual Conference which will be held next month. The meeting requested the G. M. to reorganise the Station Masters' cadre and to exempt lower grade Station Masters from passing the Efficiency Bar Examinations.

Wagon Position on S.I.Rly.

The Regional Committee relating to Railway matters met last month at "Gopal Bagh," Mr. T. A. Joseph, Chief Traffic Manager, South Indian Railway and other Railway officials attended the meeting. Mr. Joseph explained the wagon position and the proposed diversion line from Singanallur to Coimbatore via Peelamedu and Ganapathi villages. Representatives of the local Indian Chamber of Commerce, Passengers' Association and prominent citizens were present.

With regard to supply of wagons the Chamber of Commerce complained that the position concerning other Railways was not satisfactory. The Chief Traffic Manager stated that the difficulty

arose because all the movement was in one direction. He would, however, suggest to them to make use of Metre Gauge wagons which would go right up to Madras Harbour. He said block specials were run by the Administration for moving textile goods provided sufficient merchandise was forthcoming.

Mr. Joseph made the following announcement regarding changes in train service on the Broad Gauge with effect from 1st of next month. The Cochin Express would be diverted via Podanur without touching Coimbatore to save time as by touching Coimbatore it would lose 40 minutes on account of engine turning. The Cochin Express would leave Madras at 6 P. M. instead of 5-30 P. M. as it now does and would reach Cochin at 11-30 A. M. instead of at 12-15 P. M. The Up Cochin Express proceeding to Madras would reach Madras at 8-30 A. M. instead of 9 A. M.

In order to contribute some rolling stock and locomotives to the ensuing Mela at Hardwar, the S. I. Rly. Administration has decided to suspend the much criticised Janatha Express between Madras and Mangalore as an emergent measure.

Railway Passengers' Association Request

A public meeting was held under the auspices of the Railway Passengers' Association, Cuddalore, recently Mr. R. V. Sundara Reddiar, Public Prosecutor and President of the Association presiding. It was stressed that improvements to the Cuddalore North Town Railway Station which had been long neglected, should be made as early as possible. The meeting by a resolution protested against the action of the Government in reducing the original estimate regarding the remodelling of the Station and urged that the work be carried out as originally proposed.

New Railway Link

Mr. B. A. Padmanaba Ayyar presented to the Chief Commissioner of Railways a memorandum on behalf of the Coimbatore Chamber of Commerce which stated that the Irugur-Coimbatore Railway Link was welcomed by the general public of Coimbatore and urged that the scheme should be put through as soon as possible. The memorandum stressed the importance of the proposed Chamarajanagar—Coimbatore Railway Link and said it was vital to the development of Coimbatore and to link Mysore with Cochin and Tuticorin ports.

The Chief Traffic Manager explained the importance of having an overbridge on Avinashi road at Coimbatore. To this Mr. K. R. Ramanujam, General Manager stated that the construction of an overbridge would cost about Rs. 11,00,000 and the Irugur—Coimbatore North link Rs. 27,00,000. The Chief Commissioner assured the gathering that he would consider all schemes at New Delhi as soon as he received final proposals from the S. I. Railway administration.

Welfare of Railway Station Masters

At a Conference of Station Masters and Assistant Station Masters of the M. and S. M. Railway Employees' Union, Open Branch Line, held last month opposite Tiruvathiur Railway Station, a resolution was adopted assuring support for Government plans, and programmes for the economic uplift of the masses. The Railway Administration was requested to transfer Station Masters and Assistant Station Masters according to a set plan and also to provide accommodation for relieving Station Masters. A number of other resolutions was also passed intended to promote the welfare of members.

Mr. S. Satyanarayana, Organising Secretary, All-India Railway Ministerial Staff Association, Southern Section in a memorandum to the Hon'ble Railway Minister stated that the just demands of the Railway Ministerial Staff have been neglected by the Government of India and the leaders of Railwaymen in spite of continued agitation for a long time. If "economy does not begin at the top, if retrenched men are not reinstated immediately, and some ad hoc relief given to the members of the Staff who have already put in several years service, it would be difficult for the organisers of Railwaymen to continue their propaganda asking their brethren to be patient and not to resort to strike." The memorandum regretted that some members of the Ministerial Staff with over 26 years service on the Railways were being paid only Rs. 67 even after the recent revision of the scales of pay. The case of 26 clerks of the Vijayawada and Royapuram Power Districts who remained on a pay of Rs. 47—8 even after putting in 20 to 26 years' service because of the lack of vacancies in the next higher grade of Rs. 40—4—76 should be immediately considered. Senior grade stenographers in all departments should be posted in the Head Office under Senior Grade Officers. The General Managers of all Railways in South India should be advised to spread the services of all grades evenly in all offices in proportion to the strength of the clerical staff in each office.

Concluding the memorandum requested the Government of India to look into the matter of giving a minimum living wage to Railway Employees of all categories. Such a step would check the disruptive activities of Communists and Anti-nationalists.

We take this opportunity to appeal to the Hon'ble Railway Minister to do all that is possible for the Railwaymen so that they

"S. O. S."



The Pay Commission award has miserably failed to meet the demands of the Middle Class Railwayman.

may not be led away by the interested political parties.

Central Railway Service Commission

As a prelude to the merger of State Railways into strong zonal units for administrative convenience, the Ministry of Railways recently abolished the State Railway Services Commissions and has appointed the Central Railway Services Commission in their place in Bombay of which Mr. K. Durai is the Chairman. In this connexion, it may be recalled that Mr. Durai had been the General Manager of South Indian Railway and after his retirement he was appointed as Chairman of State Railway Service Commission which was functioning then in Bombay. The following is the personnel of

the new Commission formed by the Government of India in Bombay on March, 1, 1950. Mr. K. Durai (Chairman) Dr. E. A. Eapen, Chairman Railway Services Commission, Nagpur and Mr. A. K. Chanda, Chairman of a similar Commission in Madras.

British Locomotive Boiler Tube

Nearly 90 miles of the best quality British locomotive boiler and flue tubes will soon be shipped from United Kingdom for use in engines on seven of India's Railways. The contract for the 470,000 feet of tubing which was placed by the India Government is being completed by two British firms.

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are the Great Indian Peninsular, Bombay, Baroda and Central India, East Indian, Bengal, Nagpur, Madras and Southern Mahratta, South Indian and East Punjab Railways.

Hon'ble Minister for Railways replying in the affirmative to a question put by Mr. Jagannath Mishra whether there was a proposal to extend the Railway Line from Khurda Road Station on the Bengal Nagpur Railway to Sambalpur through the merged territories of Orissa, said that the survey was carried out in two portions, one for a line between Khurda Road and Bolangir and the other for the portion between Bolangir and Sambalpur as part of the Sambalpur-Kantabanji project. The survey of Khurda Road—Bolangir project revealed that the return on a capital of Rs. 498 lakhs was expected to be minus 0.28 per cent. The Sambalpur—Kantabanji project as a whole would cost Rs. 447 lakhs and the return was expected to be about 3.1 per cent. The alignment surveyed between Khurda and Bolangir passes through Begunia; Nayagarh, Daspalla and Sonapur and that between Bolangir and Sambalpur via Bargarh.

Amenities on GIP

Out of 550 fans to be provided in 226 women's Class III compartments, 220 fans have so far been fitted in 68 compartments, and 330 fan points have been wired in 158 compartments. Fans are on order and will be provided on receipt to complete the work. In addition to the fans, mirrors have also been provided in women's compartments.

Punctuality of Trains

In spite of the enormous increased passenger traffic now being moved, there is a marked improvement in transport efficiency. The new W. P. Locomotives are now

working all mail and other important trains. Punctuality of Mail and Express trains has been greatly improved and is at present maintained at about 90 per cent, whereas it was 76.7 per cent in January 1949.

Your Attention Please

There has been a complaint from the public that in several cases, goods reach their destinations earlier than Railway Receipts because of time taken to pass through the Bank etc. and the trade is called upon to pay demurrage and wharfage charges. It might be mentioned here that on the Railways' part, arrangements have been made to despatch Invoices to destinations, either along with the goods or by the first available train or by post whichever ensures quicker transit. It will be in the interest of the Commercial Community, therefore, to devise means by which their Railway Receipts are presented at destination stations and wagons unloaded or deliveries taken before the consignments incur either demurrage or wharfage charges. This will also help to avoid congestion in Railway Goods Sheds necessitating restrictions on movements of traffic on that account.

Without Ticket

The number of persons detected travelling without tickets on GIP Railway during December 1949 was 52,446 and charges collected from them amounted to Rs. 1,39,813. Vigorous measures are still being continued to put a stop to this anti-social practice.

Six hundred and sixty seven persons were prosecuted under section 118 of the Indian Railways Act for travelling on foot-boards of trains during the period from November 21, 1949 to December 20, 1949 and 624 out of these have so far been convicted according to the official information.

GIP's New General Manager

Tall handsome, bespectacled and bald-headed Sri H. P. Hira, Chief Traffic Manager of the GIP Railway has succeeded Mr. A. C. Chatterjee, who has gone on leave preparatory to retirement.

Sri. Hira, who took charge of his new office with effect from January 22, graduated from Bombay University in 1919 and after a brief course of training on the Great Western Railway in England, was appointed as a Probationary Assistant Traffic Manager on the GIP Railway in January 1925. Since then he has been serving this great Railway and was in charge of various divisions on the Commercial Department of the Rail-

way as Divisional Traffic Manager and was later appointed Goods Superintendent at Wadi Bunder. In April 1943 he was appointed Deputy Traffic Manager and served as Deputy General Manager (Food Supplies) from July 1944 to April 1946. The following year, he was appointed as Chief Traffic Manager of this Railway.

Sri. Hira is a perfect gentleman inch by inch and he has been evincing great interest for the welfare of the travelling public and business community. We are quite confident that in his appointment as the General Manager, he will prove worthy of the promotion by his affable manners and tact. We extend our good wishes to Mr. Hira and appeal to him to consider the suggestions of newspapers in the interest of the travelling public.



....Unassuming Sri. H. P. Hira

Bombay Representative :

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Public Relations and Publicity

BY B. L. KAPUR

We publish below an article from the pen of Mr. Kapur, Public Relations Officer, GIP and BB & CI Railways, Bombay, who is a journalist and publicist himself. He has made a comprehensive survey on the art of propaganda and publicity in the following paragraphs. (Editor)

During wartime the Governments of the belligerent nations feel that the correct ideas and feelings of a nation at war act as a very effective weapon in strengthening the sinews of the nation in the light, and that morale thus developed plays an important role in achieving final victory.

Many people obviously have to be helped to acquire a technique of thinking to improve their capacity to think accurately and see things in their right perspective. So an urgent necessity arises on the part of a state at war to devise methods whereby its citizens will be educated to think correctly about all the activities in connexion with the war. High morale, thus encouraged will contribute a valuable quota towards victory.

The methods adopted are known as Publicity and Propaganda.

The Difference

There is a subtle difference between these two. Publicity means the dissemination of news and information. It is mainly used to inform and enlighten. Propaganda is the art of influencing opinions and mental attitudes and creating particular ideas on particular subjects amongst the people to suit a particular purpose.

The origin of propaganda appears to lie in the general principles used by advertisers and salesmen to ensure the acceptance of their opinions by those to whom they address their talks.

The theoretical foundation of a certain type of propaganda rested on the phenomenon of auto suggestion, viz., all persons were more or less suggestible and

repeated statements of facts made in a confident manner would result in the acceptance of the ideas put forth by a propagandist.

This is the essential technique of propaganda and its success depends to a great extent upon the initial willingness to believe created amongst the people by the propagandist.

In Mein Kampf, Hitler stated that all effective propaganda must be confined to a few bare essentials, and the same theme must be repeated again and again in stereotyped formulae. The slogans should be persistently repeated until the very last individual has come to grasp the idea that has been put forward. An appeal should be made to emotions some times in complete divorce from the logic of the facts.

War has as its inevitable aftermath a set of economic, social and political forces operating in all spheres of human activity, which by arousing national consciousness and developing critical faculty amongst the erstwhile regimented people give rise to widespread discontent and unrest. Love for innovation and reform hitherto lying latent in human breasts finds manifestation in public endeavour to destroy everything savouring of dictatorial or autocratic methods of administration. The feelings of keenness to know how those at the helm of affairs are discharging their obligations towards the people they rule are stirred to the utmost depths in an average citizen.

Contact with Public

To maintain, therefore, the disjointed, dismantled and shattered fabrics of social, economic and political structure

particularly during a transition period in perfect gear and order, an imperative necessity arises on the part of any Government or business concern to evolve a machinery whereby not only can the fullest contact with the public be maintained but their co-operation also secured.

A Public Relations Organisation, both in its Public Relations and Publicity functions, supplies the need for ensuring the necessary publicity, contact and co-operation.

According to modern conceptions of Public Relations its responsibilities are mainly two-fold.

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Flame Cleaning--An Answer to Rust

BY E. C. LOWSON, B. Sc.

We have great pleasure in publishing below an article on Railway engineering under the above head from the pen of an eminent writer who is competent enough to discuss the subject threadbare. Flame cleaning is an ultra-modern scientific answer to the rust which plays important role in railway workshops such as maintenance work on bridges, structural steelwork and rolling stock etc. At this stage we leave the article entirely at our readers hands for assessing the merits and demerits. (Editor)

One of the greatest problems faced by engineers, in particular structural engineers—is the prevention of corrosion on steel surfaces. It is estimated that, throughout the world 25,000,000 tons of steel are lost annually from this cause. In view of the present day shortage of steel, the problem becomes even more acute and has been the subject of much research, principally devoted to the production of more efficient paints.

It is obvious that in order to protect steel surfaces from atmospheric corrosion, an extremely efficient paint is required, and it is true to say that much of the loss of steel from this cause, has, in the past, been the result of inefficient paints, incorrect painting technique and failure to repaint before a breakdown of the original coating occurs. It is only in comparatively recent years that the importance of the surface condition before the application of the paint coating, has been appreciated in full and methods devised whereby inadequate surface preparation may be eliminated.

Rust

The fundamental assumption in the explanation of corrosion, is that owing to physical or chemical heterogeneity, minute areas exist on the surface of steel between which there is a difference of electrode potential. It is only necessary for an electrolyte to be present to complete the formation of a tiny electric cell. Moisture, collecting on the steel surface as a result of exposure to the atmosphere, provides this electrolyte

and a current of small magnitude is allowed to flow. Iron goes into solution at the anodes, where it reacts readily with water and oxygen to form hydrated iron oxide. The rate and extent of the reaction is affected by variations in the compositions of steels and by the electrical conductivity of the electrolyte. Thus when the electrolyte is sea water the rate of corrosion is relatively high.

Another extremely important factor in considering corrosion is the effect of mill scale. Mill scale is formed at rolling temperatures during the final processing of steel sections or plates. A large proportion of the Mill Scale will flake off during exposure to normal weather conditions and steel is normally left to weather in order that this should be accomplished. Nevertheless it often happens that paint is applied to steel which is not free from Mill Scale. The Mill Scale subsequently tends to detach itself leaving bare the steel surface exposed to corrosive conditions. Even if, weathering is reasonably complete, however, much undesirable atmospheric corrosion occurs during the process. It has been proved that Mill Scale is largely responsible for pitting of steel, the reason being that on a steel surface partially covered with Mill Scale, the Mill Scale possesses a more positive electrode potential than the base metal and, therefore, owing to its area which is greater than the areas of potential difference normally encountered, it has a strong cathodic influence over the base metal in its immediate vicinity.

Paint

The essentials of paint protection are a priming coat and a finishing coat. Priming coats are not designed as water excluders but are usually compounded with one or more inhibitive pigments, which in the event of a limited breakdown in the paint layer, retard the progress of corrosion. The finishing coat is designed to act as a water excluder.

A failure of the paint protection system can occur as a result of a number of causes. If Mill Scale is present, it may either flake away, carrying the paint with it and leaving bare the steel surface, or in the event of a partial breakdown of the paint it may lead to accelerated corrosion and pitting. If corrosion products are present on the surface of the steel when the primer is applied the bond between the primer and the base metal will be weakened and also since corrosion products are not usually well-bonded to the base metal, the paint layer may be carried away by the spontaneous detachment of the corrosion products from the base metal. Furthermore in the event of a partial breakdown of the paint, the existence of the corrosion products will tend to nullify the effect of the inhibitive pigments in the primer. If moisture is present on the steel surface when the paint is applied, either physically or in a chemically combined state the adhesive bond between the paint and the metal will be lessened or destroyed. Subject to the efficiency of the inhibitors, corrosion will continue beneath the protective coating and a lack of strong adhesion of the paint to the metal can lead to a rapid failure of the paint. If a primary coat is applied on a cold surface, a considerable time is required to allow it to dry before the application of a further coat, impervious to moisture. In the interval, moisture may penetrate the primer, setting up the

conditions predisposed to paint failure already described. Alternatively in hot weather, with the paint exposed to the sun's rays, drying of the paint takes place first at the outside. A dry skin is formed on the surface preventing the evaporation of the solvents in the paint and resulting in blisters. The paint is no longer firmly bonded to the base metal and breakdown can quickly occur. Finally any foreign matter brittle or perished paint, dirt, oil or grease on the metal surface at the time of painting leads to the ultimate failure of the protective coating.

Preparation of Surface

It is now clear that before paint protection is applied, the surface of the metal must be clean, free from moisture, corrosion products, old paint and mill scale and should be warm at the time of painting.

The most widely used method of surface preparation, even today, is by pneumatic or hand chipping and/or hand brushing. About 90 per cent of the corrosion products, old paint, foreign matter etc. can be effectively removed by this method, but it is the remainder which can cause the damage. The hydrated iron oxide on the surface contains varying amounts of physically absorbed and chemically combined moisture and not even wire brushing is sufficient to remove the small particles of this rust since their physical wetness causes them to adhere to the steel surface with remarkable tenacity. Chipping causes small depressions and burrs on the metal surface which result in an uneven paint layer. Over the burrs the paint layer is appreciably thinner and it has been shown that these points of minimum protection quickly become centres of corrosion which owing to the inadequately prepared surface, have every opportunity of spreading.

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The most effective argument in favour of chipping and brushing, especially in India, is that it can be cheaply undertaken with unskilled labour. The cheapness is, however, immediately offset by the cost of comparatively frequent repaintings, failing which, by the ultimate loss of the structure, in addition it is very difficult for sufficiently effective supervision to be carried out to ensure that the maximum possible efficiency is obtained in this form of cleaning. The process is laborious and the workers, becoming tired, carry out the operation in a slipshod fashion which further detracts from the value of an already inefficient method of cleaning.

Flame Cleaning

The flame cleaning process overcomes the difficulty of adequate surface preparation of steel structures, in the most efficient manner yet discovered. It is simple to carry out and even an unskilled worker, unfamiliar with use of oxy-acetylene blow pipes can effectively operate the equipment after a matter of two or three days. It is undoubtedly a more expensive operation than chipping and brushing, owing to the cost of the gases, but the ultimate saving in paint and the prolonged life of the steel, renders it a highly economic measure in the long run. Developed first in the U. S. A. and introduced into Britain about ten years ago, flame cleaning has proved its value, after very careful tests, in countless applications. Some of its widest applications are to be found in maintenance work on railways, ships, gasometers, storage tanks, etc. It is now being extensively used in India and its great success and wide range of application have created for it an ever-growing demand.

The principle of flame cleaning is simple. An intense localized heat is applied to the steel surface by means of a specially designed

blowpipe giving a series of high velocity, closely spaced, oxy-acetylene flames. All Mill Scale that is not closely bonded to the steel is caused to crack off as a result of the sudden differential expansion between the scale and the base metal. Corrosion products are removed in two ways. The majority comes away from the surface as a result of sudden differential expansion and the remainder is reduced chemically to ferrosiferrous oxide, a loosely bonded granulated powder which can be readily brushed away.

In addition the surface of the steel is rapidly and locally heated, all moisture, both on the surface and within the layers of scale and rust is driven off, thus breaking the scale and rust bond; oil and acid salts are consumed and disintegrated by the flames. After the application of the blowpipe, the surface is wire brushed to remove all loosened scale, disintegrated rust and other foreign material and is left in a perfectly clean, dry and warm condition. The heat remaining in the surface of the steel is important as will be shown.

In fairness to the reader it should be stated that a small proportion of the Mill Scale is left on the steel and some controversy exists as to whether it is safe to leave this. Some users of new steel prefer to allow the steel to weather to an extent sufficient to ensure 100 per cent removal of Mill Scale by the flame cleaning process but American sources consider that the small amount of residual scale has passed such scorching tests as to its tenacity that it is unlikely to flake off in service and it should be remembered that the potentially cathodic effect of the Scale is nullified by the fact that it has been completely dehydrated.

Flame cleaning cleans right down to base metal, which is impossible with chipping and brush-

ing and it does so without harming or altering the steel in any way. A surface is left which is an ideal base for painting free from any nucleus of corrosive contamination.

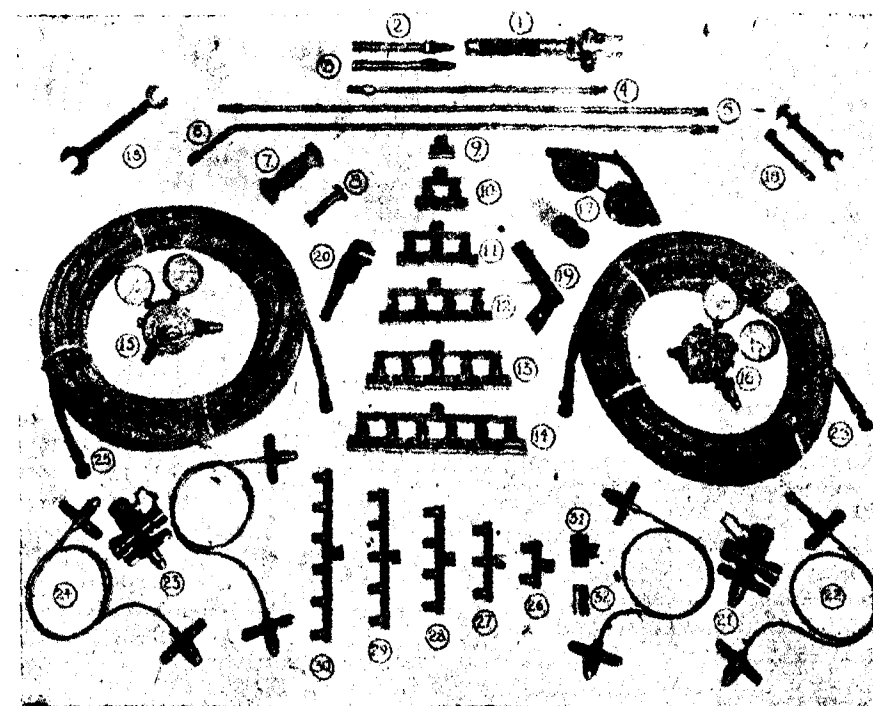
Equipment and Its Use

Specially designed blowpipes, fitted with multiple jet nozzles and using oxygen with acetylene as fuel gas are employed. The blowpipes are constructed in two sizes, the smaller capable of cleaning widths of steel from 2" to 4" and the larger from 2" to 12" using flat type burners. In addition round nozzles for cleaning rivets, small areas or awkward corners can be used with either size of blowpipe.

The shank of the blowpipe is provided with oxygen and acetylene control valves and the equipment is complete with gas mixers of varying lengths. Two convenient lengths of rubber tubing connect the blowpipe to the oxygen

and acetylene cylinders and oxygen and acetylene cylinder couplers are provided in order that three or more cylinders of each gas can be coupled together for convenience of operation.

The flame cleaning blowpipe is very similar in its essentials to the familiar oxy-acetylene welding blowpipe and anyone who understands the use of the latter can operate the flame cleaning blowpipe immediately; it requires no particular skill in its use and others will require no more than two or three days training. The flame is simply passed over the surface to be cleaned at a speed depending upon the condition of the surface and determined by experience. Normally one or two passes are sufficient but on occasion up to four may be required. After each pass the surface should be vigorously wire brushed. The equipment is extremely flexible



The above illustrated Equipments are extensively used in Flame Cleaning.

and can be used on all types of structures.

Cost

It is very difficult to give any accurate forecast of the cost of cleaning a particular structure. It has been found that costs may vary on identical structures having the same degree of corrosion. The reason for this is, of course, the "cost-consciousness" of the operator. If the blowpipe is turned off during movement from section to section and never allowed to burn except when it is actually being used, then the gas consumptions are reduced to a minimum. The best way of estimating costs for a particular structure is to clean a measured area of the structure and note the gas consumptions.

Painting after Cleaning

The importance of the warmth remaining in the steel surface has already been mentioned. Painting should be carried out as soon as the surface of the steel has cooled sufficiently to allow the bare hand to be held upon it, i.e. when the surface temperature is about 100° F. Moisture is thus prevented from condensing on the surface before the application of the priming coat and in addition it has been found that a normally formulated red lead paint, drying in 16 hours at 60° F. will dry sufficiently for a second coat to be applied after two hours. In sunny weather, blistering of the paint is entirely obviated, since the paint/metal surface is at a higher temperature than the paint air surface. Evaporation of the paint solvents thus commences at the inner surface and the solvents are free to escape.

A further advantage of painting warm steel is that the viscosity of the paint is increased, causing it to penetrate the minute surface crevices and tending to produce a mechanical bond in

addition to the normal adhesive bond between the paint and the metal.

Distortion

The mind of an engineer will immediately turn to the question of distortion as a result of heating structures. It is impossible to lay down any hard and fast rules on this point, but in general, two successive passes of the flame across any particular section should not be made until a time has elapsed sufficient to allow the metal to cool down after the first pass. The operator should adopt a sequence of operations whereby he cleans one section, then passes to a second and a third. Meanwhile his assistant is carrying out wire brushing on the processed sections. If a second pass is necessary the operator can return to the first section after completing the third, by which time sufficient cooling will have taken place to eliminate the possibility of excessive heat input.

There is no appreciable reduction in the yield point of mild steel below 600° F. The rise in temperature, resulting from the heat input of flame cleaning is not likely to be greater than 250° F. and there is therefore a considerable margin of safety. In practice it has been found that damage resulting from carelessness in this respect has been so extremely rare that it need give no cause for anxiety.

Proved by Use

Flame cleaning has long passed the period of testing. Over the past ten years it has been used with continuous success on almost every known type of engineering structure. In removing the scale from new steel and scale and corrosion from steel during maintenance work, it has proved its value on innumerable occasions. In railway engineering its uses are manifold. Of these, maintenance

Presenting Mr. Railwayman

The Permanent Way Inspector

BY A. H. PEARSON

If you ask the average non-railwayman to give a brief description of the permanent way, he would probably tell you he did not know. But if you ask him what was meant by the word 'rails,' he would promptly tell you that these were things on which trains run. And loosely speaking, he would be correct. Well, the permanent way is none other than the rails on which trains run. However, the permanent way does not consist merely of two parallel steel rails laid down on the ground. There is a lot more to it in the way of the ballast road bed supporting the rails, the sleepers: wooden or steel, just above the ballast packing, the chairs, cotters, dog spikes' fishplates (which figure prominently in accidents caused by sabotage) and other essential components. That briefly is known as the permanent way on railways. The railwayman who is responsible for the maintenance of this permanent way, is known as the Permanent Way Inspector, (P. W. I. in short).

In the early light of the dawn, perched on his little push trolley, the P. W. I. starts his day's work perhaps by a routine track inspection. His section of line is about 30 to 40 miles on the double line and up to about 80 miles on a single line section. As the trolley clicks over the rails, the P. W. I. keeps his eyes and ears alert for defects in the track. Whatever defects are noticed by him must be rectified by the P. way gang who works that particular section of the track.

The P. W. I.'s section is split up into about 12 gang lengths, each gang being responsible for about three miles of track. As he meets each gang at work, the gang-mate hands him the

muster roll sheets and gang charts for a check up. The charts are a record of the work being done and to be done. He will then spend a little time with the gang to see that the job on hand is being carried out efficiently and expeditiously. If it is a troublesome stretch of track he must satisfy himself that the job has been done thoroughly by personally checking levels, gauge and alignments.

If the P. W. I.'s section has any bridges, while trolleying over he must keep a watch for burnt sleepers, as it is not uncommon for hot embers dropping from passing locomotives to ignite a sleeper or two, which will smoulder into char if not promptly detected. Gauge spreading must also be carefully checked on bridges.

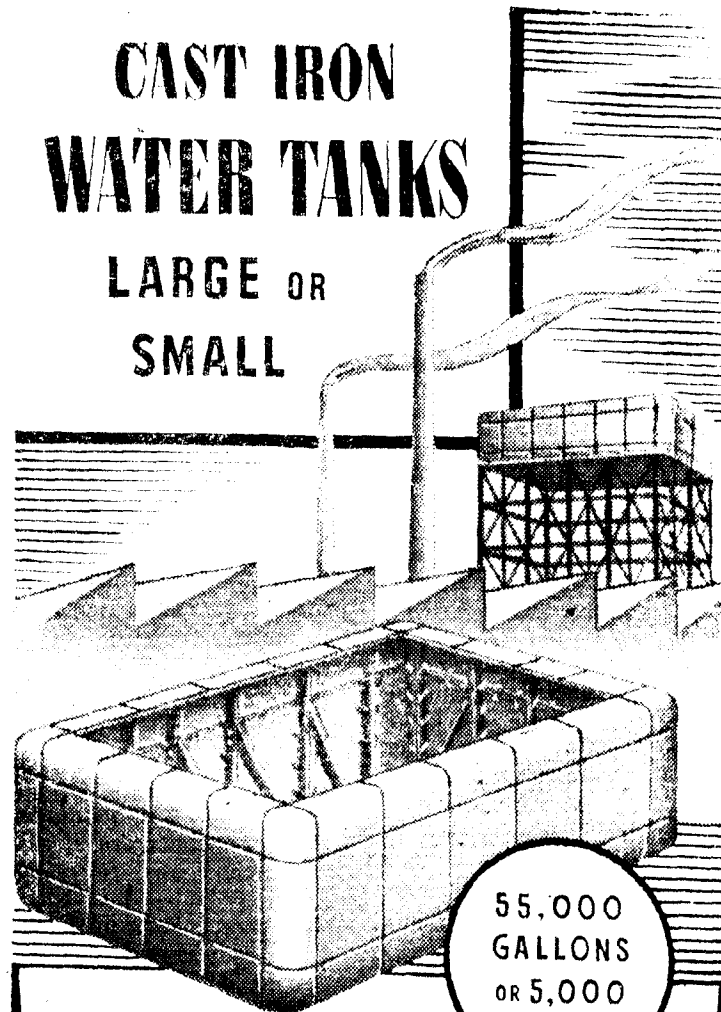
The P. W. I. must come to know the staff working under him thoroughly, from his Assistants down to his gangmen. From amongst the more alert and keen gangmen he will select men for the special jobs of Keymen and Monsoon Patrollers. The keyman's job is to walk the track for about 3 to 4 miles, keeping his eyes peeled for loose bolts, cotters, or tampered fish-plates. Armed with a long-handled hammer and a pair of spanners he tackles anything requiring attention. The Monsoon Patroller stalks a section of the track by day or night, even in a slashing rain-storm, always on the watch-out for washaways, subsidences, or high flood levels under bridges. Any defects noticed are reported immediately so that prompt action can be taken for remedial or precautionary measures.

The monsoon season is always a period of considerable strain and anxiety for the P. W. Inspector and his staff. This is the time

(Continued on Page 263 bottom)

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when constant and sustained vigilance must be maintained. The rain beats down mercilessly from above and a weak stretch of track suddenly subsides or gives way. Extra gangs are immediately rushed to this site, and out there, miles away from any habitation with only water around them, those hard-bitten track men are on the job, nursing that section of the track so that trains can pass over even at considerably reduced speed. If there are major washaways, then other methods have to be adopted like a diversion. But whatever damage is done to the track by monsoon conditions must be repaired with the least delay.

The P. W. I. does not only have to keep his track on the open line in tip-top condition, in station yards, especially at small wayside stations where there are facing points and crossings over which most trains pass over without a speed check, constant care and attention has to be given.

A broken tongue rail at a facing point, excessive wear or gaps between tongue and stock rails, or the damaged nose of a crossing, not detected, may send a train to a terrible disaster.

The P. W. I. does not do all his track inspection on a trolley. Frequently, he will be on a train travelling over his section, to note how his portion of the track is reaching to the pounding of heavy and fast trains. On the open stretches he is attentive for lurching, up and down motions, loud noises or sudden jerks may pass unnoticed by others, but to him are danger signals. Wherever anything untoward is noticed by him, he will take a note, and see that particular portion of the track is examined thoroughly and defects repaired.

Like many other Railwaymen, the P. W. I.'s greatest dread is the hail of the accident siren. If there is a nasty train smash, involving destruction of life and

(Continued on page 259 bottom)



Dhanushkodi Pier—Vital Link connecting Two Dominions

Rameshwaram and its Temple

BY M. VASAN

(Surrounded by the sea between India and Ceylon is the little island of Rameshwaram on which stands a temple dedicated to Rama, where the land is regarded as too sacred even to plough.)

Successive tides wash smooth the sands of the seashore, leaving no traces of man's activity, but

where Rama, the hero of Ramayana, is said to have once built an improvised lingam of sand



in obedience to a decree of the gods, now stands the great temple of Rameshwaram, a place so deeply venerated by the Hindus that no plough even is allowed to disturb the sanctity of the soil.

Rama, the epic hero, was advised by the saints to worship a lingam to expiate the sin of Brahmicide which he had committed in having slain Ravana and other Rakshasas in the great battle in Lanka. Having selected Mahodhadhi—the junction of the Bay of Bengal and the Indian Ocean—as a befitting spot to instal the lingam he sent out his faithful devotee Hanuman the monkey God to mount Kailas to fetch one.

Hanuman being delayed and unable to return before the auspicious hour, Sita, Rama's consort, prepared a lingam out of sand, and this was installed in all sanctity at the appointed time. Hanuman, on arrival, tried to pull it out, but in vain. And so there it remained and in course of time a great temple was built over it, called Rameshwaram in memory of Rama, the founder.

Though several centuries have elapsed since its construction, it is still one of the most venerated shrines in India and the resort of millions of pilgrims from all parts. Surrounded by the sea, this picturesque little island is so unique in its holiness that even the land is considered to be too holy to be ploughed.

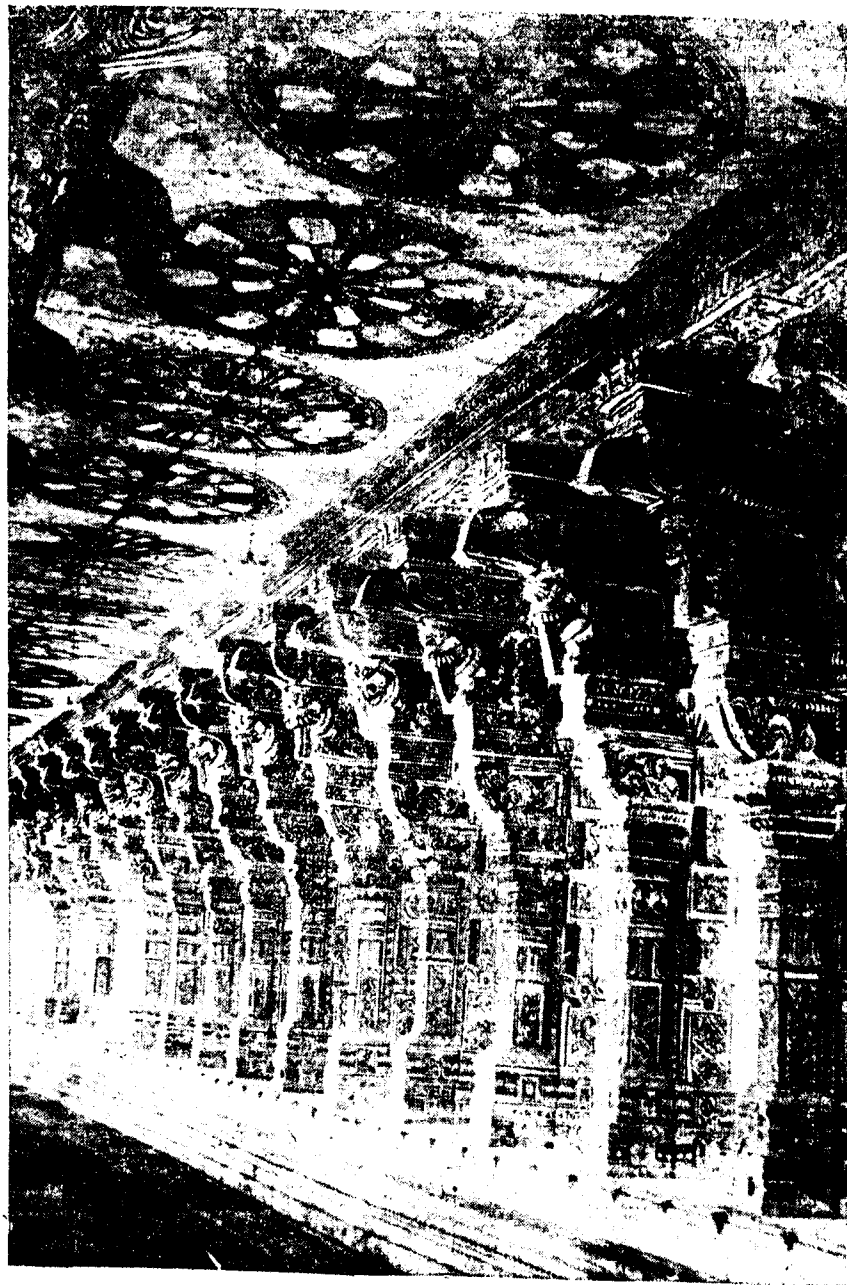
The great temple, situated in the north-eastern part of the island, stands on slightly rising ground. It has three courts of quadrangular form, the outer one measuring about 700 ft. x 1,000 ft., and gateways on all four sides, surmounted by Gopurams or towers. Fergusson, describing this temple, said: "If it were proposed to select one temple which should exhibit all the beauties of Dravidian style in their

greatest perfection and at the same time exemplify all its characteristic defects of design, the choice would invariably fall upon that at Rameshwaram."

The real glory of the temple is in its corridors, which contain high imposing colonnades. Extending to a length of nearly 4,000 feet, they have many pillars of a design so rich and elaborate that it is difficult to find an equal anywhere else in India. The central corridor leading from the sanctuary is adorned by sculptural representations of the Rajas of Ramanad of the 17th century, with those of their secretaries opposite to them. The Rajas of Ramanad, or Sethupathis as they are called, endowed this temple to a great extent. Their Palace now lies in a ruined condition close to the Gandhamadhana sand hill at a little distance to the north of the temple.

The chief annual festivals of the temple are attended by myriads of pilgrims. The festival seasons are between February and March and July and August each year. At that time the island is a veritable microcosm of Indian life and customs. Daily worship is conducted six times, beginning early in the morning at 4.30 with a milk bath for the image, and ending at night at 9.30 with the palli-arai or bedroom procession, always picturesque and specially so here.

In front of the goddess shrine there is a mantapam called the Navasakti Mantapam. Every night the image of the goddess is decorated in this Mantapam and then taken in procession round the shrine of the god in a gold-plated palanquin. When near the shrine, the image of the god is placed in the palanquin and the procession is continued to the palli-arai or bed-chamber—a well decorated hall with a swing in the centre in which the images are placed to the



Circular view of the Grand Corridor

chanting of lullabies. This marks the conclusion of the day's routine. About 15 miles to the south of Rameshwaram is the chief bathing

ghat, Danushkodi. Special efficacy is attributed to these waters in the miraculous curing of several diseases. Countless pilgrims go

(Continued on next page)

New Developments in Artificial Limbs

BY ANNE GOODMAN

Specially designed prosthetic devices have enabled large numbers of amputees in the United States to return to active life

In the United States, a concerted effort to aid the nation's amputees has, in the past few years, utilized the resources of science, industry and public health authorities. There have been substantial advances in artificial-limb design, particularly in attacking some of the most difficult problems in the mechanics of artificial knee, ankle, wrist, elbow and hand joints. Other recent

developments include lighter and more durable materials for prostheses, new methods of attachment and fitting, and improved training courses for surgeons, limb fitters, physical therapists, and amputees.

While this work has been going on for some time, it received considerable impetus immediately after the war in 1945, when a

(Continued from previous page)

the round of these holy waters and even take a store of it home in small copper jugs to their friends.

In a mosque near the Railway Station are two tombs, believed to be those of Cain and Abel: large numbers of Muslims visit them in consequence of vows of various kinds. It is said that Cain, ordered by the Lord to carry the body of Abel, his brother whom he had slain, all round the earth till a

particular omen appeared to him, met the omen here and accordingly buried his brother's body at the place. On his death he also was buried by the side of his brother as he desired.

The island town is reached from Madras within 17 hours by rail. The South Indian Railway provides amenities for travellers at Mantapam, a station just a few miles from Rameshwaram.

(Continued from page 255)

Railway property, fears keep haunting him. If his section of the track is involved, he and his staff will soon be on the accident relief train to get to the site to see what damage has been done to the track, and what steps can be taken to repair it to get traffic moving as soon as possible. If the ill-fated train is involved in a collision with another train, his fears will be somewhat relieved, as he will then know that the accident has not been caused by a track defect. But if the accident is a nasty derailment, it is then that his mind remains unsettled

until the cause of the accident is known. If the cause is a track defect, then the consequences to him may be loss of service or even criminal prosecution.

Whether it be in the hot, broiling sun of summer, in the winter's biting and foggy cold, or the soggy, rainsoaked monsoon, the P. W. I. and his staff are there on the job to ensure that you and I can ride with comfort, and above all with safety, in the fast trains which pound over the permanent way.

Committee on Prosthetic Devices was set up in the semi-official National Research Council. Composed of surgeons and engineers, the Committee's aim was to examine and analyze existing types of prosthetic devices in America and Europe from both medical and engineering points of view; conduct intensified research into the functioning of normal limbs; investigate new materials and methods of fabrication for artificial limbs; test ways of fitting and aligning prostheses; and formulate training programs to enable amputees to use their artificial limbs as effectively as possible.

In each of these tasks, the Committee worked in close co-operation with existing medical scientific research projects, such important business concerns as the Northrop Aircraft Company, the Goodyear Tyre & Rubber Company, the International Business Machines Corporation, and about a dozen other firms, as well as America's 368 limb makers. Research centres in Universities, Hospitals and Industries received substantial contracts from the Committee for further experimentation and research, and limb makers were given subsidized training in new fitting techniques. The Committee became a clearing house for information in all developments in artificial limbs and a testing centre where new models were given a thorough going over—on accelerated motion machines for durability and by trained amputees for comfort and adaptability to various types of activity. Complete reports on these tests were sent out to interested organizations.

By the middle of 1947, the Committee felt that its underlying scientific and technological work had been well established. It became an advisory group, while its operating functions, together with all of its findings, were turned

over to the Veterans Administration. Through contracts with industries, universities and with limb makers, the Veterans administration supplies artificial limbs, free of charge, to Veteran amputees. It maintains a complete testing and development laboratory and also takes the initiative in bringing surgeons and limb fitters together in order to perfect fitting practices. In addition, the Administration's training program for Veterans has stimulated state boards in all 48 states toward providing similar services to civilian amputees.

In actual limb construction, some parts—such as mechanical joints—have been standardized, permitting inexpensive manufacture, although sockets are always custom-made to the shape of each individual stump. Much has been done to improve balance, power and functioning of limbs. In materials, weight, comfort and sanitation have been the major considerations.

One of the most important developments in the manufacture of artificial arms has been the use of plastics instead of wood. Earlier artificial arms, made of leather or wood, were heavy, uncomfortable and difficult to keep clean. Recent plastic models are appreciably lighter yet stronger. Wire cables, similar to those used in aircraft control, have supplanted the old rawhide thongs as action controls, allowing for more flexibility and ease of operation. A below-elbow artificial arm today may weigh as little as two pounds, including harness, cable and the articulated hook which serves as a hand. An above-elbow model weighs about half a pound more. In the new below-elbow arms, the actual arm part is merely a framework, strapped to the stump, to carry the hand mechanism which is usually opened or closed by voluntary action of the shoulders. An inner socket geared to the

wrist mechanism transmits the voluntary rotation of the stump to the hand, while a clutch arrangement prevents outside force on the hand or articulated hook, from being transmitted back to the stump, thus eliminating strain on the stump muscles.

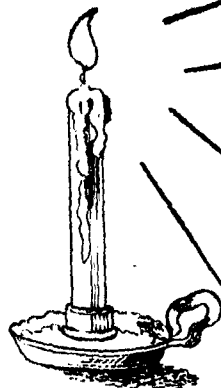
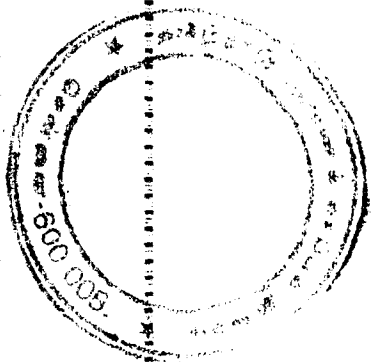
Above-elbow arms, usually suspended from a shoulder harness, have a shouldershrug actuated mechanism to lock the elbow, a turntable above the elbow that permits rotation of the forearm, and cable controls for hand or arm action. A downward shrug of the shoulder locks or unlocks the elbow, a forward shrug elevates the forearm when the elbow is unlocked, or, if the elbow is locked, activates the hook or hand. Experimentation is still going on in the design of elbow joints to allow a large number of angles in which the arm may be fixed, but one model, already widely used in the United States, locks the arm in 23 different positions.

For artificial hands, articulated hooks, usually controlled by a cable attached by harness to the opposite shoulder, have proved to be the most successful device, since they allow the maximum of action with the minimum of weight. For certain types of heavy work, hooks lined with teeth can be obtained; others have rubber linings to prevent slippage. But since some amputees object to the appearance of hooks or find other devices are preferable for certain activities, the wrist joints of artificial arms are now designed so that hooks, realistic plastic "cosmetic" hands and mechanical hands can be readily interchanged. Still in the experimental stage are long-range projects which attempt to replace the sense of touch, one of the most serious losses for a hand amputee. Efforts have also been made to develop sources of auxiliary power—storage batteries, gas cylinders, springs—to increase the hands's strength without

increasing strain on the stump. This has been achieved in experimental models powered by batteries or cylinders strapped around the wearer's waist or carried in his trouser pocket.

Plastics have also been used for artificial legs, but lightweight willow wood covered with rawhide is still the most popular material. With legs, the prime problem has been to reproduce normal joint action and at the same time design the joint so that the stump will not rub against the sides of the socket producing discomfort and skin abrasions. An artificial ankle is usually a simple bolt mechanism that permits upward and downward flexion against rubber bumpers. The knee mechanism is also a bolt placed well back of the centre line of the leg with a back check to prevent backward bending. The force of carrying the weightline forward does a great deal to cause mechanical stability and to prevent jack-knifing. Since this has not proved entirely satisfactory for such action as going down a hill or recovering after stumbling, several systems of automatic locks have been worked out to eliminate buckling.

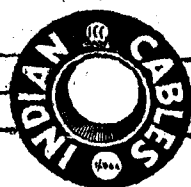
One of these, still considered experimental although it has been worn successfully by test amputees over a period of time, operates on hydraulic principles. A small hydraulic cylinder is placed in the shank with its lower end pivoted to the shank. The top end of the piston rod is pivoted to the thigh back of the knee bolt. A valve in the piston controls flow from bottom to top of the cylinder and hence, bending of the knee. Ingenious but simple means cause the valve to open during the swing phase of walking yet close whenever there is danger of buckling of the knee. An additional valve, operated by a side cable permits voluntary locking of the knee in different positions. Wearers of



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the hydraulic leg have been able to move easily without fear of accidental fall and without any abnormal swing of the leg outward, such as would occur if the knee were mechanically locked all the time the amputee stood.

In the fitting of artificial legs, the greatest advance has been the perfection of the suction socket, invented and patented in the United States nearly 100 years ago. This type of socket fastens the artificial limb directly to the stump by atmospheric pressure, removing the need for a belt or harness. Unlike most sockets, it is worn next to the skin, without a protective stump sock. Once the amputee is accustomed to it, he feels that his prosthesis is actually a part of his body and he has great freedom of action. Hip movements are unhampered, the

stump is immobile within the socket during strenuous activity, and all leg motions are controlled directly by the stump muscles. Detailed study of the suction socket in America since the war has eliminated most drawbacks. Each socket is carefully carved and shaped to fit individual stump measurements. "Breather" valves have been evolved which automatically let the air in and out as the wearer walks, although a simple discharge valve is usually adequate.

Thus far, suction sockets have been used mainly for above-knee amputations and, in certain cases, for above-elbow artificial arms. But experiments now going on are investigating the same principle for below-knee artificial legs. The sockets can, of course, be used only when the remaining stump is sufficiently long to insure perfect

fit and muscular enough to control action directly. In cases where the leg has been amputated at the hip or the stump is too short to remain inside any conventional type of socket during hip motion, sockets operating on tilting-table principles are specially built to individual requirements. These cover the hip and are fastened around the waist by a wide belt. Properly fitted, they enable the wearer to walk without a cane.

The Veterans Administration provides all amputee veterans with two of the needed artificial limbs. The second acts as a reserve so that the wearer will not be left helpless while the first is being repaired. In addition, each amputee veteran is provided with free servicing, repairs and new models whenever necessary for the rest of his life, as well as complete training in the use of his chosen prosthesis.

The amputee's training program begins with showings of motion pictures which demonstrate the success of amputees in using their prosthesis and underline the principles by which the mechanisms work. Leg amputees learn gradually how to bear weight on their artificial limbs, shift it and maintain balance. When they have mastered this, they begin walking in front of rows of mirrors, studying and correcting their faults. Later exercises include walking up and down slopes and stairs, stepping on and off steps of exactly the same dimensions as

bus steps, timing themselves in covering a distance equivalent to that across a city street. Playing various kinds of games in the gymnasium, together with other amputees, they learn to overcome self-consciousness.

Arm amputees practice picking up various objects: a sheet of paper, a glass of water, a paper-weight, a fork; they learn the techniques of handling a newspaper and a book; turning on lights; playing chess and cards; sorting money; going through the motions of driving a car, etc. They also have tests in front of a mirror and play active games. The last step for both arm and leg amputees is occupational therapy in special workshops where they are instructed in techniques of machine operation and crafts, with the aim of developing potential technical skills to help them later in both their work and their hobbies.

Civilian amputees receive similar training and vocational help, free of charge, in state-sponsored programmes. And if they are unable to pay for their prosthesis or for their transportation to and living expenses at the training centre, these are provided for by state funds.

The dividends to the country from this research and training have been the return to active life of tens of thousands of American amputees who are no longer invalids but useful members of society in responsible positions.

(Continued from page 252)

work on bridges and structural steel work, turntables, weigh-bridges and rolling stock are perhaps the most common applications. It is a simple process to carry out and since it is not fatiguing to the operator, as is chipping, the possibility of negligent work is minimized. It cannot be denied that in many cases it is a more expensive process than

chipping but this initial expense is fully justified by the subsequent reduction in maintenance costs and the increase in the life of steel. Provided that painting is carried out while the steel surface is warm, protection is assured during the natural life of the paint. (* ASST. SALES MANAGER, The Indian Oxygen and Acetylene Co., Ltd., Calcutta).

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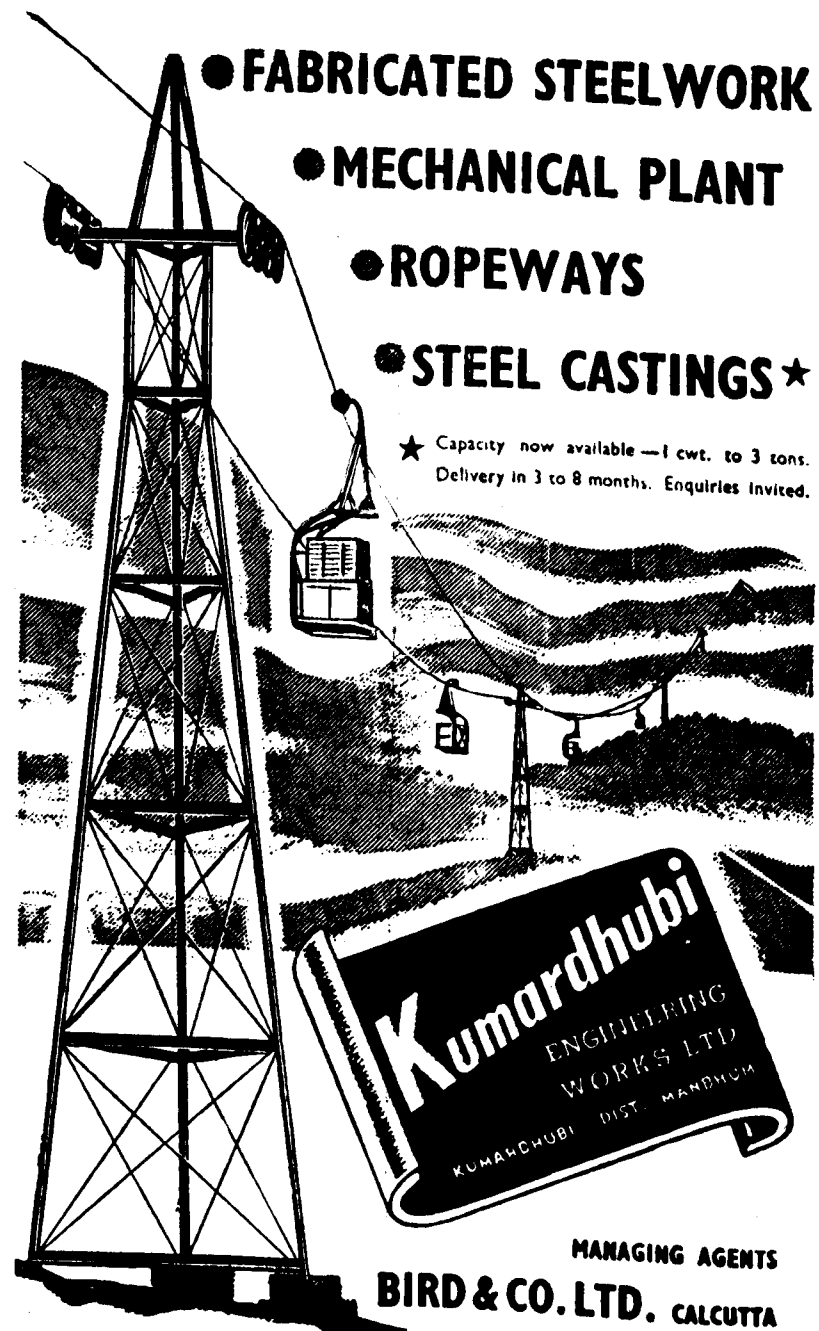
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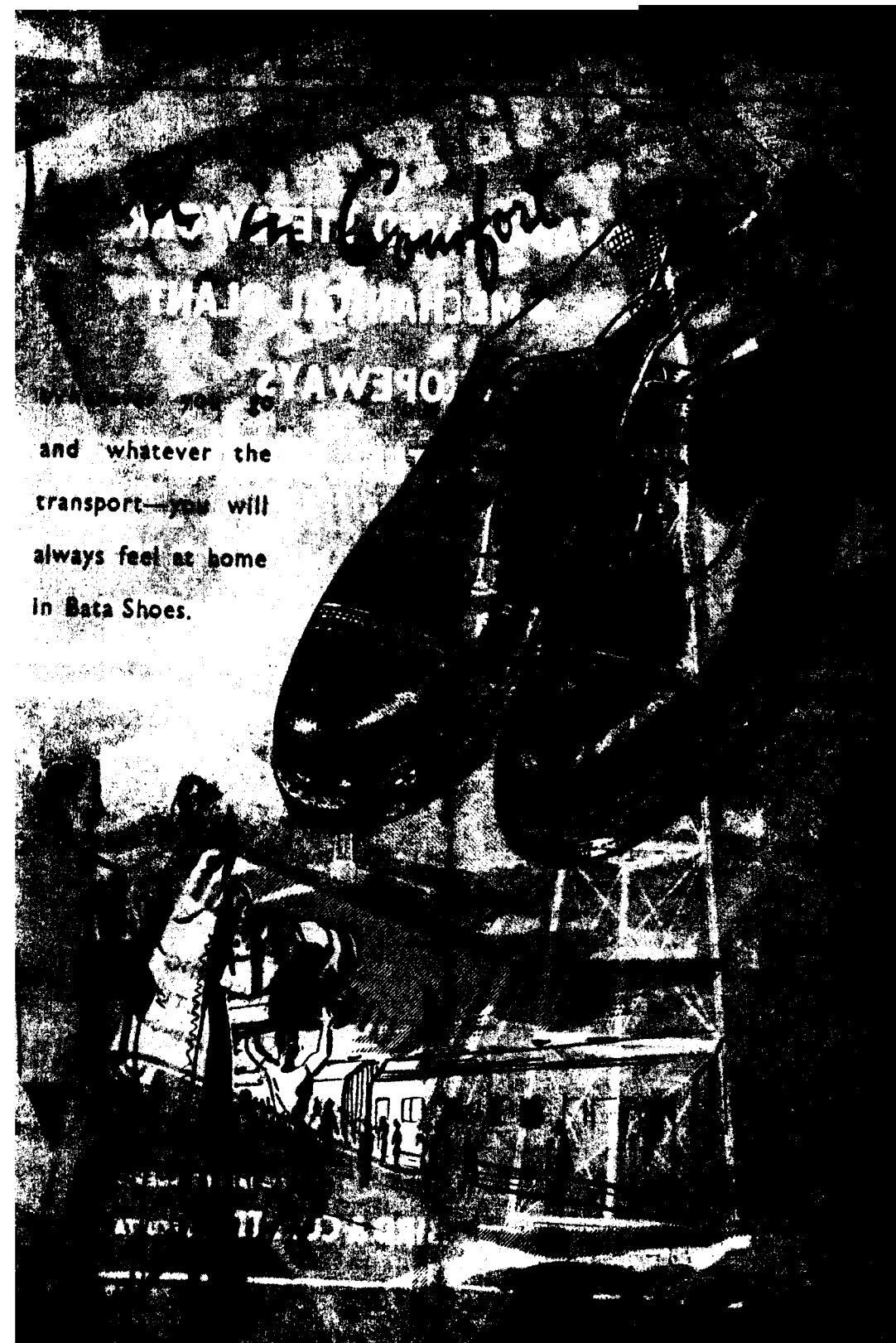
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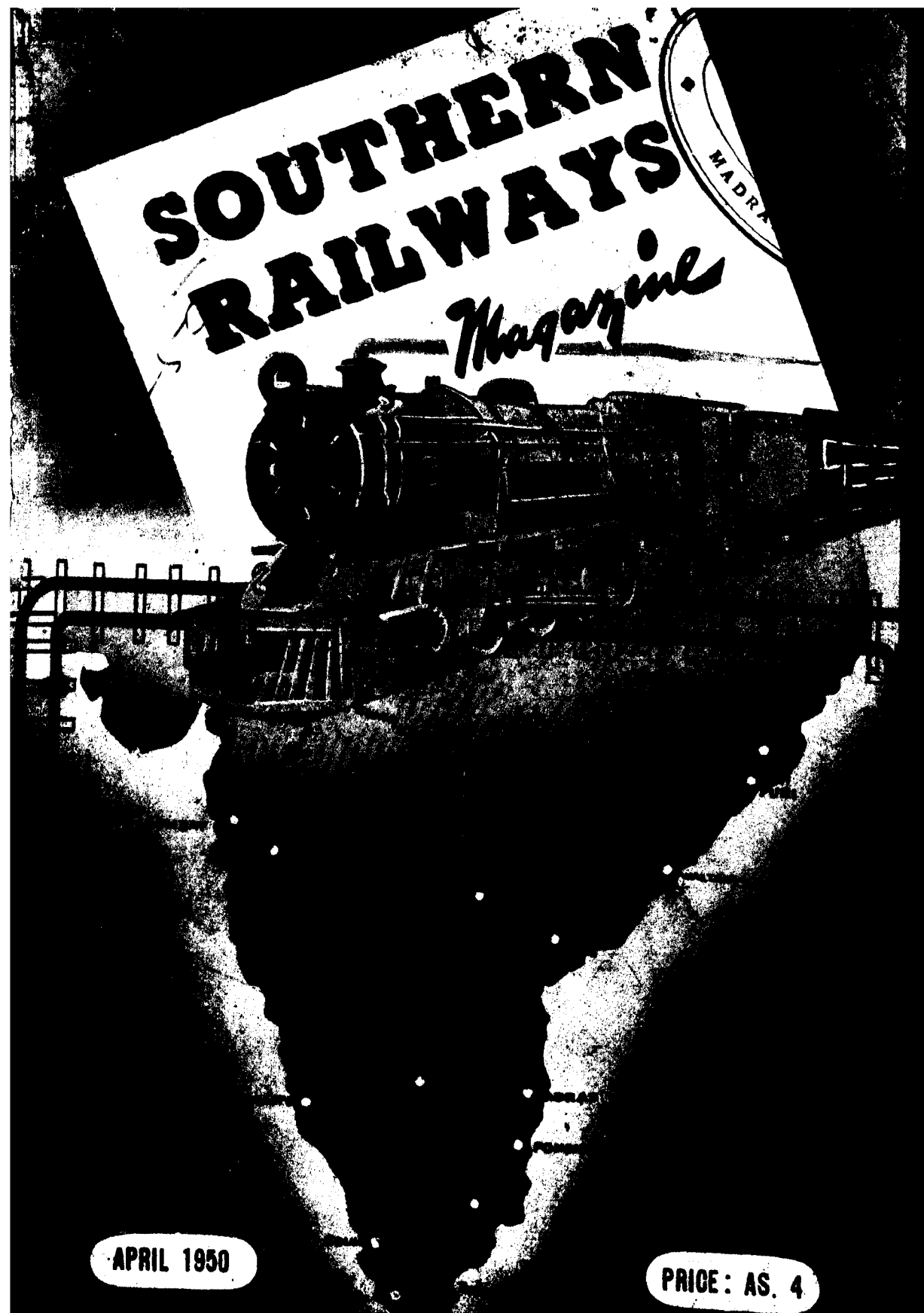


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(4) Export Traffic.

All facilities should be given for the movement of Railway materials and goods required for Railway grain shops which may, if necessary, be given preferential movement. The order is to be operative from April 1, 1950 and valid for six months unless cancelled earlier.

It is premature to say anything as to working of the above order so effectively until and unless it is proved otherwise.

Claims against Railways.

Hon'ble Minister of State for Railways told Mr. Kishori Mohan Tripathi that the number of claims against Indian Government Railways on account of damage to or loss of consignments decided during 1949 was 4,59,470. The total value of the claims paid was approximately Rs. Four crores. Out of the Rs. four crores paid out, theft and pilferage were responsible for approximately Rs. 1,27,70,000.

Hon'ble Sri K. Santhanam Stated in reply to a question put forth by Mr. Tripathi whether Railway Employees involved in the thefts and pilferages, that on the Assam, E. I., E. B. and S. I. Railways a total number of 130 employees were found involved and further 37 employees suspected to be involved now await trial. Information in respect of other Railways is being collected on this question.

Transport of Goods to Nilgiris.

Last month a meeting of the Nilgiris District Regional Committee of the South Indian Railway was held. Mr. Mandiram, Assistant Operating Superintendent, S. I. Railway, Podanur was present.

Mr. P. S. Subramaniam, Secretary, United Planters' Association of Southern India, Coonoor urged the provision of Second Class accommodation on the Nilgiris Mountain Railway. He also urged the early installation of a telephone at Mettupalayam for the convenience of passengers from Nilgiris, the running of a through-carriage from Mettupalayam and Cochin Harbour, and the removal of restrictions on the booking of goods from Madras to stations on the Nilgiris Railway.

The Nilgiri Potato Merchants' Association submitted a memorandum requesting more facilities for transport of potatoes.

New Railway Line Opened.

The Government Inspector of Railways, Bangalore having inspected the Dhanora-Kinwat section of the Mudkhed-Adilabad branch Nizam's State Railway a length of 17.99 miles on the metre gauge, certified it as fit for opening for the public carriage of passengers with effect from January 10, 1950. The Railway Board has confirmed his action. We believe this new line will facilitate the Railway passengers in those areas, and need not depend upon other means of transport.

Stations on MSM. Railway Electrified

Two more stations on the South-west line of the M. and S. M. Railway, Krishnarajapuram and Whitefield have been electrified. The electrical installation at Krishnarajapuram was switched on by Mr. K. T. Bashyam, Minister for Law and Labour Mysore Government during last month and Mr. A. C. Nayudu, Mayor of Bangalore Cantonment switched on the electrical installation at Whitefield.

Notes and Comments

Pay Scales of State Railway

Prior to the merger of State Railways, a Delegation of the All-India Railwaymen's Federation, headed by Mr. S. Guruswami, General Secretary of the Federation met the Transport Minister Mr. Gopalaswami Ayyangar to discuss the issues arising out of the integration of State Railways and demands of State Railwaymen relating to service conditions. As a result of these discussions, the Gaekwar Baroda State Railwaymen would receive the benefit of the Central Pay Commission's scales of pay and allowances from the date on which the Government of India took over the financial responsibility of the Railway. In regard to the Motor Transport Branch of the Nizam's State Railway it is stated that the Government of India were agreeable to take over the road transport services, if the Hyderabad Government permitted it, and negotiations were being carried out to this end. The Government of India should instruct the administrations of merged Railways to ensure more harmonious relationship between the workers and the managements in the interest of smooth working of the Railways.

BNR's Acquisition

During this month the Bengal Nagpur Railway Administration has acquired the Mayurbhanj Light Railway and the Parlakimedi Light Railway on behalf of the Government of India and it continues to be worked as hitherto as a branch line of the Bengal Nagpur Railway. But the existing system of rating and routing of goods and coaching traffic will remain unaltered according to the General Manager of this Railway.

Coimbatore-Mysore Rail Link

Mr. P. Warriar, Executive Engineer, Surveys, South Indian Railway, who conducted the Engineering survey of the proposed 100-mile-long Coimbatore-Chamarajnagar Metre Gauge Railway line said that this line would pass through mountainous country for about 24 miles and there would be 20 tunnels in it, the longest one being about 1,235 feet. Out of the total cost of the scheme of Rs. 4.25 crores, about Rs. 2.25 crores would be spent on the construction of the line in the mountainous regions. He said that the cost of construction of the line in the mountainous parts was four times that on the plains. Fortunately the survey was completed in one season without any mishap. This line, when completed, will connect the Metre Gauge systems of Mysore and S. I. Railways and will provide a short cut for passengers and goods from the South bound for Mysore and Bombay. It is stated that it will reduce the present distance to Mysore and Bombay by about 30 and 60 per cent respectively. Further it is expected also to encourage tourist and goods traffic between Mysore State and South India.

Improvement in Train Services on M. S. R.

The total mileage open lines owned by the State was 72,155 of which 9.83 comprises the Broad Gauge line of Kolar Gold Fields worked by the M. and S. M. Railway. The total capital invested on all State lines up to the end of the year was Rs. 785.5 lakhs including a capital outlay of Rs. 13.45 lakhs on Tramways. The gross earnings were Rs. 247.36 lakhs as against Rs. 177.91 lakhs

1947-48. This was the highest gross earnings so far reached by the Mysore State Railways.

The working expenses excluding contribution to Depreciation Fund amounted to Rs. 144.95 lakhs. The net revenue to Government was Rs. 101.62 lakhs as compared with Rs. 32.86 lakhs in the previous year. The opening balance of the Depreciation Fund was Rs. 216 lakhs. No contribution was made to the Fund during the year but Rs. 5.45 lakhs representing the share of interest on investment of fund amount was added. The expenditure met out of the fund during the year was Rs. 10.33 lakhs and the amount to the credit of the fund at the close of the year was Rs. 211.18 lakhs.

Referring to the train services the Report states that the number of trains run during the year was 24,275. There was improvement in the speed of trains. Despite adverse power and stock position a further partial restoration of train services was effected in some lines. There was also improvement in the punctuality of trains.

The number of passengers carried was 19,505,629 as against 18,455,292 in the previous year. The freight tons carried was 1,039,559. The increase in passenger and goods traffic had been handled without extra locomotives.

The balance of unsettled claims at the commencement of the year was 3,729. During the year, a total of 6,375 cases were registered. The total number of claims disposed of was 7,551. The powers of the officers in the Traffic Department were enhanced resulting in improvement both in the number of cases disposed of. In the Report of the Mysore State Railway for the year ended June 30, 1949 stated that though the punctuality and the speed of trains had been improved, there

was still room for greater improvement. Wagon usage, and turn-round of wagons continued to be comparatively poor and needed improvement. Locomotive usage was also poor.

Railway Service to Calcutta.

A long-felt want is fulfilled with the announcement of M. S. M. and B. N. Railway authorities decision to run another passenger train called Howrah Passenger in addition to the Calcutta Mail from Madras with effect from 15th of this month. It is hoped considerable over-crowding in Mail trains would thus be obviated.

Priorities for Railway Traffic.

Consequent to the abolition of the Railway Priority Organisation with effect from 1st of this month and the consequent winding up of the Regional Priority Advisory Committees attached to the various Railways, the Government of India has issued the following order for arrangement of preferential movement to the extent necessary, in respect of the under-mentioned essential goods in the order listed:—

(1) Foodstuffs...Those sponsored by the Union Government in accordance with the basic plan drawn up by the Ministry of Food; those sponsored by State Governments from time to time; other urgent orders that may be considered necessary from time to time by the Ministry of Food.

(2) Raw materials to and finished products from cement, textiles and iron and steel industries in accordance with the quotas drawn up by the standing Committee of the Central Board of Transport from time to time.

(3) Plants, equipments and stores including fertilisers required

Nine British Locomotives for Indian Railways

Nine locomotives and tenders each engine weighing 70½ tons destined for the Indian State Railways have been loaded aboard the "Clan Chisholm" in Birkenhead port England. An 87-ton crane, it is said, was used. With the arrival of these locomotives one can reasonably expect more number of trains on all Railways to cope with the increased traffic.

Remodelling of Cuddalore Railway Station

The Railway Board, in a Communication to the South Arcot Journalists' Association had stated that for the Remodelling of the Cuddalore N. T. Station the original estimate of Rs. 8 lakhs would be taken up in 1950-51. It is understood that the Railway Board has since sanctioned the entire estimate and has instructed its sub-ordinates to carry on the work continuously.

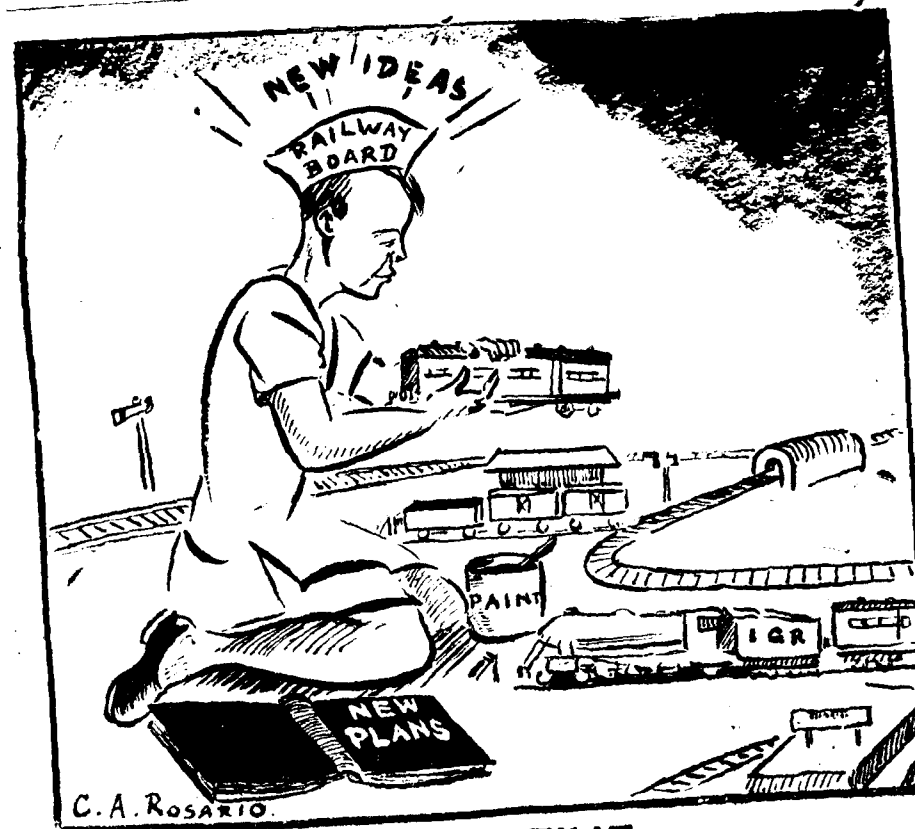
Mysore Railway Workers Pledge

Employees of the Mysore State Railway which became integrated with the All-India Railway this month have pledged their loyalty to the Indian Government.

At a meeting they thanked the Indian Government for extending to Mysore State Railway Employees the Central Pay Commission Pay Scales. The meeting requested that five employees of the State Railway who were dismissed after the total strike in 1947 in support of the Congress Satyagraha for Responsible Government should be reinstated.

Pay of Railway Teachers

A meeting of the Bogole Teachers' Association was held last month at Bitragunt. Mrs. E. M. Rajagopal, Senior Deputy Inspector of Schools, Kavalì presiding. The meeting passed a



PLAY TIME

resolution requesting the General Manager of the M. and S. M. Railway to fix the pay of teachers according to their qualifications, irrespective of the classes they handled.

We believe that the M. S. M. Railway administration would consider the demands of these teachers who are discharging a task of paramount national importance.

New Rail Link to Kakinada

The Ministry of Railways have sanctioned an engineering survey which is being carried out by the agency of the Madras and Southern Mahratta Railway Administration for diversion of the railway line from Kakinada to Pithapuram a distance of 11 miles on the broad gauge, it was officially announced

by the Ministry. The survey will be known as Kakinada to Pithapuram diversion survey.

Four Classes again on Indian Railways

The Central Advisory Council for Railways has decided to revert to four classes in trains on Indian Railways, namely the First, Second, Intermediate, and Third Classes. The Special Second Class is to be abolished. The experiment according to one estimate has cost Indian tax-payer Rs. 2,50,00,000 while other estimates place it less than Rs. 1,00,00,000.

So far as S. I. Railway is concerned the reversion to four classes is decidedly a gain as there were no Intermediate Classes previously on this Railway.

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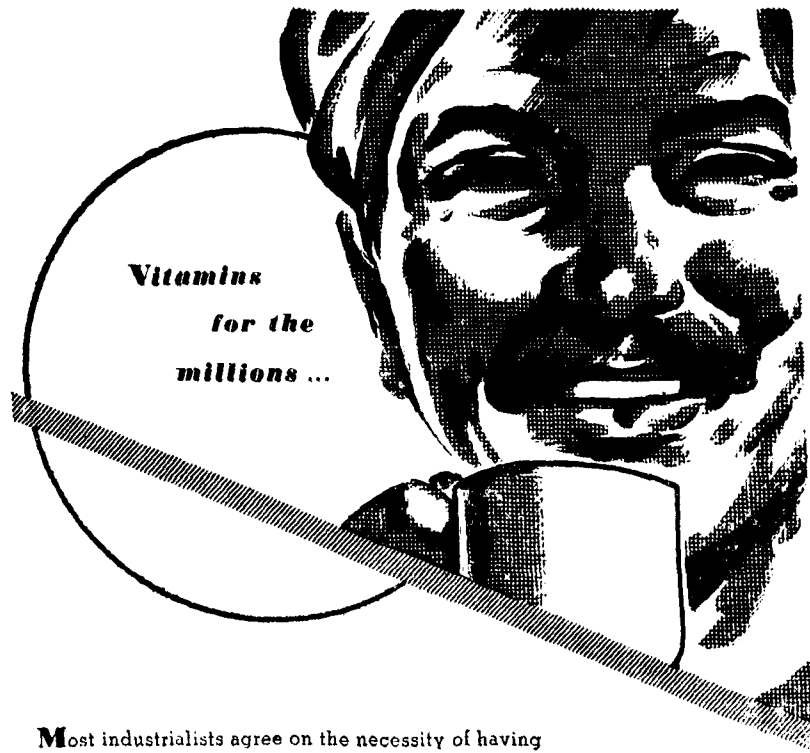
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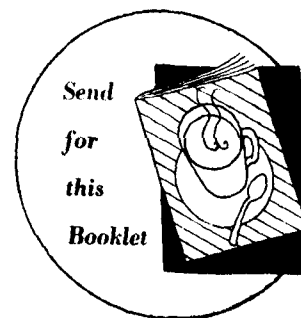
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Most industrialists agree on the necessity of having canteen arrangement in their factories, but few can employ experts to plan and run them. Not the least of the problems involved is that of diet selection so that food is not only cheap, appetising and nutritious but also properly suited to the particular part of the country. In this, the Central Tea Board has conducted specialised research, and the results of this work are *freely available* to all employers of labour. From the same source, the most modern information on tea making and tea serving is also available. For tea — the drink of comfort, refreshment and sustenance — is still the backbone of the efficient canteen, and this organisation can provide every possible hint on equipment, utensils, staff and administration.



Special pamphlets and brochures on technical aspects of canteen planning and management are supplied free to re-

cognised employers of labour on application to the Chairman, Central Tea Board, 31, Netaji Subhas Road, Calcutta 1.

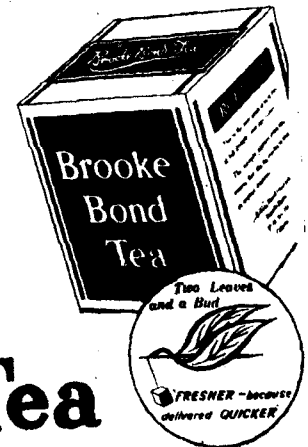
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Report of the Ministry of Transport

REVIEWED BY T. K. PARTHASARATHY

The Annual Report of the Ministry of Transport 1949-50 issued by the Govt. of India recently in a 64-page booklet covers a wide range of the activities of an important branch of the administration. One could reasonably expect such a report to be more illuminating and explanatory than what it is. The Report has, *inter-alia* dealt with the Central Board of Transport and its Committees' activities, Major Ports Administration and Developments, Inland Water Transport, Road Development, Delhi Transport Service, and Planning of Motor Vehicles Import etc., and Petrol Rationing as well as Tourist Traffic. The Board had been functioning with twin objective of attaining maximum possible coordination of all forms of Transport—the fitting of Transport planning and execution into the planning of the general economic development, including development, of Industry—everyone would welcome such efforts if they are directed towards the well-being of the community at large. What we find in the report is that as the result of the work of the Board during the year Steel, Textiles, and Cement Industries have greatly benefitted, while Coastal Shipping and Road Transport had equally greater opportunities in helping to relieve Railways.

The Central Board of Transport reviewed 117 items of post-war Railway programmes of new line construction and restoration of dismantled lines in 1948 and had during the year under review completed the review of the Railway projects relating to the states of U. P., West Bengal, Assam, Orissa, Madras and Bihar. Of these 11 have been included in the construction programme and 18 have been remitted for engineering or traffic survey. The guiding

principles kept in view by the Board in the selection of projects showed that they were (1) Coordination aspect (2) Financial angle (3) Needs of the national economic development and the resources position. Road and Port development also had occupied the serious attention of the Board and it had reached certain decisions on these matters.

Dealing with the Rail Priority Organisation the report stated that with the arrival of new locomotives and other factors the transport position improved considerably, with the result the priority classifications were suspended entirely on some and partially in others, but in the absence of the position becoming normal it was considered essential for some sort of central control to continue after 31st March, 1950, the Powers under the Railways (Transport of Goods) Amendment Act of 1949 to effectively move the essential commodities in the event of any possible dislocation in Rail Transport due to difficult wagon position.

The Report stated that the important developments have taken place in regard to road coordination and reorganisation of road Transport. In Madras the entire City Bus Service had been nationalised and against 17 routes operated by the private management the Government were running buses on 37 routes with the fleet of 300 vehicles, in addition to suburban services and the Holiday special services.

The Board also pointed out that in order to ensure the smooth flow of Inter-State and Inter-Regional Goods Traffic, they had advised all State Governments to mobilise to the maximum their their Road Transport services.

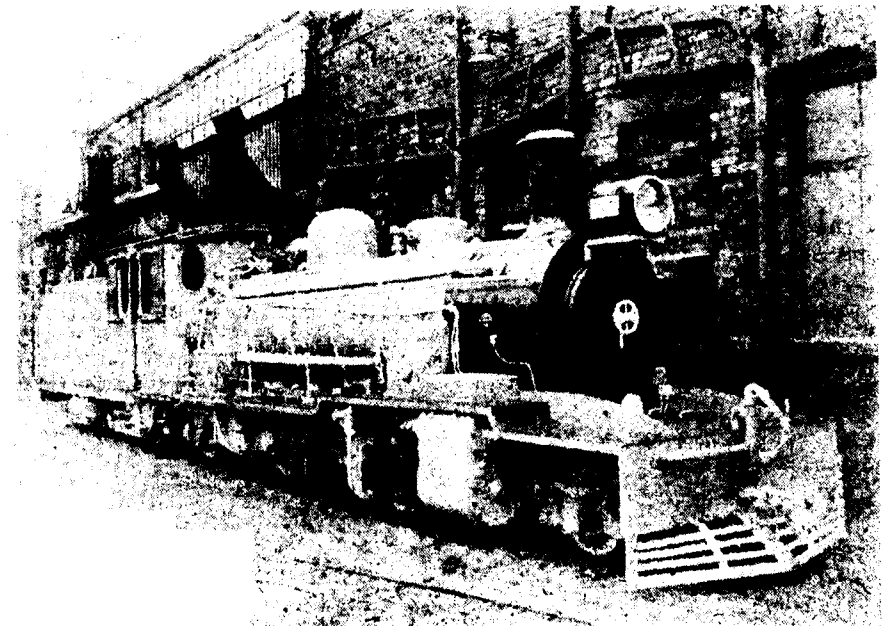
Main Line 2 ft. 6 in. Gauge Locomotive for India

We reproduce below a photograph of one of three 2-8-2 main line 2 ft. 6 in. gauge locomotives which have been built for the Barsi Light Railway in India by the Hunslet Engine Company, Ltd., of Hunslet, Leeds. For a number of years this Railway has made extensive use of large rigid-frame steam locomotives for the principal passenger and freight services on its 2 ft. 6 in. gauge system, and the new engines have been built to conform with its standardisation policy.

The new "F" class locomotives, as they are known, have a maximum axle load of only 6.8 tons, and develop a maximum tractive effort of 17,300 lbs. at 85 per cent of the 160 lb. boiler pressure. The very low weight per foot run of wheel base makes the locomotives suitable for a low Cooper bridge loading.

On the new engine two outside 15½ in. by 18 in. cylinders drive the third pair of 2 ft. 10 in. diameter coupled wheels; this pair of wheels is flangeless. The locomotive has a total wheel base of 22 ft. 10 in. and a rigid wheel base of 9 ft. 7 in. The engine and tender wheel base is 42 ft. 5½ in. and the overall length 51 ft. 2 in. The adhesion weight is 27 tons, whilst the locomotive weighs 38½ tons and the tender 23 tons.

Poor water conditions and low axle loading led the designers to limit the boiler pressure to 160 lbs. and to permit working with bad water top feed was incorporated, a Hulburd mechanical boiler cleaner was fitted, and copper was used for the main internal steam-pipe. The inner copper box has Muntz "Nicro" side stays in the flame area. The barrel has a mean



2 Ft. 6 in. Gauge Locomotive.

Miniature Train with Remote Control

Trix Twin Railway

The mass produced "OO" Miniature Train ceased to be merely a toy when manufacturers of Trix Trains brought out their Twin Railway, the famous electric Railway system which allows two trains to run simultaneously on the same stretch of line under independent remote control.

Before the advent of the Trix "OO" system, the use of miniature trains had been confined to those experts who could afford the time and money to build large layouts. From its inception Trix became an absorbing hobby with many of the world's leading personalities.

In 1922 the famous firm of Bing Bros. designed and produced the original "OO" gauge miniature clock work train and Railway. It was later adopted for an electric motor. This was a forerunner of the Trix Twin Railway. In 1928, Mr. Stephen Bing the founder, and Mr. S. Kahn, then Sales Manager, started up the new venture which became the Trix business. Then in 1935 Mr. Kahn and E. Beyer invented and designed the now famous Trix Twin Railway. In 1937 Mr. F. Bing, son of the

founder, and Mr. Kahn were forced by the Nazis to leave Germany, and settling in Britain they continued the development and production of the Trix Trains.

Before the war Mr. Kahn had developed for Trix a wide range of fully remote control accessories. War brought train production to a standstill, but the firm continued with important work for the War Office and the Royal Air Force. Amongst other things they produced a number of remote-controlled battle ranges, where conceived battle plans could be rehearsed in perfect detail, using controlled guns, tanks and aircraft, made from components of the Trix Train system.

There are information bureaux and service departments in several countries, and a Gazette keeps Trix owners informed of modern Railway practice, latest developments, and competitions. Among many competitions run by the firm for pre-war Trix users, one of the most popular was a photograph of a simulated rail crash and the competitors had to decide what caused the crash and who was responsible.

IMPORTANT ANNOUNCEMENT

We have pleasure in informing to our Readers, Advertisers and Patrons that we are bringing out a special supplement on the first anniversary of the "Southern Railways Magazine" which will be out by the end of July. This volume will comprise of three sections pertaining to rail, road and air transport. Speciality of this number would be articles contributed by top-ranking personalities on transport problems.

The Souvenir will be printed completely on art paper with multi-colour get-up as usual. It is priced at As. 8/- only containing over 100 pages in order to be within the reach of all categories of Railway Personnel.

Agents are requested to book their orders in advance.

Manager.

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inside diameter of 4 ft. 1 in. and contains ninety-seven steel tubes of 1½ in. o.d. and fifteen flues of 5½ in. o.d., 12 ft. 6 in. long. These tubes give a heating surface of 813 square feet, and with the 75 square feet area of the Belpaire firebox the total evaporative surface is 888 square feet. The grate area is 20.5 square feet and the super-heating surface 177 square feet. A "McLisco" superheater is fitted.

The locomotive is built up on outside plate frames, 7/8 in. thick, in two portions and connected in front of the throat plate by cast steel cross stretchers. The cast steel axle boxes with gunmetal bearings run in cast steel horn-blocks with adjusting wedges in the front face. All boxes have laminated springs, with compensation, first, between the leading coupled boxes, and secondly, down

each side, through the intermediate, driving and trailing coupled springs. The suspension of the trailing truck is kept separate.

Inside admission 8 in. diameter piston valves are situated above the cylinders and are actuated by Walchaerts gear, giving a maximum travel of 3½ in, corresponding to a cut-off of 77 per cent. Steam lap is ¾ in. and the lead 1/8 in. A steam brake operates blocks on the leading intermediate and driving coupled wheels only, and vacuum equipment is fitted to the bogie tender and for the train. Wet sanding is applied to the leading coupled wheels and hand sanding to the trailing coupled pair. A central buffing and drawgear has automatic radiating gear with enough play for train haulage over 150 ft. curves.

(Continued from page 276)

We find that in regard to Road Development the report does not show in clear terms the policy of the Government except pointing out the constitutional position in regard to Roads and Highways under the new Constitution. The sooner the proposal for the enactment of the national Highway Law is effected the better it would be for all concerned in the development and progress of the Roads which concerned every citizen of the State. The statement in the report, that the proposal for the implementation of a Central Aid Scheme for the improvement of the Municipal Link Roads had to be deferred "on account of the present difficult financial position of the Central Government," shows that the Transport Board and the Ministry have failed to appreciate the importance of this important roads in urban areas.

The Tourists Traffic question had been handled by the Board and the Ministry in a business like way and the Report shows that the great progress had been made

in planning and effecting attractive arrangements for the comfort and itinerary of the foreign Tourists visiting India and it can be very well said that in this particular matter the Ministry of Transport had been very careful in not omitting even the minutest detail which is highly commendable.

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Special Rail Transport for Australian Automobile Bodies

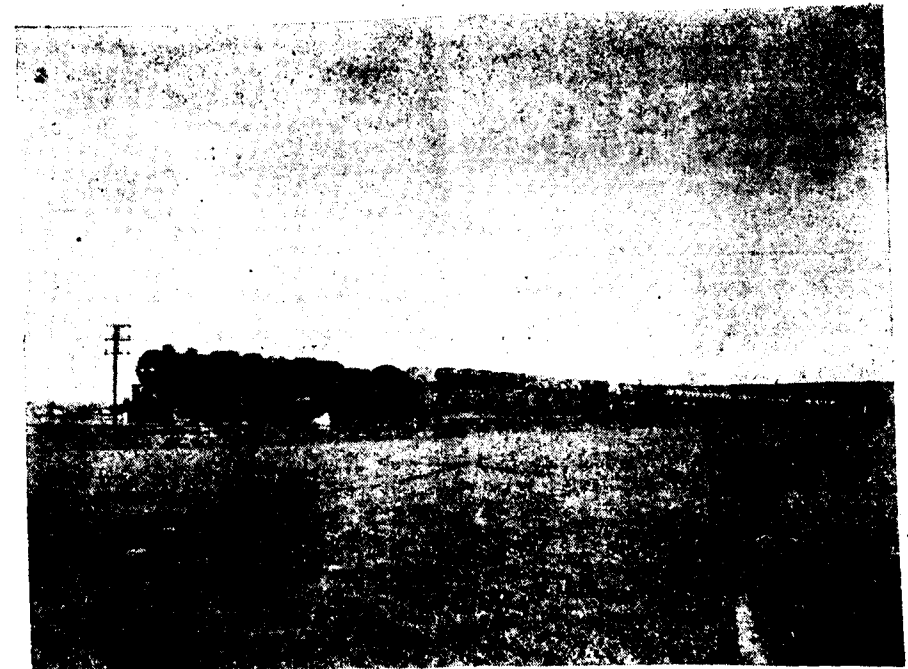
In Australia, Automobile Bodies are carried 450 miles from Adelaide, South Australia, to Melbourne, Victoria, on specially designed 70ft. long Railway Trucks.

Between 1,000 and 1,200 car bodies are being transported between the two Australian capital cities each month. This is the bulk of production of South Australia's two major body-making firms, General Motors (Holdens) Ltd. and Chrysler, Dodge, De Soto Distributors, Ltd. At Melbourne, the bodies are fitted to chassis at large assembly plants.

From the end of World War II, lack of shipping resulted in the accumulation of automobile bodies at Port Adelaide, an accumulation which showed little sign of being eased in the immediate future. Consequently General Motors (Holdens) Ltd. and Chrysler,

Dodge, De Soto Distributors Ltd. began negotiations with the South Australian Government for Rail transport. A contract between the two Companies and the Railways came into operation in January, 1949, and new type rolling stock was designed by South Australian Railways Engineers and built at the Railways' Islington workshops.

The first of the trucks was put on the tracks early in 1949 and there are now 35 of them operating. Each truck carries from 10 to 13 bodies according to size. Five bodies are transported in the truck itself and five or more mounted on the platform top. The trucks are constructed of steel and timber and each is 70 ft. long. They are painted bright scarlet to remind Melbourne rail men of the need for speedy return to Adelaide for further loading.



Automobile bodies being transported by rail from Adelaide, where they are manufactured, to Melbourne, over 400 miles away, to be put on imported and Australian made chassis.

Railway Tele-Communication

(Telegraph Branch)

By V. Ramaswami, Retd. Asst. Signal & Telegraph Engineer, S. I. Ry.

(We have pleasure in introducing Mr. V. Ramaswami Iyengar, Retired Assistant Signal & Telegraph Engineer, South Indian Railway, Trichinopoly, to our readers, who has agreed to contribute series of articles on Railway Signalling with his long years of experience in this branch of Engineering. In the following paragraphs the writer pleads that the organisational set-up should be distinct and perfect so that the efficiency—which is an hallmark of any nationalised industry—can be kept up as high a standard as possible. Ed.)

The Organisational set up of the Railway Telegraph Branch is different in each of the Railways as exists at present. This is due to the Railway system having been developed by different Railway Companies according to their own views and needs. There was no co-ordination between Railways. For instance the Telegraph Branch on the S. I. Railway is combined with the Signalling Branch under Traffic Department, while on the M. S. M. Railway it is combined with Electrical Branch and the Signalling is under Chief Engineer.

In view of the fact that re-grouping of Railways into Zonal Administrative units is contemplated and plans are under active consideration it would be right to say that the set up of each such specific Branches should be uniform all over.

Of late Telegraph has given place for Tele-Communication after the introduction of wireless and Telephone systems (Train Control and Exchange). Morse Telegraphy comes under communications, but the Block Signalling which is under the Telegraph Branch should be under Signalling proper.

Now-a-days the Station Signalling is being more and more controlled by the Block Signalling. There is a practical difficulty in apprising and removal of faults causing delay, when these two are

under two different set of Inspectors (Telegraph-Signalling). Hence in point of efficiency, the Block Signalling must go under Signal Inspectors. When this is done, the Tele-Communication Branch will have the Communication Services such as Morse Telegraphy, Train Control, Exchange Telephones (Manual and Auto) and Wireless under one head. There is yet one another viz. lightning conductors on buildings which is now being maintained by the Telegraph Branch on S. I. Railway must go under the Electrical Department.

At present it is a pertinent question to be decided whether the Communication services should be a distinct Branch. It should be a distinct Branch in itself which can be arranged without much difficulty in the view set up of Zonal system. There is a defect in combining two distinct Branches under one head. At the face of it, it will be seen that Signalling is quite different from Tele-communication. Each is a specialised subject and the application and development are different. In almost all cases when two such Branches are combined under one head a sort of bias towards one or the other creeps in which is detrimental for the efficiency of the Branch concerned. It will not be always possible to get an officer who is proficient in both. Not only this but it should be also understood by the head that each

(Continued on page 284 bottom)

this specially designed

telephone cell

will save you . . .

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The 'Eveready' No. 6-T Telephone Cell comes to you complete, ready for service; no filling with water and waiting before use.

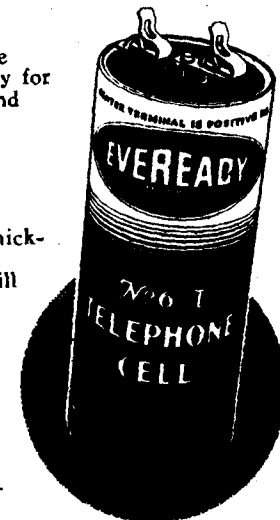
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Spring clip terminals grip varying thicknesses of wire instantly: no tools required for installation: wires will not come loose due to vibration.

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A NATIONAL CARBON PRODUCT

Mobilophone: The New Medium of Communication:

In a few months, in the Summer of 1950, the Mobilophone network will be completed in Holland, which is the first country in Europe which has extensively developed this new system of communication. This means that it will be possible to telephone in the whole country from cars equipped with such an installation to anybody who has a link with the existing telephone system in the country. The person who has equipped his car with a Mobilophone equipment will, if he is driving in the Northern part of Holland, be able to telephone with a customer in Amsterdam or even with another party in another car driving in the Southern part of Holland.

The Mobilophone is not entirely a post-war development. Before the War there were, in Holland, at least 150 cars equipped with Mobilophone. These, however, were apparatus which were only attached to a small network. For instance, there was in one town a Fire Brigade, in another town the Port Commissioner, etc., etc. In those cases, it was only possible to telephone from the Headquarters of the particular organization with their vehicles equipped with Mobilophones. However after the War, this service has been extended to the official P. & T. communication systems, with the above mentioned result.

Holland is the first country in the World which has introduced this universal system. In the United States only certain routes have the facilities of this system, i. e. only along big and important highways.

The advantages are obvious. Many Doctors, whilst driving their cars, can be telephoned from their houses to immediately proceed to a serious case. Police cars are, of course, all of them equipped with this system. Furthermore, various Taxi Companies have equipped their taxis with this new unique communication system.

(a) In order to be of service to the customer, who can still conduct his business whilst driving his taxi.

(b) In order to be able to redirect taxis to any new customer, so that it will not be necessary for an empty taxi to return to a certain taxi stand before being able to pick-up passengers.

At the moment also trains are being equipped with these installations, so that it also will be able to telephone from a running train to anybody attached to the P. & T. Telephone System or to the P. & T. Mobilophone System.

It is obvious that a great future lies ahead in many countries for this unique communication method.

(Continued on page 286)

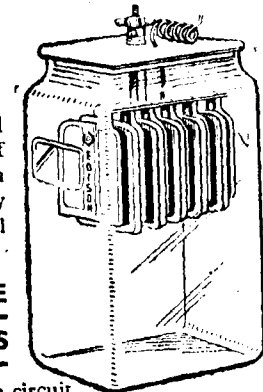
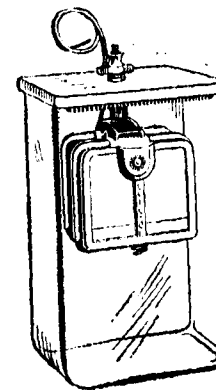
is important in its own sphere and should not be compared at all.

The Tele-Communication is the eye of the whole Railway System. Its importance can only be felt during the time of accidents. If at the time of a nasty accident, like those that are frequent now-a-days, the Tele-Communication services are also

affected then how to transact and transmit all orders and informations and arrange for speedy restoration.

In fine the main purpose of this article is that the organizational set-up should be distinct and perfect so that the efficiency can be kept up as high a standard as possible.

EDISON Primary CELLS for all Railway Signalling Uses

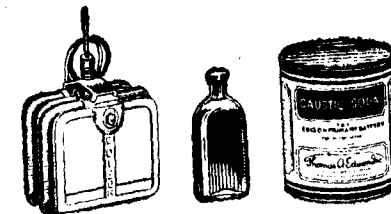


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Electronics and Railways

(BY SHANKER)

We are passing through the marvellous age of modernisation, when the practical applications of electronic engineering in Railways are increasing in U. S. A., U. K. and our country. It is considered that it will be of some interest to railwaymen if a few of the significant applications of electronics in Railways both in and out of India are brought to their notice.

First, however, just what is electronics? Electronics is a branch of science which relates to the conduction of electricity through vacuum or gases by electrons and ions. Such a condition can be produced, confined and controlled in an electron tube, which is known in layman's parlance as a radio tube or valve. Any apparatus or device using such electron tube or tubes is called an electronic equipment. This may range from a simple radio receiver or an intercom amplifier to a complex photo tube door opener, high frequency induction furnace, diathermy machine or radar (radio direction and ranging) equipment. More than 120 basic types of electronic equipment are in use to-day in each of thirty major industries including communication and rail transportation in U.S.A. and U.K.

Although electronics is young as an industry, its roots go deep. It is a good example of an industry that has arisen out of scientific discovery through the act of invention. Without digging too deep into the history of inventions, one can say that since 1881 when Edison set the ball rolling with his discovery that electric current flowed through a vacuum, the roots of electronics have grown deep with the brilliant discoveries of Ampere, Oersted, Henry, Faraday and the inventions of Morse, Bell, Marconi and Hertz.

Reliable and quick means of communication are pre-requisites for efficient rail transportation. The electronic communication sys-

tems on the modern Railways include point to point two way radio, carrier current and voice current telephony using wires. Carrier is a specialised adaptation of radio wherein high frequency currents are sent over lines. The electronic equipment for the above modes of communication takes the form of transmitter, receiver, audio amplifier (repeater) and rectifier power supply. Point to point two way radio communication on Indian Government Railways was born of urgent necessity in 1944 during the war period; it was introduced as a temporary measure to supplement the telegraph and not to supplant. Within a few years of working, the Railway Board found in radio communication, the parent of progress in efficient and speedy communication and thus it has come to stay. The radio networks and the telegraph networks are dovetailed to accommodate efficient traffic loading.

Another application of electronics in Railways is to provide instant communication between engine, wayside station and another train and also between the engine and the rear end of the train. The electronic equipment used for the above applications are V. H. F. (very high frequency) F. M. (frequency modulated) transmitters. The range of the equipment is limited to points within optical or line of sight. "Walkie Talkie" sets working on the above principle are used in the Railway marshalling yards by the controller, the shunting engine and the pointsmen. The radio contact between engine and wayside station along main lines is primarily intended to supplement existing automatic block and manual block systems in the matter of train control and for the promotion of safety. The wayside station can "home" the train in, as it were, by transmitting a "home signal" which will actuate through pre-tuned receiver, trigger

circuits and relay, the indication lamp and bell in the engine, thus giving the right of way to the driver. With this system, he has the line clear signal brought on the foot plate, indubitably helping him in poor visibility due to rain, fog or the dust storm. These applications have come to stay as permanent measures in majority of rail-roads in U. S. A. and U. K. They have not found a place yet in the Indian Railways, but experiments to assess the usefulness of such applications to Indian railroads have been and are being carried out on our Railway. Last year the usefulness of end to end communication in a train, quite accidentally came to light, when the equipment provided for this purpose in the G.I.R.'s special on our Railway was largely responsible in saving the special from a fire. A piece of live coal had lodged on an FSQ and the roof had caught fire. The train was stopped by instructing the driver on the phone. The system provided on that occasion depended on train lighting wires. A more modern system using V.H.F. equipment which is being developed in the signal department is to be tried out shortly on the Frontier Mail trains.

Electronic applications in Railways, other than for communications, include induction, heating, magnetic tester, motor speed control and welding control in work-shops, public address system in waiting sheds, X-rays in railway hospitals, rectifiers in sub-stations, cinemas in recreation clubs and the radio and record players in trains. The recently developed automatic train position indication system in U.S. A. which is intended to provide an indication to a train controller the positions of one or more trains as they progress down the right of way 5 to 100 miles away, rightly gives one the impression that there is no limit to the application of electronics in Railways and the application is as varied as the problem itself.

Within the last decade the electronics has grown up amazingly in western countries; in India it is comparatively slow. Let us hope that our Railway, which always keeps abreast of the times and which has earned the distinction for introducing modern and efficient methods of signalling will not lag behind others in electronics too.

Your Magazine

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Presenting Mr. Railwayman

The Permanent Way Inspector

(By A. H. PEARSON)

If you happened to be on a Station Platform and ask any Railwayman to point out a Claims Inspector, you would not find a man in a distinctive railway uniform, nor would you be able to find his office on the station premises. The Claims Inspector may set apart a small room in his quarters for use as an office, when he is at home, which is rare, but most times he is carrying his office about with him, as he moves from station to station on the section of the line allotted to him. How does he function?

A telegram will be handed to him that he must proceed at once to a station to arrange for what is known in railway phraseology as 'open delivery.' Getting there by the first available train, he will go straight to the Goods or Parcel Office, where he will find the Station Master, or Goods Clerk, and the consignee to whom delivery is to be given. The consignment in question has been received in an open or partly damaged condition, perhaps with some of the contents missing or broken. The Claims Inspector's job is to form a fair and just assessment of the damage done, and this usually means a lot of haggling with the consignee. When an agreement is reached, the open delivery is given with what is known as 'qualified remarks.' The Inspector will then have to make out a detailed report, trying to ascertain the cause of the damage, fix responsibility if possible, etc., and this report will be sent to the Claims Office. The importance of his report can be judged by the fact that the claim paid eventually to the claimant is assessed on the basis of this report.

Another aspect of the Claims Inspector's job is that of tracing missing consignments. Let us suppose that a consignment is despatched from a station, properly loaded into a wagon or parcel van, and then somewhere in transit trace is lost. The consignor at the destination is waiting its arrival, but it does not turn up. Perhaps in error, this consignment has been carried beyond its destination, or taken out at an intermediate station. The Claims man will now have to do some detective work. He must start his enquiries from the point of despatch, examine in detail all records and documents, and stage by stage, trace the transit of the consignment. Eventually, piecing together all the evidence, he will probably discover where the missing consignment has got to, and must arrange for its rebooking to the correct destination. This job of tracing missing consignments is no exciting treasure hunt, but a wearisome task, not always relished by the Claims Inspector. But here again, it is most important that the truant consignment be traced, as otherwise, it will lead to a claim from the consignee, which can be avoided if it is found and delivered correctly, although late.

Quite often the Claims Inspector must visit a merchant's place of business, perhaps in some small town or village, to investigate or settle a disputed claim. This is another arduous task for him. The amount involved may be anything up to a thousand odd rupees. The merchant, to convince the Claims Man that his claim is reasonable and justified, will produce documents and account

books. The Inspector must scrutinize all documents thoroughly so as to make an equitable assessment. This is where the Claims man must match his own shrewdness with that of business man who is out to get his value to the last anna bit. The Claims man must also have at his command a fund of tact to convince the merchant that the assessment eventually agreed upon is the most reasonable. Here again the Claims man handling of the situation and the case may mean quite saving to the Railway Administration. If the merchant is stubborn, or the Inspector lacking in business acumen and tact, it may result in litigation, which is not at all a welcome means of deciding a claims case.

Another important part of the Claims Inspector's duties is that of claims prevention. How does he achieve this? Mostly by surprise checks in the course of his movements on the line, and by using his eyes. Whenever he visits a Goods Shed or Parcels Office, he must keep a strict watch on the Staff responsible for receiving, despatching and delivering merchandise. He will have to watch a goods clerk handling a consignment brought in by a merchant or his agent. Is the clerk properly checking the forwarding note with the consignment? Is the weightment being done accurately? This is important as a merchant can prefer a claim on short weight. Gunny sacks containing grain may have small holes in them, through which grain will slowly trickle out. Wooden packing cases may be bulging and not securely fastened down. Tins containing liquids may have sprung a tiny leak. A busy goods clerk may inadvertently overlook these minor details, but if he does and accepts such consignments in booking, it

means these are all potential claims cases.

Loading and unloading operations must also be checked frequently. How are consignments stowed away? How are they handled? Merchandise marked 'fragile' may be carelessly thrown into the wagon or parcel van by the porters, causing damage to the contents inside which may not be apparent until the consignment reaches destination. Care must be taken to see that heavy packages are not loaded on top of lighter-packed boxes. Tins containing oily and greasy substance should not be rubbing shoulders with bales of piecegoods containing valuable fabrics, as a little of the grease or oil soaking into the piecegoods will depreciate or almost destroy its value, and will most certainly lead to a claim.

The marking of packages is also of supreme importance. Most of the 'lost' and missing consignments are due to illegible labelling and markings. The Claims Inspector must constantly check consignments to ensure that marking and labelling is done legibly so that Staff handling these in transit will not be in doubt as to the correct destination.

The causes from which claims arise are numerous. Rules have been framed for the guidance of the Staff and also the booking public to avoid these causes. An oversight here or there, a little carelessness overlooked, may involve the Railway Administration in a four-figure claim. Add these up in the course of a year and one can imagine the total claims bill of a Railway going into several lakhs. It is the Claims Inspector's duty to keep down this claims bill, by preferable working to the slogan 'prevention is better than claim.'

"The Gate-Keeper"

(BY G. RENGANATHAN)

It was a stormy evening. Threatening ink-black clouds hovered over the skies. A hollowing wind raged furiously. Lightning flooded the earth with a lurid glow, while thunder rent the air. The mantle of darkness had fallen and soon there was a violent down-pour of rain.

The usually heavy traffic at level-crossing No. 20 had ceased long before it was six that day.

There were no houses nor any residential quarters near the gate or up to a distance of two miles on either side. The body of a condemned vehicle was placed as a sort of lodging for the gate-keeper on one side of the track. Save the light on the level crossing gate, which was thinly screened by the falling rain nothing was visible.

Muthu the gate-keeper was going in and coming out of the lodging with a lantern that cast more shadow than light. He had just then left a sickly wife at home, without a single soul to look after her, to take charge from the day-duty man. In view of the heavy rain and wind, his wife had requested him not to go on his usual patrol that night. But Muthu was a man of conscience and so his wife's request fell flat in his ears.

He took the lantern in one hand and a country umbrella in the other and stepped out. He looked the door of his lodging and reaching the gates one by one, looked them also. As the wind was blowing on all sides, the meagre cloth he wore became completely wet before he could perform this duty. Firmly grasping the lantern, he set about on his night patrol. The darkness was impenetrable. He could not see the track properly with the aid of the lantern he possessed.

He walked up the path-way that ran along the track unmindful of the biting wind and the torrential rain, and the jellies that struck his feet. Except that he stooped now and then to pull out a thorn from his foot, he walked like a man in dream. The rain water was now falling in a stream from his shoulders.

He passed the first and the second culverts. As he was nearing the third a lump of earth under his feet gave way and he was about to fall. The lantern fell from his hand, but did not go out. He threw the umbrella and clutched at something that came in handy and sustained himself. He picked up the lantern and peered down. It was a desolating scene that presented itself to him. The lightning revealed it in all its nakedness. The structure of the culvert had completely collapsed and the earthwork under the track was out to a length of more than thirty feet. The water collected on one side and rushed to the other with a violent force, the splashing sound of which deadened even the noise of the wind and the rain. Suppose he had stayed away fearing the wind and rain—what could have happened? One of the most ghastly tragedies—a destruction of human beings, who would be travelling quite unconscious of the fate that yawned under their feet. And then—another thought also crossed his brain. If he apprised it to the Inspector and took quick action, then there would be promotion awaiting him and a transfer to a better place as he always prayed for.

It would have been eleven o'clock. He had a feeling that there was yet time for the Mail Train to pass. By that time his

eyes had become accustomed to the darkness. He cut a twig with his knife, planted it firmly between the rails and tied the lamp to it with the aid of the cloth he wore round his head. This done, he reflected for a moment as to what his next step should be.

The Inspector's residence was near the station, which was more than a mile and a half from the level-crossing. He could not possibly be waiting for the arrival of train at the spot, as the breach was threatening to become so wide as not to be repaired easily. The rain fell slantingly and pierced his body. Lightning lighted his path and thunder kept him company.

While he was running between the gate and breach spot he perceived at a distance the bright light from the head-light of an engine. It was the Mail Train. Muthu trembled. In spite of the icy chillness, a hot wave went through his whole frame and his hairs stood on their ends. The noise of the engine was deadened by the noise of the rain and it seemed to be gliding like a meteor.

"God!" he uttered hoarsely and jumped on the track mechanically and began waving his hands this side and that frantically gesticulating to stop. None seemed to have noticed it. The train neared him. He was on the peril of losing his life. He jumped down and cried. But—no the train passed him at a breakneck speed. He looked at the direction of the train with his mouth agap and terror in his eyes. He stood rivetted to the spot while the train was rushing to its doom. In less than five minutes the whole train would have been reduced to match-wood with a tremendous loss of human lives. His mind laid before him the distressing scene. He prayed to all the available Gods on earth that the driver might see the light he had placed on the track and stop the train.

He regained strength and ran to the Inspector's Quarters. But he was told that the Inspector was out and had not yet returned. Then he ran to the Station Master and reported everything. While he was speaking he saw a red light approaching. It was the lamp of the train fixed behind the last van. Muthu felt a sigh of relief. "The train has arrived safely" he chuckled. His prayer had been answered.

The driver alighted from the engine and drawing himself up to his full height before the Station Master began to pour out complaints which collected a large number of anxious passengers round him. He said that it was only through his own pluck and courage that he averted a situation which might otherwise had been very grave; the gate-keeper was not at his spot while the train passed the level crossing nor did he seem to have visited the breach spot as otherwise he would have at least placed a light there as a precautionary measure.

"But I have done that" protested Muthu. The driver paid no heed to it, while he was wondering what became of the light he had placed at the spot, the Inspector arrived. He reported everything to him. He was coo-sure that the Inspector would appreciate his services and recommend him for promotion. Hope of better prospects surged in his veins.

The next morning the breach was closed. In the enquiry the driver deposed that due to adverse weather conditions he was driving slowly and cautiously watching the track. As the train passed a certain distance after the level-crossing, he perceived that the line was sloping down precipitously. As that portion of the track ran through a level ground, it struck him something as curious. Stopping the train he got down and followed by the fireman, reached the spot. The earthwork

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was destroyed due to the heavy rain and the line was hanging. He then backed the train and reached the Station. He added that though the gates were locked, the gate-keeper was not at his post when the train passed the gate on both the occasions.

The Station Master in one sentence said that he learnt everything first from the gate-keeper and then from the driver.

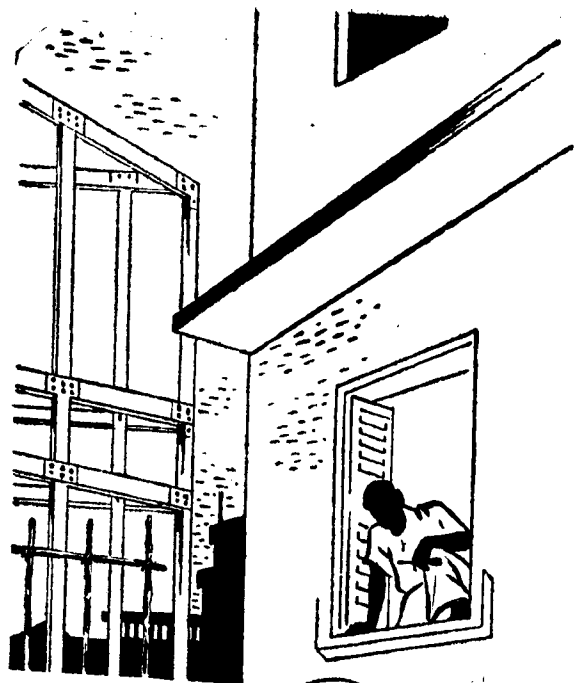
The Inspector said that as there was a heavy rain, he thought that an inspection would be well-timed. While on inspection he found the line breached. He then hastened to the station to issue necessary messages to all concerned.

Muthu was also given an opportunity to explain. He set forth in full detail all that had taken place that night. He was subjected to severe cross-examination and was confused by the endless queries. He felt that he had failed to convince anybody. He hoped against hope that the Inspector would mention about the services he had rendered at the peril of his life. But everything went wrong. Those who were in the know of things said that he would be dismissed for his neglect of duty. He also saw a policeman roaming about his place and was convinced that as soon as the order of discharge was received by him he would be placed under arrest and would be carried away from his wife and children. He spent every day in agony. His wife and children could not understand his behaviour. He walked as though he was mad.

The fourth day brought him a letter. He was sure it was from the Office relieving him of his duty. How could he tell this to his wife? He received the letter threw it on the floor with disgust and walked quickly out of the

house. He saw the usual policeman, but thank God he did not interrogate him. He passed the gate without the knowledge of the duty-man and walked along the track as though urged by the fear of his being arrested at any moment. He did not know where he was going. He walked and walked without caring for hunger or thirst. He did not think of his wife and children. His mind was full of the nightmare of arrest and the consequent parting from his family. But what he was now doing? To live in permanent hiding, dodging the police, was nothing but parting from his family. With that was combined the mental agony of how to escape a sudden arrest. For four days he lived in hiding but hunger and a desire to see his wife and children mastered him. So after nightfall he ventured to go to his house. The first man he saw was the Inspector. "Where have you been for the past four days?" he queried. Muthu felt as though he would faint. There was terror writ large in his face and he did not speak. "Did not you receive the letter?" he asked again. "What letter sir?" Muthu ventured. "The letter ordering your transfer on promotion" replied the Inspector. He ran in and brought the letter which was not opened. "You have not opened this yet. Were have you been all this while?" Muthu exhibited a foolish smile. "All right" said the Inspector, "your reliever has come. Hand over charge to him and join duty forthwith at your Station. You have wasted the joining time of three days allowed to you." Then the Inspector went away.

Muthu was in silent meditation. God "The President of the Immortals" was not keeping quiet. He again answered his prayers, as he had once, for the saving of so many lives.



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Panchaprakaram Festival at Jambukeswaram.

(BY L. N. GUBIL)

Fire, Air, Earth, Water and Ether, are the five elements, and these elements have separate sacred places or *Sthalams* allotted to them. These are Tiruvannamalai, Kalahasti, Conjeevaram, Jambukeswaram and Chidambaram. Each of these places is sacred in its own way and each is given prominence over other places of pilgrimage.

Of these, Jambukeswaram or Thiruvanaikoil, as it is familiarly known, is the *Appusthalam*. The name is quite appropriate as we see always in the Sanotum Sanctorum, wherein the Phallus or Linga or Sri Jambukeswara is located, a pool of water. How this water accumulates there daily has been explained in more than one way. Orthodox people say that because the God represents Appu or Water, water is always present there. Others assert that the *Garba Graha* or the place where the Linga exists has been constructed in a low level so that water soaks up to the ground; but whatever may be the reason, we find there daily a sheet of water and unless it is baled out daily, there is a likelihood of water increasing and flooding the places that lie outside the Sanotum Sanctorum.

This sacred temple, which is situated within two miles of Trichinopoly, is surrounded by five "*prakarams*" and once a year God Jambukeswara passes through all these. This festival is celebrated every year in the month of *Chitrai* on the day of the fullmoon of the bright fortnight and the origin of the same is as follows:—

The sacred place of Thiruvanaikoil has an important legend behind it. Once there was a spider which was daily accustomed to

spin a small *pandal* or canopy above the head of Lord Jambukeswara with the thread produced from its mouth. At the same time an elephant engaged in worshipping the Lord, seeing the canopy of thread which rendered the place untidy, used to destroy the same by pouring water stored up in its trunk on the head or crest of the Lord. Things went on like this for some days when one day the spider infuriated at the elephant destroying its canopy of thread got into the elephant's trunk with the result that both of them died.

The legend continues to say that the elephant attained *Moksha* or bliss and that the spider, as a result of its devotion became a King in the next or succeeding birth with the name Ko-Chengat Cholan. It was this King, a devout worshipper of Lord Siva, who built seventy temples for the Lord and who by richly endowing the Jambukeswaram temple enabled the various festivals to be celebrated annually. Of these festivals, the *Brahmotsavam* is of great importance and the *Panchaprakaram* or the 'Five Rounds' attracts a large concourse of people. During this festival, the Lord and Ambika, his consort, are placed in decorated silver *Vimanams*, the Lord in the guise of *Mohini* or the enchantress and the Devi in the form of a male deity. Starting on the previous evening at about 6 P. M., the circuit takes nearly twelve hours for its completion and it is not before early morning of the next day that the God goes back to his place in the temple. The fifth or the last round which alone comes to nearly two miles is considered of special religious importance and one who accompanies the God in his passage through this round is said to

attain very great *Punyam* or virtue. The origin of this fifth *Prakaram* is enclosed in a legend and is of some interest. The *Sthalapurna* says that once Lord Siva, wanted to construct the fifth rampart or wall surrounding the temple and that for that purpose he appeared in the guise of a *Saiva* devotee with his braided hair, ochre-coloured saree, *Rudraksha* beads and stripes of sacred ash, and promising the people or workmen assembled there good remuneration, he asked them to build the same. In the evening they asked for their daily wages and the Lord gave them in turn, only sacred ash. They were surprised at first but when they found that the sacred ash they received from the Lord got converted into silver and copper coins according as they deserved, they began to realize that the person who ordered them to build the rampart was none other than the Lord Himself. From this circum-

stance, the fifth *prakaram* came to be known as "*Vibuthi Prakaram*" or the "Sacred Ash Round."

Thus rich in tradition and legend and celebrated as one of the *Pancha Bhootha Sthalams*, *Jambukeswaram* shines as one of the foremost temples of Southern India and *Panchaprakaram* is the unique well-attended festival.

The unique feature of this festival is that the entire expenses of this festival are borne by all the cocoanut merchants of Trichinopoly. Men and women, from far and near, assemble in large crowds, and the best musicians and *Bhajana* parties are invariably seen here during the festival. Water sheds are kept by liberal-minded devotees and thousands of palmyrah fans are distributed free to devotees and *Bhagavathars*. In short, this is one of the innumerable festivals which are held in very high importance by the *Saivites* of Southern India.

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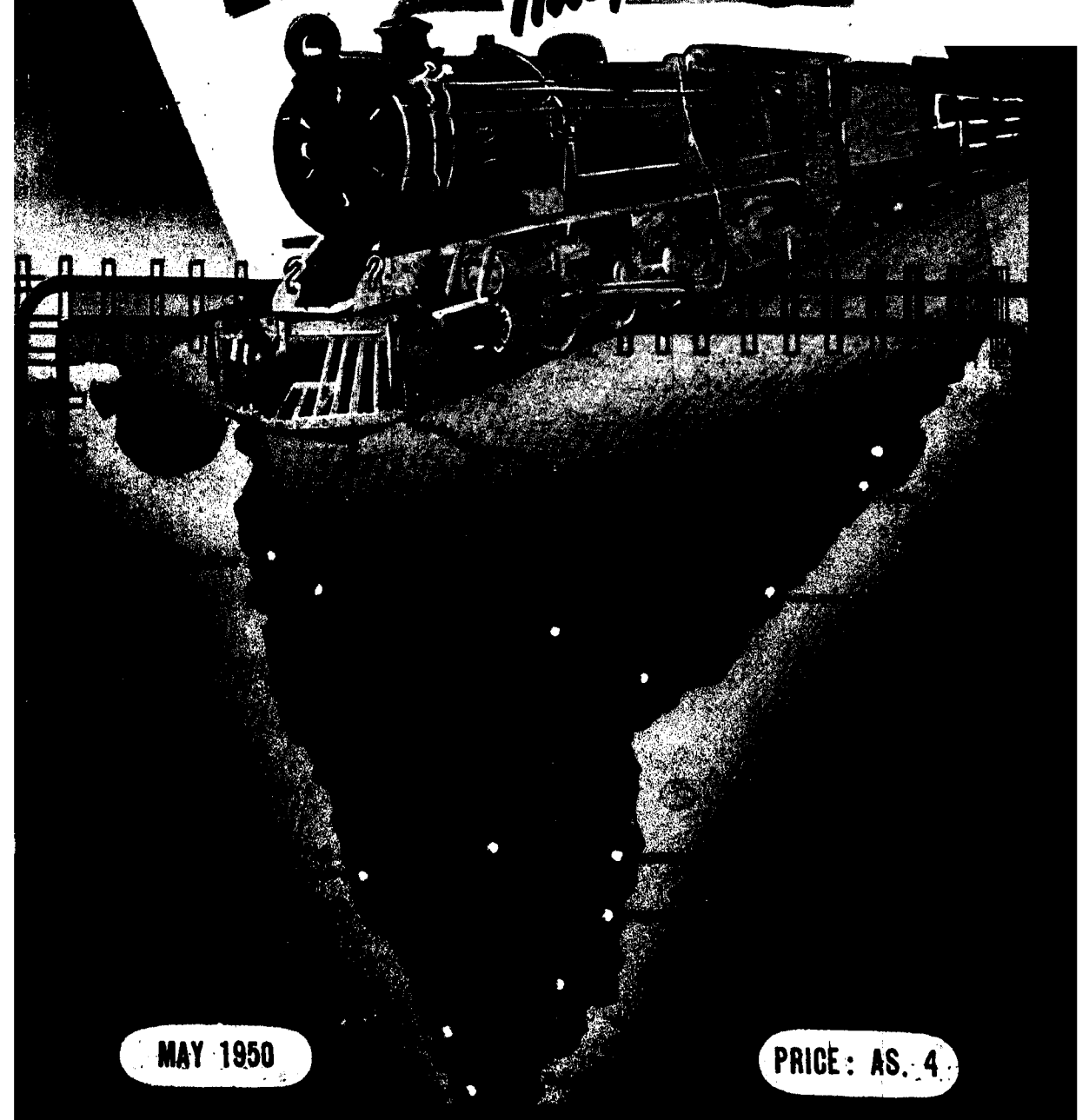
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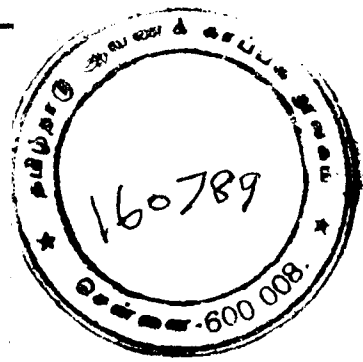
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MAY 1950

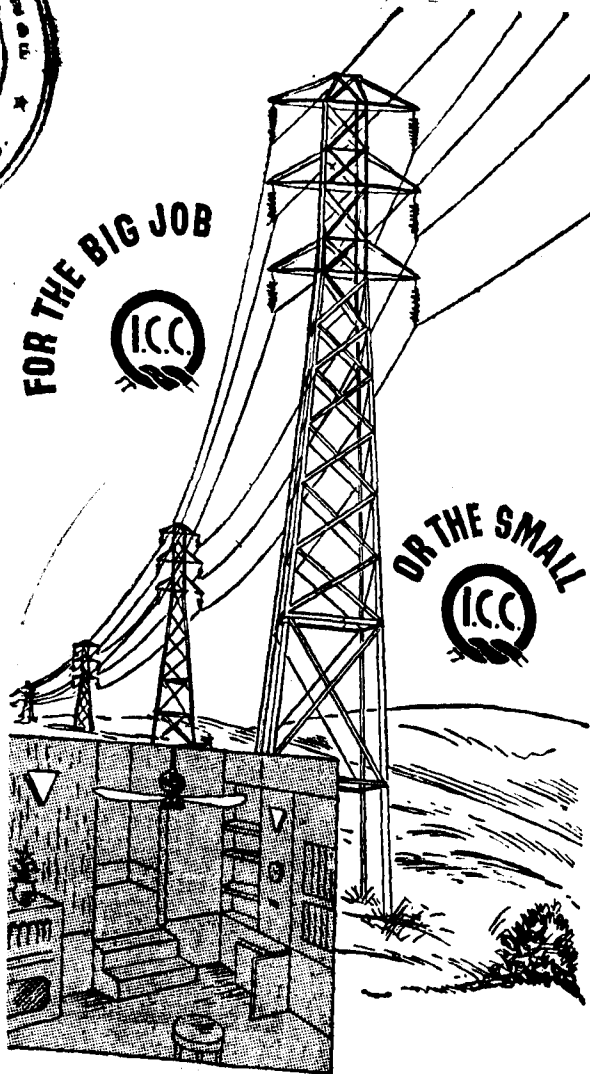
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Notes and Comments

U. S. Locomotives for India

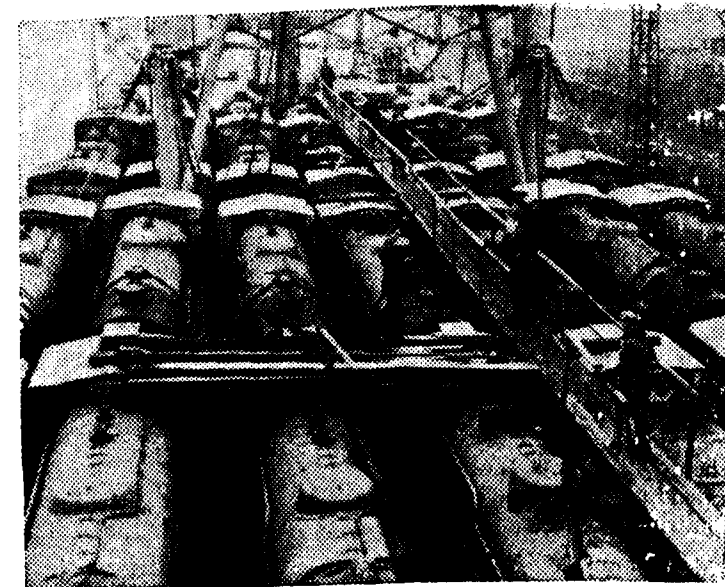
Last month a consignment of 53 American Locomotives of the Y. G. Class arrived in Madras Harbour by S. S. Beljeanne. This is the second batch of Metre Gauge Locomotives to be received in Madras from Philadelphia. Out of this, 40 Locomotives have been allotted to South Indian Railway and 13 to the Madras and Southern Maharatta Railway. The Locomotives were built by the Baldwin Locomotive Works, a leading United States Manufacturer of rail-road equipment, at Eddystone, Pennsylvania. In the past 3 years approximately 390 Baldwin Locomotives of various types have been shipped to India as part of the country's long-range Railway development programme.

Mayavaram-Arantangi Line

The Railway Board have sanctioned the construction of the

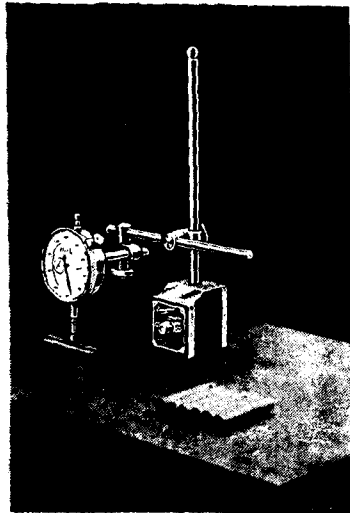
Mayavaram-Arantangi-Karaikudi branch line in 1950-51. This was recommended by the Government of Madras as a short circuit to the main line, and it was accepted by the Railway Board without guarantee. The Railway Authorities should put on heavy rails etc., so that the branch line may become a through line to Madras. This will greatly relieve the hardships of passengers on this section.

Recently, the South Indian Railway called for tenders for the construction of Class III Waiting Rooms for passengers at Tiruvarur Junction. The remodelling of this Station was sanctioned in the budget for 1949-50. As there is a considerable congestion on the present platform, two platforms should be provided. The Railway Authorities must take steps to see that the Refreshment Rooms and the Parcel Office are removed beyond the platforms and that the present Goods-shed is removed to a place westward.

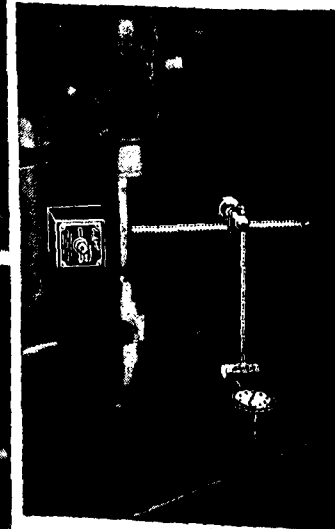
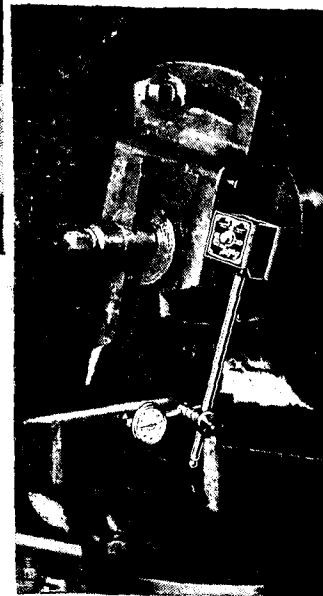
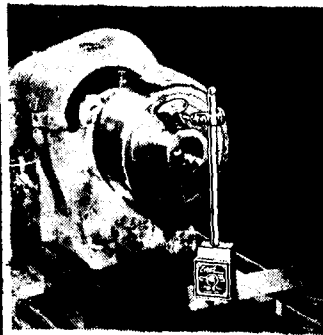


Y. G. Class Locomotives on aboard S. S. "Beljeanne"

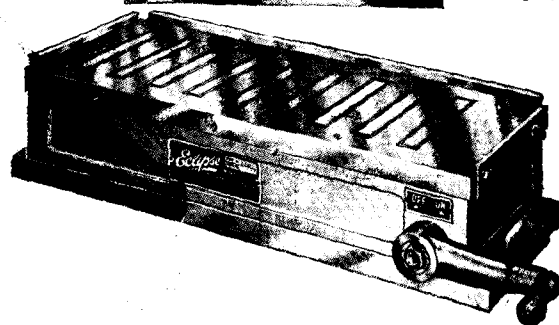
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Southern Railways Magazine

VOL. I
NO. 11

MAY 1950

ISSUED
MONTHLY

"Accidents on Railways"

A number of Railway Accidents—some serious, with loss of lives and injuries to passengers—occurred on the Railways during the months of February and March of this year. Apart from headlines in the Daily Press, the public at large once again become apprehensive of the safety of Rail Travel, and generally critical of the efficiency in the working of Railway Personnel responsible for the operations of trains and maintenance of the track. They wanted to know the reason why accidents were occurring with such frequency on Railways.

Not being familiar with the details of Railway operation and the rules laid down to ensure safety of operation, the vast body of the Travelling Public are naturally apprehensive that Rail Travel is not as safe as it should be. The causes of such accidents may, therefore, be attributable to something purely accidental and beyond the control of human agency, deliberate or attempted acts of sabotage, or the failure of Railway Personnel to strictly abide by and carry out the prescribed safety rules.

Accidents caused by something beyond human control are perhaps very rare. That there have been attempts at sabotage must be conceded, although often difficult to establish beyond all doubt. The third element—the failure of Railway Personnel due to negligence or carelessness—is perhaps the cause for most accidents. And a remedy to eliminate the third element as much as is humanly possible must be found and action taken to implement the remedy.

That the Ministry of Railways have become alive to the subject of Railway Accidents, and are in real earnest to seek and find the remedy to reduce the incidence of accidents and give the Travelling Public a feeling of confidence in Rail Travel, is obvious by the meeting convened by the Railway Ministry in the third week of April, when General Managers of Railways, and other experts were called in to thrash out the problem.

The details of the decisions taken at this meeting would perhaps be too technical for the layman to appreciate if published, but in view of the gravity of the problem, we are confident that the Ministry of Railways, backed up by the experience of the experts, have found the solution to at least reduce considerably the margin of error attributable to negligence or carelessness on the part of Railway Personnel engaged on train operation and track maintenance.

The efficacy of the action to be taken can only be gauged after a lapse of a few months, and if the Railways can show a record of train operation free at least of the more serious accidents, the confidence of the millions of passengers who use the Railways will be regained, with credit to all Railwaymen.

Tinnevely Railway Station Inspected

Our General Manager Sri K. R. Ramanujam, Chief Traffic Manager, Mr. T. A. Joseph, South Indian Railway, arrived here last month. Accompanied by Mr. T. Komaleswaran, District Engineer, Mr. Narasimham Ayyar, Traffic Inspector and Mr. Venkatarama Ayyar, Station Master, they inspected the Tinnevely Junction. Later on, Mr. Alexander Gnana-muthu, Principal, M. D. T. College and Secretary of the Railway Passengers' Association met the General Manager and discussed the various amenities required for passengers. The General Manager is reported to have assured them to comply with their request.

* * * * *

Drinking Water Facilities for Railway Passengers

The Public Relations Officer, the M. and S. M. and S. I. Railways writes: The M. and S. M. Railway Administration has posted a large number of additional watermen at all important stations and also at a number of Roadside Stations for the purpose of supplying drinking water to passengers on trains, during this hot weather. These men are additional to the strength of watermen posted at Stations as a permanent arrangement. The watermen have instructions to move alongside the trains and supply water to passengers on trains.

* * * * *

We have received one letter from a Railway employee criticising the activities of Central Railway Service Commission which we reproduce below and reserve our comments pending the official reply from the Chairman.

"The M.S. M. and S.I. Railway, Joint Service Commission at Madras which was hitherto recruiting clerks has now been closed and

a Central Railway Service Commission has been opened at Bombay to recruit Class III Servants for all Railways. In the recent Employment Notice No 4/50 more than 200 vacancies of clerks in the S. I. Railway were advertised and more than 5,000 applications have been received from South Indians alone. The Central Railway Commission has announced that selected candidates called for interview should go at their own cost from Madras to Bombay and that Railway passes will be issued only over the S. I. Railway."

"Previous notifications shown below are still vacant and not a single candidate was called for interview or appointed by the Commission at Madras before it closed."

"Advt. No. 41 Routine Grade Clerks 75.

Advt. No. 42 Non-Commercial Clerks 80; Junior Clerks 40.

Advt. No 46 Coaching Clerks 150, Goods Clerks 25, Outdoor Clerks 25, Routine Grade Clerks 35."

"In addition to these 430 advertised vacancies, those notified during 1948 and 1949 have not yet been filled. Candidates who were called for interviews elected and intimated that they had been selected and would be called up, are still waiting. Unhappily, there is now room for the belief that this is a mere revenue-earning business. Government should enquire into the matter and investigate the total amount collected by the sale of application forms to the unfortunate unemployed and why vacancies advertised were not filled up."

"Further, interviews for vacancies in the M. and S. M. and S. I. Railway should be held at Madras by the Commission to save the inconvenience and expenditure to the applicants."

Railway Accidents

There has been a spate of Railway Accidents recently following that to the Calcutta Mail at Sularpet. All these are said to be due to causes than those likely in normal Railway working by the Staff. Tracks and equipments have to be made mischief-proof. A Conference of Experts was held in Delhi to thrash out fully this question.

The Chief Commissioner convened the meeting on April 21 with the General Managers of the Major Railways to analyse the causes and to discuss measures to be adopted to prevent similar accidents in the future. Anti-sabotage measures, measures to educate the staff in their responsibilities, disciplinary action against negligent staff, and methods of reporting accidents with a view to expediting conclusions and defining causes were among the subjects discussed at the meeting. Both the Minister and the Minister of State were present.

Zonal Grouping of Railways

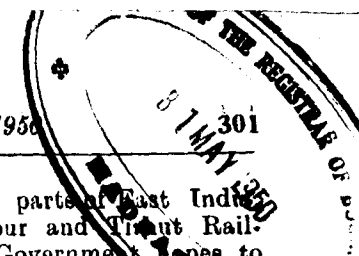
The Government of India's plan for the nationalisation and regrouping of Railways will shortly be circulated to Commercial Bodies and States Governments for their opinion. The plan envisages the abolition of the present Railway Administrations, and their nomenclatures, and their integration into one unit, functioning through six zonal offices. The plan *inter-alia* has two merits. It seeks to unite into one unit various systems of Railways at present serving particular industries such as jute, coal and tea. It seeks to replace the rising tide of provincialism by an all-India outlook. The plan would divide India into six zones: Eastern, North-Eastern, Northern, Western, Central and Southern. The Eastern zone will for example be constituted with the Assam

Railway and parts of East India Bengal Nagpur and Tirhut Railways. The Government hopes to reach a decision in the light of views received on its plan.

Readers might in the meanwhile give their earnest thought and attention to what shall constitute the southern zone, which is expected to comprise of the South Indian Railway, the Mysore State Railway, the Madras and Southern Maharashtra Railway and why.

India's Strategic Railways

Time was when it was common form to condemn the Railway Administration for the cost of what were called "Strategic Railways." In those days few of our politicians took any interest in the subject of defence, and all money spent on the Armed Forces was queried. There is a healthier attitude in Delhi to-day, although it is regrettable that the main immediate anxiety naturally derives from the strained relations between India and Pakistan. Nobody flicked an eyelid when Mr. Gopalaswami Ayyangar casually mentioned that in the last two years no less than three crores have been spent on improving the road from Pathankot to Jammu, and that the Government intend as soon as possible to build a Railway between these two points. Dr. John Mathai got his loudest applause when he indicated that in certain circumstances the Government would not hesitate to impose far heavier taxation to provide for increased expenditure on defence. A road from Pathankot to Jammu able to stand heavy traffic is a boon to many who are not in the Forces, but it can never be an all-weather road until science finds a means of preventing snow from falling on the Pass. On the other hand, when all war clouds roll away a Railway will be a permanent blessing, and might well eventually prove a paying proposition. It would immensely increase the



volume of tourist traffic from India to what will again be the Happy Valley. ("Capital")

** ** *

Amendment to the Railways Act

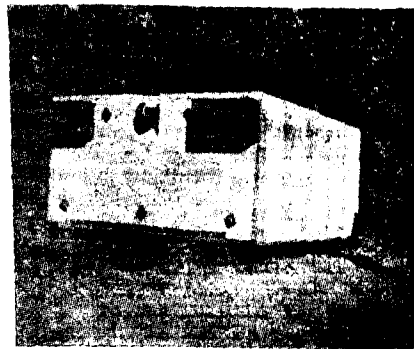
Of considerable interest to the Mercantile community is the amendment to the Indian Railways Act which was passed by the Central Assembly early in December last. The most readily appreciated result will be the abolition of risk notes. To achieve this, it has been necessary to incorporate the extent of liability of Railways in the Act itself, and to provide for certain remarks regarding the condition of the consignment to be recorded on the forwarding note itself by the sender. This will entail a new form of forwarding note.

Of much greater importance is the actual modification in the position of the Railway as a carrier of goods. Under the original Railways Act the position of the Railway was laid down as being that of a bailee. The amendment now provides for the Railway being liable, not only for misconduct, but also for negligence. The responsibility of the Railway therefore has been considerably increased. The amendment has not yet come into force.

** ** *

Concrete Buffer Stop

An experimental Concrete Buffer Stop based on one developed by the "SOUTHERN RAILWAY" in England has been brought into use at Lonavla. The conventional or traditional Buffer Stop made of old rails or masonry has many drawbacks; it is too easily damaged; when once it has been damaged a portion of the siding is out of use until the buffer is replaced; it stops wagons too abruptly and frequently damages their buffing gear or their contents.



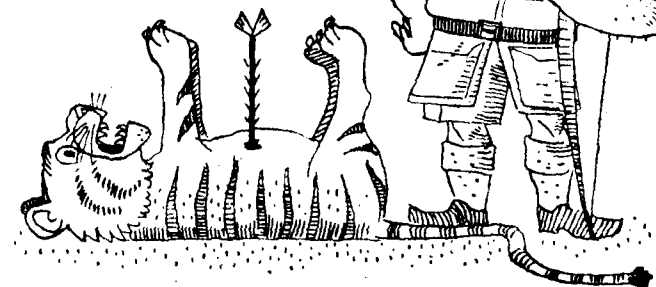
The New Sliding Portable Concrete Buffer Stop—Note the Two Wood Blocks fixed to the Front for receiving the Impact from Wagon Buffers.

The concrete Buffer Stop, it is hoped, will overcome these defects. It is not easily damaged as it is free to slide on the rails when a wagon hits it; as it can slide it stops wagons more gently with less damage to the wagon and the goods it contains.

The Buffer Stop consists of five precast concrete blocks with overall dimensions of 8' 9" wide and 8' 10" long. Each block is 1' 9" thick its edges having a 2" chamfer. From the top of each block two mild steel hooks project by means of which it can be lifted, transported and erected easily with the help of a crane. Each block weighs about 4 tons 2 cwts. and permits of easy handling by crane which would not have been the case if the Buffer Stop consisted of a single large block.

The vertical joints between adjacent blocks are packed with bituminous felt and the five blocks are held together by 5 through bolts. Two wood blocks 2' x 1'—2" x 7" fixed to the front block by 4 bolts receive the impact from buffers of wagons. The front block is recessed to take a draw bar hook, which extends through the length of the block and on to which is fixed a plate at the rear. A shunting engine can be coupled to this hook to pull the Buffer Stop back into position after displace-

You can kill a tiger
with a bow
and arrow!

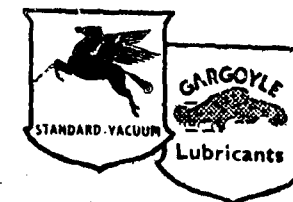


Yes, with luck, you might kill a tiger with a bow and arrow. Of course, if you're unlucky, well...

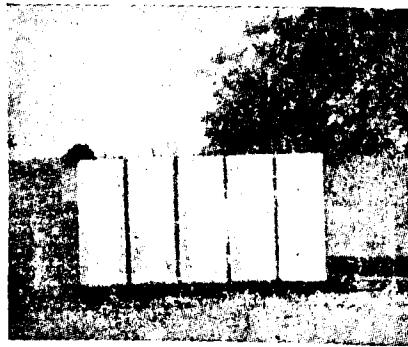
Obviously, a bow and arrow isn't the right tool for hunting tigers. Yet we could tell you about many people who have tried to do much the same thing under different circumstances. For instance, factories who have used the wrong types of oil for their machines. For a while, they get along without much trouble—but then, operating costs begin to go up, machines keep needing repairs, production becomes more and more inefficient.

See what we mean, when we talk about killing tigers with bows and arrows?

Correct lubrication with Gargoyle Lubricants can give you four vital things—reduced power consumption, more continuous production, decreased maintenance, and lower lubrication costs. We will gladly send an expert lubrication engineer, free of charge, to look over your factory and give you his advice on lubrication problems—advice based on 84 years of leadership in the field of industrial lubrication.



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The Sliding Concrete Buffer Stop. A Side View showing distinctly the Five precast Concrete Blocks which form the Buffer.

ment. The Buffer Stop is provided with a steel frame base which rests directly on the Rails. This permits the Buffer Stop to slide on the Rails, when struck during shunting operations.

When the new Buffer Stop is first brought into use it is some distance from the end of the siding; when a series of bumps have moved it to within about five feet of the end of the siding, an engine is attached to it and it is hauled back to its original position.

Although the cost is about four times that of the older type it is hoped that it will justify this increased cost in longer life; the reduction in claims is not an item which can be assessed accurately but it is anticipated that it will be considerable.

Additional Multiple Unit Stock for Suburban Service

A contract for additional electric stock, 64 coaches (32 motor coaches and 32 trailers) was placed in the U. K. on Messrs. METRO CAMMELS for Motor Coaches and BIRMINGHAM CARRIAGE & WAGON for trailers in January 1948. The first set of 4 coach unit is expected to be delivered ex-works in August 1950 and the delivery will continue till June, 1951.

Claims Position

On March 31, 1950 there were nearly 9,000 outstanding claims which represent a satisfactory position. The Claims Prevention drive is on, and, with the energetic measures that are being taken, it is hoped further to reduce the number of claims against the Railway.

GIP Railway Serves Aright

The following are the salient points of the Press Conference addressed by Mr. H. P. Hira in Bombay last month:

1. Automatic Booking Machines are expected to be shortly introduced at important Suburban Stations on the G. I. P. Railway. If it is done, it will be the first of its kind in India. It is said this innovation was necessitated by the heavy rush at the Booking Windows during the peak periods.
2. The Railway had spent Rs. 34 lakhs during 19 9-50 on the provision of passenger amenities including the provision of



Hilarios Hira—Our Popular General Manager of G. I. P. Railway



Electric fans in Class III Compartments. A sum of Rs. 40 lakhs was earmarked for a similar purpose during the current year.

3. Mr. Hira added that the operating efficiency of a Railway, which was primarily measured by the punctuality of the important passenger trains, had registered considerable improvement, the punctuality percentage having gone up to 92.3 in March this year from 84.8 in March last year.

4. Another factor which indicated the operating efficiency of a Railway, he observed, was the wagon turn round which had been reduced from 8 days last year to 7 days this year. As a result of this, he declared, certain specific advantages had accrued, not the least of which was the fact that a larger number of wagons were

now offered for loading purposes, even though the number of wagons with the Railway was more or less the same.

5. He also said that a Janata Express in addition to the one that was at present running would be introduced between Bombay and Poona from June 1st this year.

6. The General Manager also said that 3 Locomotives would be turned by the Chittaranjan Locomotive Factory this year. The output would steadily increase till the factory attained its maximum capacity of 120 Locomotives a year, which would make India self-sufficient.

7. The G. I. P. also contemplated restoring all the pre-war concessions allowed to passengers,

Blueprint

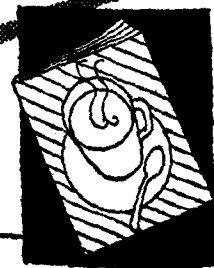
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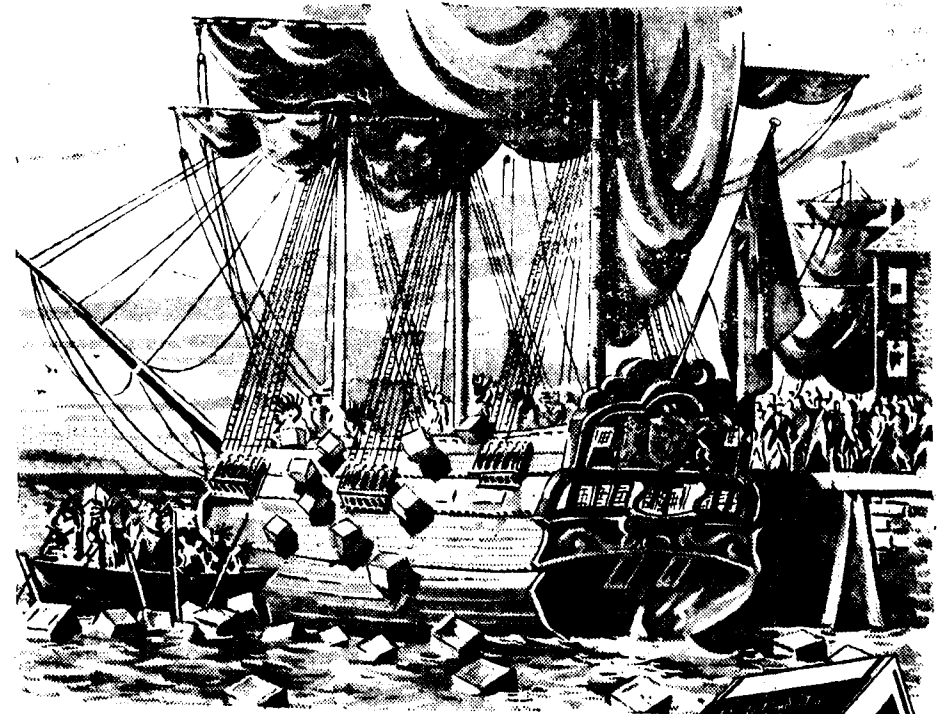
Special pamphlets and brochures on technical aspects of canteen planning and management are supplied free to recognised employers of labour on application to the Chairman, Central Tea Board, 31, Netaji Subhas Road, Calcutta 1.

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The Boston Tea Party

In Boston Harbour on Dec. 16th 1773 lay the "Dartmouth" first ship to sail under the hated Tea Act.

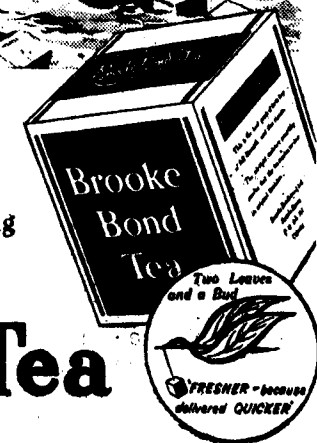
The "Sons of Liberty", local men sworn to oppose the Act, boarded the ship and threw the tea into the harbour.



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In the immediate future four types of concessions were being restored: to students in parties, to teams competing in games, to delegates attending Annual Sessions of All-India Bodies and to Cadets undergoing navigational or engineering training for mercantile marine.

* * * * *

Floating Goods Wagons

It is reported that floating goods wagons with a capacity of 90 tons are planned by the Federal Railways in Germany. This type of goods wagons would enable the Railways to participate in Inland Shipping and dispense with transshipment. The wagon body, designed as a floating craft, would be detachable from its under frame, and slide into the river or canal.

A string of floating wagons would be hauled to destination by tug. Experiments are stated to be concentrated at present on a Rail-river route along the Upper Rhine, to the south of Strasbourg, with stations at which the floating wagons would be lifted on to their under-frames.

* * * * *

Locomotives in Colour

The Locomotive Manufacturers' Association of Great Britain has completed a film dealing with the birth of the Locomotive in this country and its gradual development over the years. It is a very attractive and competent production in colour and is accompanied by a suitable commentary. It starts by drawing attention to the British Pioneers—Trevithick, Blenkinsop, Hedley and Stephenson—mentions the Rainhill trials and describes the

subsequent development of the Locomotive in this country and its delivery to the new Railways on the Continent and in America. The various Locomotives shown, some under construction and others in service, give an adequate idea of the versatility of the Steam Locomotive and the wide range of Railways which the British industry serves. Shots in the works emphasise the skill and variety of production in this important industry, which is capable of producing 1,000 Locomotives a year and employs many thousands of skilled craftsmen, some of whom represent the third and fourth generation employed on this work.

The film, which covers a wide field, takes only half an hour to show, but the competence of its editing is shown by the interesting views of steel and iron foundries forging and machine tools, boiler and erecting shops and by its action pictures of Locomotives in actual service overseas. It is a first-class production and will have a wide interest amongst technical men and students as well as the general public. It should also help to recruit the right sort of man into the industry.

At the first showing, Mr. H. Wilmot, President of the Association, said that the film represented joint action and it had been prepared under the expert advice of a Committee consisting of Mr. W. Cyril Williams (Beyer Peacock—Chairman) and A. Collingwood Lemit (Vulcan). H. Duncan Thomas (North British) and J. W. Vaughan (a Director of the Association). It was fine example of a united sales effort. (Modern Transport).

* * * * *

The self-sacrifice of one innocent man is a million times more potent than the self-sacrifice of a million men who die in the act of killing others. (M. K. Gandhi).

Toll of Railway Accidents

Saboteurs must be brought to Book



.....Eliminate black Sheep.....

Mr. N. Gopalaswamy Ayyangar India's Transport Minister, in a broadcast early this month on the "Recent accidents on Indian Railways," appealed to the public to develop a social conscience, which would make impossible the planning and execution of sabotage and bring saboteurs to book.

To Railwaymen the Transport Minister emphasised the need for "the discovery and elimination from your ranks of the stray, few black sheep who follow the wrong lead of those from outside, who misguide them into ways involving the endangering of human life and the destruction of Railway property."

"A series of accidents have unfortunately occurred in recent months almost in quick succession. The number which involved human casualties has, however, not been

large, though in three cases which involved such casualties they have been heavy. The problem of minimising, if not averting accidents on the Railways, has been continually engaging the attention of myself and Railway Board. In Parliament, last month, I stated that the Chief Commissioner of Railways was engaged on an intensive investigation of the recent accidents on the Railways. That study is continuously in progress. A Conference of General Managers was specially convened on the 21st of last month. The Railway Board and I had a full discussion with them of all factors connected with the Railway accidents. Certain steps

were decided on and they are being rapidly implemented and which it is hoped would effect great improvement.

We have to put forth our best efforts to avoid accidents to the maximum possible extent and this effort success can be achieved only with the whole-hearted co-operation of the public. The operation of the vast network of Indian railways so as to give both the best possible service and the highest degree of protection possible to the public can be achieved only if they give us both their confidence and their active help.

The press in the country has been taking a balanced view of the Railway accidents that have occurred during the recent past and have avoided giving any room for the assumption of an alarmist attitude. They have rightly

emphasised the need for improvements in both operational and protection arrangements. Criticism and suggestions have, on the whole, been constructive. I acknowledge the service that the press have rendered in this connection, and would only request them to continue to guide public opinion aright in this matter.

"To Railwaymen in particular, I would make a very special appeal. You are engaged in discharging duties of the most onerous character. Those at the helm of Railway Affairs and the general public are both grateful to you and proud of you. There is one duty, however, which in relation to accidents you must perpetually have

before you. It is the discovery and elimination from your ranks of the stray, few black sheep who follow the wrong lead of those from outside who misguide them into ways involving the endangering of human life and the destruction of Railway property. It is not good for them. It is a crime they commit against society. It brings down the reputation for honest conscientious work of the great body of Railwaymen. The disciplinary rules of the Railway Administration and the Courts of Law will reach them in due course and deal out punishment to them. It is not a pleasure to me to contemplate their being dealt with in this way. I would say rather that you yourselves made their life with you impossible."

I have a horror of smoking as I have of wines. Smoking I consider to be a vice. It deadens one's conscience and is often worse than drink in that it acts imperceptibly. It is an expensive vice. It fouls the breath, discolours the teeth and sometimes even causes cancer. It is an unclean habit—M. K. Gandhi.

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Mind the Paint, Please

BY G. H. GATES-REED, M. I. A. M. A.

In an age when the wonders of television, telephones, medical science and a host of other modern marvels, are taken so completely for granted, and for reasons of sheer incomprehension the fantasies of atomics, hydrogen bombs and radar are virtually ignored by the man-in-the-street, it is not likely that the average man-in-a-railway-carriage is going to spend very much time thinking about the paint surfaces of his compartment-interior or exterior—with either wonder or even appreciation. In fact mentally, visually the paint is ignored—only with feet, nails, dirt and spittle does "*homo sapiens*" (?) appear to acknowledge that there is in fact such a paint surface.

And yet if he was to consider the subject for only a few minutes it would soon become evident that there is yet another example, everyday, unassuming, of the scientific approach to a problem—to find a satisfactory, scientific answer. Here indeed is the result of many years of research, experiment, of trial and error, producing results "marvellous" in their own sphere.

"Really? Now, why all this fuss, this high-faluttin nonsense about what appears to me as, after all, just another "slapping-on-paint" job?" queries the man-in-the-compartment, watching unashamedly his booted feet pawing and kicking the seat opposite.

Well, look at it this way. Go over your own present journey—now in its second day—and consider some of the hazards that the outside paint on your compartment has faced up to—and survived.

When you started, the sea air of Bombay was salt laden, hot and damp. Salt and paint do not like each other, and the alkaline acts on the paint film and if it is not good will break it down. In the ghats it was raining—"tigers" and

elephants" for rain that heavy-depositing minerals and dirt on the carriages. In the plains, fine dust and sand played at being emery paper and attacked the paint with enthusiasm, and the *blistering* is the key word, sun beat down hour after hour. Then suddenly at night, there was a steep drop in temperature which helps to produce cracking. And all the time the train thundering on, the engine spewing sulphurous smoke fumes, and acid released from the coal dust and soot, over the coaches. (Think of the smoke agony of a tunnel). Thus down into the plains again; salt laden air again. Dramatic? Overdoing it?

Possibly. But we want to make our point; we want to emphasise that sun, wind, rain, salt, acids, sulphur fumes, intense heat, equally as intense cold, are all enemies up to which that paint surface has had to face, with undaunted by many dramatic suddennesses of change of temperature and weather conditions in every twenty four hours. They produced problems which have had to be faced up to and overcome in the preparation and application of paints to moving surfaces. For although the paint on your home meets the same enemies the attacks are not as constant and as suddenly varied as they obviously are upon a train as it moves across India, or any land mass for that matter.

Now, the gentleman begins to see what we are getting at. He removes his feet from the seat but peeks contemplatively at the paint around the window. "Yes," we say, "and this above all, without the paint to protect the basic materials, the steel sheet, the iron and wood, of which the carriages are constructed, these materials would very soon begin to show their wounds; corrosion from water,



Carriage painting in Railway Workshop.

acids, abrasion from dirt and sand, deterioration because of the great extremes of temperature, would affect the metals, and the wooden portions would warp and rot. The result would be expensive replacement problems."

As for the carriage interiors, well, just look at it, what would the gentleman have to pick at? And think of the "betel juice" and the other forms of maltreatment carriage interiors have to suffer. Luckily, the painted surface can be washed clean, can be made sanitary and can be renewed periodically whilst preserving the original basic material. A much cheaper proposition than continual rebuilding down to the structure as would otherwise be necessary. There indeed is true economy for you—the ultimate reason why paint protection is so tremendously important and why so much research has been put into the preparation of the right paints and *their correct application*.

Yes, much of the success of the final job, certainly the length of the useful life of a paint surface of good paint, depends on skilled, accurate application.

In the great Railway Workshops of India, in the carriage shops, these are points watched with real care. Skilled workers, operating to, laid down, proved sequences, ensure that the paints,

primers and varnishes supplied by India's indigenous, well-established and conversant paint industry are applied to the exteriors and interiors of the nation's Railway carriages in the manner they should be if they are to perform the wonderful, unsung job they so adequately do. Although known as "surface preparation," scraping, burning, papering, removing with chemicals all undesirables from the surface to be coated—the job is so important that it is really the "root" of success; certainly not just a surface matter, to play on the word.

And had you ever realised how much there is to the choice of colours. The components of some colours stand up to harsh conditions better than others.

Gulf Red, Red Oxide, Purple Brown, Brunswick, Chocolates and Browns weather climatic conditions better than most colours, which is precisely why you see so much of them on carriage exteriors.

So far as interiors are concerned, the primary aim is to encourage coolness. Certainly one would not claim that the right paints will produce an "air-conditioning" effect but white ceilings do create an impression of coolness and what is more important still, the special aluminium paint coating used on the bituminous roofing felts with which carriages are roofed very

Improved Rolling Stock for London Transport

By London Correspondent

Before the war, the London Passenger Transport Board designed four six-car experimental trains for use on the District Line. These provided increased accommodation without any increase in length over that of the standard vehicle and incorporated a number of improvements which were intended to assist operating performance. As a result of experience with the stock and further experimental work, these and other improvements are now being incorporated in 143 non-driving (i. e. without driving cabs) motor cars, which are being constructed by the Gloucester Railway Carriage and Wagon Company Limited, Gloucester, and the Birmingham Railway Carriage and Wagon Company Limited, Smethwick, as well as in 82 existing trailer cars which are being converted to driving motor cars by the former firm. All the cars are known as Class R Rolling Stock.

While the design of the bodies of these cars closely follows that adopted for the London Transport surface stock of 1938, a number of improvements have been introduced. These include anti-telescoping pillars on the exterior of the car ends, and flush-fitting anti-jamming connecting doors with "lift-off" hinges and ample over-

head clearance, so as to minimise the effects of possible collisions. As a safeguard against over-riding, the bogies are tied to the body by king-pins. The bogies are mainly of welded construction, but the side frames, headstocks and trunnions are fabricated as units and rivetted together to form a complete assembly. The side of the bogie opposite to that on which the motor is carried is cross-braced and in place of the conventional spring plank arrangement the body load is transmitted through suspensions of the knife-edge type. As shown in figure 1, the bogies are fitted with spring-borne collecting-shoe gear. This is mounted on insulated brackets connected to the bogie frame, an arrangement which enables the usual shoe beam to be eliminated. To ensure that the height of the shoe above the running rail is independent of the height of the bogie frame, a compensating mechanism connected to the axle-boxes is fitted; balata strips are used to limit the drop of the shoes and enable the shoes to be lifted from and maintained clear of the current rail by operating the capstan-type handle.

The cars carry a self-ventilated nose-suspended motor on each bogie. These motors, which

(Continued from previous page)

appreciably lowers the interior temperature. The aluminium colour reflects off the sun's rays.

From this short note you will see that a considerable amount of thought, time and experiment has been put into the question of Railway carriage painting.

Therefore, kindly, the next time you are making a journey—give the paint, the painters and the public pocket (our Railways) a thought. Because with all the will in the world even paint can suffer only so much.

In fact, the real marvel of it all is just how much it does put up with.

(Continued on next page bottom)

ed as cantilevers, the resisting moments of which are added to those of the rest of the structure. In either case the shear loads at the doors, which come at the point of contradexure have to be taken into account; shear loads at these points are resisted by using the strength of the door-pocket pillars, coupled to a door-way header of substantial section. As, however, the doors curve inwards at the top, there is a tendency for the pocket structure to twist a horizontal plane.

To give more stillness to the door-pocket structure, the rectangular outer light was therefore replaced by a circular window in a steel panel, as shown in figure 2, so that a gusset effect was provided in the corners. A new intermediate window pillar of tubular section was also substituted for the old rectangular pillar and part of the associated roof "stick," and was attached to the waist rail and to the existing monitor rails which

run through the car at the level of the doorway header.

As will also be seen from Figure 2, the new windows are glazed in three pieces, the uppermost of which is curved to the roof contour, while the lowest is straight. The space between the two is filled by a tilting ventilation glass. Since, to give full vision, all the horizontal edges in the ventilator portion are frameless; the glass is curved in the vertical direction to provide enough stiffness to withstand rough handling. The lights in the sliding doors have also been extended in two pieces to the tops of the doors. These two pieces butt together at the springing point between the curved and straight portions, the joint being made with light-weight metal channels. The curved glass for the windows was supplied by Messrs. Pilkington Brothers, Ltd., St. Helens, Lancashire, and the new doors by Lightalloys Ltd., Willersden, London, N. W. 10.

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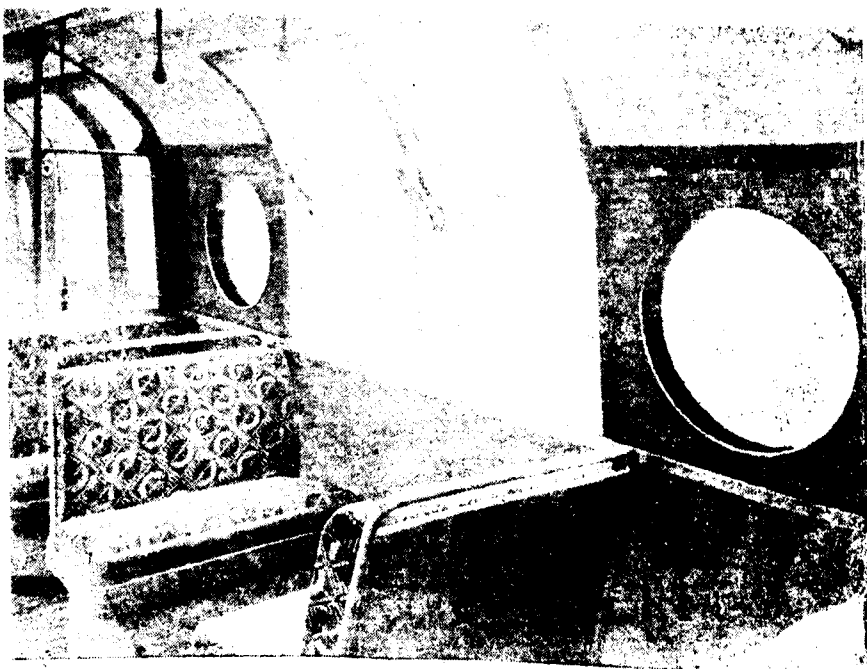


Fig. 2. High-Window Car for Bakerloo Line.

New South Wales Builds Its Biggest Locomotive

The State Department of Railways, New South Wales, Australia, has built the first of 25 freight Locomotives, weighing, with tender, 227 tons, and capable of handling a 2000-ton load.

This Locomotive, designated the D58 type is the most powerful in New South Wales. Next to it in power is the D38 type, which can pull an eight-coach train of 350 tons at a maximum speed of 70 miles an hour and weighs, with tender, 201 tons.

The D58 is sufficiently fast to haul passenger trains in an emergency. It is now helping to move the State's record wheat harvest over the 6900-mile rail net-work to the coastal ports.

The D58's are being built on a production-line basis at the Railway Department's Workshops at Eveleigh, near Sydney. With the exception of a one-piece cast-steel boiler frame, weighing 20 tons, the rest of the Locomotive and its tender are entirely Australian—designed and built from Australian materials.

An outside three-cylinder, super-heated Locomotive, with 5-ft.

diameter tandem coupled driving wheels, the D58 has a cylinder bore of 21½ inches and a stroke of 28 inches. An all-steel boiler and a fire-box with a grate area of 65 square feet fed by a mechanical stoker, generate steam at a pressure of 200 lbs. to the square inch.

The fire-man's duties are eased by the incorporation of rocking and dump grates and a hopper ash-pan. There is a multiple-valve steam regulator. Walschaert valve gear is fitted and double ports help to reduce fuel consumption. Track wheels are dynamically balanced.

One-piece steel castings are used for the leading bogie, which has roller bearings, and the trailing truck frames. There is a self-cleaning smoke box. Leather cushioned seats and back rests are provided for the crew.

Brakes are latest Westinghouse design, with cross-compound air compressor. The tender, of conventional design, carried 14 tons of coal and 9000 gallons of water.

(Continued from previous page)

A further innovation is that the fixed lights are clipped to the outside of the car body at their corners and butt on to Sorbo rubber strips. It is hoped in this way to overcome the difficulty of water lodging on the upper edge of the panel, against which the glass is usually secured, and leaking down

between the steel and glass, thus causing corrosion. The construction of the new and the conversion of the existing cars described in this article was carried out under the direction of Mr. W. S. Graff-Baker, Chief Mechanical Engineer (Railways), London Transport Executive.

The D38 Express Passenger Train Locomotive, of which 25 have been built in New South Wales so far, haul trains over distances and grades which would not have been attempted previously with less power than that of two full-sized Locomotives. Notable fuel economy has been achieved with these Locomotives and time schedules have been cut down by their use.

As well as Locomotives, the Railway Department's Workshops

produce passenger coaches and sleeping cars, bogies, freight vehicles of all kinds, including refrigerated vans, and motor rail-coach units for country line operation.

Achievements by New South Wales Railway Engineers in recent years include use of the radar principle to locate transmission line faults; and detection of rail flaws by supersonic vibrations linked with mechanical recorders.

An Appeal

Dear Railwaymen! Your position in life is enviable. You are fortunate in that you serve all in an important aspect of life. Your activities tend to unification. You are striving for unity in diversity. You are all practical *vedantists* unknowingly. Everything will become static without your help.

Our National trait is Virtue, our means Truth, our prayer, wishing well to all and our goal freedom from everything—

The Nation has attained its freedom. Now is the time for all to work vigorously and achieve freedom in all walks of life.

Work, Work, Work we must. Nobody can remain idle at any time. Understand well the secret of work. Selfish work binds and leads one to misery while unselfish work liberates and leads to happiness. There is no waste in unselfish work and no harm will be caused by it. Even a little of the virtue of such work will protect one from great fear. Take pride and pleasure in your work, whatever may be your position in life. Be courageous. Every individual is a

necessity. Individual conduct and life when perfected, the world-collective is perfected.

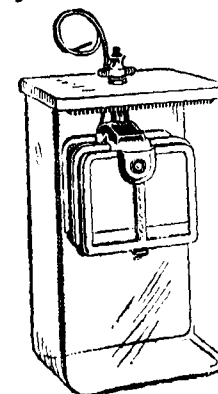
Work without attachment is the highest and that is the secret. Discontentment and dissatisfaction have no place. They are after all an attitude of the mind. Duty for duty sake, work for work sake, are the watch words. Take note that each is great in its own place from the tiniest to the mightiest. Each is a necessity.

These are the days of acute suffering. Eager and good souls who can deeply think and work and who will never feel any defeat by likes and dislikes are necessary. Think well and march on. Awake, Arise, and stop not till the goal is reached. The goal is, that all should be good and virtuous, helpful to each other and helpful to themselves.

Bravo Dear Railwaymen! Do not give room for dejection and despair. They are enemies of progress. The reward for unselfish work is always ready and comes unasked and you will have it.

(Inserted by Sri V. Ramaswamy Iyengar, Retd. Asst. Signal & Telegraph Engineer, S. I. Railway, in the interests of our Railwaymen).

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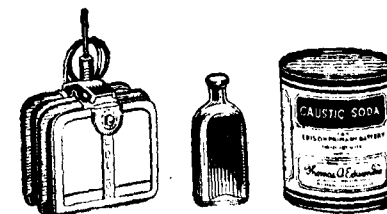


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The Bottleneck on the Nilgiri Railway

(BY NEERAVI)

The Nilgiris is like a bejewelled and diamond-studded crown on the head of South India. Its rich coffee and tea plantations, its ever plentiful potato crop, and its bountiful green vegetables, not to speak of its Eucalyptus Oil timber, honey, cardamoms and other forest wealth, enrich the state. It is only 11 degrees from the equator, and its climate is the English Summer at its best. It is the little England in India; it is really the Queen of Hill Stations in India. Simla and Darjeeling being only seconds. It is very pleasing and delightful for the eyes to see; it is the home of Flora and Fauna that thrill the naturalist and the gamester. Its very name implies the *Blue Mountains*. It has on its crown three beautiful towns—Ootacamund, Coonoor and Kotagiri—all of which form the dense summer resorts for the peoples of the plains during the scorching months of the year. It used to be the home of the Britisher in India for four months in the year, and the seat of the Madras Government for six months of the year. Its natural scenery are captivating and arresting—it is the foreign tourists' *Elysium*. Its solemn and serene heights inspire you with devotion and poetry. A Mountain Railway akin to that in Alpine heights of Switzerland meanders from Mettupalayam at the foot to Ootacamund at the summit at a height of 7300 feet. The length of the railway is about 29 miles, Coonoor Town being situate half way up the ascent. The scenery viewed from the train as it winds slowly nestling along the sides of the mountains or crosses the deep ravines over the viaducts is magnificent and impressive making your hearts thump with joy, especially dizzy depths and the plains rolling away from

underneath you for miles and miles. The Pykara and the Moyar Hydro-Electric projects have revolutionised the industries of South India. The Bhavani Sagar Project, which is nearing completion, is expected to irrigate a million acres of wet land. The Britishers first discovered it inhabited by its aborigines, the Todas who form an interesting study for the anthropologist, in his quest for a summer abode and a refuge from the equatorial sun. The Britisher laid the Hill Railway about half a century back; the ascents are very steep, often 1 in 12 or 13. Whether ascending or descending the engine is always at the lower end of the train,—pushing, not pulling when ascending and checking, not pulling, when descending. It is a novel arrangement whereby the engine is enabled to negotiate such steep gradients. The third rail in the middle of the track, which may be described as the *teethed rail* in action with a set of *teethed wheels* midway between the regular wheels of the engine together achieve the ascent and regulate the descent—an imitation of the Alpine Railways.

The trade of these Hill Stations has grown appreciably during the last few decades; not only the trade with the plains of India, but also its trade with foreign countries, especially in the commodities of Tea, Coffee, Rubber, etc. The Government's Cordite Factory at Aravankadu, an intermediate station, has developed considerably during and owing to the two Great World Wars. It has lot of inwards and outwards traffic. The three Hill Stations have developed cities inside themselves and rich suburbs outside, and the population of the Hills have



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appreciated very rapidly in the recent past. Many Europeans have settled down permanently and after retirement here. So also have a large number of Indians. Almost every Maharaja and Prince has a Palace up on the Hills. The internal requirement of the commodities from the plains have also increased by leaps and bounds. Almost simultaneously with the Railway there came into being a first class roadway also from Coimbatore to Ooty; it is now macadamised over the entire length, and a journey by road is perhaps more pleasant than a journey by rail but for the tunnels. Ooty is also linked with Mysore by a 100 mile roadway of supreme beauty.

The sad feature today is that the Hill Railway is unable to cope with the traffic that has of necessity to be moved. The capacity of this Railway is said to be only three Goods Trains each way per day. Each Goods Train, it is said, may clear only 6 bogie loads of goods or about 100 tons; or on the whole only about 300 tons may be moved each way per day. Only three passenger trains run through each way between Mettupalayam and Ooty, but there are two more each way on the Upper Section (Coonoor-Ooty), which is less steep than the Lower Section (Mettupalayam-Coonoor). The composition of each train is limited, and the overflow of the passenger traffic is carried by road by the bus

services, which are very frequent during the season.

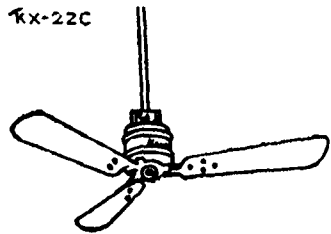
matters; hence their present losses and sufferings might not matter.

Speaking about the Goods Traffic on the Hill Railway, it is said that the Aravankadu Cordite Factory and the Madras Government's Food Department together consume all the available capacity and that very little capacity is left for the other traffic offered by the public at large. The Moyar Project and the Plantations require inwards raw materials and manure, and the agricultural produce of the plantations have to be sent out to distant consuming centres or ports of export. Full justice is not being done to the public traffic and they have been suffering for a long time past. It is said that the Railway Authorities have been imposing total and partial restrictions on this traffic, giving priority only to the Government-sponsored traffic for the past several years, and no steps appear to have been taken so far to find a way out, to increase the capacity so that traffic without restriction may move. The Authorities seem to be hoping that things will naturally set right themselves by the mere lapse of time. The people involved in the traffic are of the old sort unaware of their rights, half ignorant and given to piously hoping that the Authorities have their interests at heart and would soon set right

We have heard repeatedly from very high Authorities that the bottlenecks on the Railways are a thing of the past; it is surprising that this bottleneck, vital and concrete and still existing should have escaped the notice and attention of the Ministry. It is still more surprising how the Railway Administration in charge of the Railway has overlooked it.

Special Type of Locomotives and wagons are required, and these have to be got from abroad. Of course this means heavy capital expenditure and some appreciable time. Cannot some interim arrangement be done to tide over the difficulties? Cannot the traffic be shared with the Bus Companies: why not move the goods traffic only by rail, and make over the passenger traffic to the Bus Companies? and thus run more goods trains on the rail. Already a good portion of the passenger traffic is taking the road route, as the road journey is quicker and pleasanter. Cannot special efforts be made to run trains during night time. Let your brains think. There is no point in keeping a Railway open for public and refusing to accept traffic indefinitely.

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We have pleasure in informing to our Readers, Advertisers and Patrons that we are bringing out a special supplement on the first anniversary of the "Southern Railways Magazine" which will be out by the end of July. This volume will comprise of three sections pertaining to rail, road and air transport. Speciality of this number would be articles contributed by top-ranking personalities on transport problems.

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Economise the Railways

BY NAT

Any Indian student of national economy worth the name, who loves his country and is anxious for his future, must perforce admit that at no other time in our history have we stood in greater need of economy than at the present day. Internally the shooting up of prices has resulted in the purchasing power of the rupee depreciating to one-fourth; externally the rupee has been devalued by 30 per cent as the direct consequence of the devaluation of the pound by Britain, which has had the effect of making our payments to the dollar area for our imports 44 per cent more than before. We have launched into several schemes of improvement and construction too far to retrace, and to meet these commitments we want lots of money. As much money as possible must be saved by an internal economy. It is not enough if the drive for economy is enforced here and there haphazardly; it must be enforced on all the departments of all the Governments—Central, Provincial, and States. The people at large must be made to realise this imperative need for internal economy and the need for increasing our exports and decreasing our imports. In order to be able to export the more, India has to toil the more and produce more, and consume less.

During the last two and odd years, it is said, we were a bit intoxicated with the wine of freedom, with the powers that suddenly descended on us, and in our ambition to vie with and outdo Pakistan, or to become the leader of Asia, or to enhance ourselves in our foreign relations, and in our ambition to placate and satisfy a discontented people, who suffered a lot in the past regime, we spent out most of our reserves and resources—the pendulum swinging to the other extreme—and today

we find ourselves on the verge of a fairly bad situation, as predicted by some more mature minds in this country.

The HINDU of October 12, 1949, has in its leading article made a very pertinent observation: "All that does not alter the fact that India is a poor country and that she is spending on the administrative machinery far more than she can afford. Retrenchment is imperative. And if the Government make a determined attempt to weed out the huge tangle of superfluous jobs that have sprung up overnight, we cannot imagine responsible members of the key-services objecting to it on selfish grounds. They should see too that there is too big a gap between their salaries and the salaries of the vast army of their subordinates: this is a long-standing grievance..... The maintenance of the honour and integrity of the country is as much their responsibility as that of any other section of the community."

The Transport Department, especially the Railways, which during the war-years and post-war years, and during the post-freedom years, have had a large share of the expenditure from the Centre, must cut itself in proportion to its drawing but without impairing efficiency. The Railway Board itself have issued instructions to all Railways to effect economy in all departments, says a press note; during the war a number of higher and lower salaried posts were created in all Railways, and these were continued even after the war, and even after the wartime conditions had disappeared. Generally speaking, the local authorities have an aversion to retrench those newly-created posts; several such posts are being extended and

continued piece-meal advancing justifications more imaginary than real. Authorities in power, on whom ultimately the responsibility for increased expenditure rests, must have such posts re-examined, scrutinised or job-analysed with a view to abolish them, if found superfluous, or to club functions together in one post, where justification for continuance is insufficient. The Railway Board's directive to effect economies all round without impairing efficiency must be carried out in the true spirit in which it was made.

The Central Pay Commission scales were a commitment and a legacy bequeathed by the previous regime. The Nehru Government stood committed to it. Its ramifications are still rampant; it has caused the largest drain on the Centre; its anomalies and repercussions are still engaging the Government's attention. Despite such a heavy expenditure it does not appear to have completely allayed the unrest amongst labour. The Commission's recommendation that no superior officer was to draw more than Rs. 2000 except those in posts of a special nature, does not appear to have been given effect to as yet.

On top of this came the Adjudication Award, which amplified the concessions under *Leave Rules* and the *Hours of Employment Regulations*, which in other words served to increase the number of staff under each category. Thus, whilst the Central Pay Commission increased the basic pay and allowance of each member of the staff, the Adjudication Award increased the number of staff. Naturally in the nett the total expenditure to the Government, represented by the product of the two, increased to the second power.

Under the heads *Amenities to the Public* and *Amenities to the Staff* there have been such a lot of doings involving heavy expenditure, some of them not wholly justifiable and some of them very essential and desirable.

The sudden and thoughtless way in which the classes of accommodation were reduced from four to three, accompanied by the unwise idea that some administrations entertained that they should make structural alterations to the numerous coaches at a huge cost, made for a decrease in the aggregate revenue—in effect a double loss. The subsequent introduction of the dubious Class II Ordinary and Special also involved expenditure. And now by the middle of this year we are to revert to the old four classes, by which also probably we will be involved in another huge outlay for the reconversion of the coaches. The lesson is obvious that we should have been wary during the transition period.

(To be continued)

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"The Section Controller"

BY A. H. PEARSON

At busy road crossings and intersections in most large cities vehicular and pedestrian traffic is controlled by a Traffic Policeman, his main job being to keep the traffic moving smoothly, freely and with the least possibility of accidents. Railways too have their system of traffic control, but on a far larger, more elaborate and complicated scale, known as the train or traffic control system.

Train Control Offices are usually situated in the Divisional or District Headquarters Stations of a Railway system, and the Railwayman who helps the system function smoothly is the Section Controller.

The Section Controller is responsible for controlling and co-ordinating all train movements over his particular section. The section under his control may be anything up to 150 miles of line, single or double, with 30 to 35 stations on this length. On one side of his desk is a small exchange board, known as the Calling Board. This is equipped with a double-knobbed key for each station on his section. By twirling these knobs the Controller immediately calls up a station on the control telephone. If the station wants to call Control, he merely picks up his control telephone and calls out the station name.

When the Controller comes on duty, he first looks over the relief diary to see what orders about train or stock movements have to be carried out during his eight-hour shift. Then he consults important divisional circulars, wires, etc. which may contain instructions about restrictions in the movement of empty and loaded stock,

what track or bridge repair work may be in progress, as this will mean speed restrictions to be observed over the particular sections of the track being repaired.

Next he must ascertain the stock position by ringing up stations and large yards on the section. Each Station or Yard Master will give details of all loaded and empty wagons on hand. The overall stock position is then passed on to the Deputy Controller, who will then be able to issue orders for the forming-up of trains over the division. These train orders are then passed on to the Station Masters concerned, and to the Loco Department to arrange power for the trains. Accuracy in stock reports is vital, as a lot depends on the control for the smooth flow of goods traffic.

If you look over the shoulder of a Section Controller at work, you will see a large chart on his table known as a Control Chart. This Chart looks like a large-sized sheet of graph paper with numerous coloured lines zig-zagging a curious path across the page, but to the Controller these queer lines give the exact position and timings of each train moving over his section. A glance at his chart will tell him immediately whether a mail or express train is running on time or late, where goods trains are side-tracked for faster trains, and in fact almost any information necessary for the movement of all trains.

Controlling trains is not merely plotting the arrival and departure timings. The Chart is his guide, but he must use all the experience, intelligence and initiative at his command to get the trains through without causing

(Continued on page 331)

Palni

BY L. N. GUBIL

The temple of Palni, situated on a hill in the south of India about 300 miles south of Madras, is dedicated to Lord Subrahmanya, otherwise known as Dandayuthapani.

Sri Palani Andavar Hill and the neighbouring hillock now going by the name of Idamban, both formed the peaks of Skandaparvatham of the Puranas, adjacent to or forming part of the Kailasa Giri, the former being the Swarupam of Sakthi of Ambal.

On the occasion of Parvati's marriage with Parameswarar, the sage Agasthaya, who had been worshipping these two peaks started on his journey southwards to Pothimalai near Cape Comorin, carrying with him, at the behest and with the permission of the

Lord, these peaks severed from the main hill. On the way, he had to place these two peaks in Borja Vanam in Thirukhathara Kshetram, north of the Vindhya Hills, because he had to fight the demon Vindhya and so he reached his destination without the peaks. Then came to him his demon disciple Idumban who was asked by Agasthaya to fetch the two peaks by putting them on each at the ends of a Kavadi. As he was carrying them southwards, when he reached this place, now called Palni, he felt tired and so placed the Kavadi down and took some rest. When he started again and attempted to lift the Kavadi, he found Sivagiri immovable. Then he got up the hill to find out what the matter was and there he saw a child playing. The demon got angry and attacked the child.



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Whereupon the child who was none else than GOD Subrahmanya himself, slew the demon on the spot. Agasthaya immediately rushed to the scene and the God Parameswara also hastened to the place. At the intervention of both, the demon was brought back to life and it was ordained by them that Sivagiri was to remain where it was and that it was to be the abode of God Subrahmanya and that Idumban should remain in the middle part of the Hill and continue to do worship to Subrahmanya. So it is said that this Sivagiri came to be established in this place and has been the object of worship as "Siva Swarupam."

From time immemorial, this temple has been held in the highest esteem and the greatest veneration by the Hindu World, Lord Dandayuthapani, the presiding deity, counts amongst his innumerable devotees not only caste Hindus but also Harijans and even pious Muhammadans (who called Sri Andavar as Palni Bhava) and many a man of other creeds.

This holy place of pilgrimage is also known as "Tenkailasam" or South Kailas—(Kailas is the abode of Lord Siva).

The Lord's name (Dandayuthapani) means the Lord hoding the Dandayutham (Divine Spear) in his hand. In this connection it may be mentioned that, unlike other idols, Sri Dandayuthapani is a composition of all the nine poisons.

It is a popular belief that the Sage Agasthaya and another Yogi Bogar are still living in the hollow of the Hill.

It is said that those who see, go round or stay in or hear the history of the hill in Prathakshanam especially on special occasions during the closing days of Agniakshatram and Skanda

Shasti, get moksha (relief from rebirth).

A famous scholar has described the "Sivagiri" itself as a temple and that even the worst sinner will reach "Swargam" if he happens to go round the hill.

Arunagirinathar, a notable disciple of Lord Subrahmanya and the composer of the favour "Thiruppugal" in Tamil, has described this as a place more sacred than even Kasi (Benares). He goes to the extent of describing this Hill as the Hill of Miracles or Wonders. This description holds true even today. Pious devotees are asked in their dreams by Lord Subrahmanya (Dandapani) to bring Mathsa (fish) Kavadi, (Sarpa) snake Kavadi, or Seval (cock) Kavadi to Palni. The disciple picks up the particular fish or cobra or cock as ordered by the Lord in the dream and cuts it into pieces and brings them in Kavadies. As soon as he reaches the place, he waits for the final command of the Lord to unite. On the command of Sri Andavar to unite at a particular place, to the amazement of every one present, as soon as the Kavadi is opened, the dead fish or cobra or cock comes to life—indeed a miracle. Hence there is no exaggeration in saying that this is a hill of miracles.

A word about the idol of Dandayuthapani may not be out of place here. The present idol, as already indicated, is composed of nine poisons. It is not an ordinary stone-cut image. This is testified to by the fact that any number of abishekams—especially honey abishekams—that are being done daily, do not affect the idol at all.

Throughout the day, from 6 A. M. to 8 P. M. abishekams are allowed unlike in other places where abishekams can be done only during Kalapujas at fixed

hours. The abishekam water (Ksheeramalyam as it is called, containing the milk, sandal paste and water) cures even the worst diseases.

It is said that the present idol of Sri Andavar was fixed by the Sage Bogar who is considered to live even now in the hollow of the Hill.

(Continued from Page 328)

any tangles on his section. Over his section there may be moving ten up and down fast mail and passenger trains, and in addition about twenty goods trains. The Controller must plan all movements to keep the mail and passenger trains running absolutely on time, and the goods trains running to scheduled paths allotted to them.

Even with all trains running smoothly and more or less on time, Control Work is arduous and tricky, but when something goes wrong, then comes the real test. An accident may occur blocking one of the lines on a double track. The track may be damaged and may take hours to make it fit for through running again. The Controller must not sit back until the track is clear again. The other line fit for traffic must be utilized to full capacity to keep all trains moving with as little detention as possible. This is where masterly control work has to come into play, and the Expert Control Man tackles this job with all his Railwayman's faculties well-sharpened. The tangle caused by the accident is soon sorted out, and within an amazingly short period of time, all traffic is moving smoothly again.

These are some of the major duties of the Controller, but there are many more which are as important and require the co-operation of Control to help traffic moving freely. He must assist roadside stations with the supply of empty wagons for loading, and clearance of loaded wagons for onward despatch. A driver may ring up from a station complaining of engine trouble and possible failure on the road. The Controller must then make prompt arrangements in consultation with

'Loco' to get another engine to the spot to take over the train. A roadside Station Master needs relief to allow one of his staff leave or to replace a sick casualty. The Controller gets the information and passes it on to the department concerned for prompt action. Reserved carriages, special saloons, damaged coaching stock etc. have to be attached or detached. All this information must pass through or from the Controller to the stations concerned. Then again, the Engineering Staff have to do a repair job on the track. For this they have to be given a 'block' of so many hours when no trains can pass. The Controller must arrange this 'block' and keep in touch with the track men until the line has been repaired and traffic can move over it.

Because of his day-to-day familiarity with the movements of trains, a Section Controller with foresight is in a position to suggest improvements in the casting of time schedules. Long gaps of time over some portions of his section may be cut down by speeding up a train, or he may see a way of breaking a chronic bottleneck that may be retarding traffic.

To the Station Staff and to those who work the trains, he is regarded both as a friend in need by those who appreciate his job, and as a temporary enemy by those who think he is an arm-chair Railwayman, just barking out orders that 700 down goods will be side-tracked for an hour or so, when the guard or driver is fretting to make a quick passage home; but whether he is given a word of praise or thanks, or considered as a nasty dictator, it is all in the day's work.

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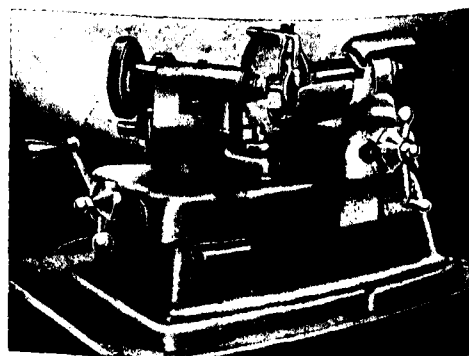


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Southern Railways Magazine

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NO. 12

JUNE 1950

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"Safe Rail Travel"

OFFICE OF

In the Editorial column of the May 1950 Issue of this Magazine attention had been drawn to the general feeling of apprehension on the part of the travelling public as a result of a number of accidents that had occurred in the first quarter of this year, and that the Ministry of Railways had shown considerable concern about the incidence of Railway accidents, by calling a meeting of General Managers of Railways and other experts, in the third week of April 1950.

A fortnight had hardly passed when the news broke that another terrible train disaster had occurred to the Up-Punjab Mail in the early hours of the morning on the 7th May, on the E. I. Railway main line about 200 miles away from Calcutta with a large death roll and a long list of those sustaining serious injuries. The photographs of this train wreck indicated the grimness of this tragedy, and naturally the public at large must ask with obvious apprehension, 'Is rail travel safe?'

Following this grim disaster six more Railway accidents have been reported, some involving injuries to passengers, and where the fault appears to have been with the Railways.

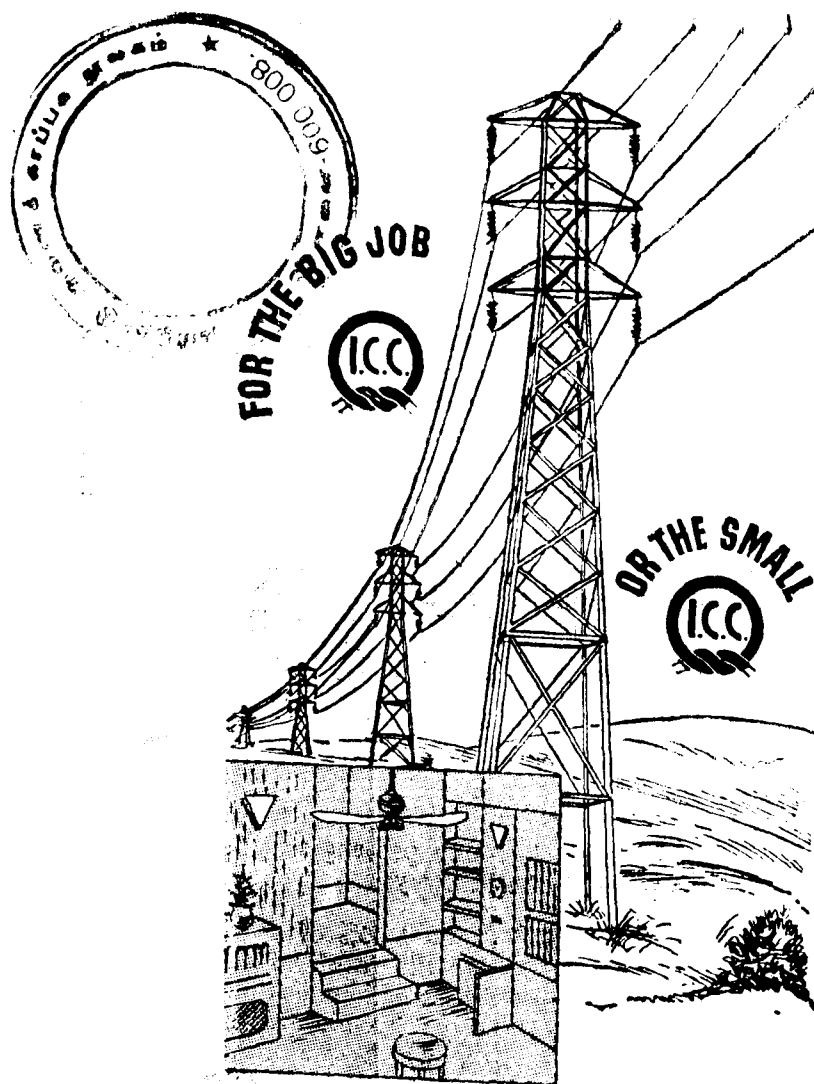
The Railway Minister stated that about 15% of accidents during the six months ending April 1950 were the result of sabotage. To counter this 15%, it has been reported that action has now been taken by the Railway Ministry and Railways by more intensive track patrolling and anti-sabotage devices, which are now operating satisfactorily. It is hoped that this action will have some enduring effect in reducing this 15%, attributable to acts of sabotage.

But there is still the larger 85% of accidents to be reckoned with for which apparently the Railways and Railway Personnel are answerable.

Public opinion is becoming extremely critical, and the feeling of apprehension that Rail Travel nowadays is far from safe is rising sharply. The public must naturally conclude that Railway Personnel responsible for the efficient maintenance of the track, rolling stock and the strict observance of the prescribed rules for safe operation of trains are careless, indifferent, inexperienced, or lack the requisite knowledge.

Once again, the Ministry of Railways went into conference with the Operating Heads of Railways in the last week of May, the

(Continued on page 335)



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Notes and Comments

Railway Advisory Committee

Mr. S. Guruswami, General Secretary of the All-India Railwaymen's Federation who had been to Delhi to attend the meeting of the Joint Railway Advisory Committee which concluded its session last month said that the recommendations of the Railway Advisory Committee which have been so far accepted by the Government of India will cost them an additional expenditure of Rs. 90.47 lakhs. These recommendations, he added, related to items like weightage of service, upgrading of Station Masters and Ministerial Staff, and enhanced dearness allowance for Class IV employees.

Mr. Guruswami said that the All-India Railwaymen's Federation's Convention will be held on June 7 at Nagpur to decide the question whether the Federation's representatives on the Railway Advisory Committee should continue. The Railway Advisory Committee, Mr. Guruswami said, had completed its consideration of questions relating to the running staff, which had been referred to it.

between Guntakal and Bangalore is an important industrial centre in Rayalaseema and there are about 20 expellers working there. Oil factory owners at Kalluru are put to much trouble to transport oil and cake owing to shortage of wagons. Hitherto a priority register was maintained at this station and wagons were supplied by the controlling authorities at Guntakal. Under the new scheme of priorities they are permitted to issue loading orders when wagons are available. As this station is only an exporting centre and as there is practically no inward traffic, it is difficult to get wagons. It was suggested that the authorities should either supply wagons from other stations against priorities registered at Kalluru or in the alternative, permit the Station Master at Kalluru to detach empties. A large stock of groundnut oil cake which is essential for manure is at present idle, resulting in harm to the Grow More Food Campaign. We appeal to the authorities in the hope that the disabilities will be removed.

* * * * *

Tinnevely-Cape Comorin Rail-link

A memorandum explaining the reasons for asking the extension of the Railway line from Tinnevely

Wagon Shortage

Kalluru Railway Station on the M. & S. M. Railway Metro Gauge

(Continued from page 333)

discussions of which centred round the recent Railway accidents and the measures taken to reduce these. As a result of this conference it was learnt that patrolling of certain sections of the track of Indian Railways had commenced, and instructions issued for the adoption of all possible mechanical safeguards to prevent tampering with the track. These measures are obviously to reduce the incidence of the 15% of accidents attributable to acts of sabotage.

And again the public would ask and like to have more evidence of the measures that are to be taken to prevent the other 85%. When this is known, and that such measures are really effective, then only will public opinion cast off the uneasiness that now prevails.

further projects is being carried out accordingly to the five-year programme drawn up.

Conveyance of Passengers' Luggage from V. T. to their Residence

It has been represented that passengers arriving at Victoria Terminus with heavy luggage sometimes find it difficult to arrange for conveyance of their luggage from V. T. to their residences. The Railway has under contemplation a scheme by which a reliable contractor will be available at V. T. who will be prepared to deliver such luggage to the residences on payment of charges which will be fixed. This transaction will have nothing to do with the Railway but will be one between the passengers and the approved contractor. When the scheme is finalised, it is hoped that this would prove a helpful facility.

Automatic Fruit Vendor

One of the latest developments in the growing field of automatic vending equipment in the United States is a refrigerated machine that dispenses fresh fruit. The machine can be quickly and easily operated by inserting the required number of coins and pulling a lever. It holds 208 pieces of fruit—apples, oranges, peaches, pears, and even grapes and cherries—packed in airtight transparent containers to retain their freshness.

The machine was developed by the Fruit-O-Matic Manufacturing Company of Los Angeles, in the State of California. It is designed to permit four customers to select their merchandise at the same time. Four electrically-controlled, separately-operated metal bands rotate the individually suspended stainless-steel wire baskets that hold the fruit is dis-

played behind a glass window in the front of the machines, which are placed in Railway Stations and many other public establishments.

L. M. R. Fruit Vans

At the rate of 20 per week, the works at Wolverton, on the London Midland Region of British Railways, are building 200 fruit vans of a new type which will convey fruit and vegetables with reduced risk of damage. The vans, which will be used mostly for the conveyance of such produce from Evesham to the more distant markets, particularly Glasgow and the North, have been constructed after prolonged practical tests. Outstanding features are improved ventilation by forced draught, a double roof for insulation and four wire mesh shelves, measuring 6 ft. by 3 ft., hinged to the van sides 3 ft. 9 in. from the floor.

In addition to the normal end ventilation there are four ventilating grilles, arranged two along each side. These are fed by eight air scoops, placed four on each side of the vans, to give a forced draught; 67 complete airchanges each hour are effected when the vehicles are running. This is four times as great as in the standard Railway van; the extra ventilation is applied at floor level where it is most needed.

The four shelves are constructed of 2-in. angle iron frames with wire mesh bases. They are hinged to the van sides and supported by chains. Two shelves are fitted on each side of the vans, clear of the doors, and at the door ends two retaining chains are fitted between the van sides and the suspension chains to prevent packages of fruit falling off during transit. When not in use, the shelves fold upwards against the sides of the vans and are secured by gravity catches. The maximum loading capacity of each shelf is

7½ cwt; each will accommodate 40 12-lb chips of fruit. Thus, not only is loading capacity increased by 25 per cent per vehicle but segregation of mixed consignments facilitated. (Modern Transport).

Ticket Ruling

A new ruling of the Ministry of Transport, Government of Argentine, establishes that in future each passenger must carry his own ticket, thus doing away with the present practice of one person carrying all the tickets belonging to a group of passengers travelling in different parts of crowded trains, which makes proper control by the guard difficult.

New Locomotive

A new type of electric locomotive that may have significant effects on existing and future electrification of Railroads is being built in the United States. It has the unique feature of using direct-current driving motors powered from alternating-current transmission lines.

Long-haul electric trains in the United States are operated on alternating-current, which is standard in the nation and easier and cheaper to transmit than direct current. Alternating-current driving motors, however, are less efficient for Railroad service than direct-current motors. For the same horsepower, direct-current motors are smaller, lighter, less complex, and easier to maintain. Thus, use of direct-current motors in locomotives with an alternating-current power source has long been sought by American engineers.

The new locomotive provides this combination. Key unit in its operation is the ignitron rectifier, an electron tube that converts alternating current into direct current. The rectifier was adapted

for use in locomotives from the original ignitron developed in the United States in 1939 and now widely used in industry.

Pulling power of the new locomotive is said to be comparable at high speeds to locomotives with alternating-current motors. At low speeds, it is 50 per cent greater. Also, the locomotive operates on a frequency of 60 cycles, which is the commercial alternating-current frequency in the United States. Heretofore, Railroads operating electrified lines have had to convert at high cost from 60 cycles to 25 cycles in order to operate their locomotives. The latter frequency is the highest for which a satisfactory alternating-current motor can be built.

Both the locomotive and the ignitron rectifier are developments of the Westing House Electric Corporation of East Pittsburgh, Pennsylvania. After exhaustive testing, the company is now building two of the new-type locomotives for a major Railroad in the United States.

Railway Board's Reply

In reply to a representation recently made by the Southern India Chamber of Commerce to the Ministry of Railways that in view of the growing accidents over the Railways in the country precautions such as speed restrictions, patrolling of strategic points along the tracks, and attaching dummy carriages next to the engines should be enforced by the Railway Board, have replied that "the Government are deeply concerned over the unfortunate spate of accidents that have occurred of late and the question whether the entire track mileage in the country should and can be patrolled is at present under urgent consideration of the Government."

Regarding speed restrictions the Railway Board have pointed out that the maximum permissible

to Cape Comorin through Nagercoil was submitted to Mr. M. Bhakthavatsalam, Minister for Public Works, Madras, when he visited the town last month. The Minister was given a reception at the Sri Mulam Town Club by the local people and an address was presented to him on behalf of the Nagercoil-Tinnevely Railway Extension Committee.

We believe that the Railway Board will consider the construction of new Railway line in their next budget at least in view of the difficulties experienced by the general public in these parts.

Receipt Issuing Office at Wadi Bandar

In order to cope with the heavy traffic now dealt with at Wadi Bandar, the work of issuing receipts for consignments accepted for despatch has been recently reorganised and centralised in one office. Formerly each shed had its own set of typists and raters and distribution work was therefore not always even. By centralising the work in this manner, it has been possible to exercise better supervision; as well as to ensure that the principle of "first come first served" is followed strictly as far as possible in the issue of Railway Receipts. The same Office also contains Delivery Windows for the issue of Railway Receipts so that the public can make enquiries about rates, routes etc. as well as take delivery of Railway Receipts.

Passenger Amenities on GIP. Railway

With a view to improve the travelling conditions of passengers, works are being carried out in a systematic manner to provide improved amenities to passengers at stations. The lower class passengers forming the bulk of our

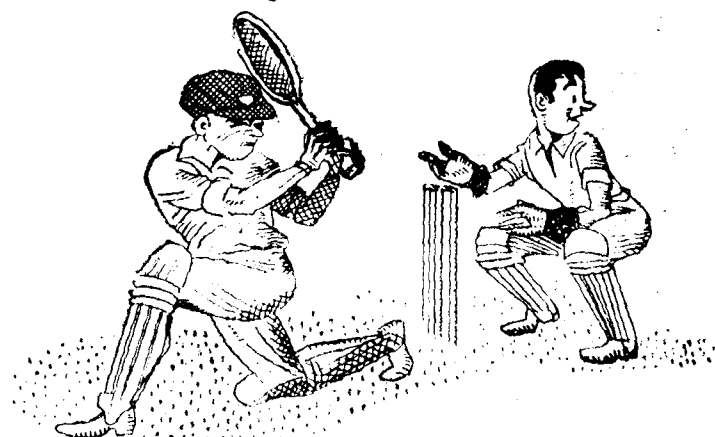
travelling public as is the case with all Railways in India constitute the main source of revenue, their interests are largely catered to while providing amenities at stations.

Amenities that are being provided consist broadly of providing larger and better equipped waiting halls, providing raised platforms for full lengths of trains, surfacing of platforms with concrete or bitumen, better refreshment facilities, waiting sheds on platforms, improved sanitary facilities, better approach roads and circulating area in front of station building, more benches, water taps and the like.

A drive was instituted in the early part of the year 1948, for provision of such amenities at stations. Up to end of 1949, 8 major projects costing in aggregate a sum of roughly Rs. 10,00,000 and 31 minor projects costing roughly Rs. 10.83 lakhs were undertaken and are nearing completion. The drive for providing amenities has been further intensified and it is proposed to spend a sum of not less than Rs. 25 lakhs per year on amenity works. A five-year programme has been drawn up for progressive implementation of amenity schemes, beginning from the year 1950-51. The programme has been so prepared as to provide amenities at more important stations earlier and at less important stations later.

Nine major projects at important stations costing roughly Rs. 27 lakhs and four minor projects costing roughly Rs. 1,05,000 have been commenced in the early months of the year 1950. A few more projects of either category are likely to be sanctioned in the remaining part of the year. Additional water taps at a number of stations have been or are being provided, this being so important on long journeys undertaken in hot weather. Development of

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for correct lubrication.

speeds on Indian Railways are kept well within safety limits. They are prescribed with the sanction of the Government Inspector of Railways. To run trains at speeds lower than those normally permitted could not minimise the possibilities of accidents resulting from interference with the track. The manner of tampering with the track in some of the recent cases does not enable a driver to notice defects unless the train was moving slowly. The Board stated that the general slowing down of trains would severely interfere with the total output of transportations without any corresponding addition to the safety element. On sections where it may be otherwise desirable to run trains at reduced speeds restrictions are imposed.

As for patrolling the track, the Railway Board state that wherever patrolling of line is considered necessary on the advice of the State Governments, Railway Administrations make the necessary arrangements according to the circumstances of each case.

As for attaching dummy carriages next to the engines of passenger trains, the Board have stated that such dummy carriages were attached to trains after the accident at Sullurpet more for the purpose of creating a psychological effect than for additional safety. As the kinetic energy possessed by normal trains is considerable, a dummy carriage immediately behind the engine may not be effective as a shock absorber or a damping device in case of a mishap. It does not, therefore, afford any real immunity against danger to the Passenger coaches behind it. It has happened in some cases of collision that the foremost one or two carriages behind the engine have suffered comparatively lesser damage than the following ones, which may telescope one into the other. Therefore, there was no point in using dummy coaches. Again, to run pilot engines in

advance of important passenger-carrying trains is not also a practical proposition, since such a step would reduce considerably the "power capacity of the Railways" and most adversely affect the "rail transport capacity."

In conclusion, the Board have assured the Chamber that the Government and the Railway Administration are taking every precaution to prevent accidents and make Railway Travel as safe as possible.

* * * * *

The Annual Day of the Railway Institute was celebrated last evening 18-5-50 at the Institute Premises with Mr. Bywater, District Operating Superintendent, Calicut, in the chair. Mr. T. A. Joseph, M. A., Chief Traffic Manager, South Indian Railway, unveiled two portraits of Gandhiji and Nehru. A record crowd of local public including officials and over 200 ladies witnessed the proceedings. At the outset, Mr. P. N. Bhaskaran Nair, Assistant Engineer and Chairman of the Institute welcomed the gathering. Mr. A. M. Ashuthan Nair, Honorary Secretary, read messages and Report on the working



Mr. T. A. Joseph, M. A., C. T. M., S. I. Ry. unveiling the Portrait of Gandhiji at Railway Institute, Shoranur.

Sports

The Following Tournaments were conducted by the SOUTH INDIAN RAILWAY INSTITUTE, SHORANUR, during the year:—

Mrs. T. C. Krishna Cup : Tennis Singles

Messrs. H. Augustus and V. V. Narayanan Nair met in the final, played on 17-5-50. The audience witnessed a really interesting game. In the beginning it was almost one-sided in favour of Mr. Narayanan Nair. But, due to nervous indisposition he was overcome by excess strain and had to abandon play when the fifth set was on, declaring Mr. H. Augustus Winner of the day. The scores were, 1-6, 2-6, 7-5 and 6-4.

Mrs. K. P. N. Menon Cup : Billiards

The final was played between Messrs. Maruthamuthu and V. Raman Kutty Nair and the former came out Winner for the cup. The distinction of scoring the highest point which hit at 40 in the Tournament was, however, gained by Mr. Sheik Nawabjan.

Chess Tournament

Mr. F. Augustus beat Mr. Sourirajan in the final and qualified for the cup.

The prizes to winners in the various events were given away by Mr. T. A. Joseph, M. A., Chief Traffic Manager, at a meeting held in connection with the Annual Day Celebrations on 18-5-50 under the presidency of Mr. W. Bywater, District Operating Superintendent, Calicut.



"Young Kiddies in their Dancing Dress posing for a Photograph."

progress of the Institute. Mr. T. A. Joseph, then rose to address the gathering. He said, "It is, perhaps, a matter of common occurrence to unveil portraits of leaders at such functions, but when it is associated with those of the 'Wonder Man' of the world Gandhiji, and the distinguished guide of our country's destiny, the whole atmosphere gains a lasting significance of rare value. I feel I am honoured in having entrusted with the task." The portraits were then unveiled.

The children of the members of the Institute then put up a programme of Variety Entertainment of items in Kathakali, Bharatanatyam and other Indian Dances which was highly appreciated by the audience. Prizes to winners in the various Tournaments, Sports etc. were next distributed by Mr. T. A. Joseph. With the President's concluding remarks and vote of thanks the meeting came to a close exactly at 8 p. m.

* * * * *

*I have always regarded the habit of smoking as barbarous, dirty and harmful.....
I cannot bear to travel in a compartment full of people smoking. I become choked.
(M. K. Gandhi).*

Reorientation in Railways

(We have pleasure in reproducing below an article from Harijan dated 1-2-48 on the above subject contributed by no less a person than Sri Gajanan Nani, Nagpurwadi. Wardha in the hope that this article will evoke considerable interest among our readers. Ed.)

The Indian Railways have been nationalised. The expectations of the major travelling public have greatly risen. A classless Railway Service stands as the ultimate ideal. Such an achievement will of course serve as tenderfoot training to the ordinary citizen if in due course the establishment of a genuine socialistic state in country is seriously proposed by those at the helm of affairs. At least while travelling, the rich and the poor would have the same standard of life.

A complete overhaul for making the Third Class journey more comfortable may involve some delay especially for constructing improved types of bogies etc. But levelling down can be immediately taken up without running extra cost. On the other hand, it will result in some saving which can be used for urgent needs. There can be two opinions on the immediate closure of the First and Second Class for obvious reasons. But there are quite a number of other facilities monopolized by the Upper Classes other than the luxurious bogies. Third Class passengers are simply treated like untouchables.

There are separate Booking Offices maintained for the higher classes. As a matter of fact the number of higher class travellers is comparatively small. They can as well book their tickets at the Third Class booking offices. Thus, eliminating the minor stations where the Booking Offices are common for all classes, if there are about 2000 major Railway Stations on our Railways, about 2000 Booking Clerks can be diverted to provide better facilities to the general passenger public (Third Class). The vacant counters of the Upper Class Booking Offices are an expense to the Third Class pas-

senger, whose ordeal in getting a ticket is too well-known to need description.

Then there are the exclusive entrance and exit doors maintained for the Upper Class passenger. This involves unnecessary additional cost of maintaining another 2000 Ticket Collectors, who can be relieved and used at the common exits and entrances.

Even lavatories are maintained at every major Railway Station exclusively for the Upper Class entailing cost of special staff which can be usefully diverted to better the appalling condition of the ordinary lavatories.

Special Waiting Rooms and Dining Halls are also run at Railway Junctions and major stations. The hell-like condition of the ill-attended Third Class Waiting Rooms is notorious enough. Then why not have a clean and simple comfortable waiting place for all passengers alike.

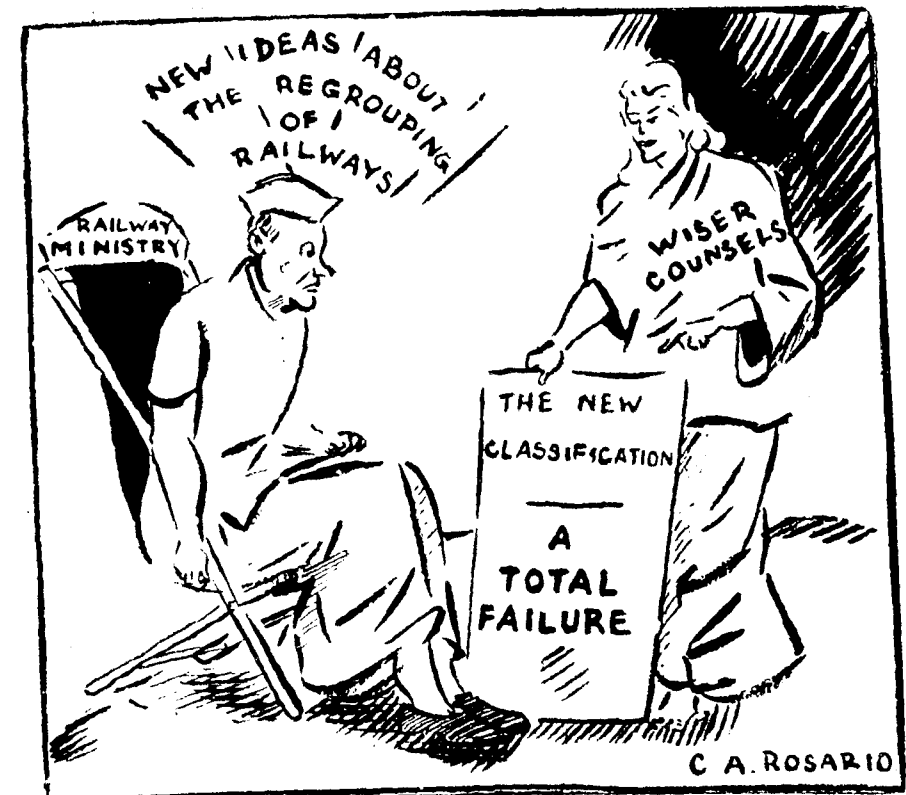
Interim Reforms

Besides the above mentioned measures the following steps should be taken for the immediate relief of the Third Class passengers:

1. Sanitation—Station Premises: Instead of having Third Class Waiting Rooms, in most cases, as open halls like cowsheds affording no protection from wind or cold or dust, and even rain in some cases, proper enclosures should be put up affording sufficient shelter.

Basins for spitting be provided in adequate numbers.

2. Water Supply: The existing water supply arrangement is quite unsatisfactory. Even at important junctions there are only two or three taps. The passengers have to struggle to get even a jug filled with water. The person detailed for serving water at train



"You've had one Lesson"

times cannot cope with the demand.

In a tropical country like India travellers ought to get ample fresh water. More taps, about half a dozen, can be attached to the same pipe end. The washing place where the taps are located deserves reform. As water gushes out with extra force the whole place is made dirty and much water is wasted. On the other hand if more spouts are attached to the same pipe, many people can avail of the water supply at the same time and with comfort. The masonry construction beneath the taps, the height, size and contrivance of the taps, all vary from place to place. Would it not be advisable to have a standard pattern most convenient for all stations alike?

It is high time that we have drinking water supply in moving trains.

3. Latrines: The Third Class bogies have at present, no lights

and this adds to the insanitary state of these latrines. In some cases the water pipes in the latrines are out of order and in most cases, there is no water. Until proper care is taken to rectify the present state of affairs in Third Class latrines, they cannot be considered fit to serve an honourable citizen in a free India. Old bogies have a repulsive appearance. They should be painted.

4. Food Supply: The quality of the catables supplied is much inferior. This is perhaps due to the existing contract system. Contractors are given a monopoly to engage vendors over almost a whole Railway line. This monopoly contract should be replaced by issuing direct licences to local vendors. Stipulated lists of food stuffs have to be reformed on the basis of the purchasing capacity of the majority of travellers; nutritive values, and climatic conditions must be considered. Cheap fruit juices like sugarcane

juice and palm *nira* and *sharbat* prepared from *gur* should be made available in lieu of costly aerated waters. Cheaper *chapatis* and millet *rotis* be made universally available instead of the unhygienic *puris*. The South Indian Railways food provision is commendable. Rice mixed with curds well-wrapped in clean leaves is sold besides other cheap local preparations at every important station. At major junctions full-fledged Indian meals (Stomach-full) are provided at nominal rates. Why should not there be the same arrangement in other Railway lines too? In general, the whole catering should be for the benefit of the passengers and not to enable a few to amass wealth.

5. A Meaningless Luxury: The Inter, Second and First Class Ladies' Compartments are superfluous. Generally, educated ladies alone resort to the higher classes. While they do not prefer segregation in other walks of life, will it not be agreeable to them to be seated in the same compartments as males, if necessary with reserved seats, just as the buses have? So long as class distinctions are tolerated, one special Upper Class may be provided for ladies. In practice generally, Ladies accompany their male relatives. The Ladies Compartments run empty. So also is the case of Ladies' Waiting Rooms. As a matter of fact, there is fear and loneliness for ladies travelling in segregation. Thus, an intelligent husbanding of the space available in trains can relieve the suffocating Third Class passenger to a great extent.

6. Sanitary Service: Exclusive and prompt service is provided for cleaning the Upper Class Compartments. But the Third Class Carriages are neglected. The latrines are filthy in most trains and the floor is rarely swept at junctions. The passengers' co-

operation counts much. But as the Railways focus their attention on the sanitation of the Upper Class bogies, the Third Class Compartments should also get the same treatment and attention. For effective work in this respect, honorary services of Sanitary Visitors and Inspectors can be enlisted from public-spirited social workers without incurring extra cost. Active co-operation of the passengers can be had by providing brooms etc. in the carriages.

7. Long Journeys involving Night Travel: Third Class: Special passes should be issued authorizing such travellers the use of special bogies with sleeping accommodation exclusively reserved for them. A railway servant must be posted in the bogies to assist the passengers.

8. Short Journey Travel: For every carriage the old rules providing a limited sitting accommodation can be temporarily amended by prescribing some additional number. The number given, which is the maximum that be reasonably accommodated, must in no circumstances be exceeded. This must not be left to the discretion of the passengers. For ensuring the observance of this rule and also for eradicating the habit of ticketless travel, it will be much helpful to post in each carriage a conductor. He shall have to look after the comfort of the travellers and safeguarding the interests of the Railway. He should be invested with all powers of the present Ticket Examiner and the Railway Police, except issuing tickets or receiving any payment on behalf of the Railway. The cadre of the present Ticket Examiners and the provision of issuing extension and other tickets in moving trains ought to be abolished for effectively eliminating ticketless travel.

Australia and its Railways

By R. KAVERI

Australia is the most sparsely populated country in the world. It is an island continent in the southern hemisphere. It was originally a British Colony; its settlers are mostly Englishmen. To-day it is a Dominion under the British Crown, and a nation of the Commonwealth. People of other nationalities are not as a rule permitted to settle down there; an Indian is never, though some great Indians may be allowed to visit. Its area is so vast and its population so small that a very large part of the continent lies waste, though capable of being converted into rich productive area.

After the World War II this continent has sprung into prodigious importance, situated as it is at the entrance from the Indian

Ocean into the Pacific Ocean and because such a checkmate against possible Japanese expansion and aggression is essential. The influence and spread of Russian Communism into China and South-East Asia has also made Australia of great strategic importance to Britain and America because of its being a strongly pro-British Outpost in close proximity to South-East Asia, and hence can be used as a spring-board to stem the tide of Communism. Britain and Australia have therefore decided to develop Australia and people it the more with Britons or men of British Descent. America is equally interested in its development. We find Australia playing a dual part in the world's current history. Strangely enough she identifies herself with the nations

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of both the East and the West that are opposed to communistic ideologies. India and Australia are great friends to day, both being member-nations of the commonwealth.

Within recent times there has been some heavy influx of British population into Australia. Some of the British Officers of the Indian Railways, who have retired or felt it convenient to retire on India attaining freedom, have already settled down there or are contemplating to do so. An additional reason for their settling down in that continent may well be that conditions of living in post-war England are very hard, whilst conditions in Australia, are much easier and there is enough of *lebensraum* and to spare. It would therefore be of interest to know something about the Australian Railways and Roadways.

Railway System

The Victorian Railways, with 4,748 route miles of tracks radiating from Melbourne over the State, are the principal means of transport. During the year ended June 30, 1947, they carried 170,164,983 passengers and 7,561,773 tons of goods and livestock. An electrified system in the suburban area serves 173 route miles.

The Railways are not a profit-making concern, but a public utility designed to create wealth for the community. Hardly any appreciable area of arable, pastoral or non-mountainous land is more than eight miles from a Railway. Developmental Railways were responsible for converting 11,000,000 acres of the Mallee, which were regarded as worthless, into a prosperous area covered with thriving settlements and farms.

Railway Progress

The Victorian Railways are noted for the progressive originality of their achievements. They were the first in Australia to introduce air conditioning in Railway travel and now possess the first and only all-steel, streamlined, air-conditioned train in Australia "spirit of progress" daily running each way non-stop between Melbourne and Albury (190½ miles). The Victorian Railways also introduced in Australia the use of modern buffet cars to provide refreshments for travellers.

Tramways

During 1946-47, the Melbourne Tramways comprised 131.4 route miles of Electric Tramway, and passengers carried totalled 262,406,398. There were also 57,947,171 passengers carried by motor omnibus (route mileage, .9). The only tram lines in the country comprise 13.8 miles in Ballarat, 8.6 miles in Bendigo, and 11 miles in Geelong. The total number of passengers carried by these lines for 1946-47 was 15,682,861.

Roads

The Country Roads Board, consisting of three members, is entrusted, among other things, with the maintenance of state highways, tourist and forest roads, and provides funds for the maintenance of main roads by municipalities to the satisfaction of the Board.

The Board also allocates funds available for road construction. The total expenditure during 1945-46 was £ 215,018 for constructions, £ 935,513 for maintenance, and £ 976,232 under other headings, including interest and sinking fund and administration.

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A major part of the boxes, bundles, crates, cartons, and sacks of merchandise that enter and leave Chicago's famed business district—the "Loop"—travel on this underground railroad in miniature freight trains pulled by electric locomotives. The Little Trains trundle along narrow gauge tracks through tunnels six feet wide and seven and a half feet high. Intersecting at more than 700 places, the tunnels are carved out of solid blue clay 45 feet below the surface.

The road's 2,200 freight cars and 120 locomotives transport enough freight daily to fill 3,000 full-size American-type freight cars, according to the magazine *Wheels*, published by the American Car and Foundry Company. In a year, says *Wheels*, the underground trains move about 750,000 tons of freight.

Coal, cinders, and ashes also are hauled by the railroad. At coal yards, coal is loaded into the cars by chutes leading into the tunnel. It is then transported to the boiler rooms of buildings, and automatically fed from the cars directly into furnace hoppers or on conveyors leading into the boiler room. Cinders and ashes from the boiler rooms are similarly removed and either emptied into barges for dumping into Lake Michigan, or used as "fill" in reclaiming Chicago's lake-front area.

To keep the entire trackage of the railroad underground, tunnel engineers designed elevators which lift the cars from the tunnel up shafts to exits which open directly onto warehouse loading platforms or into department store shipping rooms. Once loaded with package freight destined for one or more of 29 railroads served by the tunnel, the cars are lowered and coupled into trains for their runs to the terminals. Seven large department stores use the railroad not only for shipping and receiving merchandise but for transferring local deliveries to substations in suburban areas.

Twenty-four large companies have direct outlets to the underground tunnels says *Wheels*. The miniature railroad is so much an integral part of the shipping and receiving facilities of these firms, notes the magazine, that in many instances buildings do not have the usual truck-loading platforms. At one plant, where the tunnel is the equivalent of five floors beneath the street, the building foundation is carried down to meet it.

For shippers with no direct outlet to the tunnels, the railroad has four exchange stations at strategic points along its route. Merchandise left at the stations by individual shippers is sorted and placed on the cars for delivery to the proper terminal.

Movements of the trains are supervised by a central dispatcher. Automatic signals and glass reflectors at intersections, which warn engineers if other trains are approaching from lateral track lines, have helped the miniature underground railroad maintain a perfect safety record, says *Wheels*.

The Connoisseur's Tea

Chastened in spirit, quiet in mind and surrounded by proper company, one is fit to enjoy tea. For tea is invented for quiet company as wine is invented for a noisy party. There is something in the nature of tea that leads us into a world of quiet contemplation of life. It would be as disastrous to drink tea in a noisy atmosphere as to pick tea on a rainy or a cloudy day. Picked at early dawn on a clear day, when the morning on mountain top was clear and thin, and the fragrance of dew was still upon the leaves, tea is still associated with the fragrance and refinement of the magic dew in its enjoyment...De Quincey says quite correctly that tea "will always be the favourite beverage of the intellectual," but the Chinese seem to go farther and associate it with the high-minded recluse.

Tea is, then, symbolic of earthly purity, requiring the most fastidious cleanliness in its preparation, from picking, frying and preserving to its final infusion and drinking, easily upset or spoiled by the slightest contamination of oily hands or oily cups. Consequently, its enjoyment is appropriate in an atmosphere where all ostentation or suggestion of luxury is banished from one's eyes and one's thoughts. Su Tungpo once compared tea to sweet maiden, but a later critic, T'ien Yiheng, author of *Chuch'uan Hsiaop'in* (Essay on Boiling spring Water) immediately qualified it by adding that tea could be compared, if it must be compared to women at all, only to the Fairy Maku. For, the same author says "One drinks tea to forget the world's noise; it is not for those who eat rich food and dress in silk pyjamas."

(Continued on page 352)

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(Continued from page 349)

It must be remembered that, according to Ch'alu, "the essence of the enjoyment of tea lies in appreciation of its colour, fragrance and flavour, and the principles of preparation are refinement, dryness and cleanliness." An element of quiet is therefore necessary for the appreciation of these qualities, an appreciation that comes from a man who can "look at a hot world with a cool head." Since the Sung Dynasty, connoisseurs have generally regarded a cup of pale tea as the best, and the delicate flavour of pale tea can easily pass unperceived by one occupied with busy thoughts, or when the neighbourhood is noisy, or servants are quarrelling, or when served by ugly maids. The company, too, must be small. For, "it is important in drinking tea that the guests be few. Many guests would make it noisy, and noisiness takes away from its cultured charm. To drink alone is called secluded; to drink between two is called comfortable; to drink with three or four is called charming; to drink with five or six is called common; and to drink between seven or eight is called (contemptuously) philanthropic." As the author of *Ch'alu* said, "to pour tea around again and again from a big pot, and drink it up at a gulp, or to warm it up again after a while, or to ask for extremely strong taste would be like farmers or artisans who drink tea to fill their belly after hard work; it would

then be impossible to speak of the distinction and appreciation of flavours."

For this reason, and out of consideration for the utmost rightness and cleanliness in preparation, Chinese writers on tea have always insisted on personal attention in boiling tea, or since that is necessarily inconvenient, that two boy servants be specially trained to do the job. Tea is usually boiled on a separate small stove in the room or directly outside, away from the kitchen. The servant boys must be trained to make tea in the presence of their master and to observe a routine of cleanliness, washing the cups every morning (never wiping them with a towel), washing their hands often and keeping their finger-nails clean. "When there are three guests, one stove will be enough, but when there are five or six persons, two separate stoves and kettles will be required, one boy attending to each stove, for if one is required to attend to both, there may be delays or mix-ups." True connoisseurs, however, regard the personal preparation of tea as a special pleasure. Without developing into a rigid system as in Japan, the preparation and drinking of tea is always a performance of loving pleasure, importance and distinction. In fact, the preparation is half the fun of the drinking, as cracking melon-seeds between one's teeth is half the pleasure of eating them. (*Tea News & Views*)

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BY A. H. PEARSON

"Hello! Hello! Can you tell me what time the Mail leaves for Bombay?" This is a question coming over the telephone.

"I'd like to go to Cuttack. Which is the best train I can catch and go straight through without changing?" This comes from a prospective passenger on the other side of the counter.

And who is to give this information? A Railwayman whose official designation is the Enquiry Clerk. Let us see how he tackles his job.

Railway Enquiry Offices are provided at all large stations, serving provincial capitals, important business or industrial centres, or at those which are large junctions or termini. These Enquiry Offices, manned by Enquiry Clerks working in eight-hour shifts, function day and night.

As the word 'enquiry' implies, the Enquiry Clerk is there to answer all the questions asked, and supply information desired. To be able to do this, he must study and be familiar with the time table not only of his own Railway system, but of practically every Railway system in India. He must also have a more or less thorough knowledge of the coaching guides of various Railways so that he can answer questions about the booking of luggage, parcels, fruit, dogs, cats etc. To help him, he has a compact bookshelf containing all the guides and reference books needed, and these he must constantly study and consult, so that all the information given by him is accurate.

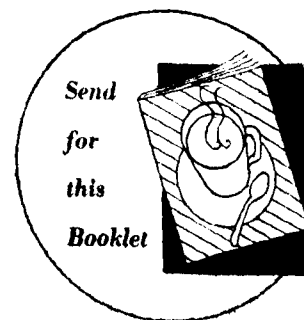
Some Enquiry Offices are also responsible for reservations in upper class and sleeping car

coaches, and this work alone will take up a lot of the Enquiry Clerks' time. He will have to maintain the berth reservation charts or registers, answer all queries about reservations, arrange these in order of priority or those desiring berths. Passengers will often ring up, or turn up at the Enquiry Office, a few hours before the departure of a train, and want a reservation. As reservations for important trains are often done at least a week in advance, such last-minute requests are hard to arrange, and if the passenger is told so, he is more often than not dubious of what he is told. The Enquiry Clerk has to satisfy him that the information given is fact, and not deliberately concealed fiction. To back up his statement the Enquiry man will often have to prove the evidence of charts and registers for the personal scrutiny of the passenger, and even then being disappointed, he may feel that he has been bluffed.

A number of enquiries have to be answered every day about rates and fares. A passenger wants to know the second class fare for a journey of about six hundred odd miles, involving a couple of junction changes and over two or three different Railways. The Enquiry man must be able to supply the correct fare himself, or at least get it from the Booking Office as quickly as possible. If the passenger is present he will be asked to wait a few minutes, while the fare is being worked out, but if the information comes from somebody at the other end of the telephone, it means hanging on to the phone, or ascertaining his number, making a pad-note, and ringing him up a few minutes later. But the enquiry must be answered. There



Most industrialists agree on the necessity of having canteen arrangement in their factories, but few can employ experts to plan and run them. Not the least of the problems involved is that of diet selection so that food is not only cheap, appetising and nutritious, but also properly suited to the particular part of the country. In this, the Central Tea Board has conducted specialised research, and the results of this work are *freely available* to all employers of labour. From the same source, the most modern information on tea making and tea serving is also available. For tea — the drink of comfort, refreshment and sustenance — is still the backbone of the efficient canteen, and this organisation can provide every possible hint on equipment, utensils, staff and administration.



Special pamphlets and brochures on technical aspects of canteen planning and management are supplied free to re-

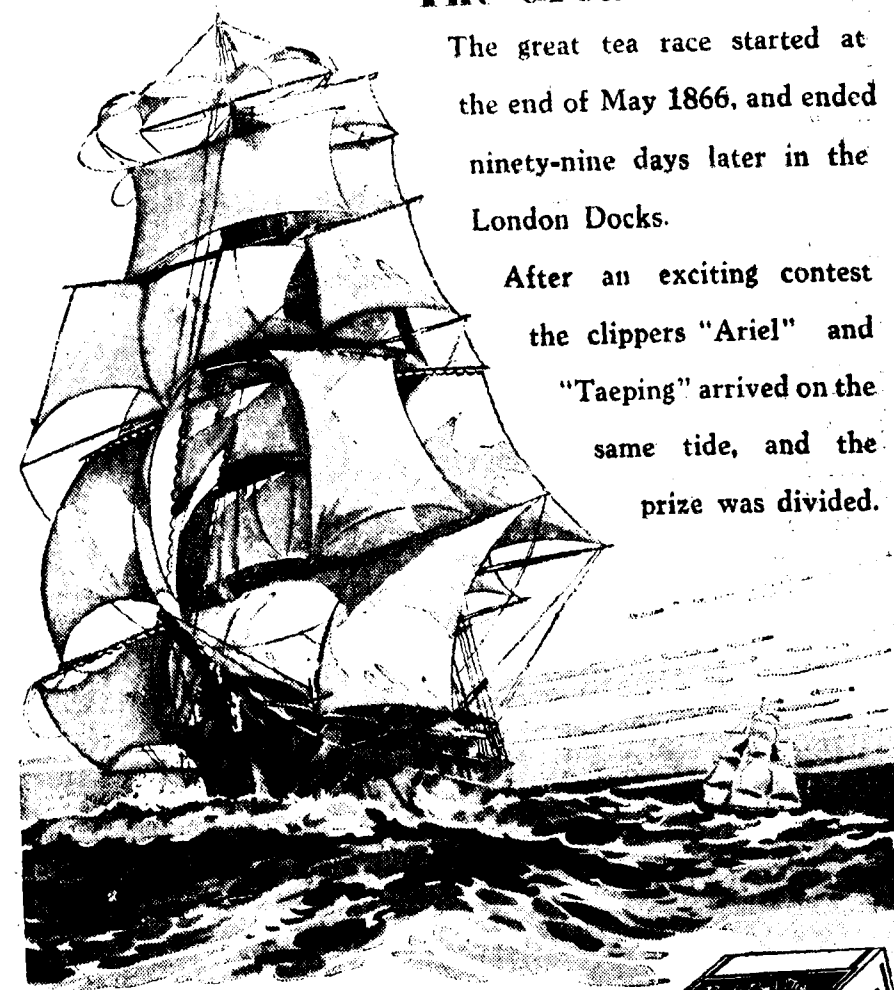
cognised employers of labour on application to the Chairman, Central Tea Board, 31, Netaji Subhas Road, Calcutta 1.

INSERTED BY THE CENTRAL TEA BOARD

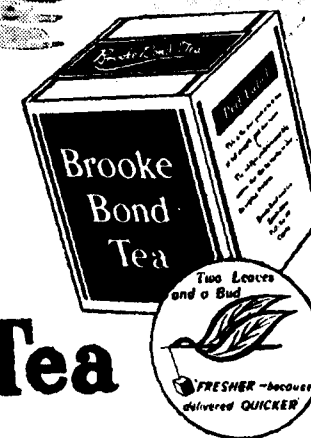
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must be no excuses or fobbing off of difficult enquiries. If the Enquiry Clerk is not in a position to give the information himself, he must inform the other person exactly where he can get it.

Keeping track of the trains running into and out of his station is another important part of the Enquiry man's job. And his knowledge must be up-to-the-minute. Obviously, he knows the time-table, arrival and departure timings of all Mails, Expresses and Passenger trains serving his station. But that is not enough. For some reason or other, a train may not be on time, and he will get innumerable enquiries as to when such trains are expected. To keep his own information up to the minute, he must constantly ring up the local train Control Office,

and ascertain when trains are expected, so that he can pass on the correct information when queried. If a train is running very late, or happens to have been involved in an accident, he will be besieged for information from all corners. But fortunately, such occurrences are few and far between to disturb the tenor of his day-to-day routine.

Not only must he know the train timings of trains to and from his own station, but he must also be able to answer queries about arrivals and departures of various trains at other important stations. For instance, a passenger may want to know at what time 1 Down Madras Mail will arrive Waltair. The Enquiry Clerk must be able to give the answer straight off.

Besides having to possess a comprehensive and up to the minute knowledge of train timings, passenger fares, luggage and parcel rates, etc etc., the Enquiry Clerk is expected to be a topographical guide to the local city. A stranger from a distant province will have just come off a train after perhaps a thousand mile journey. He is in new and bewildering surroundings, and he knows that the only place he can get information about the local town is from the Railway Enquiry Clerk. He makes straight for his Office, and settles down for a long chat. The stranger will want to know where he can find hotel or boarding-house accommodation, either expensive, moderate or cheap. What kind of entertainment is available. Addresses of Government or Business Offices or how to get to places of interest. Is there anything special he should see? Some historic landmark perhaps. What about transport in the city? Bus, trams, taxis, gharries, tongas. He will expect the Enquiry Clerk to keep him posted on the rates he should pay for these various methods of trans-

port. In fact, to such visiting strangers the Enquiry Man is almost his best friend.

Railway travellers will often bring their complaints to the Enquiry Clerk, and in some Enquiry Offices the station complaint book is kept, so that passengers may record their complaints. The Enquiry Clerk must listen patiently to the complaint and do his best to explain the Railway viewpoint. If the complaint is of a serious nature, he will direct the passenger to refer his complaint to the correct station authority.

An easy job? Well, if you think so, spend a few hours in Railway Enquiry Office, and if at the end of the day your nerves are not jittery and you don't feel like snarling at the next individual who asks you a question, well you must be a superman. But, in spite of all this, the Enquiry Clerk has learned to work with all sorts and conditions of men, and women, and that when somebody wants "information please," he must always be at your service, "Sir."

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Responsibilities of a Railway Telegraph Inspector

BY V. RAMASWAMI,

Retd. Asst. Signal & Telegraph Engineer, S. I. Rly.

A lay man cannot understand what an important function a Railway Telegraph Inspector has to perform and the part he plays in the set-up of a Railway Administration. When it is said important it need not be thought that other departments or branches have no importance. It should be remembered in the universal arrangement each has a function and each is great in its own sphere.

A Railway Telegraph Inspector has under his charge different electrical appliances that concern running of trains and communications. The apparatus that governs the running of trains between two

block stations is called BLOCK SIGNALLING, apparatus and it is a "Safety Appliance." There are different types of such apparatus but the principle implied is the same.

During times of old, say about 35 years ago, the trains were allowed to proceed to the adjacent Block Station ahead by the use of Morse Telegraph instruments. But now this Morse Telegraph Instrument system is being adopted only during the time when the block signalling apparatus fails to function owing to a defect. The Block Signalling apparatus has been installed all over the Railway

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System, which has prevented collision of trains between stations. The responsibility of the Telegraph Inspector in maintaining these appliances is great indeed.

The other appliances that are under the charge of a Telegraph Inspector are Morse Telegraphy; Train Control Telephones; Exchange Telephones, (Manual and Arts), Local Phone Circuits, Gate Warning Bells, Electrical Portion of the Station Signalling etc.

It will be found that the appliances are a little bit numerous for an Inspector; but it is not so much difficult to maintain provided equitable assistants are given. The number of Stations under one Inspector vary between 20 and 30 according to the number of appliances at a station. For all practical purposes it can be fairly said 20 stations per head will be equitable consistent with the work and responsibility.

(Continued on page 362)

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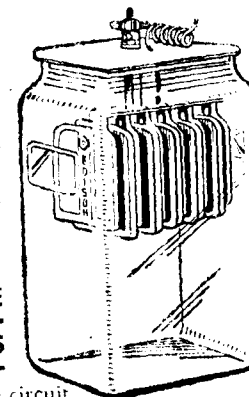
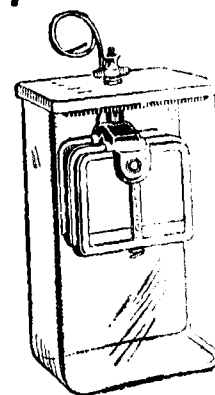
MADRAS.

The Telegraph Inspector on S. I. Ry. is being assisted by one Assistant Fitter Telegraph in maintaining the Block Signalling, Morse Telegraphy & Control Phones. One assistant is hardly sufficient. As for the Electrical portion of the Signalling appliances there is one Electric Fitter Telegraphs and an Assistant Fitter to assist the Fitter.

The Telegraph Inspector has been entrusted with two distinct duties both of which are important. They are:—(1) Maintenance (2) Inspection.

1. MAINTENANCE:—The Inspector is expected to move out of his head-quarters and visit each and every station at an interval of not more than one month and see to the proper working of each of the appliances by attending to the Instruments, Batteries and Earths. It is important that this monthly visit is kept uniform for

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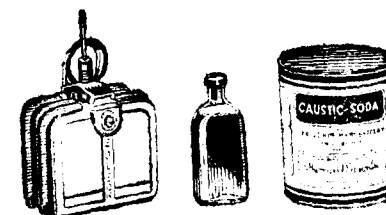


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New York attempts to make Rain to end Water Shortage

Makers of artificial rain in the United States are attempting to relieve the serious water shortage of one of the largest metropolitan areas in the world—New York City. They are using "cloud-seeding" techniques developed by the Nobel-prize-winning chemist, Dr. Irving Langmuir, to induce rainfall in the huge "watershed" region from which the city gets its water.

New York City authorities launched the six-month "Rain Stimulation Project" after conferring with Dr. Langmuir and the U. S. Weather Bureau, which has promised to give any needed co-operation. The project is headed by Dr. Wallace E. Howell, Harvard University, meteorologist and director of the Mount Washington Observatory in the state of New Hampshire.

The cloud-seeding experiments are being carried out in the Catskill Mountains region northwest of New York City. Either Airplanes or smoke generators mounted on trucks can be used to seed the clouds. Operations are directed by radio from a control center that receives reports on promising rain clouds—the type known as supercooled cumulus clouds—from weather observers and volunteers throughout the watershed region.

The planes eject pellets of carbon dioxide (dry ice) into the supercooled clouds according to carefully timed calculations. Success of the cloud-seeding experiments, Dr. Langmuir emphasizes, depends upon seeding a cloud at the exact moment that a crystallization chain reaction causing rain to fall can be started and maintained. Mobile radar equipment is used to aid in such calculations and also to help ob-

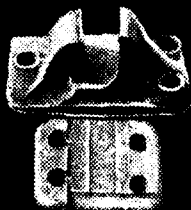
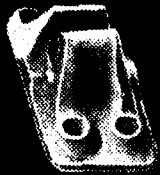
servers check on the development and results of the cloud-seeding.

The ground smoke-generators (to be used primarily when flying conditions are unfavorable for planes) send billions of silver iodide particles billowing upward into supercooled clouds to induce rain.

The carbon dioxide and silver iodide particles, both extremely inexpensive to use, act in place of natural dust particles to form nuclei of tiny ice crystals, according to Dr. Langmuir. Ordinarily, these ice crystals are formed when moisture in the supercooled cloud condenses on each dust particle. This condensation process causes heat to be released, and heat makes the cloud rise into cooler air. The cooler air in turn causes the ice crystals to increase in size and number until the point is reached where moisture falls to earth.

Dr. Howell, chief of the New York project, says that the art of rain-making "is by no means a perfected one," and that new techniques will be tried in the New York experiments.

The current attempt to fill New York City's half-empty reservoirs is expected to add to the scientific knowledge of artificial rain-making and help resolve conflicting views regarding the effectiveness of rain-making techniques. Many rain-making experiments have been conducted in the United States by both Governmental and private researchers with reports on results varying widely from outstanding success to complete failure. Dr. Langmuir has been devoting his time to perfecting rain-making techniques as chief consultant for "Project Cirrus," a joint research

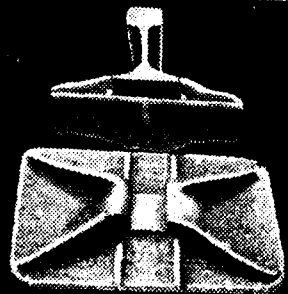


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study conducted by the General Electric Company and interested agencies of the U. S. Government.

Data accumulated as the New York rain-making project progresses will be studied closely by scientific groups, including a committee composed of six scientists

from Colleges and Universities in New York City. Dr. Victor K. La Mer of Columbia University, Chairman of the Committee, points out that the results of the project will be of international interest since artificial rain-making holds important implications for many arid regions of the world.

(Continued from page 358)

all stations. This visit ensures proper working of the different appliances by eliminating defects that may be caused by constant use of the appliances by the Operators concerned.

2. **INSPECTION:**— This requires the Inspector to go round his section and inspect each of the appliances at an interval of not more than three months. During this inspection it is the duty of the Inspector to carry out thorough examination in detail of every part of the appliances and set them in perfect working order and finally submit his Inspection Report on a prescribed form to the higher authorities.

The Telegraph Inspector with a sense of duty and responsibility should see that all appliances work perfectly without failures and whenever any such failures happen he should immediately proceed to

the spot and rectify the defect. Failure of Block Signalling apparatus means delay to trains; and failure of communications means delay to trains and delay to Telegraph traffic. The Inspector should always be on the alert and be ready even during nights to move out at short notice by the first available train to avoid delay in restoration.

There is a special point which has to be taken note of. The Railway Telegraph Inspector maintains only the appliances that are installed at each of the stations and not the line wires between stations that connect the appliances. Those line wires are under the Government Telegraph Department. In the case of line faults the hearty co-operation and speedy attendance by the staff of the Government Telegraph Department are essential.

IMPORTANT ANNOUNCEMENT

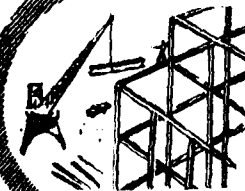
We have pleasure in informing to our Readers, Advertisers and Patrons that we are bringing out a special supplement on the first anniversary of the "Southern Railways Magazine" which will be out by the end of July. This volume will comprise of three sections pertaining to rail, road and air transport. Speciality of this number would be articles contributed by top-ranking personalities on transport problems.

The Souvenir will be printed completely on art paper with multi-colour get-up as usual. It is priced at As. 8/—only containing over 100 pages in order to be within the reach of all categories of Railway Personnel. Agents are requested to book their orders in advance.

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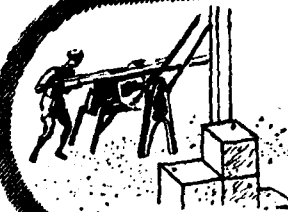
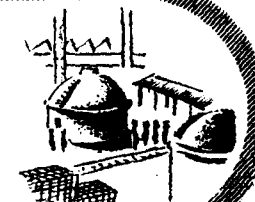


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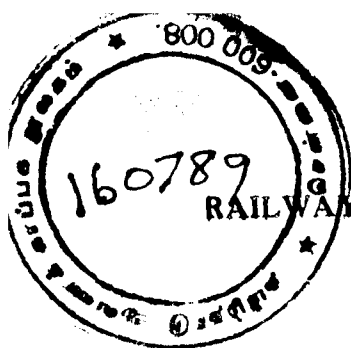
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Book-Reviews

RAILWAY CHRONICLE, MAY 1950

Managing Editor

N. S. VISVANATHA IYER,
(36, Velliambalam Street, Madurai,)

Price Rs. 4.

The aim of this new Transport Monthly is set out to be to "look at the Indian Railway problems somewhat more seriously, to grapple with them intelligently like a grown up adult of responsibility, seek solutions and interpret their true purport and significance and educate the public." We extend a hearty welcome to our contemporary and wish all success in their laudable aims.

TEA NEWS & VIEWS

Issued by the Chairman, Central Tea Board,

31, Netaji Subhas Road, CALCUTTA.

We have received the first number of the above bulletin printed nicely on art paper with attractive get-up. In contents set-up, it has very valuable information of commercial interest in respect of Tea-Deal with other countries. It may be recalled to our reader's mind that the Central Tea Board previously known as the Indian Tea Market Expansion Board was taken over by the Government of India last year primarily with a view to propagate drinking of Tea all over India in general and South India in particular so that India's Dollar earnings could be augmented by exporting the Coffee grown in South India. Besides Coffee, the Tea alone has earned from exports to the U. S. A. approximately Rs. 2.25 crores and Canada Rs. 1,38,60,000.



Locomotives in course of Erection in the Workshop

An order for 84 "HPS" Class Locomotives for India is now being completed at the Locomotive Works in Lincashire of the Vulcan Foundry. The "HPS" Locomotive is a two-cylinder 4-6-0 Broad Gauge Express Passenger Locomotive, which the Vulcan Foundry has been building for the Indian Railways since 1924 and the fact that this type, suitably modernised, is still in demand is sufficient proof of its efficiency in service.

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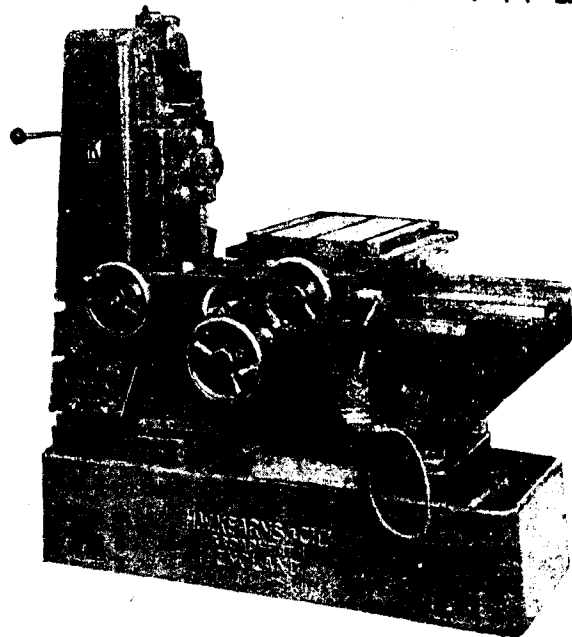
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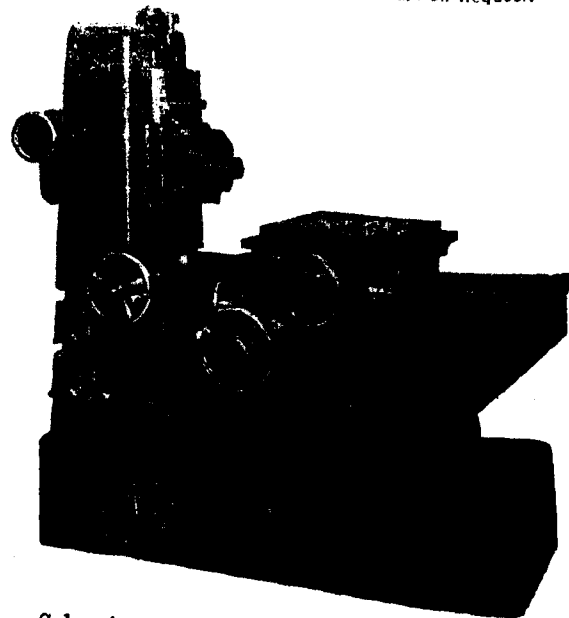
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MONTHLY

"First, Second, Inter & Third"

Up to the end of the year 1948 there were Four Classes of accommodation on the Railways—First, Second, Intermediate and Third. From the beginning of the year 1949, the Ministry of Railways, ostensibly in the interests of the vast travelling public, eliminated the Intermediate Class altogether, leaving only three Classes—Class I, II & III. This experiment continued up to the end of November 1949, after which as a result of considerable public dissatisfaction, no alleviation of overcrowding, and a considerable loss to Railway Revenues—the reverse of what it was expected to achieve—four classes of accommodation were re-introduced by the Ministry of Railways. The new terminology adopted was Class I, Class II Special (the former 2nd Class), Class II (the former Intermediate Class under a more dignified term), and the same old Class III. These Classes are still current.

At a meeting of the Central Advisory Council for Railways held in New Delhi in the third week of March 1950, we hear that four classes for passengers will continue, the upper two classes being reservable with sleeping accommodation by night, and a recommendation that these four classes should be re-designated as First, Second, Intermediate and Third, as was the case prior to January 1, 1949. It is hoped that the full circle will now be completed.

A press note issued by the Railway Ministry as a result of this meeting confirms that there should be four classes for Railway Passengers, but it is not clear from this press note whether the four classes will be Class I, II Special, II and III as at present, or whether the recommendation of the Central Advisory Council of Railways to re-introduce the four classes as First, Second, Intermediate and Third is to be implemented.

The reversion to the old four classes would in all probability be welcomed by the travelling public. They had used it and become accustomed to it for several decades. The experimental change in classification would soon fade in the memories of those who had protested. The Central Advisory Council of Railways, a body representing public interests, appears to have made a popular and wise recommendation. The public will now await the Railway Ministry's decision, and whether it be the old and well-tried First, Second, Intermediate and Third, or the recent Class I, II Special, II and III, all classes of passengers using Railways will hope that the decision taken has finally come to stay.

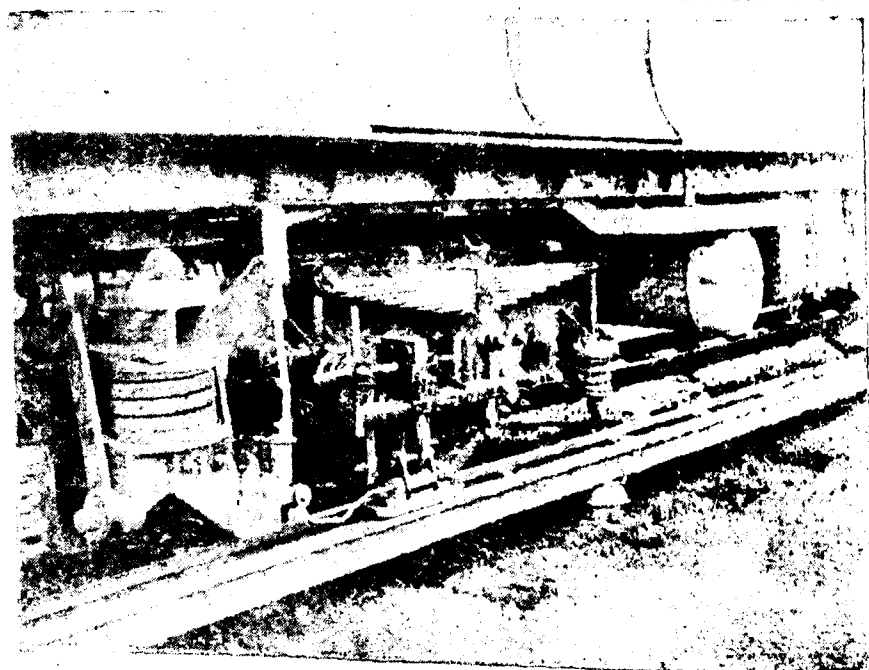


Fig. 1. Retractable Shoe Gear on Bogie

have an output of 110 h. p. on the one-hour rating, were manufactured by Messrs. Crompton Parkinson, Ltd., Crompton House, Aldwych, London, W. C., 2; the General Electric Company Limited, Magnet House, Kingsway, London W. C. 2; and the Metropolitan-Vickers Electrical Company Ltd., Trafford Park, Manchester 17. They are fitted with roller bearings throughout and, as it has been found that the armature core ducts may become blocked with dirt between over-hauls, these have been omitted. The speed characteristics of the motors have been arranged to comply with present-day schedules as well as to permit of some increase of the speed in future.

The control equipment was supplied by the British Thomson-Houston Co., Ltd., Rugby. Although generally similar to that used in the 1938 stock, it includes a number of minor modifications, which have been introduced to improve the accessibility and reliability. The master controller is provided with two forward positions, so that either high or

low acceleration can be obtained, the latter being used when the conditions are such that wheel slip may occur. Field shunting resistances are provided with tapplings giving 80, 65, 60, 55, or 50 per cent of full field. By means of a switch the driver is able to bring weak field into operation through two relay-actuated steps.

The auxiliary equipment includes a motor generator, which is mounted on one of each pair of cars and a motor-driven compressor, which is mounted on the other car. The motor-generator has a direct-current output of 4 kw. at 50 volts, and is used for charging a 46-volt 56-ampere-hour battery, which floats across it, as well as supplying current for the traction control circuits, electro-pneumatic door and brake equipment and emergency lighting. It also supplies alternating current at 110 volts and 850 cycles per second for the fluorescent lighting from a winding inserted in the main pole shoes. The motor-driven compressor, is off the two-stage reciprocating type with

an inter-cooler, and is capable of delivering about 34 cub. ft. of free air per minute against a pressure of 120 lbs. per square inch.

Improvements in the electro-pneumatic and hand brake mechanisms have also been made, as well as in the equipment for the pneumatically-operated doors and in the compressed-air system generally. The automatic couplers are of a new shankless type with channel side frames and are provided with 46 contact studs. Control is either by a trigger switch in the driver's cab or by a self-locking key-operated switch on the outside end panel of the car. The interiors of the cars and the destination-blind and train-number plate boxes are all lighted by fluorescent lamps.

The interior of another new car, which has been designed by

London Transport for experimental use on the tube lines, is illustrated in figure 2. This is intended to provide a better outlook and improved natural illumination by carrying the windows into the roof up to the level of the top of the doors. As will be seen, the windows in the doors themselves have also been extended upwards. Standing passengers should therefore be able to see out without stooping, in a way that is impossible with the existing tube cars.

To understand what was involved in making this change it may be mentioned that a tube car is built as a stressed structure, which can either be regarded as a tubular girder or as a combined lattice and plate girder from the solebar to the waist rail. The pillars projecting from the waist rail can also be regard-

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