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EDITORIAL NOTICE

The Editor invites contributions to the Magazine on a variety of topics—short stories, technical features written in simple English understandable to the laymen, Aspects of Railway Working, places of tourist interest, News from home line, activities of Railway Institutes etc. All copy should be brief and typed as far as possible.

Photographs illustrating social functions, sports events, scenic sports etc. are also invited. All contributions should reach the Editor not later than 5th of each month. Rejected Mss. will be returned provided sufficient stamps for postage are enclosed. No responsibility will be borne for copy lost in transit.

Views expressed in this Magazine should not be taken as having official authority.

All correspondence should be addressed to "The Editor, Southern Railways Magazine," Post Box No. 17, Tanjore, (South India).

SOUTHERN RAILWAYS MAGAZINE

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"Efficiency Audit for Railways"

IT has been reported that the Railway Ministry propose to set up shortly a permanent efficiency audit organisation. This organisation is to be manned by railway experts—financial, mechanical and administrative, with the objective of keeping a close watch on the efficiency and economy of the various departments, workshops, warehouses etc. of the nation's vast railway system.

The idea underlying such an organisation is to be welcomed from various aspects. The railways being a monopolistic, nationalised concern, it is felt that the lack of incentive in the shape of competitive organisations, tends to lead to a flagging of energies on the part of the manpower, resulting in a decline of efficiency. It will be the job of this new department to prove deeply into the causes of such efficiency losses, work out higher averages of output both in manpower and material potentials, and recommend to the respective departments the higher efficiency levels which are to be the desideratum, and then hope the personnel of those departments from the top to the bottom will work to achieve the better results.

Assuming that the efficiency audit experts do the first part of their jobs well—that of spotting the rot in efficiency, probing and finding the causes, and suggesting the ways and means to boost up the efficiency factors, the numerous departments of a railway administration are then up against the most uncertain factor—the human element, the rank and file of the department from whom it is hoped that the details of the ways and means will be whole-heartedly carried out.

Obviously, the appropriate incentive would be 'more work, more pay,' which in the present context would not be forthcoming. The commercial, competitive incentive is also absent, the railways being a monopoly. Incentives would then have to be sought for within the railway systems—one railway competing with another, or ever department-wise, or the fostering of a spirit of competition amongst divisions or districts of each railway system. Perhaps even these incentives would not be a sufficient spur to better efforts, unless railway personnel feel that their service conditions are the best that can be had in keeping with the nation's economy.

All schemes to improve efficiency and reduce costs or increase output are worth the effort, but although facts and figures point to the rot and how it can be stopped, enduring results can only be achieved by the man on the job, doing his appointed job in the right spirit, and it is hoped that efficiency audit organisation will get the support of the man on the job.

Notes and Comments

SHRI SHYAM SUNDAR VASIST

A stalwart well-built and saintly personality but a very strict disciplinarian and administrator Shri Shyam Sundar Vasist, B. A. (Hon), M. Sc., the present Member, Transportation, Railway Board hails from a very high family in Punjab. He was born on 1st August 1902 in the month (according to Hindus) in which was born Lord 'Shyam Sundar.' He joined the Railway Service as an Assistant Transportation Superintendent in the Superior Revenue Establishment of the then G. I. P. Railway at his twentyfourth year, after finishing his education at the Government College, Lahore, where he was a topmost student. His career, during the probationary period, being what one can be proud of, he was confirmed in 1929. From September 1933 he began to officiate as a Divisional Traffic Manager (Senior Scale) and was confirmed as such in 1938 In May 1943 he started officiating as Deputy Chief Transportation Superintendent and was promoted to the rank of Chief Transportation Superintendent in March 1946 by dint of merit alone. His efficient handling of the Transportation affairs of one of the most important Railways in India was the sole reason for his becoming the Administrative Head of the administration which he hoined as an Assistant Transportation officer in the junior (lowest) scale, after the daparture of the majority of European Officers in 1948. He soon rose to the position of a Member of the Railway Board in charge of the Transportation Portfolio—his original profession as a Transportation Expert—in May 1949. The problems of Transportation on Indian Railways were so acute that the solving thereof was really one of the toughest jobs. The skill with

Shri S. S. Vasist
...strict disciplinarian...

which he has steered the Indian Railways Transport system speaks for itself and is manifest from the punctual and increased number of trains serving the country today, with all the handicaps.

We take this opportunity of extending our good wishes to Shri S. S. Vasist and members of his family for long life and prosperity.

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REGROUPING OF RAILWAYS

Shri S. S. Vasist, Member, Transportation, Railway Board expressed satisfaction at a Press Conference held in New Dilhi this month at what had been achieved so far in regard to Railway regrouping. He said the full beneficial effects of it would be felt by the public only when the entire scheme was implemented.

Shri Vasist said that the operational achievements obtained as a result of the formation of the three zones had impelled them to go ahead with the remainder of the regrouping as expeditiously as possible.

The Railway Board's plans for the regrouping of the remaining Railways into three zones, he said, would be placed before the Central Advisory council and would be implemented within two to three months of final Government sanction. The criticisms so far in the Press and elsewhere on the proposed north, north-east and estern zones were based on misapprehensions and incorrect appreciation of the facts involved. He added that the object of regrouping was not fundamentally an economy measure but was intended to make the optimum use of the resources to improve efficiency. No doubt, he added, in such large-scale merger, economy was bound to result While it was too early to say anything on the financial aspects of the regrouping in regard to the zones already formed, it was totally wrong to say that the zones were working at a loss.

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SMs COUNCIL

We are publishing below a few excerpts from an appeal issued by all the Station Masters to the Hon'ble Shri N. Gopalaswami Iyengar, Minister for Transport and Railways in the hope that the Ministry would be aware of the ridiculous plight of their lot. (Ed. SRM.)

"At a time when you are engaged in the colossal, but commendable, task of bringing the Indian Railways under one unit for the improvement of the Transport system of this vast Sub-Continent, we crave your indulgence to be gracious enough to bestow—before you lay down the Exalted Office of the Minister for the most important Nationalised Industry—your personal and immediate attention to an equally deserving case, namely, betterment of the deplorable and ridiculous plight of Station Masters of Indian Railways as a whole, and those of ex-South Indian Railway in particular.

Sir, we do not desire to test your patience by enumerating the various rights and responsibilities of Station Masters. Instead, we would only paint the following sorry picture of contrast :—

"You are the most important and responsible person at your station.....

"Between the 'outer' and the 'outer' you are the "monarch of all you survey".....

"Equally great is your responsibility.....

"You have at your disposal several assistants, a set of costly equipments, and a set of wholesome rules.....

"Every staff, whether stationary or moving, is under your control and orders.....

Thus rightly observed MR. T. A. JOSEPH, Chief Traffic Manager, ex-S. I. Ry., in his address to Station Masters. But,

This "monarch,"

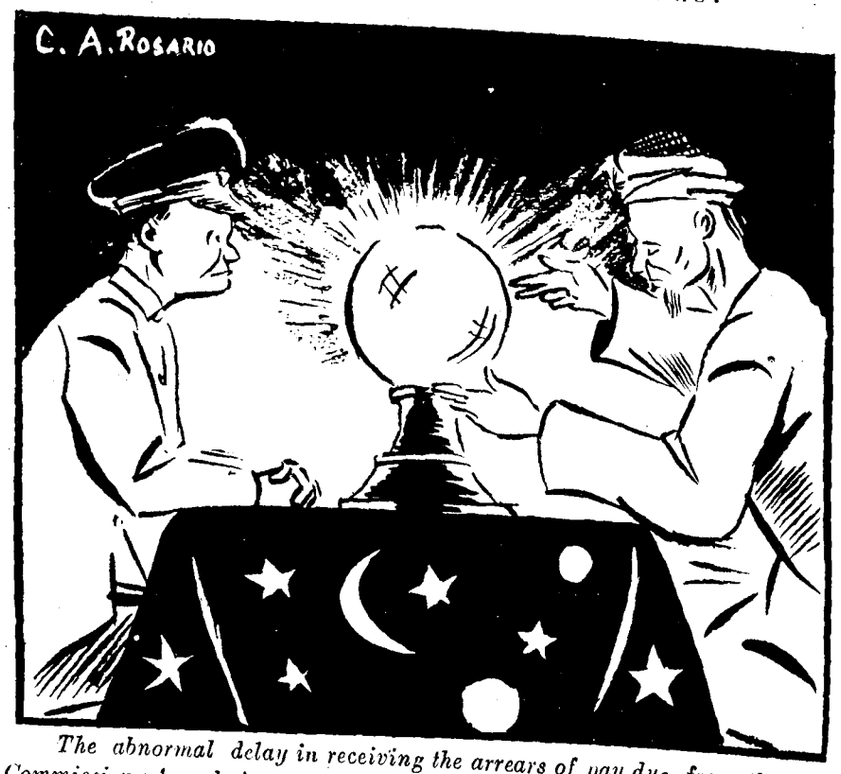
This 'most important and responsible person,'

This Head under whom there are several assistants,

This backbone of Transport system whose responsibilities are referred to in almost all the pages of the General Rules,

This conspicuous connecting link between the Public and the Administration,

"Will I Get the Pay Commission Arrears?"



The abnormal delay in receiving the arrears of pay due from the Pay Commission Award is causing grave concern amongst certain Railway employees as to whether they will get the arrears or not.

This outstanding symbol of the Transport machinery from Trivandrum Central to Himachal Pradesh up in the north

is, unfortunately, started on a ludicrously lower scale, namely, Rs. 64—170! We submit in unmistakable terms that we are "monarchs" without the means to live. We are considered mere men of straw by our employers and as mere figure heads by those who work under us. Only duties and responsibilities are ours, and not remuneration!! If the Joint Advisory Committee consisting of 4 representatives of labour and others came to the conclusion, as stated by the Hon. K. SANTHANAM

that no anomaly was involved in the application of the scale of pay Rs. 64—170 to Station Masters, the only possible inference is that our non-violent and peaceful approach on numerous occasions in the past has been misunderstood by the authorities. Well, Sir, we would only submit with all the emphasis at our command that a Station Master,

with Rs. 64/- to start with,

with less than Rs. 100/- in spite of long

service ranging from 25 to 30 years

with less pay than his assistants

with the responsibilities of all his assistants combined in himself

is nothing but AN ANACHRONISM. Even a layman, leave aside the accredited leaders of labour, would not have hesitated to recommend not less than Rs. 100/- to start with, to this "monarch!"

However, we seek your kind permission to impress upon you, sir, that we shall not suffer on account of others' faults committed intentionally or otherwise. We hasten to request you, we appeal to your conscience, **in one united voice**, to view things in a dispassionate way in the matter of appointing a Special Commission, without further delay, to examine the following:—

(*i*) The starting salary shall be Rs. 100-, the same to take effect from 1—1—47.

(*ii*) Distribution of posts on the various grades shall be made more or less on the following percentage of the present total number:—

360—500	A	½	per cent
300—450	B	2	,,
260—350	C	1½	,,
200—300	D	25	,,
150—225	E	30	,,
100—185	F	40	,,

(*iii*) Render Station Master eligible for at least Inter-class travel, irrespective of pay, in view of his position.

Our loyalty which we still believe to be our great asset has been mistaken and reckoned to be our weakness. A strong feeling of frustration and resentment, has overcome all of us. While on the one hand the administration has treated us with severe neglect, leaders of labour and workers' movements are labelling us as betrayers and blacksheep.

While we are very reluctant to break the red tape and much as we might wish to conform to discipline we have been compelled by force of circumstances to send this fervent appeal direct to your Honoured self in the desperate hope that you alone may come to our rescue which act of yours will, we are sure, be written in letters of Gold in the blank pages of the History of Station Masters of Indian Railways We are convinced that only a person of your calibre can render justice and that if we let off an opportunity to have such a recourse while you are still in office your successors in office, may be blaming us for the default."

Happiness is no other than soundness and perfection of mind.

—ANTONINUS

Who is Who on Indian Railways

By Our Special Correspondent

CHIEF ENGINEER,
E. I. RAILWAY

Mr. K. P. Modwel
...outstanding Engineer...

Tall, chubby-faced fiftyfive year old Sri K. P. Modwel, B. Sc., C. E., I. S. E., is the present Chief Engineer of the East Indian Railway, Calcutta. He took over as Chief Engineer of this Railway just one year back. Even before this he acted as Chief Engineer of this Railway for four months as early as 1949. He had a very distinguished academic career. He graduated in Civil Engineering with flying colours from the Thomson Civil Engineering College, Roorkee. Soon after his graduation, he joined the North Western Railway as Apprentice Engineer at the age of twentyfive. Within a very short time he was appointed as an Assistant Executive Engineer. The year 1924 saw his transfer to the ex-Oudh and Rohilkhand Railway wherefrom he came over to the East Indian Railway system in 1928. After a lapse of seven years he was appointed as an Executive Engineer on the E. I. R. in his thirtysixth year and he successfully held various important positions including Senior Superintendent, Way and Works, Superintendent (Staff), Bridge Engineer, Track Supply Officer etc. He acted as Government Inspector of Railways in 1944 and worked as Deputy General Manager (Planning) in 1945 in which capacity he prepared the Five Year Post War Plan of the E. I. R. Since then he had been working as a Divisional Superintendent until his appointment as Chief Engineer. Other activities of Shri Modwel outside the Railway sphere include his close association in the sphere of Technical Education of this country. He had been a Visiting Lecturer at the Bengal Engineering College between 1927–33 and also Head Examiner in Bachelor of Civil Engineering Degree Examination of the Calcutta University. He was co-opted as a Technical Expert on the Bihar and Orissa Public Service Commission even as early as 1942.

Shri Modwel is one of the best Engineers of the East Indian Railway. He had endeared himself to the staff so much that in his retirement, which we presume, is due shortly, not only the E. I. R. but also the whole Railway World loses an experienced Engineer. His name will go down in the history of the East Indian Railway for posterity to say "there was an Engineer who constructed the railway for us."

(Continued on next page bottom)

New Delhi News Letter

By W. White

IN the Railway Board's Office the General Managers of all the Indian Railways (controlled by the Board) met in a Conference in the Middle of January, 1952. Various subjects formed the agenda. A final review of the Budget for the year 1952—53 was necessary before submission to the Parliament for approval. All avenues of economy have to be explored and the Board do not simply collate or tabulate figures supplied by different Railways but scrutinise very closely all the proposals submitted by them with a view to present a balanced budget of income and expenditure, amenities for the third class passenger, welfare of the worker and improvements and additions to the equipment.

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The long-felt need for a Staff College for training of Railway Officers has now been fulfilled, by the establishment of such an institution at Baroda under the guidance and organizational ability of Shri P. C. Bahl. A portion of the Baroda palace building was taken over from the Baroda Government by the ex-B. B. & C. I. in August or July 1949 when it was previously proposed to start this College there in October 1949. The building was adapted for this purpose but due to financial stringency and the immediate need for postponement of capital expenditure this project was deferred. It has now been revived and will provide the development of qualities of leadership, esprit-de-corps, enterprise and more active and national business outlook among the Railway Officers besides the routine training in Railway working subjects and techniques. The lines of training at this super institution would, it is believed, be those considered best suited by the Board and the experienced Principal but the Railway Economics (Commercial and Operating,) Railway Geography, Industrial Administration and management, and the working of various departments of the re-grouped railways, together with their general administrative organization, viz. regional system with districts, divisional or quasi-divisional system existing at present on these railways and their inter relation will not escape the consideration of those responsible for the organization of the College.

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Regrouping of the remaining railways not touched so far in actual practice beyond blue prints is now fast appearing in actualities. It is expected that by the middle of March the present E. P. Railway, the Bikaner and Jodhpur M. G. Railways, including the Delhi-Rewari or say the metre gauge Delhi District of the Western Railway and some broad gauge portions of the present E. I. Railway in Muradabad and Lucknow Divisions, together with a Workshop at Lucknow, will constitute the Northern Railway, with a total mileage of a little less than 6,000 miles. The much needed workshop for the E. P. Railway will thus be acquired by them and adapted to suit its requirements. It may be recalled that the E. P. Railway as at present formed has no workshop of its own for its major repair and overhaul work. Although minor repairs are carried out at different centres, major overhauls and repairs to Locomotives, boilers etc. are being carried out by the other contiguous larger railways. The perseverance of the E. P. Railway Mechanical Officers who have so far carried on their voluminous and varied work in face of such odds and idiocyncracies of having to depend on others can best be imagined than described. No doubt the sister railways have assisted the "refugee" railway to the best of their ability but they had their own problems to deal with and could hardly, in fairness to themselves, be expected to correctly plan or estimate the amount of work required of them in addition to their own annual programmes although it was made known to them as best as practicable.

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The Commercial working expert, Director on Special Duty (Mr. A. A. Brown) is, it is understood, in the course of finishing his tours, having completed the Central and Western Railways last month in addition to the Southern Railway which he did in December 1951, and is at present touring on the Assam and Bengal Railways with a view to finding out the actual weak links and spots of failure in the system or chain of working which require improved methods. But what is heard about him is that he goes very deeply into all records of goods offices and watches very closely the actual performance of goods and parcels booking, handling and transhipment. The staff and officers who have the good luck of going through such an introspection with him take much inspiration and instruction from his inspections. With so much of interest taken in the work there is no reason why the Claims Bill of the Railways in India should not be cut down to the absolute minimum.

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We take this opportunity of extending our good wishes to Shri Modwel and his family and we hope the Railway Board will not fail to utilise the services of Shri Modwel ever after his retirement for the benefit of our country.

DO YOU?

Do you throw empty bottles or tins from a moving train? A Gangman or other Railway employee working on the line may receive serious injuries if you do.

Do you light a methylated spirit stove in your compartment or throw a burning match on the floor? Fires often result when you do.

Do you lean out of a window or rest with an arm or leg protruding out of the window? Serious accidents have happened to passengers who do.

Do you attempt to board or alight from a moving train? If you do, please don't; for many fatal accidents have resulted to people who do.

Our London Letter

By A Correspondent

DIESEL electric locomotives are coming into prominence on British Railways. Three months ago, No. 10202 was placed on regular service on the Southern Region, Waterloo—Exeter Main Line. At that time there was an idea that the first of the class, No. 10201, which had been shown at the South Bank Exhibition, (Festival of Britain), would return to the London Midland Region. In the middle of December it was announced that this locomotive had been taken to Ashworth Works of the Southern Region for tests and trials and that it would go into regular service on the Waterloo — Weymouth run towards the end of January. The performance of this locomotive will be followed with no less interest than that of its sister running between Waterloo and Exeter. There are some heavily graded sections between Weymouth and Bournemouth though the 108 miles from Bournemouth to London includes little uphill wok. However, on this section the diesel will not suffer from the absence of water troughs and its superior acceleration on a route with frequent stops should be of considerable advantage.

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New Uniforms—British Railways

New uniforms have been designed for certain staff of British Railways and a bulk issue is expected to be made in January this year. They are in dark blue cloth with gilt, chromium or black buttons. The cloth was selected after tests for durability and colour. 13 qualities will be used instead of 38 as at present. The material for overcoats and caps is shower proofed. The male staff will wear peaked caps with cap badges of metal so that they can be transferred from old to new caps. They will be of the British Transport Commission emblem with a panel in the regional colours for station masters and other supervisory grades. The standard British Railways totem will be used by non supervisory grades. Staff such as guards, passenger porters, ticket collectors and others who come into contact with the travelling public will have an indication on their cap badge as to their grade. The uniform for women staff will be of dark blue with chromium or black buttons. The former peaked caps have been displaced in favour of a smart darted beret in blue cloth with silver piping.

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A verdict of accidental death was returned at a recent inquest held on a man who was killed while working on the line by a multiple unit electric train. The jury added a rider suggesting that wind screen wipers in motormen's compartments should invariably be kept in working order. The motorman of the train in question said it was raining at the time but he was not using the windscreen wiper because in heavy rain the wiper had a tendency to smear the glass.

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The reconstruction of Plymouth North Road Station (Western Region) so as to make it the main station for the town, has been under consideration for some considerable time. As far back as 1936, work was commenced by the former Great Western Railway and considerable progress was made until suspended consequent upon the outbreak of war. The scrapping of the existing station buildings in favour of a new block provided with up-to-date facilities for public and staff is the main work still to be completed and which will be started by the Western Region as soon as possible. The proposed new buildings, which have been designed in consultation with the Plymouth Corporation, have all the usual facilities for passengers, on the ground and first floors, while the upper floors including an eight storey wing will accommodate the District Officers and their staff whose areas now cover a large part of Devon and the whole of Cornwall. Immediately inside the main station entrance is a large concourse which connects the approach road with the main down platform while a subway connects all other platforms. On the left of this concourse will be the enquiry and booking offices while on the right will be the left luggage office, public telephone kiosks and telegraph office.

The ticket barrier, giving entrance to all platforms, will be immediately opposite the station entrance and on the platform nearest to this barrier will be waiting and refreshment rooms and the usual station offices. A cafeteria and bar on the first floor, will be reached by a flight of stairs from the concourse. Parcel traffic is to be dealt with in a separate hall from which lifts will communicate with the subway, with other lifts for the transference of this traffic and luggage to all platforms. The subway will have two parallel corridors, one for passengers and the other for parcels traffic and luggage thus avoiding congestion and interference with free movement.

The arrangement of the upper floors of the eight storey block will be such as to facilitate interdepartmental work. Each floor will be served by lifts and stairways and a conference room is to be built over the concourse. Dormitory accommodation will be provided for train crews who have to spend a night away from their home stations.

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The annual dinner of the Institution of Railway Signal Engineers was held at the Rembrandt Hotel, London, on December 7th with the President, Mr. S. Williams, Signal and Telecommunication Engineer, London Midland Region, in the chair. The principal guests were Mr. John Elliot, Chairman, Railway Executive, Lieut. Col. H. B. Everard, President of the Permanent Way Institution, and Mr. J. W. Watkins, Chief Regional Officer, London Midland Region.

Mr. John Elliot proposed the toast of the Institution and said that in Mr. Williams they were fortunate in having at their head a man of energy, character, ability, humanity and tact. He was a great worker and enthusiastic in the interests of British Railways. Mr. Elliot then recalled his own early experience when colour light signalling was being introduced on the former Southern Railway and remarked that it was fitting that today the Signal and Telecommunication Engineer should have become an independent Officer. Evidence of his work was seen in the increased movement and greater volume of traffic dealt with under colour light signalling and track circuiting.

Mr. Williams, responding, expressed their gratitude to Mr. Elliot for proposing the toast. They were fortunate in having

such a good attendance though railway representatives were in the minority which might indicate the survival of that fundamental principle of private enterprise, namely quick grasp of opportunity to make contact with the customer. There was no branch of engineering in which better understanding was maintained between user and supplier. The activities of the Institution were continuing with as much vigour as ever. Valuable papers had been read by overseas engineers and the educational work undertaken by the Council was proceeding with encouraging assistance from the Railway Executive.

Mr. T. S. Lascelles, Vice President, proposed the toast of the Visitors which was responded to by Lieut. Col. H. B. Everard. Mr. T. Austin, Vice President, proposed the toast of the overseas members and said that although the total membership was only about 750 some 200 of those members were scattered all over the world, from the north of Europe to the Antipodes. The work done by some of the local sections was greatly appreciated. Major A. J. Gillies, District Signal Engineer of the B. N. Railway, replied.

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Experiments with rolling stock fitted with rubber tyres has been carried out over a number of years. Nearly twenty years ago, bus cum railcar experiments were carried out on British Railways which enabled light weight vehicles to operate over the rails of branch lines and, on reaching the end, continuing their journey by road by a simple arrangement of changing from wheel flanges to rubber tyres. After the last war, experiments carried out on the French Railways dealt with the provision of light weight rolling stock fitted with rubber tyres and two trains have been operating with great success. The chief advantages are increased speed and absence of noise and vibration. These trains are fitted with the Michelin rubber tyre system and operate between Paris and Strasbourg.

The Regie Autonome des Transports Parisiens is conducting trials on the disused Porte de Lilas—Pre Saint Servais section of the Paris Metropolitan on a motor coach fitted with pneumatic tyres. The coach is 50 feet long and was built in the Metro workshops at La Villette. It runs on rubber tyred wheels fitted outside the ordinary flanged wheels. The rubber tyres run on timber longitudinals fixed outside the running rails and which, if the experiment proves successful, will in all probability be replaced by concerete. Apart from increase in speed, the great reduction in noise will be of great importance in the confined space of the Metro tunnels.

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Third class compartments on British Railways are as comfortable, and perhaps more so, than the first class compartments of other railways. Wide arm rests, which can be tipped up into the back rest, are fitted. Passengers booking seats in Manchester to London trains are to be given notices asking them to lift the arm rests in third class compartments so as to make a fourth seat available when other passengers are standing. This has been arranged by the Railway Executive as a result of complaints from standing passengers. Those who refuse to co-operate, it was stated recently, would have their names and addresses taken, and the Railway Executive would consider taking action.

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The recommendations of the Industrial Health Advisory Committee, set up by the British Government in 1949, which issued its report in February 1951, will have an effect on the British Railways Medical Services. The new organisation will be complementary to the National Health Service and will be in the charge of the Chief Medical Officer at Railway Executive Headquarters in London. Responsible to the Chief Medical Officer will be a regional officer for the six regions each of whom will be responsible to the Chief Regional Officer for the day to day conduct of the whole of the medical services and organisations within his region conducting routine and special medical examinations, hygiene, first aid, advice on welfare and other matters affecting the health of the staff. Each region will be divided into Medical Areas in charge of a full time Area Medical Officer. This officer will advise the District Departmental Officers and others concerned on medical matters. Important railway workshops will have their own Works Medical Officer. The new organisation will call for the appointment of additional doctors who will be trained for a year in the special technique of railway medicine before taking up their appointments.

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A story of a trunk route comes from Rhodesia. An elephant evaded the attentions of a special patrol which is used against these animals on a section of the Rhodesian Railways which runs through a dark forest. It left an uprooted tree by the track and the first train to pass by had 29 carriage windows broken by the branches.

If thou intendest to do a kind act do it quickly, and then thou mayest expect gratitude: a favour grudgingly conferred causes ingratitude.—AUSONIUS.

Remodelling of Southend Pier Electric Railway

By A Correspondent

THE pier at Southend on sea is one of the most famous in the world and is certainly the longest for it stretches one and a third miles out to sea. All the attendant pleasures of a sea cruise, without the usual discomforts may be enjoyed. Because of its length the necessity for providing some form of transport, from one end to the other, for the less active, was soon apparent. A horse drawn tramway was used for this purpose and although the actual date of opening is not precisely known, it was probably in operation about the year 1872. An electric Railway was brought into use in 1889 and it is interesting to note that this was not very long after the inception of electric traction for public conveyance of passengers.

The first experimental electric Railway in the world is attributed to Thomas Davenport, a blacksmith of Varmont, U. S. A. He exhibited a small Railway operated by a miniature electric motor in 1836. In 1838 a Scotsman named Robert Davidson built an electric locomotive that attained a speed of four miles an hour. In 1840 a patent was granted in England for the use of rails as conductors of electric current and similar American patents were granted to Lilly and Colten in 1847. In the same year, a professor Farmer built an electric car carrying two passengers at Dover, New Hampshire. From 1858 onwards work was carried out by independent English, French and German Scientists on experiments with field magnets, dynamos and motor but no serious attempt to apply this research to electric traction for Railways appears to have been made except for a small battery locomotive built in the U. S. A. in 1875.

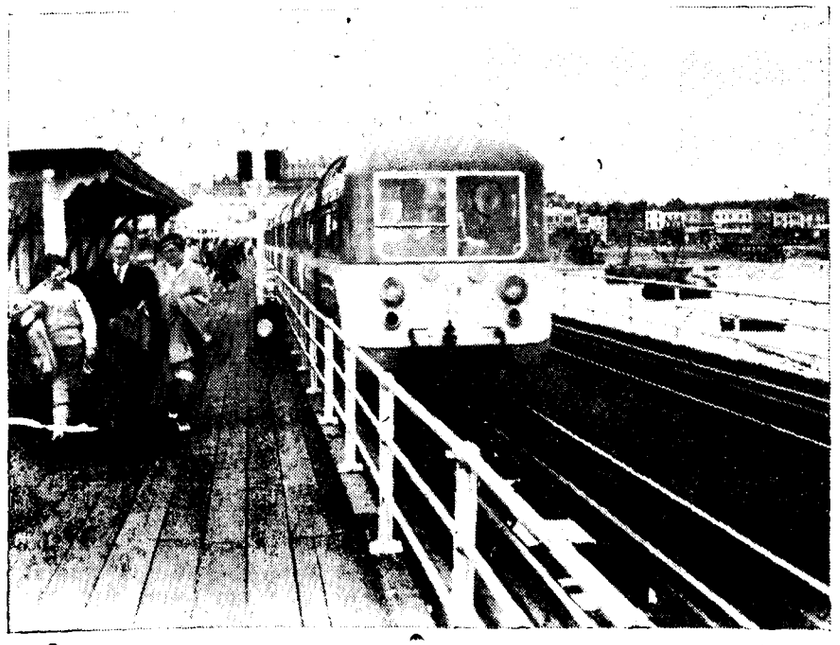
In 1879 some 600 yds. of track were laid at the Berlin exhibition on which a small three horse power electric engine, designed by Weiner Von Siemens hauled a load of thirty passengers at a speed of four miles an hour. A conductor rail supplying power was laid between running rails. This was followed by other exhibitions at Brussels, Dusseldorf and Frankfurt. Siemens and Halske constructed a line to Lukterfelde, near Berlin. One and a half miles long it was opened for traffic in 1881. It was the first public Railway in the world. There was only one electric car and the motor was carried on a frame between the axles. Power was transmitted from the motor armature to drums on the axles by means of steel cables. The car carried twenty six passengers and ran at thirty miles an hour on a 100 V. supply.

On August 3, 1883 the first public electric Railway in Great Britain commenced operation. This was the Brighton Electric Railway, originally a quarter of a mile long and is in operation at the present time, one and a half miles long. The original section ran along the sea front from the Aquarium to Old Chain Pier and later extended to cover palace pier to Black Rock, It was the idea of Mr. Magnus Volk whose activities included pioneer work in electric telegraphs, telephones, electric lighting and electrically propelled motor cars. The original track consisted of 20 lbs. flat bottomed rails and curious, four wheeled box shaped car was the first vehicle later to be replaced by the open type or toast rack carriage.

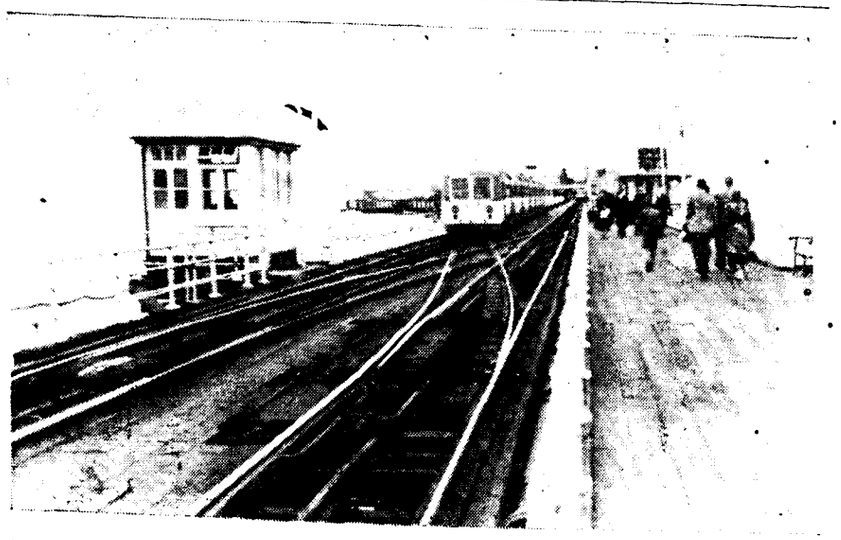
The Giants Causeway electric Railway was opened on September 28, 1883 and was the first hydro-electric Railway in the world. The City and South London tube Railway, opened in 1890, was the first standard gauge electric Railway in the world and also the world's first underground Railway.

The first electric trains on the Southend pier Railway were of the open or toast rack type. This type of vehicle has the seats arranged transversely, aud they are open each side permitting passengers to enjoy sunshine and sea breeze and conversely rain, wind and other discomforts associated with inclement weather. The centre coach, however, was totally enclosed. They were arranged in trains of seven four-wheeled cars with the motor coach in the centre. There were two motors per train, with the usual series parallel arrangement of control each developing 27 B. H. P. Mechanical braking only was in use applied by a form of hand lever on front and rear coaches. The motor cars weighed 5¾ tons unladen and carried 30 passengers while the trailers weighed 4 tons and seated 36 passengers.

The permanent way consists of 1¼ miles of double track, an Up track on the East side and a Down on the West side. There is a station with platforms at each end with scissors crossovers for reversing situated approximately 400 yds. from each platform. 45 lb. flat bottomed rails are in use laid at 3' 6" gauge on 12" × 4½" longitudinal sleepers. Elastic rail spikes are being installed for holding down the rails displacing the former 'rail dogs'. The Railway uses a centre conductor rail and earth return and the operating voltage is 55 OV DC.



Shore bound electric train on Southend pier electric Railway



View of pier head end of Southend pier electric Railway with train taking crossover. The signal cabin is on the left

The former Railway was really run as a tramway without interlocking or signalling arrangements. The remodelled line has two signal boxes for working the crossovers and controlling the signals which are of the two aspect colour light type. The signal cabins contain a 7 lever mechanical frame and two Annent's key locks. The crossovers are operated by rodding connected to levers in the frame and are provided with 17 feet locking bars and facing point locks. The maximum distance between wheels is 14′ 6″. Each station has two aspect Home Signals one for each platform road and also two starters. "Clearance" bars are installed on the outgoing crossover tracks which operates an electrical rotation locking circuit. This makes it impossible for a Home Signal to be "cleared" unless the platform line on to which it reads is empty. A special switching out lever is provided in each cabin which, operated in conjunction with the Annent's Key locks, enables one or both up and down tracks to be used as a single line. There is no track circuiting or block working between cabins as the Railway is dead straight and although situated over three quarters of a mile apart the signalmen have an uninterrupted view of the tracks running between their boxes.

The new rolling stock is made up into four trains each of seven coaches, three being motor coaches and four trailers. A motor coach is arranged at each end of the train and one in the middle operating in the usual multiple unit principle. A single motor coach can be operated by itself, for passengers or for shunting. Each has two 17 H. P. motors, one at each end driving the axles through a carden shaft and worm gear. The bodies are well sprung from the track by means of leaf type springs mounted on rubber suspension shear units to reduce vibration. There are three types of brakes in operation electro-rheostatic, pneumatic and hand brakes for stabling. All coaches have centre door entrances, air operated and controlled by the train conductor. Door interlocks are fitted to each door and a blue light in the conductor's compartment indicates when all doors are closed. Each coach has 8 half drop type windows, 4 fixed end windows and 8 curved side roof lights. These enable standing passengers to maintain visibility.

The minimum headroom is 6 feet. Seating is of the transverse type in trailer coaches and of both transverse and longitudinal in motor coaches. Central buffers and spring draw gear are fitted. Details of rolling stock are :—

Weight of Motor Coach unladen	5 tons 15 cwt.
Number of Passengers	34
Weight of Trailer Coach unladen	4 tons 4 cwts.
Number of Passengers	38.
Overall length of coaches	29′ 6″
Overall Height of coaches from rail to roof	7′ 9″
Overall width of coaches	6′ 6″
Wheel base of coaches	14′ 6″
Diameter of Wheels	24″
H. P. of Motors (1 hour rating)	17 H. P.
Gear Ratio	57/8—7·125
Acceleration maximum	1 m. p. h. per sec.
Braking rate maximum	1½ m. p. h. per sec.
Maximum speed of Trains	18 m. p. h.

The new rolling stock was brought to Southend by road, on trailers, and lowered on to the track which had been specially extended out over the footpath to to the kerb edge. Delivery of one coach per hour was effected. Work of removing an old train set of seven coaches was started at 8 P. M. at night while the first coach of a new set was commenced to be unloaded at about 2 A. M. the next morning. The new train was received on the pier at 8 A. M. and actually available for public use at 9–30 A. M. after testing.

The coaches were constructed by A. C. Cars Ltd. and the motors were supplied by Crompton Parkinson Ltd. The control equipment was by Allan West Ltd. and the trucks by Maley and Taunton Ltd. The air operated door mechanism were manufactured by G. D. Peters Ltd.

The first 7 car train set was placed in service on April 13, 1949. The inauguration ceremony was performed by Lord Broadbridge who deputised for the Lord Mayor of London, Sir George Aylwen. Since the railway was originally electrified it has carried over 65,000,000 passengers and more than 3,00,000 during 1948. Approximately 5,000,000 passengers travelled on the line during the 1949—1950 season.

The writer wishes to express his thanks and appreciation to the County Borough of Southend on Sea for permission to see the railway. To Captain J. C. Johnson, M. I. N., Assoc. Inst. T., F. R. G. S., for arrangements made and to Mr. E. G. W. Goble, Chief Engineer, Pier and Foreshore Dept., who accompanied him on the inspection.

Mail Bag Exchanging Apparatus in Great Britain

THE exchange of mail bags between roadside points and mail trains in motion was introduced in Great Britain in 1838. An extensive development of the system during the following decade led to considerable improvement in the mechanism, but for the last hundred years the mail bag apparatus and the method of working have remained practically unaltered.

The great advantage of the apparatus is that by its use a long distance mail train may pass, without stopping, all stations of minor importance and yet exchange mails at such stations. The omission of all but a very few stops materially shortens the time necessary for the whole journey, and the district through which the train passes can thus be served without delaying arrival at the more distant points.

Moreover, if, for instance, the Night Mail train from London to Aberdeen, stopped at all the apparatus stations it would take at least 3 or 4 hours longer on the journey; and, as it would be out of the question to allow the mail train so much more time than is taken by ordinary passenger trains, many of the intermediate places would have to be served by subsidiary mail trains or road motor services at a cost very greatly in excess of that of the apparatus.

During the earlier stages of the journey of a Night Mail train, when the Travelling Post Office acts chiefly as a collecting office, the carriage receiving net and the roadside standards are mostly in operation, whilst over the later stages, when the Travelling Post Office becomes principally a distributing office, the carriage delivery arms and the roadside nets are used to a greater extent.

DESCRIPTION OF ROADSIDE APPARATUS

The roadside despatching apparatus consists of a cast iron standard with a movable top that can be rotated on a spindle. This top, the extreme height of which is about 10 feet 6 inches above the rail level, has either one or two arms fitted to it, with spring catches, from which a leather envelope or "pouch," containing the mail bags is suspended. The standard is provided with a ladder and small wooden platform to enable the messenger to suspend the pouch and mainpulate the mechanism. The detachment of the suspended pouches from the standard by the passing mail train is effected by the contact of a "V" shape rope on the carriage net with the main strape of the pouches, the latter being withdrawn from the spring catches by the forward movements of the train, and falling into the carriage net after being released from the standard.

The weight of a single pouch, including that of the bags which it protects, must not exceed 50 lbs. but two pouches can be received from a standard fitting with two arms. Three pouches can be suspended together on a dual fitting comprising a standard with a single arm placed in close proximity to one with two arms, one wooden platform serving for the two standards. At stations where the weight of the mails to be transferred to the mail train is beyond the capacity of a dual standard, additional standards are provided, and it is practicable, by this means, to suspend as many as

nine pouches for collection by the mail train at one operation. In order that the carriage net, which partly closes at each receipt of pouches, may regain its fully extended position, the sets of dual standards must be placed not less than 70 yards apart.

The roadside receiving apparatus consists of a net, about 8 feet in length and 4 feet in width, made of stout manilla rope attached to a framing consisting of railway sleepers fixed vertically in the ground and a hinged iron frame. The height of both frames is about 4 feet above the rail level, and the iron frame, when in its working position is kept apart from the sleeper frame by a iron cross bar. In front of this bar, and between the frames, a flexible steel wire cable is stretched. The cable is adjusted to engage the suspension strap of the pouch attached to the delivery arm of the carriage, and the impact causes the spring lid of the arm to open, thus releasing the pouch at the entrance of the net. The impetus imparted to the pouch by the progress of the train carries it beneath the detaching cable and the cross bar into the net, the concussion being reduced by the resilience of the ropework.

Each apparatus station is provided with a wooden shelter hut, 5 feet square, and about 8 feet high, fixed at the side of the railway and within a few yards of the apparatus. The hut affords storage for empty pouches, spare fittings and material, and serves to protect the messenger while he awaits the arrival of the mail train.

The point at which the carriage apparatus should be brought into operation is generally indicated by a roadside landmark, as, for instance, a bridge over the railway, a wall, or a viaduct; but where no feature of a suitable nature is available for this purpose a signal board, 9 feet by 3 feet, painted white, is fixed at the side of the railway as a guide to the operators in the mail trains. Where the apparatus stands between two sets of lines, however, the operating point is denoted by a board, 12 feet long an 1 foot wide placed on the ground. These boards are faced with white enamelled iron plates to render them more readily observable by the train operators.

DESCRIPTION OF CARRIAGE APPARATUS

The mail carriage apparatus for the receipt of pouches from the roadside standards consists of an exterior net, the iron frame of which is hinged horizontally in the centre, and divided by the hinges into two rectangular pieces called, respectively, the bed, and the wing. The lower edge of the bed of the frame is pivoted to a strongly bolted iron plate secured to the under framing of the carriage at floor level. When extended for

Showing collecting and delivery device

use, the net is about 2 feet 7 inches from the outside panel of the carriage, and the highest point of the wing stands about 9 feet 7 inches above the rail. This net is lowered into position and raised again, by the action of a long lever inside the carriage. When the net is not in use, it lies flat, or nearly so, against the side of the carriage. The spaces between the iron bars of the frame are filled in with hemp netting (3 inch mesh), and stout manilla ropes are threaded through the netting at intervals to re-inforce it. The rear end of the net work is further strengthened at the upper end by iron chains to withstand the impact of the incoming pouches. The impact causes the net frame to close partly towards the carriage, and the pouches roll from the net to the floor of the carriage. The weight of the iron from (nearly 3 cwt.) suffices to restore the net to its fully opened position in less than two seconds, thus permitting the use of additional roadside standards in rapid succession.

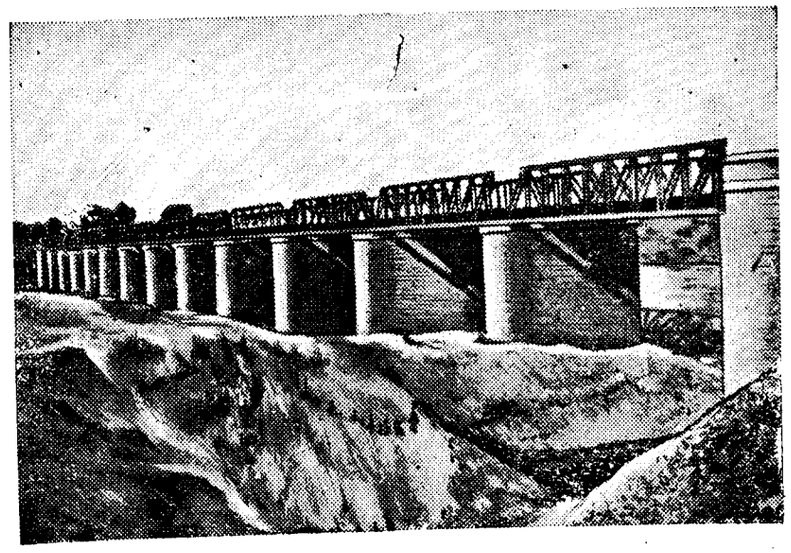
The delivery of pouches from the mail train to the roadside receiving net is accomplished by means of shaped iron bars, called delivery arms, fitted with box shaped head pieces of malleable iron with spring lids, or covers. These arms are hinged at the lower end, and on a level with the floor, to strong vertical iron tubes containing spiral springs which actuate the arms. The tubes are pivoted, at both ends, on iron brackets secured to the specially strengthened door pillars.

The delivery arms, two of which are mounted at each doorway used for apparatus working are capable of being rotated through an arc of about 150°, so that the heads may be drawn into the carriage for the purpose of attaching the pouches. When not in use, the arms rest vertically against the outside of the doorway,

Mail Bag apparatus at Watford

being retained in an upright position by the tension of the springs within the tubes. When, however, the arm is turned outwards bearing a pouch held by the clip at the head of the arm, the weight of the pouch causes the arm to assume a horizontal position, and the extended pouch consequently hands clear of the carriage and about a foot or so above the ground at the side of the track. Immediately after the pouch is removed from the arm by the detaching cable of the roadside net, the arm, relieved of its load, is brought by the spring automatically, to the vertical, or out of the working position. The weight of a pouch, together with its contents, for despatch from a carriage delivery arm must not exceed 60 lbs.; but as many as twenty pouches can be delivered from a mail train at one working into a roadside net of the largest size.

Correspondence for transfer by apparatus is enclosed in canvas mail bags of special pattern. The bottom of the apparatus bag is constructed without corners, and is



Gundalkamma Road Bridge, Guntur, 13 spans of 70-feet on Masonry Piers.

so shaped as to fit conveniently the folds of the pouch in which it has to be packed. The bag is marked with a black line to denote the safe limit of the contents enclosed in it, as a loosely filled bag is less liable than a fully packed one to burst under the concussion of apparatus exchange.

ROADSIDE APPARATUS WORKING

The roadside apparatus working is performed by postmen, mail drivers and others, who are required to pass a test with regard to their physical fitness for the duty, which demands both nerve and strength.

On arrival at the apparatus station the attendant obtains the necessary leather envelopes from the hut wherein they have been stored since the previous exchange, and prepares the pouches for despatch to the mail train. These pouches are thereupon suspended from the spring clips of the roadside standard, and retained in the out-of-working position until the approximate time of the passing of the mail train. Where a telephone is provided in the apparatus hut, the attendant consults the signalman regarding the running of the train, and awaits his intimation that the mail train is approaching. On receipt of the warning, the attendant turns the suspended pouches to the working position, and raises the movable frame of the roadside net. This latter action opens the net, which is then ready for the receipt of pouches trom the train. Where communication with the local signalman is not practicable, the pouches are withheld from the working position until within five minutes of the time that the mail train is expected to pass.

The actual exchange of mails is practically instantaneous the pouches from the mail train being detached from the carriage arms a moment before the carriage net enfolds and removes the pouches hanging from the roadside standards. At a fairly high speed of the train, the exchange takes place in less than a quarter of a second. After the train has passed, the delivered pouches are withdrawn from the roadside net and opened, the apparatus is closed down and the hut locked, and the attendant conveys the bags to the local Post Office or Station.

CARRIAGE APPARATUS WORKING

In the mail train, the trained operators, who note their position throughout the journey almost entirely by sound, particularly at night, prepare the pouches for delivery from the train and place them at the doorways at which delivery arms are fitted. When within a mile or so of the point of despatch, the doors, which slide into casements parallel with the side of the carriage, are opened, and the arms turned inwards to enable the operator to affix to the spring clips the main straps of the pouches, one on either side of the doorway. These pouches rest on the sill of the doorway until the appointed landmark, or signal board, is observed, whereupon the carriage net is opened out, and the delivery arms are swung outwards to their fully extended position with the pouches hanging ready for despatch. It is necessary that these operations should be performed quickly, in order to reduce to a minimum the time during which the movable parts of the carriage apparatus project beyond the sides of the carriage. As a rule, the complete operation, including the opening of the carriage net, the extension of the outgoing pouches from the train, and the exchange of pouches with the roadside station, is accomplished in 12 seconds or less.

SAFETY PRECAUTIONS

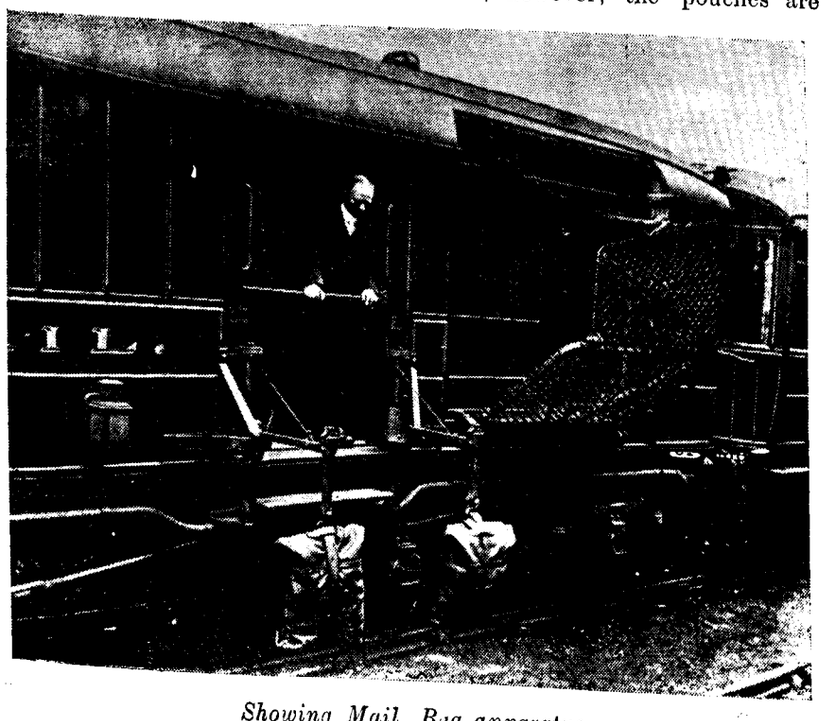
Apparatus working, although to a great extent performed at night time and, frequently under the most trying climatic conditions, is rarely associated with personal injury. The equipment is maintained at a high standard of mechanical efficiency, and many precautions are taken to ensure the safety of the postal and railway officials concerned, as well as that of the travelling public.

Wherever possible, special approaches are provided to the sites at the side of the railway bridges, banks, culverts, etc., being utilised for the purpose to enable the attendants to obtain access to the apparatus without crossing the lines. Where this is not practicable a timber footway is laid across the lines. The roadside machinery can be manipulated at a safe distance from passing trains.

The postal officials in the train run little, if any, risk, as their work is performed inside the carriage. For the protection of operators and others standing at, or passing the apparatus doorway while the latter is open for the delivery of pouches, a stout steel bar, which locks automatically across the doorway, is provided.

An electric bell which continues ringing so long as the carriage net is extended, gives warning to mail train officers to keep clear of the apparatus net door.

Railwaymen employed on the trains are familiar with the position and use of the apparatus, and they are accustomed to keep a lock-out for suspended pouches at apparatus stations which they pass en route. During the day time these stations are easily seen as the train approaches. At nighttime, however, the pouches are



Showing Mail Bag apparatus

not visible at a distance, and, as a safeguard to the enginemen and others working on the trains, every roadside standard from which pouches have to be suspended in darkness is provided with a white light visible only from the direction of approaching trains. The light which is controlled by the roadside attendant, indicates that pouches are hanging. As an additional safeguard, telephones or signal bell communication is provided between the attendants, shelter huts and the neighbouring signal boxes on the busier sections of the railway lines. By this means the signalman is enabled to notify the roadside attendant of the near approach of the mail train, and the pouches awaiting transfer are withheld until the latest possible moment, thereby avoiding any risk of contact with other passing trains.

In order to call the attention of the enginemen to the location of the apparatus standard, yellow and black warning plates are fixed on the approach side of all apparatus despatching stations.

After dark, when the pouches have been suspended and before they are turned to the line, the electric hand lamp supplied for illuminating the warning plate at night time is switched on and placed in the stand. It is switched off and returned to the shelter hut when the standards have been turned from the line on completion of the working.

The pouches suspended from a roadside standard in the out-of-

working position are too far from the line to involve any risk of accident to passing trains; hence no danger arises until the pouches have been turned towards the line in readiness for transfer. Pouches in this position hang within a few inches of the engine and carriages of a passing train, and are liable to strike a person leaning out of a carriage window; but very few accidents of this kind have occurred. On many lines in Great Britain a notice is displayed in the carriage warning passengers of the danger of leaning out of the window.

The carriage apparatus is never allowed to be in its working position when passing through a railway station. There is consequently no risk of accident to persons on the station premises. A clear space is necessary at the side of the railway, throughout the section to be traversed while the apparatus is in the working position, and the roadside apparatus has to be fixed at a distance of not less than 300 yards from a station platform.

The delivery of mails from the train presents no danger to passengers or railway servants travelling in the mail train, as the pouches for delivery are suspended below the floor level of the carriage. The highest point of the roadside receiving net is also below that level.

Pouches swinging at the ends of the extended delivery arms would strike a person walking within six feet of the line over which the mail train was passing; but railway servants are suitably instructed, and the public are not permitted on the permanent way.

How to Maintain Cordial Relations between Labour and Management on the Railway System

By K. N. Narayanan Nair

THE establishment of most cordial relations between Railway Managements and the Railwaymen who work with them, will be the supreme test of efficiency of Railway Administrations. Thus observed Hon'ble. Sri N. Gopalswami Iyengar in his first Railway Budget speech (1949) in the Indian Parliament Coming as it does from the highest personality responsible for the biggest national enterprise of our country, it needs no further stress on the importance of the spirit behind this valuable utterance. To discuss, therefore, the ways of maintaining cordial relations will never be out of place, engaged as we are in the working of the Railway machinery.

UNION OF RESOURCES AND POWER

And why are cordial relations considered so essential for efficient administration? The answer is pure and simple. Capital and Labour contribute the essentials of all industrial undertakings. They are inter-related as well as inter-dependent. While Capital provides the necessary resources, Labour supplies the requisite power and their union brings in return. Capital without Power is helpless; Labour without resources, useless. But again, a mere union of these—Resources and Power—would not meet the entire object of a venture. In order to sustain and survive, every venture needs productive results for which, a proper union of these factors is desired as a forerunner to efficient administration. Therefore, that condition which instils voluntary incentive in Labour to profitably utilise Capital for fairer returns is known as Cordiality. This aspect is very often lost sight of in their mad concentration on the aim of gains—by Capital on increased production, and by labour on the disbursement of surplus profits for its amelioration. When it tends towards a clash at this stage, cordiality is at stake, or in its wider sense, the industry heads on to its breakdown and ultimate downfall. Either on Capital failing to recognise Labour achievements, on Labour refusing to accommodate Capital failures, the balance gets disturbed and, to set it at rest, neutralisation of the effect of one is urgently needed. In such a state of affairs efficient handling of the situation is called upon from the Management in the shape of labour appeasement. This is more a necessity and never a sacrifice. Surplus returns in an industry generally provide a convenient handle for Labour to bargain. Any step to regulate this bargaining tendency by suitably apportioning the profits on most cordial lines would be yet another sound investment for increased output.

POSITION OF RAILWAYS

Our Railways, nationalised as they are, with a capital of more than seven hundred crores of rupees invested by the State and giving employment to more than nine lakhs of people, constitute the biggest Industrial organisation in the country and are one of the largest enterprises in the world. Our Railways are undoubtedly the country's life-line for they take the essential commodities to consumers, raw material, machinery and equipment for all other industries. Here, the interests of Capital and Labour are identical. As a public utility concern, its return is judged more from the amount and quality of service rendered to its customers. Workers can therefore ill-afford to consider Management as a watchdog of Capital's interests and go down to the level of mere bargainers as in the case of private-owned undertakings. Workers have to consider that anything coming by way of additional return, not to talk of the surplus, is a drain on the country, on the public at large, on themselves who are but citizens of the country they serve. One in every 350 of India's population is a Railwayman; he is part and parcel of the nation as much as anyone of the remaining 349 persons is. Amelioration of Labour is, in turn, the Management's duty to be accepted without the telling, to be granted without the asking. To put up an army of workers equipped with willingness and sound conditions for effective service shall be the sole aim of Railway Administration as against broadening the gap between earnings and expenditure usually sought to be achieved by private capital.

CONSULTATION OF LABOUR

Offering an opportunity to workers to take an intelligent interest in work instead of carrying on in a routine manner, Mr. S. R. Sarma, Chief Operating Superintendent of the Southern Railway, has recently called for suggestions from staff on more economical methods, increased efficiency and greater safety in working. This is a welcome departure from the old and usual practice of Managements to surprise Labour with new and impractical schemes. Whenever a change in the method of normal working is thought of it shall be placed for advantageous examination by those concerned in its operation. Necessary modifica-

tions to the original idea accommodating practical difficulties of the executants and economic implications of the Administration not provided for by the inventor should be adjudged beforehand to avoid huge wastages right from the experimental stage. This is capable of mustering proper application and willingness from workers. There is a great deal of joy in doing things perfectly or at least to the best of one's ability. There is a sense of satisfaction, a pride in surveying such a work. It is this conscientious completeness which turns work into art. The smallest thing, well done, becomes artistic. This realisation by Labour is the biggest price for capital output. In the course of an administrative review of the working of the 'Suggestions System' on American Railways it is stated, "In the last nine years thousands of ideas from all parts of the Rail Roads have helped the Illinois Central in its progress towards providing transportation second to none. It should be borne in mind that very often, many a scheme put forward without consulting Labour to die in their infancy being unable to carry conviction of success.

GOODWILL AND DISCIPLINE

Proper handling of the Labour by Management is yet another factor for the progress of the industry. In order that power is not wasted strict discipline among the ranks is essential. Orderliness never entertains harassment. It requires much of goodwill too, to extract maximum work for the remuneration offered. A real change of heart from the exacting to the sympathetic, from the

obstructive to the co-operating leading to a closer contact between the administrative machinery and staff is, therefore, unavoidable—in this connection one may not be tired of repeating a thousand and one times that officers will only be colossal gainers by adopting a courteous attitude reflecting realism towards their own subordinates in the matter of hearing their grievances with Himalayan patience although conceding them is an entirely different matter. Also in adhering to the elementary rules of decency and decorum: I have been wondering why most of the officers, with their collegiate education, their broad vision, their experience of men and matters, are very often disinclined to offer seats to their staff while holding consultations or imparting instructions or the like: Can this be out of a wrong impression that they would be doing so at the expense of the Administration's prestige? I hope not. Anyway, it can be affirmed with all the emphasis at one's command that by adhering to these simple rules of courtesy, they would only be rendering a lasting service to their own cause and enhancing, to a great extent, the prestige of the Administration as well as their own.

Equally important, if not more, is the responsibility of staff to adhere to strict discipline. In the course of discharging their duties, graded ranks have to exercise some sort of superiority over others by virtue of merit, ability, skill and experience. Willingness to put their heart and soul is itself implicit obedience on the part of Labour.

Indiscipline among workers calls for suitable and proportion-

ate punishment with due regard to the nature of the crime such as incidental, negligent or wilful. A code laid in such a way covering the offences and punishments thereto, as in the case of the I. P. C. or the Cr. P. C. in contrast to the present provisions which are ridiculously primitive and ludicrously contradictory in spirit. Each offence shall come under a particular section, as in the case of murder coming under sec. 302 of the I. P. C., and punishments prescribed for each section of offences.

TRADE DISPUTES & TRADE UNIONS

While it is important that there shall be no room for disputes, provision for their settlement on impartial lines has also to be made. It is this aspect that really gives maximum headache to all administrators In spite of the many experiences, no country in the world of to-day claims to have achieved perfection in finding out a solution to this. Cordial relations are, however, sought to be promoted with a view to prevent disputes and, at the same time, some fundamentals of their settlement methods have to be incorporated. Every dispute, according to the level of its origin, shall be settled by a third party at different stages, appellate authority being impartial to the management and the workers.

On the part of labour, Trade Unions have a great duty in this regard. They shall not align themselves with any political party in the country. Despite a large number of limitations to an Executive consisting of employees only, Trade Unions shall not have outsiders to guide their destinies as possible political complexion and aim are likely to be gained at the expense of ignorant and innocent labour. The suicidal policy adopted by some political parties in our country has been largely instrumental in creating gross indiscipline, intolerable impertinence and inestimable inefficiency resulting in confusion and chaos amongst the rank and file of Railwaymen. It shall be possible to do the utmost to instil a feeling in the employees to discharge their duties honestly and to the best of their abilities and to teach them, in their own interests, *that withdrawal of labour shall not be resorted to even as the last weapon for settlement of disputes.*

Well, I am constrained to conclude this as I am afraid that although the subject is so vast and so complicated that it is impossible to refer to at least its salient features, if not an elaborate analysis, within the length-limit prescribed for this essay, my further attempts are sure to transgress the boundary allowed. However, I desire to record, in a nutshell, thus :—

a) Rule by love, on a broader principle, shall be the watchword of men responsible for Management.

b) Labour shall evince maximum will to utilise ability as its foremost duty.

c) The system of punishment in vogue should be overhauled, limiting its indefinite elasticity of interpretation.

d) There shall be a personnel officer for each District to deal with appeals against technical punishments and a judicial member for each zone to consider appeals against removal and dismissal from service, contrary to the present system of one officer combining in himself the roles of charging, punishing and appellate authority.

e) A welfare organisation with real powers shall be set up with deserving talents capable of forming effective liaison between the Administrative head and the common worker.

f) Staff councils constituted of elected representatives shall be consulted for improvements in day-to-day working and their decisions accepted for execution and not as mere advices as at present.

g) A permanent machinery shall be set up to settle all collective disputes on impartial lines.

h) Trade Unions shall be encouraged wherever their constitution is anxious to foster discipline, harmony and sense of responsibility on workers.

These are some of the successful methods that can be adopted with advantage on the Railway system for effective establishment, maintenance and promotion of good relations which would go a long way in contributing the Railway's share in the stupendous task of building up a peaceful and prosperous India. Let us prove worthy of repeated recognition by our Prime Minister who said, "I can say with full assurance that the improvement in the Railway system in India is one of the outstanding achievements of the Government." JAI HIND!

Brighter Living

KEEN competition in the entertainment world in Calcutta has resulted in a very marked improvement in Cabaret standards. In fact this battle of the hotels to obtain the regular support of "Calcutta night-lifers" is an excellent example of the benefits of private enterprise which allows for such competition. As the result of one hotel deciding to go in for elaborate Cabarets and bands imported from Europe, the others had to follow suit with the result that now-a-days there is a liberal choice of programmes, some of which are to first-class international standards.

Among the most successful of the visiting acts has been that of Pat Kay and Betty Ankers who sing somewhat "risque" rather cowardesque songs at the piano, Pat Kay being the pianist, Betty generally the vocalist. Possibly one of the appeals of this act is that to most Europeans, and to Indians who have been to the United Kingdom, it reeks nostalgically of West End Night Clubs. Without any doubt, these two have captivated Calcutta and Delhi audiences.

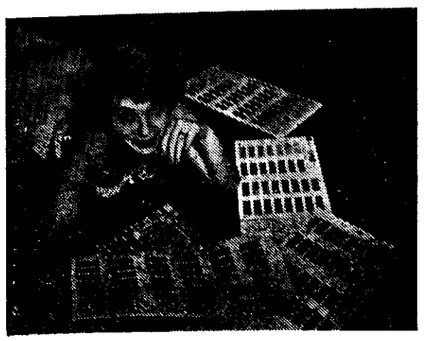
Betty Ankers has been on the stage since she was four when she used to sing at Sunday Concerts in Lancashire towns.

During the war she entertained troops in the Middle East. In 1946 she teamed up with Pat Kay who at that time had been writing music for the films including the theme song from the Margaret Lockwood film "Bedelia," and the music for "Grand Escapade" in which he also appeared.

They made their debut together when they flew over to Germany with the "News of the World" All Star Show. Their success was instantaneous. They then started Broadcasting together and later were seen frequently on Television. The first West End appearance they made in Cabaret was at the famous 96 Restaurant Piccadilly, London.

Very early in their career, Shalimar Paint decided that the "Brightness" of their act would provide a good link for them in their advertising. As a result, many colour photographs were taken of Miss Ankers in order to produce one of the Shalimar calendars released this year. This has proved a great success and demands from Ankers' fans have been very heavy.

In addition, this illustration has been used as a cinema slide and also as the basis of an advertisement used in the leading National dailies.



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AMERICANS PRAISE FOR PAINT FACTORY

Mr. G. R. T. Taylor, the Chairman of Pinchin Johnson recently stopped off in Calcutta whilst on his way to Australia. Mr. Taylor paid a visit to the Shalimar Paint Works with Mr. C. R. B. Woolford, Managing Director of the Company. Mr.

(Continued on next page bottom)

Principles of Station Accounting

By P. H. S. Rao

THE original source at which the revenues from transportation service is collected is the Railway Station. The Station Master is the railway employee entrusted with the important duties of assessing and collecting the charges, making the original records and report of the transactions and remitting the cash collected.

The station accounting methods are the most important phase of accounting for revenues because practically all forms and initial reports relating to transportation revenue originate at stations.

The reports sent by Station Masters also constitute the basis for the compilation of the detailed statistics required by the Government as well as by the administration.

An elaborate and more or less complex station accounting system is required for the following reasons:—

1. To supervise and control the activities of the Station Master and his staff.
2. To see that proper charges are assessed for the services rendered.
3. To know that the charges are collected and the cash remitted.
4. To see that the money collected is not spent for unauthorised purposes.
5. To keep a record of the earning capacity of the particular railway system.
6. To have a basic record of individual transactions to make adjustments, remedy complaints from the public and compile statistics.
7. To obtain a basis for reporting the transactions in the general books and statements of the railway administration.

This is the purpose of station accounting and if it appears complex, it is because of the magnitude of the collections, the numerous collecting agencies and the nature of the transportation service rendered.

The relationship between the Station Master and the administration may be briefly stated as the relationship of principal and agent.

The administration is generally bound by the acts of the Station Master and they represent the administration in its transactions with the public. The Station Master also represents the administration in an accounting sense but in his accounting work only he and the administration are concerned. This work consists in assessing and collecting the charges, reporting them, remitting the cash collected and in maintaining the original records of the transactions at the station. His work is mostly revenue accounting and has very little to do with expenditure accounting except in a very few cases.

The method in employed station accounting is to require the station master to remit his collections daily to the cash office and report periodically, daily, weekly or monthly to the accounting department a complete and detailed statement of the sources of the revenue collected.

The Station Master has to maintain a set of books, usually consisting of a cash book, delivery books, a balance sheet and copies of his reports. The details and credits in the station accounts are duplicated in the books of the accounting department.

When his reports are audited he is required to make adjustments in his accounts to make it identical with his account as maintained in the accounting department. This control over his accounts is supplemented by the Travelling Inspectors of Accounts, who make periodical visits to his station for the purpose of auditing his books.

In the accounting department the Station Master is debited with the revenue items reported by him as accrued and credited with the cash remitted. It is an important function of the accounting department to keep the accounts of the Station maintained in that department reconciled with the accounts maintained by the Station Master at the station.

Each station is a distinct accounting unit of a railway organization. It may be compared to a branch store of a commercial concern, which is debited with all goods received and credited with goods sold, the difference being the net profit or loss. A station differs in that it is charged with the price of transportation service sold and it must account for this service at the same figure; consequently the question of profit or loss is not a factor in station accounting.

The administration gives very close supervision to station accounts not only to protect the revenues but also to give protection to the consumers of transportation service. It is also necessitated by the great volume and complexity of the work involved, the distances from the accounting department and the importance of proper accounting methods.

The accounting department prescribes the methods and forms by which the Station Master shall

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Taylor is also Chairman of International Combustion, the well known Boiler Makers

A great compliment was paid to the Shalimar Paint Co.' recently when their Factory was visited by the American team at present touring India as a part of President Truman's Point Four Programme. The main purpose of the visit was to examine what the Americans call "Factory Housekeeping" and also to enquire into the incidence of industrial diseases. Although possibly such visitors invariably find it necessary to be complimentary on the surface, there was no doubt about it that on this occasion they were genuinely enthusiastic about the Coabaria Works. They indicated that in their opinion it was in the matter of cleanliness, care of personnel, production and products as good as the best in the U. S. A.

The team consisted of: Mr. A. P. Gorman (Industrial Engineer) Director, Dr. Harry Heimann (Chief, Clinical Investigation Branch, Division of Industrial Hygiene, U. S. Public Health Services) and Mr. A. H. Ingalls (Industrial Chemist).

They were accompanied by: Mr. A. D. Joadar, Chief Inspector of Factories. Mr. Malikar and Dr. Mukherjea, Government of India representatives.

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GRAND-DAUGHTER FOR WOOLFORD

Mrs. I. R. Krohn, the daughter of Mr. & Mrs. C. R. B. Woolford, gave birth to a daughter, in London, on January 15th 1952. Mr. C. R. B. Woolford is Managing Director of Shalimar Paint. His daughter was a very popular W. R. I. N. at Naval H. Q., Calcutta, during the War when she met Squadron Leader Krohn who was with the R. A. F. out here. Mr. Krohn is now with the Metropolitan Police, London.

record, report and account for the business transacted. The accounting department through its representative, the Travelling Inspector of Accounts, installs him as agent and instructs him in his many duties.

The duties of Travelling Inspectors of Accounts in supervising station accounting matters may be thus summarised :—

1. To see that the books and accounts are correctly and systematically kept.

2. To examine and verify the station balance.

3. To instruct the station staff in the proper maintenance of accounts and records.

4. To see that the records are filed properly and that the property of the Railway is protected and its interest is served.

5. To report to the Accounting department the condition of the station affairs.

The relationship between the Travelling Inspector of Accounts and the Station Master has been defined by an Accounting officer thus:

"The travelling Auditor is the personal touch between the audit office and the agent. No official or other employee gets into such intimate contact with the work performed by the agent and his staff as the Travelling Auditor. He spends days in detailed examination, not only of the accounts, but also of the general conditions at each station he visits. Primarily, the auditor's duties consist of an audit of the books to see that the Company's revenues is being protected, but his work does not stop there. He conducts an educational campaign which is especially helpful to the inexperienced agent. He invites questions on anything not clear or not understood, he discusses difficulties ; points out irregularities caused by neglect or ignorance. His criticisms may be caustic or cautionary ; depending on which is deserved, but in any event the use of his prerogative is for the agent's own benefit.

The auditor by his training is both a specialist and a general practitioner. He is trained to specialise on accounting as performed at the station, and in addition has a general knowledge of the handling of the reports when they reach the audit office. He is, therefore, well equipped both to instruct and to explain because he not only knows how the station accounts should be kept, but he also knows how the reports should be prepared for the audit office."

65-Ton 0-6-2T Steam Locomotives

The Hunslet Engine Co. Ltd., Leeds, is in course of delivering six 65-ton 0-6-2T steam locomotives to the Commissioners for the Port of Calcutta, and intended to haul 1,200-ton freight trains round curves of 300 ft. radius on 5 ft. 6 in. gauge lines. This is the third order for six to the Hunslet Company. Cylinders are 16 in. by 24 in., wheels 3 ft. 10 in. dia., boiler pressure 210 lbs. per sq. in., adhesion weight 49¼ tons, and maximum tractive effort 23,850 lbs.

Aspects of Railway Working
"Selling Tickets"

By A. H. Pearson

IF you are acquainted with the time table and guide of a railway system, you will find a solemn injunction somewhere in the pages of the guide that, before boarding a train every passenger must be in possession of a ticket. Well, where does he get this ticket which gives him full permission to travel? From the booking clerk behind the ticket window. If you could spend a few hours behind that ticket window, you would soon get an idea of what goes on there ; so step in and see.

At large railway stations where a number of passengers, mail and express trains roll in at intervals of every two or three hours throughout day and night, there is what is known as 'continuous booking.' This simply means that tickets for rail journeys can be bought at any time during the day or night.

The working day in a 'continuous' booking office is usually split up into thread eight-hour shifts of duty, with a number of booking clerks on duty during each shift. Where passenger traffic is heavy, there is always a separate, or even more than one, third class booking office, in addition to a booking office to serve upper class passengers.

A peep behind the ticket window will reveal a number of ticket cases with narrow sloping pigeon-holes, known as ticket tubes. Each tube contains a certain number of tickets of the one class and for one destination. On being asked for a ticket for a particular station, the booking clerk on duty, familiar with all his ticket tubes, reaches up an expert hand and slips out the requisite ticket. The next ticket then slides into position. The ticket taken out will then be date punched on a date-stamping machine, the fare collected in cash from the passenger, and the ticket passed out through the ticket window to the waiting passenger.

Ticket selling is not merely collecting the cash and passing out the ticket ; there is a lot more to do what seems so simple a job. When a booking clerk comes on duty he first looks over the entries in a large account book known as the cash settlement book. From this he ascertains the opening and closing numbers of each class of ticket and for the various destinations. The closing number of tickets in the register must be carefully checked with the opening numbers of the tickets in the tubes. Any discrepancies must be recorded at once, as otherwise that booking clerk will leave himself open to a debit from the Traffic Accounts Department if he is in any way careless in his checking.

During the rush period of selling tickets, especially about an hour or so before the arrival or departure of a train, the clerk just has time to collect the cash and pass out the ticket to each passenger. But when there is a lull between trains moving in and out and before the next rush starts, the clerk untilises this brief spell for entering up records of tickets sold and cash collected in the cash settlement book.

In one eight-hour shift alone, a booking clerk at one ticket window may sell up to and beyond a thousand tickets, and collect cash well over a thousand rupees. And quite often he may not have a printed ticket for a particular destination—say a small wayside

station for which tickets are rarely wanted. This will now involve the issue of a blank paper ticket, some lightning calculations to ascertain the fare etc. and then a number of entries have to be made. With this kind of work, entailing a lot of writing and arithmetic, the booking clerk very soon learns to be extremely careful and accurate in all his calculations and entries, as any mistakes made by him will result in debits being raised, and for which he will pay—in cash.

Booking offices at these large Railway stations are supervised by a Chief, or Head Booking Clerk, who works mainly during the day. It is his duty to maintain discipline, check the work of the clerks under him, see that adequate stocks of tickets and other forms are always in stock, collect the daily cash earnings and make over the amount to the station master for onward transmission to the various cash collecting offices.

The job of selling tickets is not only the routine of listening to the request of the passenger and making over the ticket after collecting the cash; there is also the variety of dealing with all sorts and conditions of men each day and every day. One by one the passengers come up to the ticket window for what they want, but if they know clearly what they want and say so the response from the booking clerk is easy. This is not always the case.

A simple villager, perhaps using a train for the first time, asks for a ticket for a wayside station. From his work-hardened hands he puts down his money on the counter. The booking clerk finds it is not enough for the fare. When the villager is told this he looks bewildered, and may start a little bargaining. Perhaps the 'tickus babu' will reduce the fare. The booking clerk has to convince the villager that a Railway system is not a village market. Then he comes up against the impatient ones, somewhere further down the line. He may be making out a blank paper ticket for the passenger at the window. Some fellow further down starts getting sarcastic because he has to wait. The booking clerk must keep his temper and not retort in the same strain. If he failed to use tact, he would only find the speed at which he is required to work, will be hampered.

The booking clerk behind the upper class ticket window may not find the life outside so interesting as his counterpart in the third class booking office, as those who can afford luxury travel know what they want, and state their requests clearly. But even here, there are occasions when the booking clerk has to contend with an unreasonable passenger. For instance, while attending to other passengers, a man will come up and ask the price of a fare for a destination half-way across the country, involving several junction changes etc. Such a request will take up quite a little time of the booking clerk, as he will have to consult foreign Railway fare books etc. and if the passenger is asked to wait for his information, he will accuse the clerk of dereliction of his duty. After all, a booking clerk is not a robust ready-reckoner.

On the outside of the ticket counter the job looks simple. Ask for your ticket, pay your money, take your ticket, and off to the train. Just nothing to it, you will say. But get on the other side of the ticket window, where the booking clerk sits to serve you, and after a few hours, you will change your views and have a little more respect for the job of selling tickets.

TOURIST SERIES—IV

Of Tourist Interest on Southern Railway

The Seven Pagodas of Mahabalipuram

By L. N. GUBIL

MAHABALIPURAM, a symbol of India's historic and religious greatness, a centre of great interest for epigraphists and tourists, is now a lovely village on the east coast of South India, 35 miles south of Madras. In its artistic beauty this city of Seven Pagodas rivals those of Ajantha and Ellora. The origin ot this ancient centre of India's culture and art is enshrouded in romantic theories. Some owe its origin to the great and ancient King Bali. Historically there is greater strength to the theory that it is the "City of Mahamalla" and that Mahabalipuram is simply an anachronism for Mamallapuram. This historic city of Seven Pagodas is a beautiful place with a unique and extraordinary kind of architecture which consists of monolithic raths, rock-cut caves, bas-reliefs, and sculptures of various kinds. Of the seven copper-covered pinnacles of the Hindu temples which gave this historic city the name "Seven Pagodas" all except one have been submerged in the great sea.

The five Rathas are a standing monument of India's ancient art and sculpture. Their origin is attributed to the great Pallava King, Narasimha Varman of Vatapi fame. Carved out of a gigantic rock these temple cars lie adjacent to the canal, four in a line while the fifth lies a little to the west of the group. The car at the Southern extremity is the biggest and most interesting consisting of three tiers and having the "Aspidal" shape. The Rathas are covered with many

Fourth and Third Ratha with lion (front view) Seven Pagodas

inscriptions and prolific with the images of the Gods of the Hindu Pantheon. Sir Walter Elliot infers that the excavations could not have been later than the 6th century A. D. It is of peculiar interest to notice in these excavations a harmonious blending of the Buddhist and early Dravidian architecture.

The next line of attraction in this city of "Mamalla" is its beautiful cave temples. Taking a short walk Northwards from the Rathas along an avenue of casurina trees, the connoisseur reaches the foot of a small hill on which now stands the light house. To the west of this light house is the rock-cut cave called the Mahishasura Mardhani Cave. Here Goddess Kali is represented with eight hands slaying the buffaloeheaded demon, Mahishasura. Opposite to this carving is a representation of Vishnu lying on his serpent-bed. Going further along the road one comes to the Krishna Mandapam, another cave hewn out of a hill. Here is a beautiful

Light house, Mahabalipuram

(Photographs: By courtesy Public Relations Officer, Southern Railway)

sculpture of a pastoral group illustrating the story of Lord Sri Krishna who is represented as protecting the cows and the cowherds from the wrath of Indra by lifting a hill and using it as an umbrella. Here we come across some of the most spirited and life-like sculptures.

Mahabalipuram is indeed a monument of Pallava carvings and sculptures. The bas-relief of "Arjuna's Penance" is an object of universal attraction. This is sculptured on two big rocks measuring 96' x 43'. Adjoining this is a rock-cut hall with columns the architecture of which is "not unlike those of the pillars at Ellora and of the cave temples of Elephanta in Bombay." The temples of Mahabalipuram possess a quaint beauty of their own. In front of the carvings of "Arjuna's Penance" and facing West is the modern temple of "Sthalasaya Perumal" with a representation of Vishnu in the form of a Boar. The Shore Temple which is believed to be the only survivor of the seven pagodas is the next source of attraction to the connoisseur in art and architecture. Built in the Dravidian style it is believed to have come into existence in the 9th century A. D. Its loveliness and unique position is awe-inspiring and is the source of attraction to many a visitor. One is impressed with the wonderful serenity and

Sculptural work depicting "Arjuna's Penance"—Seven Pagodas

the awful silence of the place at night "with the lovely sound of winds that moan around a cordant to the melancholy waves." The cave temple of Varahasami is of interest to the historian, housing as it does the sculptures of the two great Pallava Kings, Mahendravarman and Narasimhavarman who did so much towards beautifying this ancient city.

This ancient city of India's culture and greatness is now a deserted and lonely hamlet. Yet it was once the prosperous port of Kanchi whose ships ploughed the seven seas carrying merchandise to foreign countries. Mahabalipuram is the most historic of all the religious centres of South India where we find Pallava art at its best. It is sure to stand the test of time in spite of the many changes that may come in the history of South India.

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EDITORIAL NOTICE

The Editor invites contributions to the Magazine on a variety of topics—short stories, technical features written in simple English understandable to the laymen, Aspects of Railway Working, places of tourist interest, News from home line, activities of Railway Institutes etc. All copy should be brief and typed as far as possible.

Photographs illustrating social functions, sports events, scenic sports etc. are also invited. All contributions should reach the Editor not later than 5th of each month. Rejected Mss. will be returned provided sufficient stamps for postage are enclosed. No responsibility will be borne for copy lost in transit.

Views expressed in this Magazine should not be taken as having official authority.

All correspondence should be addressed to "The Editor, Southern Railways Magazine," Post Box No. 17, Tanjore, (South India).

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"Railway Budget for 1952-53"

ONCE again the Railway Budget indicates a forecast of a Rs. 25 crores surplus for the year 1952-53, which is Rs. 3 crores more than that forecasted in the previous year. The recurrence of a budget surplus each year in Railway finance obviously supports Railway Minister Sri Gopalaswamy Ayyangar's statement, that Indian Railways were 'about the only Railway system in the world whose financial position is sound.'

What are the other high-lights of the 1952-53 Railway Budget? With relief we find that passenger fares have not been increased, although it is the intention of the Government to increase the coal freight rates by nearly 30%, which increase is expected to bring an additional revenue of about Rs. 6 crores. Working expenditure has risen in the current year by Rs. 8·97 crores, attributed mainly to the increase in dearness allowance of Rs. 5/-per month to all employees drawing up to Rs. 300/-p. m.

Revenue from passenger traffic during the next year is expected to drop by Rs. 1·25 crores, which, however, will be offset by the increase in goods traffic earnings. As important feature is an allocation under capital expenditure of Rs. 58 crores for replacement, renewal and development. Passenger amenities get Rs. 3 crores from the Budget, and amenities for staff in the way of quarters etc. will get Rs. 1·53 crores. Next year's working expenses are expected to be Rs. 6·98 more than the current year.

The Railway Minister in presenting the Budget in Parliament also assured the House that the present transport difficulties would be considerably eased with the manufacture of wagons and carriages and import of locomotives during the current year. It was also hoped that Indian Railways would attain complete self-sufficiency in its annual requirements of locomotives, boilers, and spare parts when the two locomotive works—Chittaranjan and Telco—were in full production.

On the point of labour relations, it is stated these had been cordial, and that the Government is 'committed to a policy of continually improving the status and ameliorating the condition of Railway Workers.'

When the man in the street sees a press announcement of a large budget surplus running into crores of rupees, he feels confident that a reasonable sum from this surplus will be utilized to give him better travelling conditions and improved rail services. When the Railwayman thinks of the same surplus, like his counterpart, the man in the street, he looks for better conditions in the service, to make his lot easier.

It is hoped that a happy combination of the two desires will be the desideratum to be sought after in future years.

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Notes and Comments

OUR GM.'s CALL TO ENGINEERS

Shri K. R. Ramanujam, General Manager of the Southern Railway inaugurating the Annual Conference of the Electrical Standards Committee of the Indian Railways at Bangalore on nineteenth of this month called on Engineers to keep the question of economy foremost in their minds. Mr. K. B. Patel presided.

Shri K. R. Ramanujam said that technological progress by itself was not enough. To be a complete engineer one must be cost-conscious. It was not enough it engineering projects were carried through successfully and expeditiously without reference to the cost. With the need at the present time for development of projects in this country in so many directions, Shri Ramanujam said, "we must husband our limited resources."

"We have not only to improve quickly the general standard of life in this country but we have to become self-sufficient in food, clothing, machinery, chemicals and general consumer goods. It is obvious that with all the demands on our resources, it is essential that we should keep the question of economy foremost in our minds" he added.

It was, therefore, one of their foremost functions as engineers, Shri Ramanujam said, to ensure that the product of their efforts was made available at the least possible cost. Another aspect of the same problem was that of elimination of all waste. He said that he was gratified to see the headway that was being made in the preparation of Indian specifications for technical equipment instead of their merely relying on foreign specifications as they had been doing in the past. This was indeed a step in the right direction

Our GM inaugurated the IRESC Conference at Bangalore.

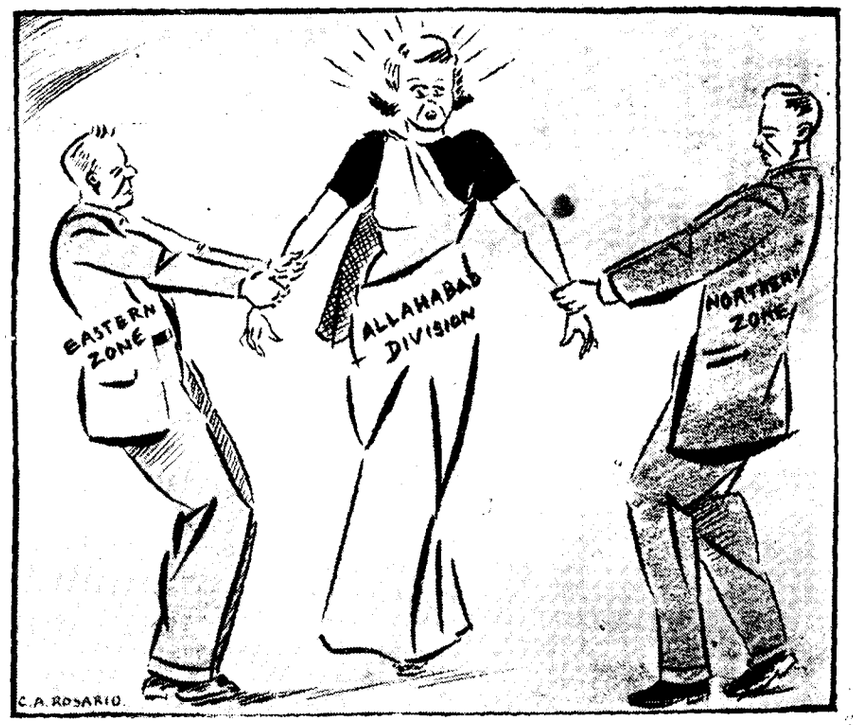
and would result not only in more equipment becoming available, suitable to local conditions, but also facilitate production of such equipment at home. Another important thing at the present time was the standardisation of equipment, nomenclature and methods of maintenance. With the regrouping of Railways, one of their headaches had been the variety of procedure, methods, materials, etc. which had been standardised on the different units which had now been fused into one group. The lack of uniformity was a serious handicap, and the sooner it was removed and they got down to all-India standards, the smoother and more economical would be the result in railway working.

AMENITIES FOR PASSENGERS

Referring to passenger amenities our General Manager said that it was Government's intention to carry forward the amenities programme and complete it within the shortest possible time. "A great deal has already been done in this matter but a good deal yet remains to be done. Electricity has become so much a part of modern life that it is not surprising that electrical amenities constitute a very important part of the railway amenities programme. I shall not at present refer to all the various uses to which electricity has been put for making travel by rail safer and more confortable to the public. I shall content myself with referring to only one item, that is the provision of fans in Class III compartments. I have had ample opportunities for realising the far-reaching and beneficent nature of this measure and I do hope that this work will be carried out with the utmost speed on all our railways so that this welcome facility is not denied for long to millions of our women and children who travel in trains."

At the outset, Shri Ramanujam said that he was particularly glad that Bangalore had been chosen for the venue of their meeting. Bangalore had been to him "a symbol of our progress in the production of competent scientists and engineers within our own

Whose will She Be?



The decision as to which zone the Allahabad Division of the E. I. Railway will eventually join, is expected to be out very shortly.

country as well as industrial advancement generally. I need hardly mention Tata's Indian Institute of Science, which is the first of its kind in India and the foremost now and which has a record, of which any institution may well be proud." They were already aware, Shri Ramanujam continued, that in the field of hydro-electric development, Mysore State might well claim to be a pioneer. Today with many established factories all about the city such as the Hindustan Aircraft Ltd., the Telephone Industries, the Porcelain Insulators, Transformers and Electric Lamps Manufacturing factories of the Mysore Government, the Motor Factory of Messrs. Kirloskars and Batteries and Switch Gear Manufacturing Factories, "Banglore is in the forefront of industrial progress."

In conclusion Shri Ramanujam expressed the hope that their deliberations would lead to conclusions the application of which would go a long way towards the improvement of the railways in India.

Mr. K. B. Patel proposed a vote of thanks.

Among those present on the occasion were: Messrs P. C. Bahres (BNR) H.R. Dogra (EPR), K D. Kapur (OTR), K. N. Ranga Rao (EIR), N. C. Sabikhi (Western Railway), T. S. Rao (Southern Railway), S. N. Woodmore (Central Standards Office) and T.C. Bhatt (Railway Board).

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Southern Railway News Letter

SOUTHERN Railway which snatched the Inter-Railway Football Championship Cup recently has gained more laurels in Sports. Mr. T. Tiruvenkadam of Carriage Works, Perambur has been ranked first in the All India Table Tennis Championships. A man yet in his teens had last year attended the World Championship in Europe and in the 1952 World Championship at Bombay he had the honour of once defeating Johny Leach an ex-world champion. It may be recalled that a few months ago, in an exhibition match at Madras, he defeated the French player, Haguenaur also. This young man has a bright future and we wish him well.

In the Madras Olympic games Mr. Lakshman had gained a new record in track events. Mr. Lakshman is a Sanitary Inspector at BZA station and if given encouragement and posted at a station with salubrious climate he is sure to obtain all India records. Can we appeal to the Railway authorities to give this matter favourable consideration? It is very rare that athletes from the South fare well and such special facilities and humane considerations will call forth the appreciation of the public.

When on this point, we should voice the feeling amongst Railway staff that funds allotted by the Staff Benefit Fund for Sports amenities and kit are very meagre and insufficient. Even leading private firms have set high standards and should not the National Railways deem it their duty to the country to make itself more talented?

It was a false move of the Railway Board some years back to reduce the rate of subscription to the Staff Benefit Fund to Re. 1/- only per employee. It used to be in the Company managed days Rs. 3/- per employee. Whatever reasons there may have been in the past for reducing the rate even as an economy measure, the Ministry of Railways after the advent of freedom should have taken it upon themselves to restore the old rates of Rs. 3/- per employee so that adequate funds are available for development of Sports in the Indian Railways which is the biggest Nationalised Undertaking in free India. May we request that this question is energetically considered personally by the Hon'ble Minister Mr. N. Gopalaswamy Iyengar before he lays down his office.

As a first step immediate increase in the rates to Rs. 2/- for the year 1952-53 per employee would indeed be an appreciable gesture. Restoration to the old rates at Rs. 3/- per employee in 1953-54 will be hailed a grand act!

The Staff Benefit Fund has elected members for its Executive Committe. Apparently to satisfy vote-catching methods and clientele, some of them are very stringent in the allotment of funds for Sports. It would therefore be necessary that certain percentages of the full disbursements for the year from the Staff Benefit Fund are ear-marked.

(1) for Sports amenities

(2) ,, Recreation and amusement for staff

(3) ,, Institutes etc.

From all aspects considering the enormous expenditure that has to be undertaken by teams being sent for Inter Railway Tournaments and far off places for important Tournaments, in hockey, football, cricket, athletics, boxing etc., it would not be far wrong to lay

down as a rule that 25% of the disbursements of the year is placed at the disposal of the Railway Sports Associations. For purposes of recreation and amusement of staff, apart from grants to the Institutes, including Boy Scouts and Girl Guides organisations etc., 7% of the disbursements would be a reasonable proportion of allotment. Grants for Railway Institutes for Christmas and Pongal treats etc., may be laid down at 5%. Only the balance of the amount available should be utilised for other purposes namely,

(1) Educational assistance

(2) Relief of distress amongst members of staff or their families in case of continued sickness etc., including provision of spectacles etc.

In ex-MSM Railway it was the practice to allot funds for the Maternity and Child Welfare Scheme. But when a reduction of the revenue grant from Rs. 3/- to Re. 1/- per employee was made the Railway Board was requested to merge the Maternity and Child Welfare Scheme as a normal working of the Medical Department. It is but right that the expenditure on Maternity and Welfare amenities and dental clinics etc., is met from the Medical budget of the Railway. It forms part of necessary amenities to staff which is chargeable to current expenditure. We are sure the Railway Minister who is known for his sympathetic attitude to Railway staff would favourably deal with this problem and fight the Finance Department tooth and nail for acceptance of his ruling.

The above would assist in gaining more funds for items which are legitimately the concern of the Staff Benefit Fund. Perhaps a Committee may be appointed to go into the details of working of Staff Benefit Fund including the constitution and methods of

disbursements etc., so that uniform standards, as far as possible, are laid down for all the Railways in India. To leave the quantum of disbursements for various purposes at the discretion of the Committee of elected members in each Railway has resulted in undue weightage for particular activities at the expense of others in certain Railways. According sanction for individual items of educational assistance, distress relief for staff, should be within discretion of the Committee and only the remaining percentage of the Funds available in the Staff Benefit Fund must come under their purview, excluding 25% for sports, and 12% for Recreation, Amenities, Institutes etc.

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A Workshop supplement is contemplated to be published in April and there, all aspects of improvement and efficiency of Railway Workshops will be discussed threadbare. At the present moment it is understood the Railway Board is contemplating to obtain experts from abroad for studying conditions of working in Indian Railway Workshops and making recommendations for expansion on range of manufactures of rolling stock components and for manufacture of the maximum possible items in India cutting down to the minimum imported parts. Also in accordance with the recommendations of the recent Stores Enquiry Committee, it is understood that a Directorate of Stores is to be shortly formed. The question arises as to whether the present time is most opportune for an Experts' Committee to make recommendations as apart from the fact that capable Railway Officers of high ability are available in India, the imminent problem to be tackled is to improve efficiency in individual Railway Workshops and get maximum output from existing facilities and further draw out a rehabilitation programme, say for the next three years to bring about increased capacity and improved quality of work and then to get the proposals sanctioned for funds and arrange for a small key organisation in the Railway Board to watch month after month progress made thereon to prevent delays in executing the sanctioned schemes according to schedule. To ensure that results are obtained as per estimates is a factor to be controlled by an "Efficiency" organisation by the Board. When once a position has been reached by which efficiency of organisation and individual outturn has been reached to a reasonably high limit, then only the stage would be set for Experts' recommendations. For example, in the system that was scrupulously followed as a matter of convention in the company managed days, which had borne fruitful results and which incidentally it may be recalled is the practice in the English Railways it was not an exception but a rule to keep selected officers exclusively on the workshop side, so that the whole of their career is spent in Workshop organisation and development of technical skill which is of a different standard requiring special experience and technical "know-all" as compared to maintenance problems in running sheds.

This system was reversed by the Railway Board a few years back, perhaps for the ostensible reason of an academical and personnel value, to give equal chances of promotion on a combined cadre of Mechanical and Power Officers on seniority basis. If an investigation is however undertaken now it would prove that deterioration in efficiency in the Railway Workshops can be attributed to a large extent on this singularly unwise decision, perhaps taken by the Establishment

Branch of the Railway Board without consultation of Technical Members.

In this connection, it is interesting to recall the recommendations made by the Indian Railway Enquiry Committee in 1947, extracted below :—

"Merit and past achievements should be the chief criterion. Officers who have shown unusual initiative, vision, technical ability and capacity and tact to extract work from others, should be chosen. Seniority and average ability may be satisfactory qualifications in normal times, but in the present circumstances, merit and merit alone should count. Whenever the Chief Mechanical Engineer and his Works Manager or Works Superintendent have been unable to improve the output and the standard of output in the light of past achievements continues to be low, they should be unhesitatingly replaced by better officers. We are convinced that by a change such as we advocate, which is not applicable to the Mechanical Department exclusively but is equally applicable to the other Departments of the Railway and to the Railway Administrations as a whole, much can be achieved on all the Railways, and specially on those which are showing persistent deterioration in efficiency.

Appointment of Special Officer for the Mechanical Work shop :— Standards of efficiency and performance differ considerably on different railways. Proper planning and progressing arrangements are essential to secure economy and and increase in output in the workshops and this is fully appreciated by the railways in India, but the efficiency of these operations varies considerably with unfortunate results for those railways which are not progressive in implementing their ideas in this respect. Effective technical action is called for to prevent further deterioration and a start has to be made to improve the present position.

We feel that in the first instance, utmost advantage should be taken of the methods and practices in the way of planning, progressing and scheduling which have already produced the best results in the workshops and these should be co-ordinated and adapted for application to the arrangements and working in other workshops, special note being taken of measures adopted to remove specific bottle-necks in production. To achieve this quickly, we recommend that an officer should be appointed as early as possible and placed on special duty to study the different methods and procedures followed in different workshops. By his knowledge and close study, he will be in a position to suggest to the Chief Mechanical Engineers and their Works Managers, changes in practice and procedure in their workshops, which have given efficient results elsewhere.

Admittedly, this recommendation can only secure, at the most, efficiency equal to the best attained in India, but first things must come first and it will be time enough to consider efficiency comparable with the standards of other countries after railways in India have generally attained the present maximum efficiency standards of India.

The success of this recommendation will depend a great deal on the care with which the selection of this officer is made.

He should be an officer well-versed in workshop organisation and practice and he should have notable achievement to his credit in the efficient running of a workshop in India. He should possess personality and tact so that he is able to obtain concurrence of the Mechanical Departments of the different railways smoothly to the changes suggested by him. It would be an advantage if the officer to be selected has experience of workshop operations in the more advanced countries of the world.

Control over expenditure in workshops:— The variations in the cost of heavy repairs have already been mentioned and these point to the conclusion that effective control, as desired, is not being exercised over expenditure in workshops. Our investigations indicate that procedure in force is not conducive to the exercise of effective control. The Accounts Department is reponsible for giving cost figures under labour, stores and general charges to the Mechanical Engineers to enable them to exercise control over expenditure. Unfortunately, this object is nullified by the interval which occurs between the time the expenditure is incurred and the figures are supplied to the Mechaical Department. The time lag in some cases is two to three months with the exception of the South Indian Railway where it is only about 10 days.

We recommend that the system adopted by the South Indian Railway in making available so promptly details of expenditure to the Mechanical Department, should be followed by other railways. We, however, feel that even if this information is provided promptly, the Mechanical Engineers cannot adequately control labour costs. All that they can do, is to review the working of shops in respect of broad policy and procedure. The difficulty arises from the difference in wages of labour doing the same work on the same railway and also on different railways. Comparisons on the same railway and with the other railways are therefore vitiated.

To enable effective control on labour costs to be exercised, we suggest that statistics on a man-hour basis should be introduced for different operations of unit repairs in the workshops and these figures should be made available to the Works Managers within 10 days of the period to which these relate.

Owing to heavy adjustments which are frequently made by the Accounts Department in regard to Stores issues, the control over stores expenditure also becomes difficult. More care is called for in the computation of the costs of stores to be accounted form in the first instance."

Perhaps some routine action of little value, has been taken on the lines suggested by the Indian Railway Enquiry Committee. But it is long overdue that further aspects are studied to initiate further action at a technical level to obtain quick results, say, within a year, on all the existing defects in organisation, would not a continuous stream of officers trained abroad be an asset for undertaking improvement in

Indian Workshops. This would be a far more profitable scheme say for the next five year plan of improvement of efficiency and increase in capacity, of Indian Railway Workshop. Of course officers of proved merit and who have shown special aptitudes for control of workshop labour and qualified highly in technical subjects are to be selected for the purpose. Seniority, nepotism and personal influences and factors etc., should be eschewed in making selections on All India Railway basis.

Another instance on which the efficiency of the Railways is deplorably low is the lack of concerted and drastic action in keeping vagrants and outsiders engaged in pilfering fittings etc., from upper class coaches away from the Traffic Yards. It had been represented that lakhs of rupees worth of fittings like push cocks, rexin leather cloth etc., are lost on account of the ineffectiveness of control of Watch and Ward Departments of the Railway; High level interest and direction of operation in close co-ordination with and positive action by Railway Police on reports regularly received from Railway Department, would bear fruitiul results. The other day it was reported that on a round-up of the traffic yard in Central Station there were about 150 outsiders with intention for committing in connivance perhaps with Railway staff and Watchmen calculated theft. About 30 to 40 of them had settled down in Carriages gambling and cooking etc. They threatened Train Examination staff with arms when the latter tried to displace them from living in stabled carriages. Officers have noted this but the cry has been in the wilderness. The Watch and Ward and the Railway Police are aware of this position but an effective drive to completely stop this menace has not been sincerely taken and the tax-payer who is called upon to pay higher and higher fares for all these defects in administrative efficiency. Would it not be in the interests of the Railway to tackle this problem at very high level, soliciting the assistance of the Home Department of the Government of India to drive the outsiders from within the railway yards. Dealing with the armed and unarmed goondas and thieves prowling in the yards and in many cases staying in the carriages under the very nose of costly Watch and Ward organisation and the Railway Police has been grossly neglected. It is duty which the Central Government could no more shirk. Failure to deal with this law and order measure is a shame of this huge National undertaking and speaks ill of the co-ordination between the Railways and the Home Department of the States and the Central Government. It is heartening to hear that other Railways like Central Railway at Bombay have taken far more stringent measures to curb wastage and loss to a great extent.

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At the request of many readers, the names of administrative officers in the Integrated set-up of the Southern Railway is published below. At the next issue, names of District Officers will be printed.

General Manager	—	Mr. K. R. Ramanujam.
Dy. General Manager (General)	—	,, T. A. Joseph.
Dy. General Manager (Establishment)	—	,, N. Kamalakara Rao.
Personnel Officer	—	,, R. Jagannathan.

Chief Commercial Superintendent	—	Mr. K. L. Crawford.
Dy. Chief Commercial Superintendent	—	,, A. R. Rao.
Dy. Chief Commercial Superintendent	—	
Chief Operating Superintendent	—	,, S. R. Sarma.
Dy. Chief Operating Superintendent	—	,, A. E. D. Vieyra.
Superintendent, Maintenance & Power	—	,, M. S. Murty.
Chief Mechanical Engineer	—	,, A J. Baker.
Dy. Chief Mechanical Engineer (Workshops)	—	,, D. J. Batliwalla.
Chief Electrical Engineer	—	,, G. K. Ambady.
Dy. Chief Electrical Engineer	—	,, S. L. Narayana Iyer.
Financial Adviser & Chief Accounts Officer	—	,, R. Ramaswamy Iyer.
Dy. Financial Adviser & Chief Accounts Officer	—	,, M. V. Seshadri.
Chief Engineer	—	,, J. W. Restrick.
Dy. Chief Engineer	—	,, V. Jagannath.
Controller of Stores	—	,, E. La. V. Parisot.
Dy. Controller of Stores	—	,, C. D. Ellicott.
Chief Signal & Tele-Communication Engineer	—	,, C. A. White.
Dy. Chief Signal & Tele-Communication Engineer	—	,, S. Sen.
Chief Medical Officer	—	,, E. Somasekar.
Public Relations Officer	—	,, R. Gopalakrishnan.

BROAD GAUGE REGION (MADRAS & ROYAPURAM OFFICES)

Regional Traffic Superintendent	—	Mr. M. C. Sivasankaran.
Regional Engineer	—	,, E. G. Cullen.
Regional Mechanical Engineer	—	,, N. G. Hoskote.
Regional Accounts Officer	—	,, J. J. Batliwala.

NORTH METRE GAUGE REGION (OFFICE AT MYSORE)

(INCLUDING EX-MYSORE STATE RAILWAY)

Regional Traffic Superintendent	—	Mr. B. T. Singh.
Regional Engineer	—	,, V. Bangaraswami.
Regional Mechanical Engineer	—	,, A. G. Head.
Regional Accounts Officer	—	,, Y. Subramaniam.

SOUTH METRE GAUGE REGION (OFFICE AT TRICHINOPOLY)

Regional Traffic Superintendent	—	Mr. K. Basheer Ahmed.
Regional Engineer	—	,, M. Ganapathy.
Regional Mechanical Engineer	—	,, S. N. Batra.
Regional Accounts Officer	—	,, G. W. O. Moore.

Our London Letter

By Our Correspondent

DETAILS of new ferry ships, operating between Britain and France, have already been reported in this letter. They were the new British vessels described in the August and September issue last year and a French vessel in the October issue. Particulars are now available of yet another vessel for the British Railways car ferry service, which was launched at Dumbarton on December 14, 1951 at the shipbuilding yard of William Denny & Bros. Ltd. This vessel, which was named *Lord Warden* by Mrs. John Elliot, wife of the Chairman of the Railway Executive, is the largest of its type to be built for British Railways and it is to be put in service on the short sea route to the Continent via Dover and Boulogne. Accommodation has been provided for 700 passengers and 120 cars. In connection with the service, a new ramp terminal is to be provided at Boulogne enabling motorists to drive their cars on and off the ship. A similar ramp terminal is to be provided at Dover and it is expected that this will be ready by 1953.

Practically the whole of the main deck is taken up by garage accommodation. Steel doors are provided at the stern to allow passengers to drive their cars on and off the ship via the ramps. A turntable at the forward end of the ship enables cars to be reversed and returned along one side of the garage ready to be driven off. There is a deck height of 10 ft. 6 ins. over the major portion of the garage which permits motor coaches to be admitted and at the aft end is a well so that a number of double deck buses can be carried. Passengers are accommodated on the boat and promenade decks and a full range of public and private cabins will be available. The restaurant seats 140 people. Navigation equipment includes radar.

The speed of the *Lord Warden* will be 20 knots and her overall length is 361 ft. 6 ins. Her gross tonnage is 3,300.

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A new signal box has been opened at Carlisle Citadel, London Midland Region, British Railways. This has replaced the old No. 5 Box which because of its age, could no longer be satisfactorily maintained and also, could not be easily altered to suit recent track alterations. The new cabin controls the South end of Citadel Station, where three lines emerge, those from Crewe, Leeds (and Newcastle) and Maryport. It contains a new 140 lever frame with levers at 4½" centres. Catch handle locking is provided and the frame is so situated that the signalman has an unobstructed view of all running lines. The lever handles have white, plastic covers.

The illuminated diagrams are also a plastic product recently developed by the Signal Engineer of the L. M. Region. The diagram is printed in black on a white plastic sheet. Small telephone visuals mounted on it are used to repeat the track circuits. This type of diagram is easily kept clean since it only requires wiping down with a damp rag.

The general scheme of signalling is electro-mechanical utilising colour light signals and theatre type route indicators for the running lines and mechanically operated ground signals for subsidiary movements. The signal box is centrally heated from a gas fired boiler and has a kitchen with mastic asphalt flooring, Belfast sink and draining board with white glazed tiled surrounds. The steel windows glazed with plate glass, occupy the length and ends of the box. The walls are constructed in Carsil sand lime bricks in gauzed lime mortar. The facings are of stone colour. The roof is flat with low surrounding parapet and constructed of pre-cast cinder concrete lightweight blocks laid dry between pre-cast concrete filler joist topped with a concrete screed laid to falls and covered with two layers of two ply bitumen roofing felt bonded together.

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The manpower position on British Railways has been unsatisfactory for a number of months, particularly so in the operating, civil engineering and some workshop departments. Statistics maintained for the past few weeks show that the situation is only just in hand with regard to men on the pay roll though the effective strength is considerably greater than that of a year ago. Britain has so far experienced a mild winter and freedom from epidemics have reduced absence through sickness. Absenteeism has therefore been considerably reduced though the position varies in different areas. This seems to be the case with other forms of Nationalised transport where the nature of the work increases the temptation to be absent. This situation did not obtain in days gone by but this may also be said for railways in other parts of the world as well.

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The subject of asphyxia in tunnels was discussed recently at the International Congress of Labour Medicine in Lisbon in a

report presented by Don Louis Blanco Valldeperez, Chief Engineer and Deputy President of the Central Committee of Lisbon Hygiene and Safety, Spanish National Railways. Deaths of crews of steam locomotives, he stated, have been caused by the working of slow and heavy trains through tunnels of small dimensions constructed in Spain about a century ago. The first preventive measures taken have been the banning of more than two locomotives on any one train on heavily graded lines, reduction of the load to permit higher speed and improvement in quality of locomotive fuel. Carbon dioxide, sulphur dioxide, carbon monoxide and steam emitted by the engine were considered as possible causes of asphyxia. Dr. Piga, of the Spanish Institute of Legal Medicine and Toxicology, stated his conclusion that carbon monoxide was the cause with the other three substances as contributories. Since carbon monoxide cannot be stopped by any form of filter, the Spanish National Railways designed respirators comprising a supply of fresh air under pressure from steel cylinders. The equipment differs for drivers and firemen. The driver wears a leather hood, on the same principle as a diver's helmet with a wide front glass: the lower edge of the hood is tucked into the driver's clothing, the fireman's respirator is light covering only the lower portion of the face. Since the introduction of this apparatus no further deaths have been caused by asphyxia.

A notorious case of asphyxia in a British Railway tunnel occurred on November 20, 1929 on the then Somerset and Dorset Joint line. Smoke and fumes from the engine of a goods train to Bath overcame the driver and fireman as the engine was labouring on the 1 in. 100 adverse gradient in the single line Combe Down tunnel; the engine got out of control on the descent from the summit shortly beyond the tunnel and the train was derailed at high speed.

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York Railway museum has a famous collection of railway relics: locomotives, carriages and signalling apparatus whose useful service is long past but which are of interest and instruction to posterity. Another engine has joined this famous company. It is the stationary winding engine which, since 1833 has hauled coal trucks up a 1 in. 17 gradient at Swannington, in Leicestershire. Built for the Leicester and Swannington Railway by Robert Stephenson, this locomotive was equipped with the earliest examples of the piston slide valve which, in improved form, is extensively used today. This is a single cylinder engine 18½" diam. x 3' 6" stroke with a working pressure of 80 lbs. per sq. in. The "gal" gear used by hand, enabled the engine to be started in either direction of rotation irrespective of the position of the crank.

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British Railways are to extend the use of miner's cap lamps which have been tried out experimentally by staff engaged in examining locomotives and boilers at motive power depots. The lamps leave the men with both hands free to do their job and at the same time enable them to direct the light where it is most needed. Small batteries are carried in the belt to supply current to the lamps, which are fitted with switches to enable a beam or a difused light to be used as required.

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Except for road haulage little is heard of animals with

(Continued on next page bottom)

The Railway Station

By A Correspondent

NOT many years ago railway stations were dismal places, uncomfortable and ordid. Passengers hurried from platform to exit, and vice versa, in heir daily journey to work without oticing any of the environs except erhaps the station clock. When hanging terminals and trains at unction stations a passenger had o wait several hours. He was ither comforted or depressed by hat the surroundings offered.

During the last two decades, ailway administrations have alised the necessity for modern nd comfortable facilities but their est intentions are often restricted y want of space or funds. Warehouses and business premises have habit of springing up around ailway stations and such land is xpensive and difficult to acquire. he war retarded improvement in is direction but rapid developents are now taking place in roviding up-to-date facilities.

The main objective of a passenger station is to be able to get passengers in and out of trains with the least inconvenience and danger to themselves. A platform is not a necessity but very desirable. Some trains have short steps down from the carriage doors and this is general practice on the Continent of Europe and the U. S. A. In such cases low level platforms can be used. The simplest layout is a station on a single line with no facilities for crossing trains: here passengers can gain direct access to the platform without stairs. Where two tracks have to be dealt with, at a crossing station on a single line or a station on a double line, platforms can be provided on either side or a single island platform between tracks. In order to make the island platform of sufficient width for safety, and to accommodate the station offices, the spacing of the tracks has to be increased necessitating curves

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gard to the running of railways. n the rack and pinion railway to Montserrat, near Barcelona, two ogs work on alternate shifts as evel crossing keepers. One is O-BI and the other KU-KI. he crossing is closed by means of wo chains. One of the two rossing keepers, in uniform cap, olds up a red flag to give warning f the train, when it can be heard uffing in the distance Their aster sits in a cleft in the cutting nd as soon as the train is due he alls one or other of the dogs and uts on his coat and cap. The og then runs to the box, leaps on n it and raises the red flag. Once he train is passed he runs back o be undressed. The two dogs ome of a family of crossing eepers and the parents have held down the same job for two generations. They take great pride in their work.

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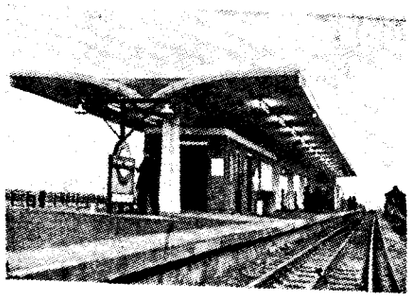
In India, traffic is often held up by animals getting in the way of trains but this is not the only country so affected. Snowey, a swan on the River Thames, London, delayed rush hour rail traffic between Putney and Wimbledon, for 20 minutes by crashing between the lines on Putney Railway Bridge. He probably tried to fly over the bridge, but hit either the side girders or a passing train, losing his tail. Railway workers could not shift the swan but he was eventually secured by three policemen.



Modern Island Platform
London Transport Railways

which may be undesirable if high speed trains run through. In either case, footbridges or subway facilities are essential between platforms and booking offices.

Junction and terminal stations present the greatest complications. Not only has the comfort of the passenger to be considered, in changing from one train to another by the shortest route, but also the planning of the tracks so that the entry or exit of one train does not foul and thereby delay another. In modern designs the bay passenger line is likely to fall into obsolescence. These lines waste engine hours unless run around facilities are provided to enable an engine to get away to shed after the train has arrived. This, however, does not apply in the case of multiple unit electric stock where run around facilities are not required. Platforms of sufficient length to accommodate two trains on the same line are a popular design. The maximum use of the platform faces is given by the installation of scissors crossings between the platform lines and duplicate Up and Down lines. This enables two trains to arrive and depart independently and to be dealt with at the same time at either of the platforms.

The design and layout of station buildings is a very important part of the passengers' comfort. Stations of the early nineteenth century, many of which still exist, possessed booking offices where the passenger is required to purchase his ticket by application at a tiny window which prevented him from observing who issued the ticket. There was no atmosphere of friendly contact or welcome between the booking clerk, as representing the person selling transport and the intending customer. Rather the tiny opening in the booking window suggested that passengers were some kind of germ who could just be tolerated! Modern stations are provided with a large and roomy circulating area with the booking office in the centre. The upper portion of these structures is mainly of glass which permits the booking clerk and passenger to see each other.

Arrival and departure boards are essential and in the latest schemes are prominent in design. Many of these have the train destinations and intermediate panels in the form of obscured legends illuminated from behind by electric lamps controlled from the train clerks or despatchers' office. Loud speakers have also come into extensive use for directing passengers. Not only can these be used to advise passengers' platform numbers from which their trains depart but also to advise alterations in case trains have to be received or despatched from platform lines out of the regular daily routine. In the case of reception these announcements are often made direct from the signal cabin from which place the necessary route is lined up for train reception. Several of these installations are now in use at important stations on the Indian Railways.

Modern passengers stations usually have modern signalling schemes. Where points and signals are operated mechanically, several

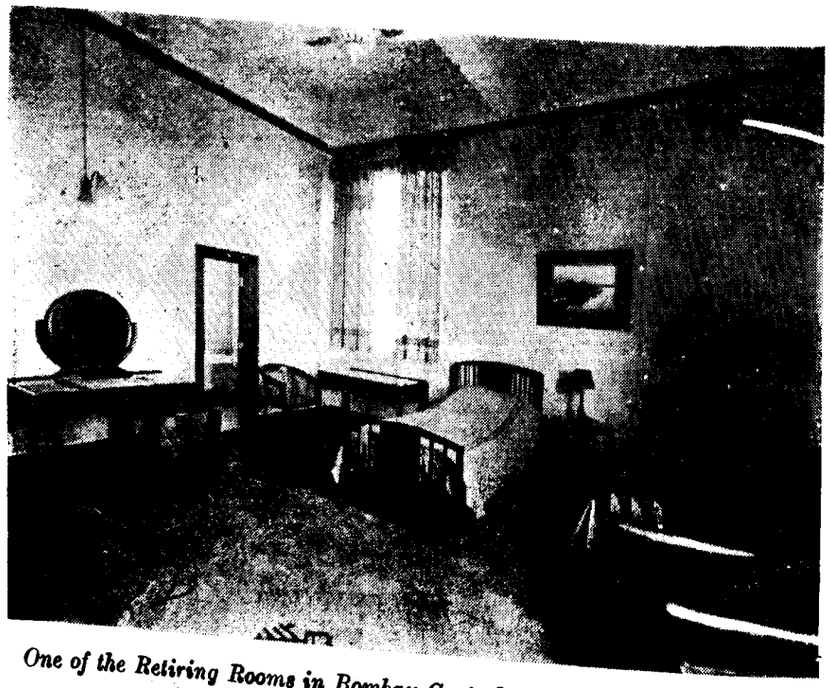
Booking Office and hall in underground Railway Station in London

Concourse of Waterloo Station—London's largest terminus

signal cabins are required since the distance between the signal box and the furthermost points capable of being so operated is strictly limited. Operation of points and signals by electric power places the whole yard under one control and enables all movements to be co-ordinated. The signal cabin is connected by local automatic telephone with the Station Master, Yard Master, Engine Shed, Signal Lineman, etc.

A large passenger station and the layout for accommodating passenger trains has to be designed with due regard to the location of the engine shed, goods yard, carriage sidings, washing sidings, stabling for parcel vans, etc. Engine sheds and carriage sidings have to be located as close to the station as possible in order that reception and despatch lines may be available for trains for the maximum periods possible.

Waiting and other accommodation for passengers is a very important point. The old fashioned waiting room has featured in many plays and stories with its smoky fire, flickering gas or oil lamp and general air of gloom and depression. Waiting room accommodation should be as comfortable and spacious as possible and it is unfortunate that the hard wear to which some members of the public subject waiting room furniture and fittings precludes any real kind of home comfort being provided. However, in some countries, a very great deal of luxury has been achieved. Restaurants, dining rooms and quick snack buffets are a great facility to long distance passengers and good lighting, cleanliness and atmosphere of comfort and good food are essential and contribute in no small measure to earning a railway a good name.



One of the Retiring Rooms in Bombay Central Station, Western Railway

During the last war, the factories and workshops instituted "music while you work." This consisted of a system of loud speakers located at convenient points in the various departments and at certain intervals of the day music was played from a central point by means of records. This was much appreciated by the workers and materially promoted production particularly on dull repetition work. The system was also used for making announcements and asking persons to report to certain places. For example, an office assistant might be touring departments and be urgently required by an executive. A note would be sent to the operator in the announcement cubicle and a message would be broadcast "Will Mr. so and so please report to Mr. so and so as quickly as possible." "Music while you work" has been found to be so successful that it has been continued under peace time conditions.

This has been followed by "Music while you travel" (or at least, about to travel). The large concourse at Waterloo Station, Southern Region, British Railways (giving access to 21 platforms) is fitted with a number of loud speakers and music is broadcast throughout the day, between announcements of train arrival and departures. The scheme has proved very successful and the installation has been made permanent.

In many parts of the U. K. and Europe stations have been damaged or totally destroyed during the last war and in spite of temporary repairs wholesale reconstruction has been essential. The same conditions apply to countries untouched by war and India has already started on extensive modernisation of junction and terminal stations.

N. S. W. Railways' Rs. 6,40,00,000 Freight Programme

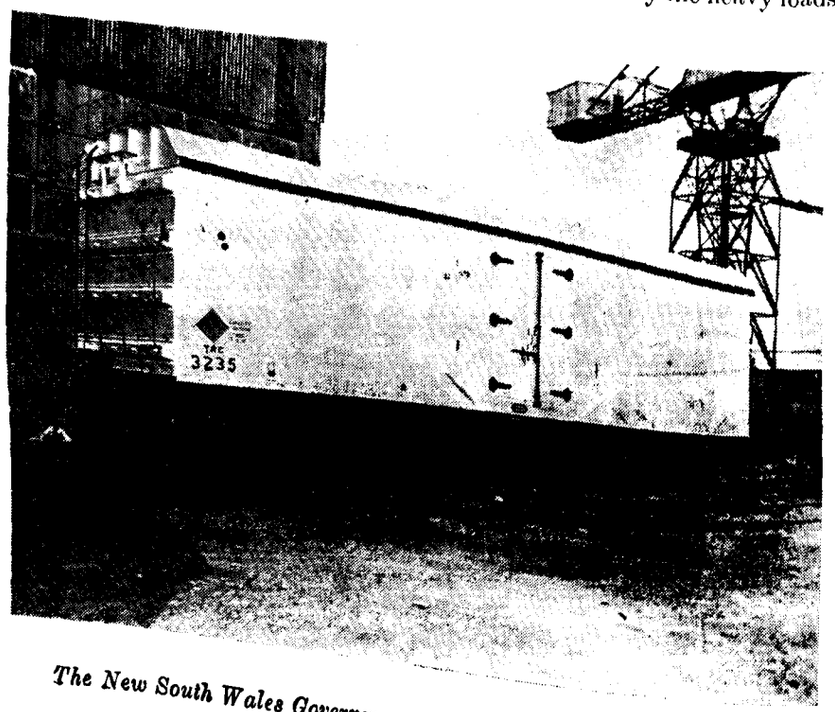
By Cecil Slocombe

ULTRA-MODERN freight vehicles made in Australia and now running on New South Wales railways will speed up and render more efficient the haulage of coal and refrigerated goods.

The first of the new cars and trucks were rolled on to the tracks from the construction plants recently. More than Rs. 6,40,00,000 will have been spent by the time the best car and truck join the system.

New South Wales has a Government-operated railways system of 6,113 miles of standard gauge (4 ft. 8 ins.) track. Out of Australia's 27,053 miles of railway line operated by the various governments, New South Wales has the second greatest length of track, the longest being Queensland (6,560 miles).

The new coal trucks—each carrying 40 tons—will be of the greatest importance to the State's economy, because more rapid transport of fuel will step up industrial capacity. Two thousand trucks are on order. Six giant 230-ton locomotives will haul the new coal trains. Tracks along the haulage routes are being specially reinforced to carry the heavy loads.



The New South Wales Government Railways are putting into service the first batch of ultra-modern freight vehicles.

The new type of coal hopper was specially designed by the N. S. W. Department of Railways in co-operation with the N. S. W. Joint Coal Board to meet much increased coal traffic that will result from the Board's plans to expand coal production.

An important and interesting feature of the new wagon is that it can rapidly discharge its contents through bottom hoppers. Six of these bottom doors can be operated from either side of the vehicle by a short hand lever. Discharge of coal is therefore practically instantaneous.

The wagon is fitted with a Westinghouse air-brake of the load compensating type, and has high speed bogies of the ride control type. Length is 36 feet.

All of the 2,000 bogie coal hoppers are being constructed by Australian firms, 400 of them by the Commonwealth Engineering Co. Ltd, Sydney, and 1,600 by A. Goninan & Co., Newcastle. The estimated total cost of these vehicles when delivered is about Rs. 4,50,00,000.

Present coal trucks of the system carry only about 18 tons and lack the simple load-discharging facilities of the New type.

REFRIGERATOR CARS

The new type of refrigerator car was designed by the New South Wales Railways Department after investigations were made into refrigerated transport in the United States of America, Canada and Great Britain.

It differs from the refrigerator cars already in service in New South Wales in that refrigeration is effected from top bunkers instead of from end bunkers.

Ice, with or without salt, is the refrigerating medium, carried in eight tanks mounted in the roof.

The ice is loaded into the tanks through roof hatches. Wooden trays provide a false ceiling in the car and carry all condensation and splash to ducts placed between the inner and outer walls. These ducts provide a path for the circulation of air throughout the car and with the grate floor ensure good circulation of cooled air through the cargo.

The car is steel-framed with a flush water-proof plywood interior finish, galvanised steel wall ducts and troughing, and wood floor grating. Steel sheets cover the outside walls, and the car is insulated throughout with fibre glass blankets.

This type of refrigerator car has been designed to crrry all kinds of refrigerated traffic but mainly to convey meat from country killing yards.

It has a floor area of 296 square feet, a volume capacity of 1,840 cubic feet, and a weight capacity of 32 tons. The overall length is 38 feet.

Fifty of the refrigerator cars are being built by Tulloch Ltd., Sydney. 150 by the Commonwealth Engineering Co. Ltd., Sydney, and 60 by the Metropolitan Cammell Car and Wagon Co. Ltd., of Great Britain. The total cost of the 26 refrigerator cars will amount to about Rs. 1,70,70,000.

Road Competition

DURING the war-years and the post-war years we have been battling with the difficulty of dealing with all the traffic offering. With the return of peace conditions the railways are once again faced with ever increasing road competition with ample resources available.

From past experience it is already clear to us that cost of rail transport alone does not decide the choice of the mode of transport. Other factors, such as speed, saving in handling and packing, proximity of the place of delivery to the place of business, absence of theft and pilferage and mal-handling en route, commercial convenience, etc. often play a more vital part in such choice not only in the case of goods consigned in wagon loads, but also in small lots as well as the parcels traffic. It is therefore very essential that a thorough analysis should be made of all the transport factors, which the clients will take into consideration in deciding on rail or road transport.

The chief advantages of road transport are: (1) door-to-door service, (2) absence of handling en route (3) potentiality to penalise the road-transport agency for any kind of indifference or failure, (4) quick settlements of claims and other issues. Even apart from all these the rail method of transport necessarily involves a minimum of two additional unnecessary handlings and roadhaul can never be altogether eliminated. The comparative costs of transport are well worth a consideration.

Let us compare costs by rail and by road.

BY RAIL

		Rs.	No. of Handlings
I.	Costs at Forwarding Station X.		
	Road Transport from sender's Godowns to railhead X (including handlings at either end of the road journey) ...	a	2.
	Loading into wagon at X ...	b	1.
II.	Railway Freight from X to Y ...	c	
III.	Costs at Receiving Station Y.		
	Unloading from wagon at Y.	d	1.
	Road Transport from railhead to consignee's Godowns (including handlings at either end of the road journey.	e	2.
IV.	Total costs of transport from Godown at X to Godown at Y.	$a+b+c+d+e = F$ (say)	6.

BY ROAD (throughout)

V.	Total costs of transport from sender's godown at X to consignee's godown at Y by the all-road route, including the handling at either end.	$= f$ (say)	2.

Note that the former includes 6 handlings as against only 2 by the latter. If F is greater than f, the party naturally prefers the latter, unless the road route involves any serious hardship. There are of course certain limitations in the road route, e.g. only a limited quantity can be transported as against 20 tons at a stretch by the rail route, the party to whom the goods are entrusted may not be reliance-worthy or solvent enough, the benefits of a Rail Receipt, which is a negotiable instrument, on which the major part of the value of the goods can be raised through a Scheduled Bank cannot be had, etc. Yet with all these drawbacks it has been customary in India for the party to take to the road. In order to attract the traffic to the rail Railways as a class have been quoting reduced rates and have been content with taking for their freight such amount as will with a, b, d, and e make up f, that is ($f-a-b-d-e$.) instead of c, so that the expenses for the party is the same f, whether by rail route or road route. This is the easiest method of attracting the traffic. But it is open to the railway to try offering first the genuine advantages of a rail transport, such as timely supply of goods wagons, quick transport, careful handling, less incidence of loss and damages, etc.

Terminal road services undertaken by the railway can serve clients who are not connected to the railway. Such haulage services on the responsibility of the railways form a decided advantage to them, which they will never overlook. It is for the railways to consider whether it is practicable consistent with economy to undertake such services for full wagon loads and how such services should be organised. There are however other ways of reaching such clients, such as taking the wagons to the clients' premises for loading and unloading by using special trailers or railroad vehicles, or by using containers, which can be transferred by means of cranes from wagons to lorries and trailers or vice versa. The fight against road competition necessitates also a thorough self-examination of the inside working of each railway from the point of view of speed, duration of transit, regularity of transport and punctuality, use of special type wagons most suited to to the commodity carried, etc.

The provision of terminal road services by the railways themselves saves the client the bother of finding a haulier, and what is more gives the railway direct contact with him, enabling the railway to know from day to day the client's requirements, where his grievances lie, and if he plans to take to the rival mode of transport. The client is assured of a service which will collect his goods from day to day at his premises at regular hours under the terms, conditions and guarantee as that of the regular rail transport commencing at the railhead; in other words a railway station for his transactions is taken to his very door, which he will certainly value very high. And yet such a system has not been extensively adopted, and no railway seems to have given serious thought or made earnest attempt at it. The chief reason may be that many clients have their own lorries and prefer to do their own terminal transport. In this service the railways have to compete with other public pure road hauliers; they have to rate for the road portion differently from the rail portion. On the road portion it is difficult to differentiate the rates in accordance with the importance and the quality of the traffic so as to prevent competitors from taking the cream of the paying traffic, leaving the less attractive to the railway. The classification of

commodities as in the tariffs on Railways will defeat the object of the Railways. In the formulation of such terminal road services the railways may be deemed as usurping the place of the commercial hauliers, who may have to go out of business.

It is not necessary or possible to serve clients of the railway from the station nearest to him; that is to say every station need not have terminal services; but such terminal services can be concentrated at or confined to a limited number of principal stations, at which sufficient traffic exists or can be canvassed by such means, or such stations which serve a fairly good number of up-country business centres, e. g. Tirupur, Madura, Trichinopoly, Coimbatore, Erode etc., each of which serves a good number of up-country mercantile centres. The road services must be able to cover its own expenses; the railway's revenues should not be spent on the maintenance of the road services; it should be possible to get traffic in both ways for the road services. Such an auxiliary service will not touch the pocket of the railway; on the other hand it will increase the rail traffic and bring down the cost of rail transport, for additional traffic would be hauled by rail for the same working expenses. In some cases it may mean or need the closing down of near-by stations for goods traffic; even intermediate stations may have to be closed down, so that the centres at which terminal services are provided may grow, and the intermediate poor-traffic stations will be served from the centre. Thereby the number of stoppages for the goods trains will be decreased and the trains can be speeded up and their cost reduced. Other advantages likely are that goods trains could be run to scheduled timetables, and passages for other trains assured, reduced shunting operations, better use of the stock and better turn-round of wagons, reduction of staff at the intermediate stations, better output of stock and staff, etc. This arrangement is in vogue on certain continental railways and the comparative Balance Sheet has always shown benefits and savings in favour of the road services round certain carefully selected central stations.

Before the war during the days of depression, 1929–39, the Southern Railways of India were considering very earnestly "Collection and Delivery" services for traffic, both in full wagon loads and in small lots, through their ancillary contract companies, at some of their principal stations. But very few of these contractor-services have been appreciable successes, for the very obvious reason that the contractors are not anxious for the growth of the railways' traffic, but are more anxious of their road earnings; private terminal transport also continued unabated, for the contractors did not make their services sufficiently attractive for every privately transporting trader and businessman to use the contractor-services. If the ancillary services had been in the hands of the railways themselves, the case would have been different. They could prepare various haulage rates based on the kind of goods transported, they could take stock of the diversity of the nature of the commodities, and make their road rates sufficiently flexible for adaptation to traffic-variation and condition-variation. Even now after the war, they are following the same procedure, and naturally will meet with the same results as before when full peace conditions return. Today it is alright, because we are still short of stock and power, and find it rather difficult to carry all the traffic offering.

Certain commodities may well be excluded from this facility

of terminal road transport. For example, tiles, timber, bamboos, building materials, coal, fuel, oil in bulk, etc. Or they may be given the service under special arrangements. If the haul is long distance from the rail-head, wagon loads alone may be undertaken. If the haul is within the municipal area in which the station is situated, door to door service may be provided for all consignments, including goods in small lots and parcels as well.

There are two methods under which the terminal transport may be done :—i) the railway itself doing it with its own staff and stock (ii) engaging a road haulier under contract terms. On some railways the contractor is paid according to the weight carried and the distance ; where the rates do not cover the cost, the contractor is subsidised by the railway. On some others the contractor is paid at a price per ton fixed in advance according to the kind of goods. On some railways part of the transport is done by the railway with its own staff and lorries, and the other part by the contractors. Some railways do the entire road transport themselves. On the Southern Railways of India, what commodities the contractors will carry is specified in advance, even the size of the packages, and at what rate per Bengal Maund ; these details are published in their tariffs ; for other commodities, other sizes and volumes, the parties concerned will have to make their own private arrangements.

No time is laid down for collection of goods from customer nor for delivery. But both the services are done as quickly as possible. But it is better in the interests of all parties concerned to lay down time-limits within which collection or delivery will be made, and that the railways and contractors stick up to that, for such a thing helps programming in advance by every body. The queer thing on the Indian Railways is that the railway penalises the parties by levying what is called wharfage if the consignment is not loaded up or removed within the free period allowed, but when the railway delays the operations for its own convenience at the risk and expense of the private parties, they owe to the party no penalty ; hundreds of instances exist where consignments have been delayed at forwarding stations themselves and enroute, and chances of a profitable sale at the other end to the owner destroyed, and it is deemed sacrilege to demand compensation for the loss that the party may have incurred. No notice of arrival of goods is ever given to the consignees. The consignee has no means of knowing if or when his goods have arrived, except by making an agent or broker to enquire of the Railway staff morn, noon, and evening, day after day. And the staff who change from shift to shift, may also give wrong information. And yet the consignee is expected to turn up on arrival of wagon and release it within the free time allowed, failing which he is penalised with the Demurrage. As is the case very often, agreements with railways, explicit or implicit, are always one-sided, that is on the side of the railway. Such agreements operate always in favour of the railways, never in favour of the owner of goods. On the continent some railways guarantee the delivery time ; the delivery time counts from the time the goods loaded on to a wagon are handed over to the railway with the way bill or the forwarding note ; and the goods must be delivered *home* within the guaranteed time. Even on railways which do not guarantee time, collections are made suiting the convenience of consignors and deliveries are effected as soon as wagons arrive.

Principles of Station Accounting

By P. H. S. Rao

THE RELATION OF THE STATION ACCOUNTS TO RAILWAY ACCOUNTING

A railway is a big organisation doing business in many towns and in many states supplying the transportation needs of an entire section of the country. A large and widely scattered organisation which means an elaborate accounting system is the natural outcome of the extent and complexity of its activities. The activities of hundred and thousands of station masters are to be properly supervised and controlled and their operations reflected correctly in the general books of the railway.

The business of selling transportation service is conducted largely through the station masters and their staff. Thy sell tickets, they receive and deliver the consignments to its clients and collect all the revenue. The details of accounting procedure on individual railways are uniform to a surprising degree. The result aimed is the same in all cases.

Each station is a distinot accounting unit within itself, keeping a set of books relating to its receipts and expenditures. The final result of the station's activities are duplicated in the general books of the railway. This involves the station reporting its receipts and expenditures

periodically to the accounting office to be incorporated in the accounting office books for that station and the keeping of such accounts at the station to furnish and tabulate the data and figures that make up and balance the entries in the various abstracts, summaries and balance sheets.

This control is supplemented by the work of travelling auditors who check up the stations periodically.

The chief problems are to keep the books of the station balanced and to reconcile the station and accounting office books. If the first result is achieved, the latter will usually take care of itself.

ACCOUNTING PROCEDURE AT THE STATION

To understand exactly the relation and importance of the station master in the scheme of railway accounting, let us trace briefly, first, the accounting procedure when a consignment is hauled, and, second, when a passenger is transported.

First: When a consignment of goods is offered for transportation, it is accompanied by a forwarding rate properly executed.

Second: an invoice is prepared from the forwarding note after it has been rated and the freight charges calculated.

Third: The receiving station master or goods clerk collects the proper charges from the consignees, unless the charges were prepaid at the forwarding station.

Fourth: He enters the amount collected in his cash book and other station records and makes out his periodical or monthly abstracts and reports, sending them with the invoices to the traffic accounting office, remitting the money to the cash office or the bank.

Fifth: He balances his accounts and shows the result on his station balance sheet, which he forwards to the accounting office.

ACCOUNTING PROCEDURE IN THE ACCOUNTING OFFICE

The traffic accounting office is concerned primarily.

1. With auditing the reports and abstracts sent by the station masters, ticket examiners, and other employees charged with the collection of revenue.

2. With distribution of foreign revenue to foreign railways and checking his own railway's proportion of foreign revenue collected and reported by foreign railways.

3. With the preparation of Traffic statistics. Auditing the reports and abstracts sent by the stations is done by the office personnel and by travelling auditors who make periodical visits to stations. This auditing is preliminary to the preparation of journal entries.

The Invoice together with the station's abstract, is the basis of freight revenue chargeable to the reporting station. The invoice suppored by the station's abstract rendered is the station's basis of freight revenue and the two must agree.

The abstracts are checked to see that all the invoices are shown as they actually read, and that all weight and revenue columns are correctly footed. If no error in its compilation or footing is noticed, the report as rendered is accepted as correct and charged against the station.

The invoices (but not the abstracts) are then sent to the auditing section and the charges that were assessed at the station are carefully checked. If an error in the weight, rate or calculation is discovered the figures on the original invoice and the abstract is changed and an error-sheet issued advising the station of the correction made.

The error sheet simply serves to notify the station that it has assessed charges and reported an invoice at an incorrect rate, that the invoice has been changed to the correct figure and that the difference shall be accounted for on such subsequent report sent in from the station, in order to bring the station's reporting of the invoice to the correct amount.

Ticket and luggage reports sent by stations are the basis of the charge made by the coaching accounting office against the reporting stations. These reports are carefully checked for errors in rate, calculation and footing, as well as to see that all ticket stock issued is accounted for. If an error is noticed, an error sheet advising the station that an incorrect rate has been used and that an adjustment of the amount

involved shall be inclued in some subsequent report submitted by the station.

THE FINAL RESULT OF STATION ACCOUNTING

The station master is not concerned with the work of the accounting office but in order to understand the real significance of his own work it is quite necessary that he be familiar with the final destination of the figures which he prepares.

After the abstracts and reports are audited, they are checked with the station balance sheets and then posted to the Traffic Book against the particular station.

The amounts of the revenue collected are then distributed in the general book according to the classification of earning prescribed by the Railway Board. They pass through the book-keeping procedure in the accounting office and finally appear in the general balance sheet, and the profit and loss and income statements of the Railway. These are used by the management for formulating its plans and policies, by the security holders as a gage of the financial strength of the Railway and by the various regulating bodies for a variety of purposes but principally for determining the reasonableness of rates and fares.

With this general plan of revenue accounting procedure in mind, we may take up the study of the principles and details of station accounting work.

Aspects of Railway Working

"Handling with Care"

By A. H. Pearson

WHEN a consignment of goods is brought to a rail head for despatch, the individual booking the goods expects that the railway administration will take all reasonable care of the consignment while it is in rail transit from starting to destination station. But in spite of all the 'reasonable' care taken by the railwaymen whose job it is to deal with parcels and goods traffic, various factors may be the cause of a particular consignment reaching destination damaged, pilfered, of short weight, or even being lost while on the journey.

Now, whenever such occasions arise, obviously the person who books the goods is not likely to take his losses with a shrug on the shoulder; so he will ask the railway authorities to make good his loss. In railway parlance this is known as a claim, or compensation claim, and to cope with the thousands of such claims on every rail system, a large organisation known as the Claims Department is maintained. Briefly, this is how the Claims men function.

Suppose a merchant goes to a railway goods office to take delivery of a consignment of miscellaneous articles. He finds that the wooden case in which the articles were packed has been badly damaged. Naturally he will decline to take delivery until the contents have been checked and verified. In claims jargon, this process is known as 'open delivery.' In the presence of the goods Clerk and Claims Inspector, a detailed inventory of the contents must be made. The merchant will then take delivery under what is known as 'qualified remarks.' This means, that in consultation with the Claims Inspector, an assessment of the damage or loss is made, and details of articles partially or wholly damaged etc. are noted. The merchant is now armed with a document with which he can send in his claim.

The Claims Inspector now prepares a detailed report which he sends to the Claims Officer concerned, and if it is found that the merchant is in no way responsible for any loss or damage to his consignment, his claim is paid, according to the assessed value of the goods lost or damaged.

In dealing with claims cases a lot of painstaking routine work has to be done. Somewhere, between despatching and destination stations, the consignment may have been carelessly handled. If possible, responsibility for this must be fixed. Or, the clerk who accepted the consignment for despatch at the forwarding point may not have examined packing conditions properly. If the consignment had been insecurely packed in any way, there would be every likelihood of the ordinary handling in transit causing at least some damage. It is for this reason that all parcels and goods clerks must be constantly on the alert for insecure packing conditions, so that such consignments are not accepted for despatch.

A glance at some of the files in a Claims Office would reveal a complexity of causes which give rise to claims. For instance, take the extensive type of merchandise classified as 'fragile.' Glassware, radios, precision instruments, clocks, watches etc. must be clearly marked 'fragile' and very securely packed. In spite of this,

somewhere along the journey a station porter may carelessly fling the package out of the train on to the platform, and some of the contents may get smashed.

Then while loading valuable piecegoods consignment like silks, brocades, costly sarees, woollen materials, into wagons great care must be taken by the loading staff to see that such consignments are not stacked up against any consignments of an oily or greasy nature. A grease or oil stain may seep through the gunny packing into the valuable rolls of cloth, leaving an almost indelible stain, causing a consequent reduction in the value of the material.

Care must also be exercised to see that consignments of a rapidly perishable nature are not wrongly marked and sent to a wrong destination, as no one will come forward to take delivery at the wrong place. The result will be that the perishable consignment will soon be perished to such an extent as to make it worthless for all purposes.

Quite a large part of the work of the Claims Department Staff is that of tracing missing consignments. Every week printed circulars go out from the Commercial Headquarters Office with details of missing consignments. The station staff as well as the Claims men in particular must now do some detective work to locate these consignments. This is not always a pleasing job, as it means wading through a number of routine documents, loading books, wagon registers and other station records. All this means delay, and time is money to a business man who is waiting for his missing consignments. If his merchandise is unduly late in transit and there seems little hope of tracing, he puts in a claim for compensation.

Another aspect of Claims work is that of prevention of claims. How is this achieved? Supervisory claims staff are required to make frequent surprise checks on the methods of work. They must keep their eyes wide open for every little error of omission or commission on the part of the goods and parcels office men. Are all consignments accepted for despatch being thoroughly checked for signs of insecure packing? Are all documents required for transit and accountal puposes being legibly and accurately written? If not, mistakes may mean despatching to wrong destination, under or overcharging in freight due and so on. Accurate weighing of all consignments is also another point to be constantly checked to prevent claims on short-weighed goods. Loading and unloading operations also require to be watched carefully, as careless methods must perforce lead to claims. Wagons into which goods are to be loaded must also receive meticulous examination, especially in monsoon weather, as if wagons are not water-tight, a journey made in heavy rain may result in the entire contents of a leaky wagon being badly damaged, with consequent heavy claims. In yards, Inspectors must keep a tab on shunting operations as rough shunting of wagons may cause damage to contents. These, and many more little details require constant checking-up, and where faults are prevalent, staff must be educated to realise that in claims work prevention is better than paying out large sums of money in heavy claims.

Anybody interested in statistics should take a look at the 'Claims' bill of any railway system. This runs into perhaps over a lakh of rupees annually. It is the objective of the Claims Department not only to arrange payment of this colossal bill, but to make every effort to keep reducing the figure.

OURIST SERIES—V

Tourist Interest on Southern Railway

Rock Fort Cave Temples—Trichinopoly

By L. N. GUBIL

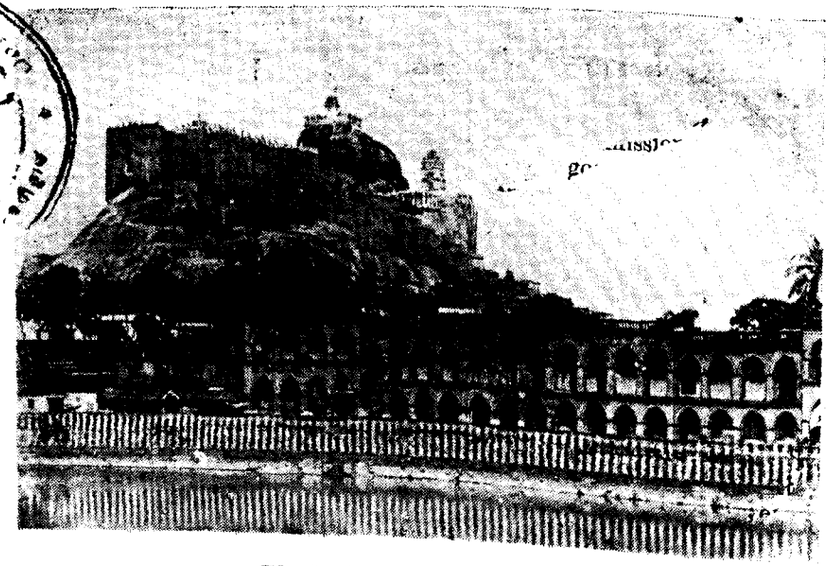
OF the important historical centres of South India, Trichinopoly has a leading place. Here there are cave temples which contain inscriptions of early times. The Pallava dynasty contributed not a little to the history of South India and Trichinopoly in particular, in the 7th century, and patronised fine arts and architecture; the monumental relics of their age are found today in almost all the places where they held sway. Perhaps the most important of these, both from the historical and architectural point of view, are the Cave Temples at Rockfort in Trichinopoly.

The upper cave—Rock Fort

There are two cave temples in the Rock Fort, the Upper and Lower ones. The carvings of images cut out of the rock in the temples are a distinct feature of the Pallava civilization. People say that those carvings have a Buddhistic air dating back to the 5th or 6th century A. D. But it is now an accepted fact that these cave temples are the work of Pallava Kings who ruled over the Chola Kingdom in the 7th Century A. D. During the reign of the Pallava Kings Simha Vishnu, Mahendra Vikrama Varma and Narasimha, various cave temples were built. And the cave temples at Trichinopoly were the work of Mahendra Varma, the Pallava King who reigned between 600 and 625 A. D.

The upper cave temple in the Rockfort is situated on the way to Ganesa temple at the top of the Rock Fort. It is a low hall of unpretentious dimensions containing some sculptures notable for their excellence. This hall is supported by pillars of special shape, which are about 7 feet high and 2 feet square. The length of the hall is about 30 feet, the width 15 feet, and the hall is 9 feet in height.

The whole cave is beautifully worked out with statues and inscriptions. On the western wall of the hall is a fine piece of group statuary. The central figure is Siva with four arms. One of them supports the figure of the Goddess Ganges, who according to mythology once threatened to delude the whole world. The right lower arm holds a serpent. On the left arm is a rosary while the lower arm rests on his hips. Shiva's right foot is slightly bent crushing a dwarf, while his left foot stands erect. All four Rishis (or Saints) kneel about him in order to sing his praise; and there are also Ghandarvas with hands raised in supplication. The pose



The Rock Fort—Trichinopoly

of all the figures is beautiful and the panelling is highly exquisite.

At each side of the entrance to the shrine a Dwara-Palaka or Door-keeper with an aggressive life-like look seems to deliver a message and warning.

There are inscriptions in the pillars both in Sanskrit and Tamil. On each of these pillars four Sanskrit verses are seen inscribed. And on the lower part of the left pillar are found a few unintelligible words and a much defaced group of inscriptions in old Tamil Script.

There are several inscriptions carved on the northern wall of the cave, which eulogise the beauties of the Cauvery, of the temple and of the glories of the Pallava Kings. They also describe the apprehensions of the Goddess Parvathi, who was afraid that Siva, her spouse might fall in love with the Goddess Cauvery (the name of the river flowing adjacent to the Rock in the north). Some of the verses state the reasons for Parvathi's coming over here for her father's house. Thus the cave temple is rich in ancient inscriptions besides possessing architectural beauty and grandeur.

There is yet another cave temple which is at the foot of the Rock It is situated on the Western side of the main entrance of the temple. It is generally known as the lower cave-temple. This has also been designed in the same manner as the upper one. This lower cave temple seems to be later in date than the upper one. Further this lower cave temple is somewhat incomplete. The pillars of this temple are different in shape and size when compared with those of the upper cave temple. But here one finds a greater number of figures scopped out of the rock in a lovely variety of poses. Another difference is that the hall possesses two side chapels. There is an image of Vishnu in the Eastern chapel, which is supported by 8 pillars. On the Northern side facing South there is a group statuary containing the figures of

Brahma, Surya, Indra, Shiva and Ganesha. It is no doubt true that the panels of this lower cave temple cannot stand comparison with those of the Elephanta Caves. Further these figures are not of the same excellence as those of Mahabalipuram. But the serenity of their pose and their expression are really grand and beautiful. Thus the lower cave temple has also a beauty of its own, which attract students of art.

These two cave temples are important also because they confirm the story of Appar's conversion of Mahendra Varma from Jainism to the Saivite faith. They are the standing monuments of the Pallava workmanship. Now not only the archaeologist and the historian could unearth interesting data but also the skilled architect and the artist would find much in these cave temples would give them an insight into the glory of the past but also give profit, pleasure and attraction. The two Rock-cut cave temples of the Rock Fort are, thus, interesting objects of close study, which no student of art could ever afford to miss. Really they are things of beauty, which are a joy for ever.

Special Paints for Sindri

THE Sindri Project has afforded many examples of the usage of special paints formulated for special purpose.

This need to relate paint to the job expected of it is not as widely appreciated as it should be. Although it is true there are many general purpose paints, there are also many special finishes which it is essential to use on certain jobs. Most complaints about paint failure are in fact the result of the user having expected it to do a job for which it was never formulated. This applies equally as well to day-to-day use in the home.

At Sindri the many chemical containers obviously required a finish that would be non-reactive to the materials to be stored in those containers. In industry generally, many acid resisting paints are required, for distilleries, in sugar production etc. There are of course special paints for boilers, chimney stacks, and the range of specially formulated marine finishes, which are required to combat strong corrosive influences, is extensive.

The various stages of the process of synthesis in the production of the Fertilizer, Ammonium Sulphate, required various types of plant, each with its special functions. Each stage offered a variety of surfaces, which required protective painting such as local insulating lagging, steel surfaces exposed to alkali fume attack, the reflective surfaces of the condensers, non glare matt finishes for switchboards and special paints to resist the dust action of pulverised gypsum. These are just a few examples of the variety of requirements which have to be met.

Generally, for plant finishing, the Synthetic Alkyd resin finishes, especially formulated, were designed to meet the varied conditions presented. It may be said that all types of paints were employed in the finishing of this plant including Paste Distemper, Bituminous Black coatings, etc.

A more general application at Sindri is the use of aluminium paint on outdoor storage containers. An aluminium finish is ideal for this purpose, for apart from being rust preventive, hard drying and durable, good aluminium paint will withstand all weather conditions for many seasons and being highly reflective, helps to keep buildings, in this case the containers several degrees cooler.

The failure of paint users to realize that the length of life and the appearance of any paint job must inevitably depend upon the preparation of the surface as well as the skill and thoroughness with which the paint is applied, is a further cause of complaints. "Slap-happy" painting on a dirty surface does not allow the film to adhere to the surface so that flaking and corrosion can set in behind the paint to eventually break it down.

At Sindri, not only has attention been paid to obtaining the right paint for the job in hand, but the correct application methods have been applied throughout.

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EDITORIAL NOTICE

The Editor invites contributions to the Magazine on a variety of topics—short stories, technical features written in simple English understandable to the laymen, Aspects of Railway Working, places of tourist interest, News from home line, activities of Railway Institutes etc. All copy should be brief and typed as far as possible.

Photographs illustrating social functions, sports events, scenic sports etc. are also invited. All contributions should reach the Editor not later than 5th of each month. Rejected Mss. will be returned provided sufficient stamps for postage are enclosed. No responsibility will be borne for copy lost in transit.

Views expressed in this Magazine should not be taken as having official authority.

All correspondence should be addressed to "The Editor, Southern Railways Magazine, "Post Box No. 17, Tanjore, (South India.).

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Regrouping Completed?

ON the 14th April the Prime Minister performed the inauguration ceremony of the three remaining rail zones—the Northern, North-Eastern and Eastern Railways. The Northern Railway with headquaters at Delhi now combines the Jodhpur, Bikaner and East Punjab Railways with the three Divisions of the former E. I. Rly. continguous to them, i. e. the Moradabad, Lucknow and Allahabad Div sions. The North-Eastern Railway takes in the whole of the old Oudh and Tirhut and Assam Railways, with the Sealdah Division and part of the Howrah Division—the Loop section of the old E. I. Rly. The headquarters of this railway is at Gorakhpur. The Eastern railway with headquarters at Calcutta combines the whole of the old B. N. Rly. with the existing Dinapore, Asansol and part of the Howrah Division of the E. I. Rly.

This final phase of the regrouping plan has been pushed through by the Government in spite of intense criticism and opposition in the last six to eight weeks, the opposition coming from certain State Governments, commercial bodies and the All India Railwaymen's Federation.

The main objections to the final phase has been (*a*) the exclusion of the Allahabad and Sealdah Division from the Eastern Railway, and attaching these to the Northern and North-Eastern Railways, respectively : (*b*) the location of the headquarters of the North-Eastern Railway at Gorakhpur instead of at Calcutta, and (*c*) either the mass transfers of staff or ultimate retrenchment on account of the present set-up. Railway Labour has also felt that this last phase has been rushed through rather hurriedly.

As a result of conferences held at Delhi both before and after the inauguration it would appear that the exclusion of the Allahabad and Sealdah Divisions from the Eastern Railway is not irrevocable and that by the end of April the Railway Ministry would categorically give a decision as to which Railways these sections of the old East Indian would ultimately be attached.

As far as the controversy in regard to the choice of location of the headquarters of the North Eastern Railway is concerned, it would appear that Gorakhpur, and not Calcutta, is the final choice of the Railway Ministry, with the posting of a high-powered Deputy General Manager at Calcutta to control the movement of traffic to and from the Calcutta area to the North Bengal and Assam regions of the Noth-Eastern Railway.

In principle the plan for the regrouping of railways is now an accomplished fact. The last phase has caused quite a sensation in the form of opposition and criticism in regard to the details and the speed with it was pushed through, and with the few more details to be worked out within the next few weeks, it is hoped that the Railway Ministry in its wisdom will be able to satisfy, or almost satisfy, its most bitter critics in the decisions that will be finally taken.

Notes and Comments

ARANTANGI-KARAIKUDI RAIL LINK

The newly-constructed 17-mile railway line linking Arantangi in Tanjore district with Karaikudi in Ramanathapuram District was declared open at Arantangi last month by H. E. Sri Prakasa, Governor of Madras in the presence of a large and distinguished gathering.

The function was held in a spacious decorated pandal, erected near the Arantangi Railway Station. The function was attended amorg others by Srimathi Kamini Devi, Mr. H. Sambamurti, Governor's Secretary, Mr. J. Shivashanmugham Pillai, Speaker, Madras Legislative Assembly, Mr. A. R. Venkatachari, Chief Engineer (Irrigation), Major C. V. Rajan, Post Master-General, Madras, Mr. Kasturi Srinivasan, Mr. C. R. Srinivasan, Raja Muthiah Chettiar, Sir P. T. Rajan, Mr. T. K. Palaniappan, Collector of Tanjore, Mr. S. Parthasarathi, D. I. G. of Police, Mr. R. Venkataraman, M. P., Mr. O. V. Alagesan and important railway officials.

Mr. K. R. Ramanujam, General Manager of the Southern Railway in requesting His Excellency to open the new railway line, said that in comparison with the achivements of renascent India, the Arantangi-Karaikudi Railway was a very modest one, but it was a "symbol of the new awareness which seeks to make the railway serve defined social needs more aptly than it has ever done in the past."

Great anxiety is being felt amongst certain classes of railway employees as to whether the sudden fall in prices heralds a corresponding drop in their Dearness Allowance.

The Arantangi-Karaikudi Project was recommended for construction by the Central Transport-Board in May 1949. Its execution was sanctioned by the Government of India in March, 1950, and work on the construction began in 1950-51. This railway link was considered as part of a policy to expedite the movement of food from the Mettur-Cauvery Project area of Tanjore District to the adjoining region in Ramanathapuram District which is frequently susceptible to famine owing to lack of agricultural resources.

The new line was sanctioned at an estimated cost of Rs. 42 lakhs. It closes a short gap between Arantangi and Karaikudi, short-circuiting the present distance of 196 miles via Tiruvarur, Tanjore and Tiruchirapalli and providing quicker communication between Tanjore and Ramanathapuram Districts. It also provides an alternative through connection to the Southernmost parts of this State from Madras via Mayuram. It is expected that the opening of this line will assist the development of the Cauvery-Mettur area in Tanjore District.

The work of construction on this link was completed early this month. There are two crossing stations, Valarmanikkam and Kandanoor-Puduvayal. There are also two flag stations, Idaiyur and Periyakottai. The line passes over two major bridges, one accross the Vellar consisting of nine 60 ft. spans and the other accross the Pambanar consisting of six 40 feet spans built on well-foundations.

Mr. Ramanujam said that it was not a very glamorous episode in the history of their railways. For sheer romance of railway construction and the vital place they occupied in the national economy, there were worthier competitors in the field such as the Assam Railway Link and Chittaranjan. Hardly 18 miles in length and with no great engineering feat to boast of, the Arantangi-Karaikudi line was almost dwarfed, in the physical scale of its conception, by the many railway enterprises of the post-war era. "Nevertheless, it is a symbol of the new awareness which seeks to make the Railway serve defined social needs more aptly than it has ever done in the past."

"The Arantangi-Karaikudi Railway which your Excellency will shortly open is exactly 17·07 miles in length. There is already a rail route from Arantangi to Karaikudi in existence, made up of different sections of the Main and Branch lines totalling 196 miles. Your Excellency will thus be closing a small gap and completing a triangle one vertex of which has, for several years, been truncated from the base, owing to historic accidents of railway ownership and construction.

TRANSPORT POLICY

"Railway undertakings are predominantly commercial in outlook and new lines are not embarked upon unless there are prospects of remunerating reasonably the capital invested. Sir Edward Benthall, the last Member of the Viceroy's Executive Council in charge of Transport outlining the post-war policy of transport in this country, said: "There is no sense in building a Railway if a road would do the work equally effectively, or unless for very good reasons, in building both in competition for a traffic which would be carried by one or the other." The

implication of this statement was that in the post-war years the construction of additional Main and Branch lines was not expected to be spectacular and that the criterion of profitability would apply to all new projects perhaps more rigorously than ever. The policy he enunciated was the offspring of the Government of 1945.

"With the advent of independence, a fresh epoch commenced in the history of our country. Our leaders have rightly insisted that with the inception of the new order they cannot be too mindful of the heavy responsibility that rests on their shoulders in giving a proper lead in the revision of old policies and enunciation of new policies and their implementation.

"Having successfully triumphed over the deterioration in equipment and operation due to the war and the unprecedented difficulties and damage during the post-partition period, the Railways are now well on the road of

... Our General Manager ...

rehabilitation and expansion. We are moving rapidly towards the attainment and maintenance of a progressive standard of operative efficiency and public service. We are fully conscious of our new role to function as a fit instrument of such social transformation as is willed by the public through their chosen organs of the Government.

"The Arantangi-Karaikudi Railway requires to be considered in the new context. During the years 1946–50, the necessity for this short link was keenly felt due to the need for quick transit of food from the surplus regions to the deficit areas in this part of the Madras state. An investigation into the traffic prospects of the line made on previous occasions definitely indicated that viewed as a commercial undertaking, it would not be remunerative but as an amenity in the general scheme of national rehabilitation it might find a place. The food emergency in recent years spot-lighted the necessity for quick outlet from the rice growing areas of the Tanjore District to the deficit pockets in Ramanad District and elsewhere. As the problem of food had become paramount by 1949, the question of providing the new Arantangi-Karaikudi Link had to be reconsidered as a part of social policy.

"Mr. C. Rajagopalachari in the message which he issued to the nation as Governor-General on the occasion of the second Anniversary of Independence, said that food was our immediate and most important national programme. He cited a verse from our ancient scripture: *Annam Bahu Kurveeta Tadvritam* Let us dedicate ourselves to the ncreased production of food). Complementary to increased production is the quick transit of food rom surplus to deficit areas. We ight add to the Vedic injunction nd say, "Let us dedicate ourselves to the quick transport of food."

It was in the highest national interest therefore, that all means were to be made available for overcoming the shortage of food. The sanctioning of the Arantangi-Karaikudi Project by the Government on March 27, 1950, was to help to bring food to a region that was agriculturally resourceless and which, without speedy communications, was frequently susceptible to famine. It is the result of the new awareness of social responsibility which inheres in modern railway administration.

To those amongst the audience as are statistically minded I shall give a few details pertaining to the construction of this railway. Its length as I have already told you is 17·07 miles. The guage is the usual Metre Gauge, viz., 3'–3 3/8". The capital cost involved is Rs. 42 lakhs. The total quantity of steel work—330 tons. The total earthwork for banks—12½ million c. ft. The total earthwork in cutting—2½ million c. ft. The total concrete—142,000 c. ft. Masonry work—200,000 c. ft. There will be two crossing stations and two flag stations on the Section.

The Railway will serve a population of 50,000 and is expected to yield about a million ton miles of traffic per annum. With the opening of this link a much felt need of the public of Tanjore, Trichinopoly and Ramnad Districts has been fulfilled and this transport facility, particularly in regard to food, will go a long way towards the betterment of conditions of the population in this area. Valaramanickam, Periakottai and Kandanur-Puduvayal villages and the surrounding hamlets stand to develop considerably from the opening of this line. In addition, the link provides an alternative main line route between Madras and Ceylon;

the distance from Madras to Dhanushkodi via this route being only 410¼ miles as against 425¼ miles via Mayavaram and Trichinopoly.

"I take this opportunity of tendering publicly the thanks of the Administration, to the men engaged on the Arantangi-Karaikudi Project from the Engineer-in-Charge down to the Juniormost workman. They deserve every tribute for their work done under not-too-easy conditions. Our thanks are also due to many of the Railwaymen who helped the various officials of the State Government, the Contractors, their men, etc.

"I thank Your Excellency for having so kindly consented to make this trip to Arantangi and preside over this function so soon after your investiture with so many pressing problems of State awaiting your attention. I thank all those assembled here for their having responded to our invitation."—Jai Hind.

GOVERNOR'S OPENING ADDRESS

In opening the new railway link, His Excellency Sri Prakasa, the Governor of Madras, said that he deemed it a great privilege that almost his first public act on coming to Madras was the opening of the new line. He was happy that the link had been constructed, making transport easy. For though the General Manager had been modest in describing the achievements of the railways, the Governor said he could not think that this new link was less glamorous or less important than the Assam link, because everything done to facilitate transport from one side to another in this vast country was worthy of respect. He added that he had no doubt that this little project was really much more serviceable than might appear on the surface and would prove in the ultimate as important as necessary as glamorous as any other they could think of.

Expressing the hope that the railway authorities would always welcome constructive suggestions from the public, His Excellency pointed out that, when they had attained swaraj, it did not mean that the voice of public opinion should be silenced. The railways might be a commercial concern, but they were a public utility concern When railways enjoyed a great deal of monopoly in certain matters, their responsibilities became very great indeed towards the public, and the responsibility of the public was equally great. "I am not saying this with reference to this particular link, which should receive your generous consideration for at least some time. There would be complaints. But you must defer them for the present."

H. E. Sri Prakasa paid a tribute to the engineers and workers for their work in the construction of the line and pointed out that they should not forget the humble workers and labourers who deserved their gratitude and admiration.

His Excellancy concluded by saying: "I pray that the great purpose for which this link has been constructed will be amply fulfilled and that peace, prosperity and happiness will come to the countryside."

Sir P. T. Rajan proposed a vote of thanks. He hoped that the new link would play an important part in the social and economic life of this part of the state.

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New Delhi News Letter

REGROUPING OF RAILWAYS

At New Delhi on 14th of April, 1952. the Hon'ble Prime Minister Shri Jawaharlal Nehru inaugurated the three upcountry railways, thus completing the reorganisation of management of the colossal property of the Nation in Indian Railways. There were, in the past, more than 20 administrations working railways in the country for different interests. With the transfer of the ownership of the railways to the Nation gradual integration of such a large number of administrations and interests with one ultimate object viz. of efficiently and economically serving the public has been achieved. To give a detailed history of the constituents of these three major railways requires a lot of space and time but a brief account of their past might probably make it interesting.

Taking first the railways near the frontiers of the country in the North-West, the Northern Railway, with about 6,000 route miles, is composed of:

(i) Eastern Punjab Railway;

(ii) Bikaner State Railway;

(iii) Jodhpur State Railway;

(iv) Moradabad, Lucknow and Allahabad Divisions of the E. I. R;

(v) Delhi-Rewari-Fazilka Section of the Western Ry.

(*a*) The Eastern Punjab Railway takes its name from the territory falling within Indian Dominion on partition of the country. So actually it is ex N. W. R. which had always been considered more a strategic than a commercial line and has all along been worked by the State. In 1925 the Government acquired the E. I. Railway for direct management and the Delhi-Ghaziabad and Delhi-Kalka sections were given to the N. W. Railway. In 1940 the Hardwar-Dehra Railway, owned by the Hardwar-Dehra Branch Company was purchased by the Government and amalgamated with the E. I. Railway; this forms part of the Moradabad Division now transferred to the Northern Railway. In 1950, with the financial integration of the States, the lines owned by the States of Patiala, etc., were taken over by Government of India

(*b*) Jodhpur-Bikaner combined railway was opened to public traffic in 1890. It was gradually extended up to 1912. It was divided into two separate systems of Jodhpur and Bikaner Railways in 1924. In 1941 the Bikaner State Railway connected the line to Rewari, providing a direct link between Bikaner and Delhi. In 1950 the railways were brought under the direct control and ownership of the National Government.

The North Eastern Railway, with about 5,500 route miles, includes:—

(i) O. T. Ry.

(ii) Assam Railway.

(iii) Sealdah Division of the E I. Railway, with some additional sections of Howrah Division, viz., the Sahibganj Loop, etc.

(iv) Fatehgarh District of the Western Railway.

(*a*) The Samastipur-Mozuffarpore section was opened in 1877 for public traffic although the Tirhoot Railway is stated to have been constructed in 1874 temporarily to overcome famine difficulties. The gradual extentions and additions need not be mentioned. In 1943 the Bengal and North Western, and

Rohilkund and Kumaon Railways —owned by Companies—were combined with the Tirhoot Railway and Lucknow—Bareilly railway under State management and the combined system was then called the Oudh Tirhut Railway.

(*b*) The pre-partition Bengal Assam Railway left the portions of line falling in Assam and extremities of Bihar and Bengal (W), in 1947. The Katihar Division was attached to the O. T. Railway and the portions falling in Assam were called the Assam Railway. There was no direct route to reach Assam Railway from India except through Pakistan territory. For reasons of strategy and security, as for general contact, a direct link was completed in 1950, when the Katihar Division of the old B and A. Ry. (transferred to the O. T. Ry. on partition) and the Darjeeling—Himalayan Railway (acquired by Government in 1948) gave shape to a workable Assam Railway accessible through Indian territory only.

(*c*) To connect Assam with Bengal under one management, the Sealdah Division of the E. I. Railway, with some additional small sections, viz. Sahibganj Loop, etc., of the Howrah Division. has been attached to the North Eastern Railway.

The Eastern Railway, with about 5½ thousand route miles, comprises of

(i) the Bengal Nagpur Railway;

(ii) the truncated E. I. Railway, viz. Howrah, Asansol and Dinapore Divisions.

(*a*) Nagpur–Rajnandgaon, the first metre gauge section of the B. N. Railway is stated to have been constructed in 1878, but was converted into broad gauge by the then formed Bengal-Nagpur Railway Company in 1887, who took over the Umria-Katni line in 1888. The process of additions to the railway continued till 1931 when the Raipur-Vizianagaram Railway was opened. In 1944 the Government brought the system under State management and in 1950 the Parlikimid and Mayurbhanj Railways were acquired by the Government of India for merging with the B. N. Railway.

(*b*) The East India Railway Company, organised in 1845, opened for passenger traffic an experimental line between Howrah and Hooghly in 1854 and later extended it to Raniganj in 1855. In the days of British Rule's inception in the middle of the Nineteenth Century construction of railways was considered more a strategy than development. Subsequent additions brought a complete line between Howrah—Delhi in 1865. In 1879 the the property of the E. I. Railway Company was purchased by the State and handed over to a newly reorganized Company for working. Various additions continued, and in 1925 the Government of India acquired the E. I. Railway for direct management amalgamating, at the same time, the Oudh and Rohilkund Railway with the E. I. Railway. The process of additions through coal-field areas and doubling the track continued thereafter.

Shri. Gopalaswami Ayyangar, Minister for Transport, Railways and States explained that the regrouping scheme had not been executed in haste but quoted facts and figures to prove that the change was well-planned and thoroughly examined by the Government. He added that

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Our London Letter

By A Correspondent

BRITISH Railways have long been connected with Royal travel but none so much as the former Great Western Railway (now Western Region) Windsor Castle, the traditional home of English Kings, is on this system and it was there that the body of King George VI was buried.

Very special arrangements were made for the funeral train which ran from Paddington to Windsor on Friday, February 15. A trial run was made on Tuesday February 12 behind the Western region Castle class locomotive No. 7013 *Bristol Castle* in charge of Driver Albert Potter. The train gained time slightly on the 21½ mile journey, and reached Windsor two minutes early.

On Friday, February 15 the funeral procession started from Westminster Hall, where the King's body had laid in State, at 9–30 A. M. and made its way across London to Paddington. The head of the procession reached the station at 11–20 and about 25 minutes later the gun carriage bearing the coffin drew up on the roadway between platform Nos 8 and 9 where a guard of honour had been formed. Paddington Station was draped in purple and black and the coat of arms of the former Great Western Railway above the entrance had been freshly painted. At the buffer stop ends of Nos. 9 and 10 had been erected stands for onlookers. Only these persons and *bona fide* passengers were admitted to the station after 10 A. M. A number of trains were suspended or had their timings changed. The Queeen's carriage was halted opposite the rear end of the hearse coach of the train which was waiting at No. 8 platform. The Queen, The Queen Mother, Princess Margaret and the Princess Royal then alighted and stood together on the carpeted platform while the coffin was carried into the hearse coach. This was marshalled third from the engine in front of the coach occupied by the Queens and the Princesses. The Royal Dukes travelled in the fifth coach of the train.

Special trains were run to Windsor in advance of the funeral train and the special for mourners in the procession started from No. 9 platform at 12–20 P. M. hauled by 4–6–0 engine No 7004, *Eastnor Castle* The funeral train departed at 12–35 P. M. hauled by a "Castle" class locomotive *Windsor Castle* in charge of Driver Potter and Fireman H. T. Bliss both of Old Oak Common Depot. Draped Royal Coats-of-arms were displayed on each side of the smokebox. The original Locomotive No. 4082 *Windsor Castle* built in 1924, which hauled the funeral train of King George V in 1936, was not available. Its name plates and number plates were therefore transferred to No. 7013 *Bristol Castle* built in 1948. A brass plate on the cab of No. 4082 commemorates the occasion in 1924 when King George V drove the engine at Swindon. It is understood that the subsitution of the name plates and number plates will be permanent.

Windsor Castle station was also draped in purple and black and it was reached punctually at 1–10 P. M. Mr. John Elliot, Chairman, The Railway Executive, and other senior officers, travelled with the train. This was the fourth time that the Great Western Railway had been called upon to

carry to its last resting place the body of a Sovereign. It was on February 2, 1901, that the funeral train of Queen Victoria, the first British monarch to travel by rail, was run from Paddington to Windsor. On May, 20, 1910 similar arrangements were made for the funeral of King Edward VII. The third occasion was on January 28, 1936, when the body of King George V was conveyed to St. George's Chapel, Windsor, for burial. All these trains started from No. 8 platform at Paddington.

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Since the war the railways of London Transport have devoted much attention to the elimination of delays on the open sections of their railways due to the formation of ice on the conductor rails. Formerly sleet locomotives equipped with steel brushes, ice crushers and anti-freeze sprays were used. Recent research now concentrates on prevention rather than cure. In 1947 it was proposed to instal conductor rail de-icing baths from which anti-freeze solution was spread along the conductor rails by the train collector shoes passing over sprung rollers. One of the anticipated advantages was that the sleet locomotives could be dispensed with as it was thought that during the cold season the baths could operate continuously for days and even weeks. Trouble was experienced by the de-icing fluid splashing on to the rolling stock which made the continuous use of baths undesirable. Day to day working had to be resorted to depending on weather forecasts received from the Meteorological office every afternoon.

A day to day system makes it necessary to hold staff available for switching in the baths. Whenever icing conditions were forecast it was necessary to switch in the baths at least "three traffic hours" in advance to allow time for an adequate layer of fluid to be spread along the conductor rails. The sleet locomotives could not therefore be dispensed with in case the baths could not be put into service in sufficient time. Usually they are used in non traffic hours, as far as possible, so as not to interfere with the normal service. Owing to the considerable rise in the costs of de-icing fluid, other experiments are being carried out to ensure an even though economical spread over the conductor rails. The London Transport Executive have set up their own Meteorological stations comprising instruments for recording air temperature and humidity and the rail and ground temperatures. These stations are situated at Barons Court, Kingsbury and Queensbury Charts from all these stations are sent to the Meteorological office at Dunstable for study to determine the correlation between rail temperatures and atmospheric and ground conditions. It is hoped that as a result the weather forecasters will be able to predict rail rather than air temperatures in their "icing risk" forecasts. This will be of great use to the traffic controller in deciding whether or not to put de-icing precautions into effect.

Now-a-days austerity demands that public receptions and parties shall partake of the minimum amount of refreshment if indeed any at all! The Dundalk, Newry & Greenore Railway was closed a few weeks ago. It was inaugurated on April 30, 1873 and an account of the ceremony is a reminder that "those were the days." In the archives of the British Transport Commission is a collection of yellowing newspaper cuttings describing the beginnings of the Railway, an occasion honoured by the Lord Lieutenant of Ireland, the Army and the

(Continued on page 25)

The Cyprus Government Railway

By A Correspondent

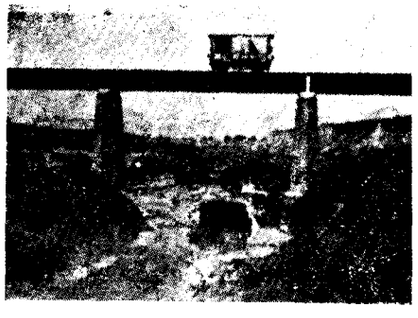
CYPRUS, a British Crown Colony is an island in the Mediterranean. It is situated in the easternmost basin of this sea, about 40 miles from the coast of Asia Minor and about 60 miles from Syria and has an area of 3,594 square miles. It is the third largest island in the Mediterranean and is about 140 miles long and 50 miles wide. The capital is Nicosia and lies inland. The ports of the island are Famagusta, Larnoca and Limnasol. On the north coast is the little used port of Kyrenia and at Xeros, in Morphou Bay, ships load the products of the copper mines of the Cyprus Mining Corporation, which is an American Syndicate.

The Cyprus Railway runs from Famagusta to Kalokhoria via Nicosia. It makes physical connection with the mining company's railway at Kayyotis, two miles south of Kalakhoria. At one time the railway extended up the Solea Valley to Everykhou at 1200 feet above sea level Construction began in April, 1904 by Messrs. Baker & Shelford and was opened from Famagusta to Nicosia on 21st October, 1905. Extension to Morphou was opened in December 1907. In 1914-15 it was extended to Everykhou chiefly to connect with Troodas for the purpose of transporting firewood to Famagusta for export. The section Kalokhoria to Everykhou was dismantled in 1932 as there was little traffic and the steep gradients were expensive to maintain.

30 lbs. rails are in use laid to a gauge of 2 ft. 6 ins spiked with sole plates. The maximum gradient up to Nicosia is 1 in 100 but further on grades of 1 in 30 are met with curves of 5 chains radius. Signalling and interlocking is not in use, and trains are signalled by the Webh & Thompson staff and ticket instruments.

Originally the rolling stock comprised 50 bogie wagons, vacuum fitted. In 1916-17, 50 bogie wagons, piped only, were supplied to cope with the firewood traffic which was then at its peak. The capacity of the wagons is 8 tons and 10 tons and are of the open and closed type. The passenger stock consisted of 15 bogie cars. There were three composite first and second class with 12 and 18 seats, three composite second class and brake and the remaining numbers third class. The first class is comfortably upholstered and also the second though the seating arrangements is slightly different. The third class seats consist of wooden slats. The rolling stock was supplied by the Metropolitan Carriage and Wagon Co. and was originally painted grey but the first and second class carriages are now finished in natural teak.

There are 12 steam locomotives, all 2 cylinders with Walschaert's gear and steam brakes. There is one 0-6-0, two 4-4-0's, three 2-6-0's, two 2-6-2's and four 4-8-4's. Six use oil fuel and six



An old railcar on the Pedias Bridge (Cyprus Government Railway)

coal. They were originally painted red but are now black.

Rail cars of the Ford Engine type were introduced in 1934 to obtain a faster service than was possible with steam trains. They haul two four wheeled trailers or one goods trailer and take 1½ hours to travel 36 miles, with stops. Later models of railcars have since been obtained driven by Ford V8 engines These are not reversible and have to be turned round on a turntable. The railway now has seven power units and eleven trailers and a Wickham rail inspection car. These trains have seats for 44 third class passengers and are painted cream.

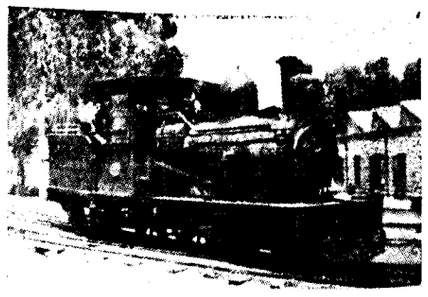
In the course of the last war very heavy Government traffic was carried and troops were often conveyed in open cars. The powerful 4-8-4 tanks, originally obtained for the Everykhou section, with its heavy grades, proved of great service for this work.

The railway does not possess engineering features of any great note. Near Famagusta Station is a 50 yd. tunnel approached by deep cuttings. During the war a temporary track had to be laid over this tunnel to enable out of gauge loads, too big to pass through the tunnel, to be taken. There are many bridges which are in flood for a few weeks only during the rainy season. Level crossings are fairly numerous but are not interlocked or provided with warning bells. The more important ones are fitted with gates and are marked with a white triangle with an "S." The crossing stations consist of one or more loop lines with sidings. Where there are water tanks they are filled by wind pumps which are a feature of the island. Sidings between stations are controlled by the Train Staff and operated by the guard. The station buildings are in stone.

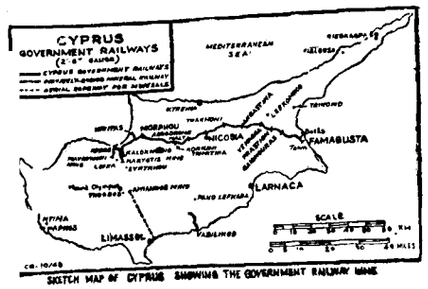
The mileages are :—

Famagusta Docks to Famagusta Station	1 mile.
Famagusta Station to Nicosia	36 miles.
Nicosia to Morphou	24 miles.
Morphou to Kalakhoria	10 miles.
Kalakhoria to Everykhou	5 miles.

Cyprus Government Railway—early type railcar at Famagusta—A new Ford V 8 can be seen in the distance



Engine No. 11 at Famagusta (Cyprus Government Railway)



SKETCH MAP OF CYPRUS SHOWING THE GOVERNMENT RAILWAY LINE

The railway was closed on December 31 and its services were replaced by road transport. Losses in working had been on an average of £ 4,000 per annum and traffic had steadily declined In July, 1949 the line carried 8,360 tons of goods, while July 1951 only 2,587 tons were carried. More than half of this was Government traffic. The closing of the railway was forecast more than a year ago when the Government announced that the time had come to replace the track and rolling stock if the line were to continue operation. After consideration it was decided that the cost involved, £ 400,000, could not be justified particularly as it would reduce funds available for more urgent projects. There is not expected to be any difficulty in handling the traffic by road. The import of diesel engined lorries is now allowed, and the layout of Famagusta harbour is to be altered to enable road vehicles to serve it more easily.

CORRECTION

In our February issue on page 20 we published an article entitled "Mail Bag Exchanging Apparatus in Great Britain." Details about this have been obtained through the courtesy of the Indian Posts and Telegraphs Department and the British Post Office. We regret for the error in not having published the source of the article. EDITOR.

Australia Building Diesel-Electric Locomotives

By Cecil Slocombe

THE first diesel-electric locomotive built in Australia, fore-runner of 36 others, paced along the tracks on trails at the beginning of September and was scheduled to go on service on the 1,100 mile trans-continental haul between Port Pirie, South Australia, and Kalgoorlie, Western Australia, soon after-wards.

Introduction of diesel-electric locomotives is a big step forward in the modernising of Australian railway equipment.

Ultra-modern by any standard, these locomotives are being built by the Clyde Engineering Company at Granville, New South Wales, in association with the General Motors Corporation of U S. A., which is supplying the power equipment, transmission and controls, and is lending technical assistance in the initial stages of production.

The locomotives each weigh 108 tons, are powered by a 1,500 h. p. diesel engine and have a top speed of 90 miles an hour. Maximum tractive effort is 50,000 lbs.

In general character the locomotives being built by Clyde Engineering are similar to those produced extensively by General Motors for the American Railway Systems.

Clyde Engineering's contracts provide for delivery of 11 diesel-electric locos to the Commonwealth Railways and later a further 28 to the Victorian Railways. On the Commonwealth line the 11 engines will replace 47 steam locomotives and completely dieselise the east-west line. This will greatly speed up running times and make for more economical operation.

The engines for the two railway systems will differ in that those for the Commonwealth Railways will run on standard 4 ft. 8½ in. gauge, while those for Victoria will operate on 5 ft. 3 in. gauge.

The value of each locomotive is about Rs. 10,66,700, so that the total construction programme amounts to nearly Rs. 4,26,66,700.

In the future the Clyde Engineering Company plans to extend progressively the Australian content of the locomotive to the point where only the diesel engine and generator will be imported from the United States.

The first locomotive to go from the Clyde works was produced in 108 working days from the issue of the first drawing. This is regarded as an outstanding production effort.

Every possible comfort is provided in the locomotive for the crew. The driver's cabin is attractively built and finished, providing excellent vision through twin windscreens. The crew is seated in leather upholstered swivel-type chairs with armrests and being designed to avoid fatigue.

Immediately in front of the driver's seat is his instrument panel, which closely resembles the dashboard of a motor car. The fingertip controls are so placed as to require the minimum of movement and effort.

Further, it has toilet, washing and locker accommodation and an electric water-cooler and facilities for heating food and water. Along the hot, arid stretches of the trans-Australian railway these comforts will be welcome.

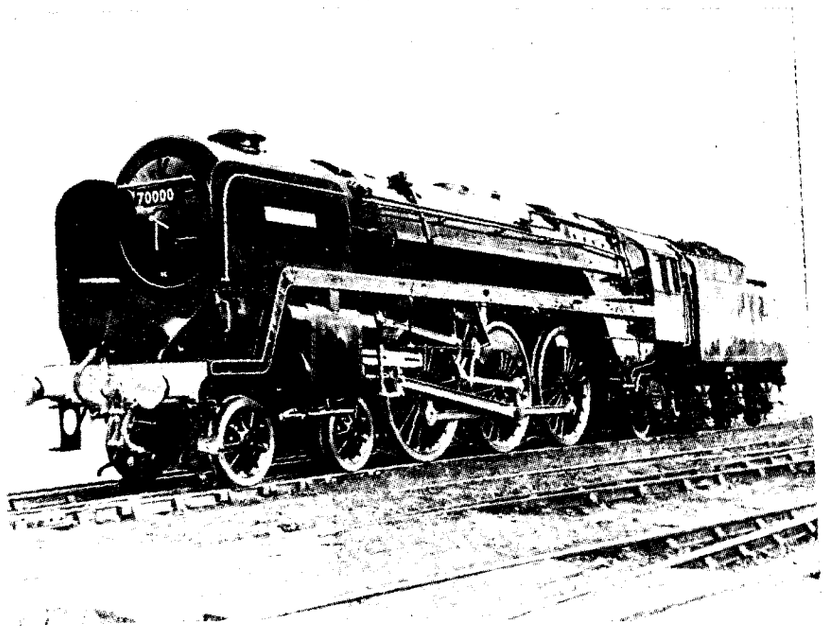
British Railways

Standard 4-6-2 Locomotive

SINCE the fore main-line railways of this country were nationalised on January 1, 1948, the Railway Executive have issued statements from time to time on a scheme to introduce a range of 12 standard types of locomotives embodying the best features of existing designs. The first standard locomotive—the 4-6-2 mixed-traffic locomotive No. 70000—has recently been completed at Crewe works and was named "Britannia" by the Minister of Transport, the Rt. Hon. Alfred Barnes, M. P., at a ceremony at Marylebone station on Tuesday, January 30. It has two outside cylinders with a bore of 20 in. and a piston stroke of 28 in.; the coupled wheels are 6 ft. 2 in. in diameter; the boiler pressure is 250 lbs. per square inch; and the tractive effort is 32,150 lbs. the adhesion factor being 4.23.

Twenty-five engines of this type are to be built; the first 15 will be allocated to the Eastern Region, and the last ten to the Western Region. The design is Class 7 (on the power classification for locomotives of British Railways), and is intended for main-line passenger and fast fitted-freight services of the kind now undertaken by the Castle locomotives of the Western Region, the rebuilt Royal Scot locomotives of the London Midland Region, the V2 class of the Eastern and North Eastern Regions, and the West Country locomotives of the Southern Region. It has equal or better route availability than these types. The combination of two cylinders with a wide firebox is rather unusual in British practice, since Ivatt's Atlantic design of 1903, but it is stated to be an indication of the Railway Executive's policy to link mechanical simplicity with the largest possible steaming capacity. The roller bearings on all wheels contribute to high availability. The new locomotive, like other standard types which will be turned out this year, has been designed and built under the direction of Mr. R. A. Riddles, C. B. E., M. I. Mech. E., the Railway Executive member for mechanical and electrical engineering. The parent office for the design is the Derby drawing office of the London Midland Region, but important sections of the design were prepared at the Brighton Doncaster and Swindon offices in pursuance of the policy to use the resources of all the regional mechanical drawing offices to cover the standard types as a whole.

The boiler is the normal design with riveted joints throughout, working at 250 lbs. per square inch. The shell is of high-tensile carbon manganese steel throughout, and the barrel consists of two rings, the second ring being tapered and forming a true cone. The two rings are rolled from $\frac{19}{32}$-in. and $\frac{21}{32}$-in. plate, respectively, the outside diameters being 5 ft. 9 in. at the front and 6 ft. 5½ in. at the firebox end. The smokebox tubeplate is of the drum-head type, ¾ in thick, and there are 40 large flue tubes 5½ in. in outside diameter., 7 s. w. g. thick and 136 2⅛-in. small tubes, 11 s. w. g. thick. The length between tubeplates is 17 ft. The heating surfaces are: tubes, 2,264 sq. ft.; firebox, 210 sq. ft.; superheater, 718 sq. ft; and the free area through the tubes amounts to 6.8 sq. ft. The steam dome contains a Melesco centrifugal steam drier, which separates the water from the steam, thus increasing the dryness



The Locomotive "Britannia": The First Standard Design for British Railways

of the steam before it passes to the superheater. The regulator is of the multi-valve type, incorporated in the superheater header in the smokebox, and was made by the Superheater Company, Limited, 53, Haymarket, London, S. W. 1. Access to the regulator valves is by a detachable cover on the top of the smokebox. The superheater elements are $1\frac{3}{8}$ in. in outside diameter and 10 s. w. g. thick.

The boiler is fed with water through two separate clack valves placed at approximately 30 deg. on each side of the vertical centre-line of the front barrel ring. The clack valves deliver on to two inclined trays, which deflect the incoming water round the inside of the barrel clear of the tubes. A steam manifold is fitted on the top of the firebox in front of the cab, and is provided with separate shut-off cocks to each steam supply pipe as well as a main shut-off valve, which is operated from inside the cab. Two direct-loaded safety valves are mounted on the hind barrel ring immediately behind the dome, and the boiler is fitted with a manually-operated blown-down valve made by the Everlasting Valve Company (Great Britain), Limited, 125, Balham High-road, London, S. W. 12. The Belpaire firebox has a wide grate with an area of 42 sq. ft. The steel wrapper plate is $\frac{1}{2}$ in. thick and the inner firebox is of copper and has a $\frac{5}{8}$-in. wrapper plate. The front of the firebox is extended into the boiler barrel to form a combustion chamber with a 1-in. thick tubeplate. All firebox water-space stays are of Monel metal, and are fitted with steel nuts inside the firebox. The roof, longitudinal and transverse stays are of steel, the former being riveted over outside the steel wrapper. The firebox is 7 ft. long outside, the width tapering from 7 ft. 9 in. at the front to 7 ft. 4 in. at the back. The boiler and firebox are lagged with lightweight Fibreglass mattresses supplied by Messrs. W. Gilmour Smith and Company, Limited, 136, Renfield-street, Glasgow, C. 2.

A rocking grate is provided, consisting of 12 rocking sections, six each side of the centre-line. Each rocking section carries 14 renewable firebar units, making a total of 168 units for the whole grate. The two sides of the grate can be rocked separately from the foot-plate, the operating gear being arranged so that two different travels can be employed, i. e., full travel for dropping the fire when the engine is over an ashpit, and a shorter travel for agitating the fire to eliminate ash and break up clinker while the engine is on the road. The ashpan has three hoppers, one, between and one on each side of the main frames, and is of the self-emptying type, having bottom flap doors on the hoppers, connected by a shaft with universal joints and operated by a lever at ground level. Front damper doors on each hopper are opened and closed by screw gear worked from a handwheel on the fireman's side of the cab. This allows a fine adjustment to be made to the air opening. Two small doors are provided at the back for cleaning purposes.

The smokebox is of the cylindrical type, resting on a fabricated saddle. The blast pipe has a plain circular cap with a nozzle $5\frac{3}{8}$ in. in diameter and incorporating the blower ring. The smokebox is of the self-cleaning type, with plates and a wire-mesh grid arranged so as to prevent the accumulation of ash when the engine is working. On the right-hand side of the cab a tri-tone chime whistle is mounted, operated by a flexible cable passing through the handrail on the boiler. The whistle was made by the Crosby Valve and Engineering Company, Limited, 251, Ealing-road, Wembley, Middlesex. A stuffing box on the left-hand side allows the regulator shaft to pass through the smokebox plate.

The main frames are of $1\frac{1}{4}$ in. plates spaced 3 ft. $2\frac{1}{2}$ in. apart, the centre-lines coinciding with the centre of the axlebox guide faces so as to reduce bending of the plates due to piston thrust.

The axlebox guides are welded to the frame and are fitted with manganese-steel liners. The frames are well braced by vertical and horizontal stretchers and by pin-jointed cross-stays attached to the horn plates. The rear end frame extension consists of two 2-in. thick slabs riveted to the main plates behind the trailing coupled wheels, and carrying a fabricated dragbox at the hind end. A single drawbar transmits the tractive effort to the tender through rubber springs. The spring buffers were supplied by Messrs. G. Turton, Platts and Company, Limited, Meadowhall-road, Wincobank, Sheffield. Two of the vertical stretchers support the front of the boiler barrel and the firebox front on adjustable brass wearing liners, while the back of the firebox is carried on brackets on the rear extension frames. The side footplating is carried by brackets fixed to the boiler.

The engine and tender axleboxes are fitted with self-aligning taper-roller bearings made by British Timken, Limited, Aston, Birmingham, those for the bogie and coupled axles being of the non-split cannon type. The faces of the axleboxes in contact with the horn guides are provided with manganese-steel liners welded to the body of the axlebox. All springs for engine and tender are of the laminated type with plates of carbon steel, which are secured in the spring buckles by a vertical centre rivet. Underhung spring brackets with rubber damping pads and hangers in tension are provided for the coupled-axle springs which have a span of 4 ft. when loaded. The hangers are solid, with cotters at the top and bottom ends, adjustment being obtained by fitting cotters of suitable depths.

The two outside cylinders which, as stated, are 20 in. by 28 in., are steel castings with cast-iron liners, both in the barrel and valve chest. The valves, 11 in. in diameter, have a steam lap of $1\frac{11}{16}$ in. and a lead of $\frac{1}{4}$ in., and are operated by Walschaerts valve gear, giving a travel in full gear of $7\frac{3}{4}$ in. and a full-gear cut-off of 78 per cent. The slide bars are of the three-bar type with underhung crossheads. Lubrication of the motion pins is through grease nipples, those for the reversing shaft and expansion link being grouped together on the motion bracket. The eccentric-rod big end runs on a self-aligning ball bearing supplied by the Skefko Ball Bearing Company, Limited, Luton, Bedfordshire. The piston head embodies a bronze spring-loaded slipper which carries the head clear of the cylinder barrel liner. The valves and cylinders are lubricated by oil which is delivered by mechanical lubricators through steam-operated atomisers; the lubricators and atomisers were supplied by the Gulf Oil Company (Great Britain), Limited, 5, London Wall Buildings, London, E. C. 2. Steam-operated cylinder drain cocks of large diameter are fitted. The engine is reversed by handwheel and screw, the latter being situated at the reversing-shaft lever, and rotated by a tubular shaft from the cab. A drumtype cut-off indicator is provided, and the handwheel is placed parallel to the longitudinal centre-line of the engine. The coupled wheels are 6 ft. 2 in. in diameter on the tread; the tyres are shrunk

on and secured by two small lips, one each side of the wheel centre, there being no separate securing ring, studs or rivets. Built-up weights in the wheels balance the revolving weight and 40 per cent of the reciprocating weight. The minimum radius curve that can be negotiated, with specified gauge widening, is 4½ chains.

The bogie has four wheels 3 ft. in diameter, and is carried on Timken roller-bearing axleboxes of the non-split cannon type. The engine weight is carried by side boldsters, and by laminated springs fitted in compensating beams. Side-play control of the bogie is by means of double-coil springs. The pony-track wheels are 3 ft. 3½ in. in diameter, and are fitted with Timken roller bearings in outside axleboxes. The engine weight is taken at three points on the ponytruck frame, one being at the pivot centre of the pony truck, and the other two being bolsters sliding on pads on the truck frame and situated behind the centre-line of the pony-truck axle. Pony-truck side play is controlled by coil springs.

The cab structure is carried by cantilever supports attached to the firebox backplate, and by a diaphragm plate at the dragbox, this arrangement allowing full freedom for the cab to move with the boiler as expansion takes place. All boiler fittings and pipes are kept free from the main frames to avoid differential expansion and to ensure freedom from fracture due to this cause. For this reason, the exhaust-steam injector on the right side and the livesteam injector on the left are carried on brackets attached to the ashpan and foundation ring The steam and water controls for both injectors are operated from the fireman's side of the engine. The exhaust-steam injector was supplied by Messrs. Davies and Metcalfe, Limited, Romiley, near Stockport, Cheshire. The cab floor plate is extended backwards to form a solid platform for the crew up to the front plate of the tender; the normal hinged fall plate is dispensed with, neither is a footplate required on the tender. All the driver's controls are grouped to give easy access and operation, the vacuum brake, sanding and blower valves being carried on a control column at the driver's right hand. A leather upholstered seat and back are fitted on the driver's side, and side windscreens are provided outside the cab for the driver and fireman. The sanding gear is operated by steam, and is fitted to the front of all coupled wheels and the rear of the driving wheels.

The tender, which is carried on 6 wheels 3 ft. 3½ in. in diameter, is arranged to give a good view to the rear when the engine is running in reverse. The welded tank has a large radius at the corners to facilitate the welding of the plates. The coal bunker is of rectangular shape and is narrower than the tank. Two enternal feed-water sieve boxes are provided to collect dirt and foreign matter from the water before it is passed to the injectors, the sieve portion being easily withdrawn for cleaning or renewal purposes. Water pick-up gear is provided. The wheel, axle and axlebox assemblies for the tender are similar to that for the pony truck of the engine. Locker accommodation on the tender front includes a food cupboard with a stainless-steel lining, detachable for easy cleaning. The tender water and coal capacities are 4,250 gallons and 7 tons, respectively.

The engine and tender have steam brakes which can be worked independently or in conjunction with the vacuum brake by means of a separate driver's valve. The vacuum-brake ejector, driver's brake valve, graduable steam-brake valve, and associated brake

details, were made by Messrs. Gresham and Craven, Limited, Salford, 5, Lancashire. Single brake blocks are applied to the six coupled wheels and all tender wheels. The brake percentage for the engine and tender is 54·3.

(By Courtesy of "Engineering")

(Continued from page 10)

Navy, the clergy and the chief magistrates of Dublin, Belfast and Londonderry, as well as many other prominent citizens. Some 800 guests sat down to lunch in the goods shed of the station at Greenore while music was provided by the Band of the 6th Foot and the Band of the 4th Dragoon Guards. In the Lough were two of Her Majesty's gunboats while the steamers of the company displayed lines of bunting from stem to stern. The station itself was decorated with a great profusion of flags and evergreens. Order was preserved by the servants of the London & North Western Railway and English police brought over by the company Lunch began shortly after 1-30 and the last toast was drunk about 5 p. m. ! The guests enjoyed a menu which occupies 13 lines of the *News-Letter*. All this took place in a transformed goods shed which seems to have impressed everyone as an appropriate setting.

In contrast to many overseas countries, only 55% covered, 14% open merchandise and 80% of cattle wagons on British Railways are fitted with vacuum brakes. Before the formation of British Railways there were over 650 000 private wagon owners wagons which complicated matters. The problems involved are being considered and a series of trials with vacuum braked coal trains are being made. Although speed, punctuality and safety would be greatly improved and additional line capacity obtained by the adoption of continuous brakes for all stock (about 1,11,000 wagons) the initial cost would be large and maintenance and marshalling yard work increased. Much trial and research is necessary before a final decision can be made. It seems likely that such a step will have to be taken eventually to promote the efficient running of British Railways.

To enable locomotive men to pool their knowledge and experience and to stimulate interest in efficient working, the British Railway Executive is arranging a competition from which teams from the 65 Motive Power Depots of British Railways will enter. The teams are to consist of six men of whom not less than three must be under 30 years of age. They will compete in answering questions on locomotive topics addressed to each man in turn by a question master usually the District Locomotive Superintendent. The winning teams will then compete on an area basis and the area winners will be the finalists in an all line competition. In the later rounds, the question master will be selected from a neutral source. Railwaymen not competing will be invited to form audiences. It is proposed that the winning team be given sightseeing trip to France this summer where it is hoped they will visit locomotive depots on the French National Railways.

Animals and insect life are notorious for interfering with rail transport and cases have been heard where the busy rush hour service of London's Underground has been halted due to an ear-wig getting between the contacts of a track relay. From Rhodesia comes the story of a hippopotamus who held up a main line train. This happened at night when the driver of a train near Hunyani, Salisbury, Rhodesia, saw an hippopotamus on the line, in the beam of his engine headlight. The animal refused to leave the track in spite of repeated whistling and letting off steam. It trotted along in front of the train for several miles until tired of being followed in such a noisy manner it consented to leave the track.

E I R.'s G M.

Retires

IN November 1920, a young twenty-three old graduate from the Thompson Engineering College, Roorkee, started his railway service as an Apprentice Engineer on what was then known as the Oudh and Rohilkhund Railway, little knowing that before he attained his superannuation age limit thirty-one years later, he would be top man on three Indian Railways. This young Engineer was Mr. Brij Behari Varma, who retired from the post of General Manager, East Indian Railway on the 31st March 1952.

During the period 1925–1943 Mr. Varma went through the mill of railway experience holding the posts of Executive Engineer, Personal Assistant to the Chief Engineer, Senior Superintendent Way & Works etc. In June 1943 he was promoted to hold charge of a Division as Divisional Superintendent, continuing as such up to August 1945, after which the Ministry of Railways took him away to Delhi to function as Director, Establishment. In September the Railway Ministry decided to give Mr. Varma a complete Railway to control, and so he was promoted as General Manager, Oudh and Tirhut Railway. The O. & T. had Mr. Varma only for a short period when the Railway Ministry wanted him for a special job in connection with the intricate problem of regrouping of Railways. This special duty was completed by April 1948 when he was sent South to take up the General Managership of the Madras & Southern Maharatta Railway (now part of the regrouped Southern Railway). During his tenure of this Railway he handled successfully the difficult operational rail movements connected with the police action in Hyderabad. Then in April 1949 Mr. Varma was sent up to take over as General Manager, East Indian Railway, which post he held, except for leave periods, until he retired at the end of March 1952.

A skeleton history sheet of a man's career is hardly enough to give an indication as to his personality, his ability, his humanity, his short comings if any. Only a biography can aspire to give us something like the whole story. But a man's colleagues can at least give some indication. And at least one hundred of these colleagues gathered together on the evening of the 29th March at the E. I. Rly. Clem Brown Institute at dinner as a farewell gesture to Mr. Varma. Officers from all departments of railway service from recently joined men to Senior Departmental Heads, and even former General Managers of the East Indian and other Railways were there to pay tribute to and talk over old times with Mr. Varma.

Mr. K. B. Mathur, who has succeeded Mr. Varma as General Manager, recalled the valuable advice once given to him by Mr. Varma many long, long years ago; the advice being that one's fellow railwaymen, no matter of what rank, should be treated as members of a large family.

Sir Lakshmipati Misra and Mr. Bhandarkar (former General Manager of the old B. & A Rly.), Mr. N. C. Ghosh and Mr. V. Nilakantan, now Member Staff, Railway Board (both former General Managers of the E. I. Rly.), Mr. N. K. Mitra, a retired Chief Engineer of the E. I. Rly., and Mr. G. Pande (formerly of the

E. I. Rly.) and now General Manager, O. T. Rly., all paid fitting tributes to Mr. Varma, stressing, his large-heartedness and kindly human approach in all problems of railway administration. Each of them looked back into the past and spoke of those incidents and contacts with Mr. Varma which were most valuable or dear to each.

When Mr. Varma rose to speak, the first words uttered made everybody present feel a big tug in his heart, because in the heart of the man who was speaking there was also a tug. With deep appreciation Mr. Varma thanked all who had spoken so well and affectionately of him, and felt he did not deserve such glowing tributes. He was also proud and happy that he had beeen able to serve not only the Railways and railwaymen during his long years of service, but in doing so he had also served his nation, for after all railways are one of the most vital arteries in a nation's body. In concluding he said that no matter where he was or whatever he may be doing, and as long he was still alive, he would be only to happy to meet railwaymen of all ranks, both young and old, to talk over railway problems with them, and help them with whatever knowledge he had garnered during his long years of experience on Railways.

A man of Mr. Varma's experience and calibre as a railway engineer and administrator can never be wasted, and all who have been associated with him must be happy to know that the Railway Ministry are continuing to utilise his expert knowledge by appointing him as an Assessor on the Ganga Bridge Project, of which that notable ninety-two year old Engineer, Sir Visvesvaraya is the Chairman.

With the regrouping of the remaining Railways into the Northern, Eastern and North-Eastern Railways, one can confidently say that Mr. Varma has had the honour of being the last General Manager of the East Indian Railway, which name will soon only appear in the annals of Railway History.

DO YOU ?

Do you throw empty bottles or tins from a moving train ? A Gangman or other Railway employee working on the line may receive serious injuries if you do.

Do you light a methylated spirit stove in your compartment or throw a burning match on the floor ? Fires often result when you do.

Do you lean out of a window or rest with an arm or leg protruding out of the window ? Serious accidents have happened to passengers who do.

Do you attempt to board or alight from a moving train ? If you do, please don't ; for many fatal accidents have resulted to people who do.

Principles of Station Accounting

By P. H. S. Rao

III. THE PURPOSE, BASIS AND METHODS OF STATION ACCOUNTING.

The three fundamental purposes of station accounting are :—

1. Assessing the correct charge for the service rendered.

2. Collecting such charges and remitting the amount to the cashier.

3. Accounting for the business handled.

The first factor involves a thorough knowledge of the rates and tariffs. The rates have to be correctly applied and the amount collected must be divided between the carriers participating in the movement of traffic.

Collecting the charges involves a knowledge of the rules of the particular railway and the proper carrying out of these rules will result in the collection of the revenue required.

Accounting for the business handled involves :—

1. Obtaining a basic record for each transaction.

2. Collecting and balancing the items involved in each transaction and tabulating the result.

3. Securing adjustment and settlement of items accounted for and making such corrections in the accounts as are necessary.

The basic records are represented by the tickets, way bills and invoices. The charges shown on them are grouped by the various abstracts, summaries, classifications and miscellaneous statements. The results of the transactions are then tabulated and balanced in the station balance sheets, when these reports are received and checked in the accounts office, the errors are discovered and necessary adjustments and corrections made.

(Continued on next page bottom)

BASIS OF STATION ACCOUNTING

Goods and Parcels revenue is reported under two general plans —the forwarded basis and the received basis. If revenue is accounted for on the basis of the charges levied at the booking station, the revenue is accrued on a forwarded basis ; if it is accounted for on the basis of charges collected at the receiving station, it is accounted for on the received basis.

For many years freight revenue was generally accrued on a forwarded basis. This method of accounting was found to be expensive, for the reason that way bills and invoices covering consignments in transit were included in the railway's current revenue accounts. Under this plan the accounting office had to check foreign way bills and invoices received from other railways against the detail on which the forwarded revenue was built up and maintain a suspense account of items in transit.

Under the forwarded basis, freight revenue is accrued on some traffic on which the service is only partially completed and on other traffic on which no service has been performed, except, perhaps, the terminal service at the originating point, many wagon load consignments are invoiced at estimated weights, others are diverted or reconsigned in transit, which has the effect of changing the charges. Under this basis, it is necessary for the railways to keep a detailed monthly revenue record of foreign way bills and

invoice in transit and adjust all differences in the charges levied at the forwarding station and as reported by destination stations. This is not required under the received basis

Under the received basis all parcels and goods revenue, including that from diverted and reconsignments, is accounted for at actual figures by the destination stations.

There are two methods of station accounting, namely,

1. Daily system.
2. Monthly system.

The daily system is presumed to require only daily station reports; in which all transactions at the station are fully covered and finally disposed of by the daily reports rendered. No monthly accounting reports are required. No railway in India is operating under this system. It usually requires a periodical summary of some items and a monthly report of some others.

Under the monthly system all transactions at the station are accounted for at the end of the month and covered by monthly reports only. No daily reports are rendered.

The daily system of station accounting for invoices has many advantages.

The submission of daily reports of invoices forwarded and received places the accounting department in continuous touch with the station's account, and thereby precludes dilatory practices at the stations The daily system of reporting invoices permits the writing at one operation of the station register and daily report, thereby minimising the work and increasing the efficiency at the stations. The daily system distributes the work evenly at the stations, eliminates periodical congestion, permits a close supervision by station masters of all their work, helps them in arriving at daily and monthly balances, lessens the work of travelling auditors and permits the accounting department to advance accounting and statistical work and to close the monthly account at an early date.

Goods revenue can be more quickly audited, and statistics compiled with greater efficiency, both at—stations and in the accounting department, through the medium of a daily system of station accounts.

Aspects of Railway Working
"Coal on the Tender"
By A. H. Pearson

TAKE a walk up to the front end of a train while it is standing at a station and watch what goes on in the locomotive that is hauling that train. You may see one of the engine crew digging a shovel into a large hole in the tender, filling up the shovel blade with black lumps of coal, and then swinging over to the open firebox and heaving the coal, into the blazing inferno. Without this coal, there would be no fire, no steam, no motive power to move the huge pistons of the engine and no train to take you on your journey.

Now is this all as far as the story of coal in relation to engines is concerned. Just put your coal on to the tender, so that the fireman can feed it eventually into the firebox of his loco. If you want a little more information get acquainted with that fireman, his driver or any locomotive man, and he will tell you that those black lumps of coal on his tender are not just coal waiting to be burnt; there is much more to it.

From the depths of the earth in those parts of the country where coal is mined, these black lumps are dug out, lifted to the pit head, then on to railway wagons and so on to the various coal consuming centres—the railways being the largest consumers.

Coal from different mines and from different parts of the country have certain distinctive qualities, and there are experts in the Locomotive or Mechanical departments of Railways, whose job it is to ascertain what qualities of coal are best suited for the various types of locomotives on each Railway, and for the different services—goods, passenger, mail and express and so on.

To get all the data required the job of testing the various grades of coal must be done thoroughly and exhaustively. These tests are usually done by an Inspector of the Loco or Fuel department Obviously, the most practical way of proving the fitness of a particular type of coal is by actual use on the service for which it may be intended.

If the coal is being tried out for the mail and express services the tender of a mail engine is loaded up with the coal on test.

The Loco or Fuel Inspector will now travel with this engine throughout a particular length of its run, and keep an expert eye on every little reaction of the engine throughout the trip. He will have to keep notes on the steaming quality of the coal, whether it is a slow or fast—burning kind, whether it clinkers too easily: how much ash content:

whether the required steam pressure can be maintained constantly and efficiently; whether the engine is able to keep time on the run according to schedule all other factors being normal. These are some of the technical points that must carefully be investigated. At the end of the trip the tender must be checked to see how much coal has been consumed, to decide whether the use of that coal combines efficient steaming qualities with economy. If after a series of such tests under both normal and abnormal conditions, that particular grade of coal is found suitable, then only is it accepted for the mail services.

Quite often it is found that trains are losing time fairly constantly on a particular service. Other operational factors have been found to be normal, so 'loco,' is blamed for the time losses. If any engine crews in particular are guilty of 'losing time,' they may blame the coal that is being loaded on to their engine tenders. Now this coal has at some time been pronounced as suitable for the service, so it would appear that the coal must again be the subject of close investigation by the Loco Fuel man. Once again he travels on the loco with the engine crew, making all the prescribed tests and watching the behaviour both of the engine and the coal. As a result of the tests the coal may be found guilty, and promptly this type of coal is made 'taboo' for that mail service. Of course, although that coal has been found srtisfactory in the parts, the causes must be pursued right up to the mine where it came from.

If as a result of tests it is found by the Fuel man that the coal is not at fault, then he probably find that the cause of time losses may be some mechanical defect. or that the firemen are not doing their jobs expertly. If it is a mechanical defect the department concerned is notified and remedial action taken. If any of the engine crew are responsible, the Fuel expert must watch the firemen doing their jobs with all his 'fuel' wits alert. There is even an art in firing an engine, and the Fuel Inspector, having once handled a shovel on a loco himself as a youth, knows just where the fireman is going wrong. So the erring fireman must be taught the technique of engine firing in the right and only way to get the best out of the coal on the tender.

An engine usually has six to eight tons of coal on the tender for a certain trip length. But this does not mean that the firemen can play the game of seeing how soon he can burn up those eight tons. If he did this, before the end of the trip the driver would be clamouring for more coal, or bringing his train to a standstill. A good driver and crew will always try and get through his trip length with coal to spare, rather than ask for more before the end of the journey. Even a half-ton per engine saved means perhaps thousands of tons of precious coal saved in a year, which can be used for hauling more wagons which move the merchandise and earn the revenue for the railways.

Statistics of coal consumption must be carefully kept by all locomotive sheds. These consumption figures are first closely scrutinized by the Fuel Inspectors, who in turn pass on their reports, with comments to their district or divisional officers, and the latter in turn pass on the information to headquarters. So from the top man in headquarters down to the fireman who shovels the coal into the engine firebox, the importance of using those black lumps of coal efficiently and economically must be constantly realised.

TOURIST SERIES—VI

Of Tourist Interest on Southern Railway

The Golden Rock Colony

By L. N. GUBIL

THE Head-Quarter Workshops of the South Indian Railway, are located at Golden Rock, lying nearly two miles south coast of the town of Trichinopoly. Situated between the main railway lines and the historic Golden Rock, this site covers an area of about 12,000 acres and is served by more than 20 miles of sewers, and nearly 70 miles of electric distributing lines. It is a very beautiful colony constructed entirely on modern lines with all modern convenienees.

The main portion is occupied by the central workshops while surrounding the workshop areas to the east, south and the west is the charming colony consisting of a good number of Bungalows and other residential quarters to suit the conveniences of the various grades of employees in the shops.

The main centre of attraction to visitor to Golden Rock in the extensive are known as Central Workshops of the South Indian Railway Company. This area covers nearly 200 acres of land, surrounded by high stone-walls with entrance gates one in each of the cardinal directions. Watch towers are built at suitable places over the walls. One is sure to be impressed by the stately clock-tower, rising majestically over the whole-pile of buildings inside. The workshops are all constructed of steel structures with sound granite wallings and corrugated iron or asbestos-cement roofings. Effective ventilation is provided inside every one of the shops. Besides, an up-to-date and perfect system of fire protection is provided by ground hydrants inside the shop and stand hydrants outside.

Located centrally is the power house which supplies the shops with electricty, steam, compressed air and gas.

Till recently electricity used to be generated locally here. But now that the Company takes the required electric suppy from the Phykara Distribution mains, one misses the high turbine generators formerly used for the same purpose.

The Iron Foundry Shop is worth the closest examination. The melting furnaces and blowers, the sand-handling and renovating systems form an imposing and interesting spectacle. There are two gigantic ovens, four melting furnaces, and a brass foundry of smaller size. Two over-head cranes and a very useful jiborane are employed for lifting and handling the various types of castings and for feeding the Cupolas.

The forge and smith shop is one of the best of its kind; it is specially noteworthy that this shop is as free from smoke and fumes as possible so that the men work under the best conditions possible in a smithy. We find installed here a complete spring-making and testing plant.

It is quite sufficient to mention that there are besides, a wheel-making shop and a boiler shop, copper-smith erecting shop. repair-shop, carriage body-shop, waggon-shop and paint-shop. There is a fine saw-mill which is sure to make any visitor linger on looking at the quick and easy work it does with such perfect precision. There is at the northern end spacious Engineering and signalling departments of the Railway. Traverser ways are amply provided for the easy and quick handling and distribution of materials from shop to shop.

A very spacious three-storeyed building in the centre forms the office of the works-manager and it contains ample accommodation for all the officers and their establishments.

A brief account of the surrounding colony with its neat and useful amenities would be surely of interest to any intending tourist. The whole land has a natural drainage slope and an up-to-date drainage and sewage scheme is provided. All roads are electrically lighted and the main roads are flanked with suitable avenue trees that greatly increase the natural beauty of the roads and that of the colony. In addition to nearly 4,000 residential dwellings for the comfortable housing of all grades of employees, the general amenities of the colony leave practically very little to be desired.

Special amenities may be made of an efficient water supply system. The water is brought from infiltration wells sunk in the bed of Cauvery River at Sircarpalayam about three miles from the workshop The water reservoir built on the side of the rock has a capacity of 8 lakhs of gallons and can supply in plenty both to the workshops and to the colony.

Among the social amenities provided for in this small colony may be mentioned a good hospital, Sporting Institute for Europeans and Indians, Elementary Schools, a Technical School and Hostel, two Churches, a Talkie House, Co-opeartive Stores, Post and Telegraph Offices, and a Good Market.

Golden Rock is on the whole a very charming city by itself.

Sleeping, Dining Car Services on U. S. Rail Roads

THE sleeping car, dining car, and express services of United States railroads have grown to be major enterprises.

The first sleeping cars on American railroads were used 100 years ago. They were simply wooden day coaches, fitted with hard bungs and lighted by candles or oil lamps. Wind and drafts came through cracks around doors and windows.

A Chicago contractor named George M. Pullman spent an uncomfortable, sleepless night in one of them in the early 1850's. As he lay awake, tossing under a coarse blanket, he decided American railroads needed comfortable sleeping cars, and that he was just the man to build them.

1864, Pullman completed his first real sleeping car, and named it the "Pioneer." It was first used in 1865, in President Lincoln's funeral train.

Within three years, Pullman had built a number of the "palace" sleeping cars which bore his name, and had established a large factory in Chicago to produce them. Railroads were clamouring to lease his cars, and passenger day coaches were being designed to include some of the comforts Pullman had put in his sleepers.

As time went on the "Pullmans" became just as much a part of the American railroads as the steam engine. For years the Pullman Company controlled both the manufacture and operation of its cars, but in 1944 the operating and manufacturing divisions were separated as a result of anti-trust proceedings, and the railroads began a pool arrangement for operating the Pullman fleet.

There were more than 7,000 Pullmans in operation in 1948 on American railroads. They are assigned from a central pool, which is controlled by the railroads themselves, in accordance with seasonal, geographical, and other fluctuating conditions. One railroad may need scores of Pullmans at one period, and only a few at another, and even the "Steady runs"—Washington—New York; New York—Chicago, and many others, have "peaks" when numbers of extra Pullmans are needed.

The Pullman organization services the fleet. For a round-trip of one night in each direction the usual linen stock of a standard Pullman sleeping car consists of about 451 pieces—120 sheets, 120 pillow cases, 200 towels, five porters' coats, and miscellaneous pieces. Forty-nine laundries handle Pullman linen, and Company accountants have stated that if it all came out of the wash at once, the laundry list would total 132,340,184 pieces.

It requires some 35,000 Pullman-car operatives—conductors, porters, attendants and car cleaners—to maintain the fleet of sleeping cars, in addition to a large number of laundry workers. Hundreds of porters and conductors have been with the Company from 30 to 50 years, and many others for more than a quarter of a century.

Non-Pullman passenger cars on United States railroads in 1949 included, in round numbers, 17,150 coaches, 1,730 dining cars, 400 observation, club and lounge cars, 2,600 [illegible] and baggage or express space, and about 17,000 non-passenger-carrying cars on passenger trains—mail, baggage, and express.

There were about 2,100,000 freight cars in use on U. S. railroads in 1949, and the number has increased since then.

The Railway Express service has developed from the pioneer days of the "pony express," when messengers mounted on fleet horses carried small but valuable packages from point to point across the country. Private express companies arranged to put their cars on the early railroads. At the time of World War I, there were seven express companies operating on the major railroads. For greater efficiency, these were consolidated during the war, and thereafter the railroads jointly bought all of the express interests, and formed the Railway Express Agency, which is owned entirely by the railroads and operates over all of the rail mileage of the country.

The Agency transports some 200,000,000 shipments a year on 10,000 trains a day, has more than 70,000 employees and 23,000 offices, and transports its shipments by steamship, motor carrier and air lines as well as over more than 200,000 miles of rails.

The dining-car development paralleled that of the sleeping car on American railroads, and George M. Pullman pioneered in the latter, as well as in the "sleeper" which still bears his name.

The first two dining cars, remodelled from day coaches, were operated between Philadelphia and Baltimore in 1863 on what is now

a part of the Pennsylvania railroad. Food was not cooked in the cars. It was brought aboard, already cooked and hot, at the terminal stations, and kept warm in steam boxes. In 1867, George M. Pullman introduced what he called "hotel cars." These were sleeping cars equipped with kitchens and dining facilities.

The first railroad car devoted entirely to restaurant purposes was the "Delmonico," built by Pullman and put in operation in 1868 on the Chicago and Alten Railroad. There are now more than 1,800 dining cars in regular service on U. S. railroads, and 400 or 500 other cars—observation club and lounge—in which food and drink may be obtained.

Each important railroad maintains its own dining-car service, with substantial staffs of especially trained cooks, waiters and stewards, and elaborate commissary systems One full day is a long run for a dinner. whereas sleepers have runs that span the continent. The dining car must carry nothing except the freshest supplies, and its staff uses them to prepare and serve only about three or four meals. A through passenger train always has one or more dinners attached at every mealtime, but they will be different dinners, switched on as others are cut off, while the through sleeping cars, chain cars, and coaches remain with the train until it reaches its destination. Locomotives' train crews are also changed at designated junction points.

Although American Negroes now hold all sorts of railroad jobs, Negroes first established themselves in railroading as porters on the Pullmans, and cooks and waiters on the diners. From the very first, these occupations have provided well-paid, respected jobs, and the Pullman porter is as much an institution as the Pullman car itself. Today, organized in strong trade unions, Negro employees hold a firm place in the ranks of railroad labour.

(Continued from page 8)

there could be no change in the location of the Headquarters of an essentially trans-Ganga Railway system which has now been decided to be located in Gorakhpur and for which some people were insisting to be shifted to Calcutta.

Shri F. C. Badhwar, Chairman Railway Board, on his own behalf and that of the lakhs of railwaymen, pledged loyalty and co-operation in the service of the Nation and improvement of railway services to the people of this Great Country.

The formation of the three regrouped railways is calculated to promote the rationalization of railway organization and operation in areas which long desired but could not receive the coordination of facilities owing to the existing multiplicity of systems.

*** *** ***

In the columns of this Magazine for March some aspects of Railway working, with particular reference to road motor competition and claims prevention have appeared. It would be an augory of advancement for the general good of the railway working if these matters were also discussed by the staff which reveals their interest in Railway working.

There is no doubt there are certain advantages to a petty transport organization working on the road, firstly because it can afford to be a little cheaper on account of no comparison between capital outlay, interest and maintenance charges working expenses, etc., and secondly the facilities of a door to door service with a free lift for the representative of the owner and direct transit, i. e. without involving transhipment en route which in effect means delay to the consignment. But what fraction of the traffic moved is hauled over the road! It is negligible and limited to certain commodities. On the other hand the sense of competition keeps alive the spirit to do more and more in order to give better facilities and service to the Nation.

The matter of claims has been discussed in a concise but alround manner in the issue for March, 1952. It would not be out of place to add to it or repeatedly appeal to the staff and officers from these columns. In majority of cases of running train yard thefts some members of the staff are either directly involved or it is done through the connivance of those concerned. It is by no means suggested that all the staff are so degraded as to stoop down to anti-social and shameless tactics but concrete instances have proved that many of the yard and running train thefts were as a result of collusion with Railway staff. But is it due to the poor economic condition of the staff to stoop so low. Certainly not. Any member of the staff who has some iota of self respect will starve rather than lose his morale in face of the difficulties many though these may be. There are honourable ways of overcoming these homely difficulties and sentimental appeals from time to time can do much to keep the morale of the staff high.

It is suggested that railway administrations should programme permanent arrangements for the security of goods entrusted to them for transport, lying on platforms or in wagons standing in the yards. Such yards and areas should be sealed off permanently not only from the public but from the staff quarters also, by the provision of masonry walls or

thick barbed wire which should be maintained in perfect order.

Another cause for the goods in transit being spoiled, with resultant claims, is by coming into contact with wet hides, jaggery, molasses or kerosine oil, etc. Surely, a portion of the goods platform or shed can be set apart for such goods.

It is a fact that about one quarter of the consignments getting lost is due to poor marking and illegible or wrong preparation of wagon labels or complete absence of appropriate wagon labels. The supply to stations of a good quality of marking ink and better training to the marker, together with a strict check on his work by the inspecting staff and officers would improve matters, and if the marking is not improved the only conclusion could be that the Claims Prevention Inspector is responsible for dereliction of duty.

The real causes for the consignments becoming unconnected should be analysed on each section of the railway under the direct supervision of the D. T. S. or Divisional Commercial Superintendent who might report to the Head Office what action has been taken by him section by section and what assistance he requires from the Head Office.

At present there are few stations who follow up the urgent train messages issued or received in connection with short receipt of parcels or packages from other repacking stations. The foreign railways, if involved, rarely reply to such messages which are totally lost in some offices after receipt and no appropriate record is kept of them. So what is required is "interested follow-up" both by the receiving and despatching stations, with a perfect watch by inspecting officials.

(Continued on next page bottom)

In lost property offices the auctions should be held under the direct supervision of a Claims Officer and confidential reserve price fixed for almost all items of goods offered for auction. At present the sale proceeds from lost property offices barely represent the transit charges from concerned station to such an office in many cases.

South-East Asia and Tourism

India's Concerted Effort to Develop Travel Trade

SOUTH-EAST Asia abounds in places of historical and cultural interest to foreign visitors, and the first meeting of the Asian and Far Eastern Travel Commission beginning in New Delhi on Monday, March 24, 1952, should serve as an added incentive to the promotion of tourist trade in this part of the world.

India is justly proud of being host country for this international conference and will take a leading part in its deliberations on travel problems affecting the region. As tourism is to-day one of the major industries in most countries of the world—an important source of foreign exchange and a vital instrument for promoting goodwill and understanding between nations —, it is natural that India should take an active interest in developing her own travel trade.

India has an immense wealth of attractions, with happy blend of antiquity and modernity, to offer—an extensive store of ancient art and culture, numerous monumental relics on which is chronicled the story of her civilisation through the ages, a host of industrial centres and seats of learning, and an infinite variety of natural scenery and flora and fauna which would draw the admiration of any traveller from abroad. There is no dearth of beauty-spots and pleasure resorts and opportunities are not lacking for individual tastes, such as big game, fishing, boating and picnicking. The weather is delightful in all parts of the country for some months and in others all the year round.

The Government of India are paying, considerable attention to giving an impetus to developing tourism, particularly to attracting foreign visitors. Their broad objective is to organise publicity in foreign countries and to ensure that visitors from abroad are provided all possible comfort during their sojourn in India.

GOVERNMENT ORGANISATION

The Central Government have accordingly set up a tourist traffic organisation under the Ministry of Transport. Regional tourist offices have been established in important cities like Delhi, Bombay, Calcutta and Madras. In addition, the State Governments of the Punjab, U. P., Rajasthan, Mysore, Travancore-Cochin, Hyderabad, Orissa and Jammu and Kashmir have each placed at the disposal of the Government of India an honorary regional tourist officer with a view to ensuring satisfactory liaison. Thus, India has now a well-knit network of tourist offices Working in close collaboration with the State Governments, travel agents, hoteliers and carriers. With a view to encouraging tourist traffic from America, Government have decided to open a tourist bureau in New York.

Besides furnishing all the necessary information about amenities to tourists and rendering them any special assistance they may require in obtaining visas and permits, the Regional Tourist Officers of the Central Government help in supplementing the

task of recognised travel agencies. They are also entrusted with the responsibility of ensuring that tourist facilities are improved and brought up to the requisite standard. Advisory committees are now being gradually attached to them to assist them in their day-to-day work.

RELAXATION OF REGULATIONS

With the help of the Central Tourist Traffic Advisory Committee, an organisation consisting of representives of the Central Government, the State Governments and other trades directly interested in the promotion of tourist traffic, the Transport Ministry has, in co-operation with the Central Ministries and the State Governments concerned, been able to arrange relaxation of various governmental regulations regarding simplification of registration and customs formalities and currency exchange.

All overseas tourists are now provided with an 'Introduction Card,' which enables them to seek the help of Government officials in getting essential facilities. The Railway Administration have provided air-conditioned coaches on most of the main railway routes. Comfortable tourist cars are also made available on demand.

There are at present fairly good western-style hotels in almost all the principal cities and towns in India. With a view to improving the standard of hotels, Government have encouraged the formation of regional associations of hotels and restaurants. Leading hotels have agreed to make priority reservations, while the State Governments have thrown open their dak bungalows and rest houses at tourist centres for the use of foreign travellers on payment of the usual rent.

PUBLICITY LITERATURE

A booklet entitled 'India—Tourist Information,' regional guides on Kashmir, Hyderabad and Travancore-Cochin and an illustrated 'Handbook of India' have been published. Folders and posters on key tourist centres have also been brought out, while shikar and shopping guides are under print. A pictorial map of India has been especially prepared and its copies circulated abroad.

Arrangements have been made for the production of suitable travel films on India in colour for non-commercial distribution abroad, and some of these have already been released.

The influx of tourists to India has been very encouraging indeed. A large number of tourists, among them well-known writers, poets, journalists, professors, technical experts and leaders of opinion, have been to India from all corners of the world, not only for holidaying or sightseeing but to study our culture and way of life, to meet the common man and exchchange views with the intelligentsia.

The luxury liners 'Caronia' and 'Stella Polaris' brought to India large parties of Americans on a pleasure cruise last year as well as this season.

It was in 1950 that India joined the International Union of Official Travel Organisations, which is a non-governmental body with a consultative status with the U. N. O. Indian delegates to the various sessions of ECAFE and IUOTO have played a notable part in the setting up of the Asian and Far Eastern Regional Commission on the lines of similar commissions for Europe and Africa. It is a matter of honour that India has been selected as the venue of the first meeting of this Commission.

(Continued from Page 6)

After the function, the special train steamed off from Arantangi amidst cheers from the large crowd, and proceeded along the new line to Karaikudi. The new stations on the way put up a festive appearance and the villagers cheered His Excellency.

*** *** ***

'STOP ROUGH HANDLING' WEEK ON RAILWAYS

As an active measure in the prevention of claims which arise directly or indirectly from careless handling of packages, a 'Stop Rough Handling' week was held on Western and Central Railways last month. The objective of this week was to create a sense of awareness amongst the different sections of the staff of the importance of handling all packages with care and consideration irrespective of the contents.

During this week, all supervisory traffic staff, including Inspectors and Supervising Station Masters, were instructed to go out and watch the actual handling by the labour force, in goods, parcels and transhipment sheds and to correct wrong methods by explaining reasons to arrange demonstrations, where needed. Traffic Officers in the divisions or districts and in the headquarters' office inspected stations, goods and transhipment sheds during the week with a view to imparting zest and impetus to the campaign.

A parallel campaign was conducted at the same time in sorting and marshalling yards to bring home to the staff the importance of preventing careless handling of wagons. Rough shunting is a frequent source of damage to goods.

RAILWAY SIGNAL ENGINEERS VISIT IEW FACTORY

The Signal Engineers of the Indian Railways met at a conference in Calcutta by the middle of February 1952. The photograph published below is taken on the occasion of their visit to the Instrument Factory of the India Electric Works Ltd., Calcutta. It is needless to say that this Firm is closely connected with our Indian Railways.

(STANDING-LEFT TO RIGHT) Messrs. R. G Dhawan, R. K. Rohatgi (*Technical Director*), M. R. Basil (*Sales Manager*), L. C. Mohindra (*Asstt. C. C. of Standardisation*), K. K Rohatgi (*Pradip Lamp Works*), Harish Chandra (*I. E. W. Bombay*), Vijay Singh, S. M. Gowrishanker (*E. P. Rly.*), P. A. to Shri Venkataramiyya, M. M. Agerwala (*Assam Rly.*), B. F. Good Child (*Messrs. Saxby & Farmer (India) Ltd.*), B. K. Rohatgi (*Managing Director*), N. L. Mukherjee, J. N. Dutta, A. R. Iyer.

(SITTING-LEFT TO RIGHT) Messrs. W. Duncan (*Central Rly.*), Venkataramiyya (*Dy. C. C. of Standardisation*) H. C. Towers (*Western Rly.*), C. A. White (*Southern Rly.*), B. C. Basu (*B. N. Rly.*), J. A. Meneze (*E. I. Rly.*), B. L. Sabharwal (*E. I. Rly.*).

PAP GADGET

We publish below a letter from Messrs Heatly and Gresham Limited, Calcutta, addressed to us which is self-explanatory :—

"My attention has been called by our London Office to a paragraph in the January issue of The Southern Railways Magazine, page 45 under the heading of "PAP GADGET."

"This purports to make out that the Automatic Vacuum Brake Apparatus was invented by some personnel of the GOC Shops. There seems to be some misunderstanding here as the first Vacuum Brake was invented by a Mr. Smith of Nottingham, England, away back in the early 1,800's. Various other parties also invented Vacuum Brake systems, i. e. D. G. Hardy, Eames Aspinall, Clayton, Churchward and also various members of the Gresham family, the Founders of my Company, Heatly and Gresham and Craven, Ltd., of Manchester. The Vacuum Brake has been developed to its high efficiency today through the efforts of Gresham and Craven, Manchester, and The Vacuum Brake Co., Ltd., London.

"It might be interesting to recall that in 1888 trials were held by the Indian State Railways to decide on the adoption of "The Automatic Vacuum Brake." You will notice that this was "The Automatic Vacuum Brake" as a Non-Automatic Vacuum Brake had been in use for many years previously on the B. B. and C. I. Railway. The trials were carried out at Quetta, Killa Abdula and down the Bolan Pass on the North Western Railway between the 5th and 8th October 1888. It was as a result of those trials that The Automatic Vacuum Brake became standardised on the Indian State Railways.

"I trust you will be able to insert in your next issue the above facts so that any misunderstanding regarding the original Patentors or Inventors of the Vacuum Brake is satisfactorily cleared up."

*** *** ***

AIR-INDIA, PAL SIGN JOINT SALES AGENCY AGREEMENT

Air-India Ltd., have entered into an agreement with Philippine Air Lines to act as their General Sales Agents in India and Ceylon. The agency does not cover West Bengal, where PAL have their own Sales Office.

Philippine Air Lines will in turn become Air India International's General Sales Agents in the Philippines, Japan and Hongkong.

This news was released today by Mr. F. W. Kendall, International Traffic and Sales Co-Ordinator for Philippine Air lines.

Philippine Air Lines places great emphasis on its Indian services. Connections are maintained through Calcutta with the Untied States, Japan and the Philippines on the one side, and Karachi, the Middle East, Italy, Spain and London on the other. Services in Europe are shortly to be expanded.

We are sure such Sales Agency Agreements with Foreign Air Line operators will not only go a long way in increasing the ties of friendship between both the countries but also contribute to the promotion of civil aviation.—

EDITOR

*** *** ***

(A batch of Hunslet diesel-mechanical locomotives, forming the first traction application of the Gardner 8LW engine have just been shipped to the British North Borneo Railway, and are now working local passenger trains out of Jesselton with stops every half mile or so. They are the first diesel locomotives on any public railway in Borneo, the third largest island in the world).

It is with me always a pleausre to be in the class-room with young men, teaching, guiding, inspiring them. In their company I felt rejuvenated and now, if in the evening of my life, my optimism remains unabated, I attribute it largely to my close and constant association with them.—*Surendranath Banerjea.*

FOR THE RUNNING STAFF

Don't Get On or Off a Train in Motion

If you have to, *Beware* of *Plantain Peels* and *Orange Peels* on the platform, and be sure of your grip.

When a train is in motion, everybody inside the train (including the Guard, the Driver, the Fireman, and the TTE) is in motion—*in the same direction* and *at the same speed* as the train. Don't doubt it—EVERY PARTICLE ON A MOVING BODY PARTAKES OF THE SAME MOTION—a principle in Physics.

Getting Off a Train

When you jump on to the platform from the running train, your feet contact the platform first. On contacting, the feet are suddenly brought to rest, whilst the rest of body continues in motion. The result is, you fall like a stick in the direction of the motion.

How, therefore, should you get off a moving train? Of course, by reducing the speed *gradually, not suddenly. On alighting, run a few feet in the direction of motion, gradually slackening the speed and eventually to rest.* Can a man do so with all speeds? Surely not, but only with the maximum speed naturally gifted to man, say up to 5 or 6 miles per hour. At no higher speed of the train should you attempt this.

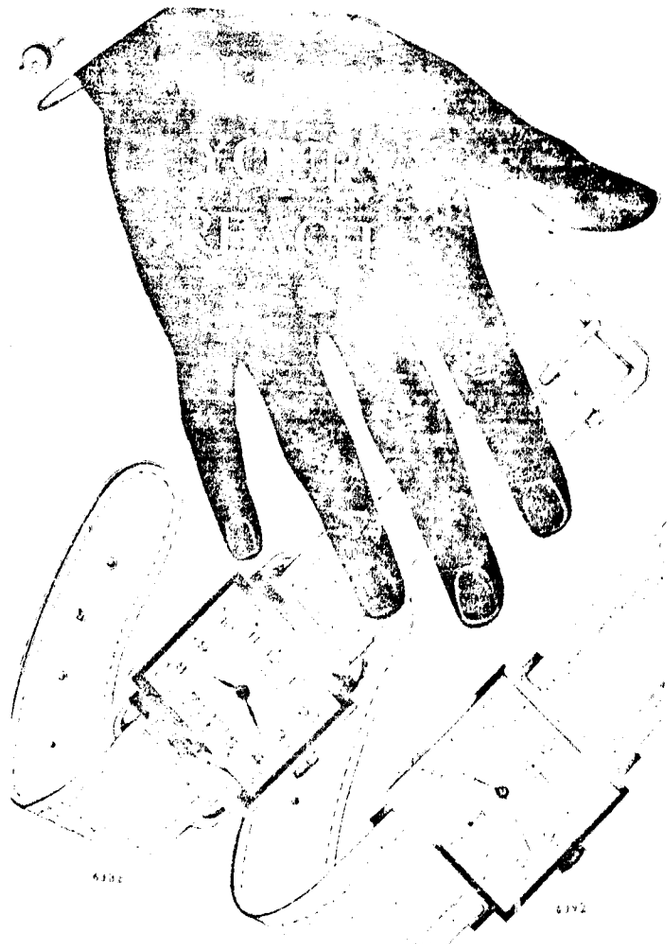
Getting On a Train

When you jump from the platform on to the running train, your feet contact the floor of the moving train first. On contacting, your feet are suddenly put at a speed, whilst the rest of the body continues to be at rest The result is, you fall like a stick away from the direction of motion.

How, therefore, should you get into a train in motion? Of course *by first raising the speed of your body to that of the train, and then boarding the train.* So, run a few feet in the direction of motion, alongside the train but not too close to it; when the speeds are equal, or nearly equal (that is, when the RELATIVE MOTION is zero, in the language of Physics), get the sure grip and then board. Can a man do so with all speeds? Surely not, but only with the maximum locomotion that God has given to man, say 5 or 6 miles per hour. At no higher speed of the train should you attempt this.

This KNOWLEDGE will SAVE YOU FROM ACCIDENTS—LOSS of LIFE or LIMB.

(Issued in the interests of the Travelling Public)



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FAVRE-LEUBA

SOUTHERN RAILWAYS

Magazine

May 1952

Price As. 4/-

SOUTHERN RAILWAY .

DO YOU KNOW WHAT "EXCEPTED" ARTICLES ARE?

Gold and silver, pearls, precious stones and jewellery, watches and clocks, silks and shawls, musical instruments and radio sets—these and many others you will find listed as "Excepted" articles in this Railway's Time Tables and Guide and in the Indian Railway Conference Association's Coaching Tariff No. 15 and Goods Tariff No. 28.

When a package containing any such valuable articles is booked by rail, and the value of such articles in any one package exceeds Rs. 300/–, the Railway Administration will not accept any responsibility for its loss, damage or deterioration, unless the sender has declared, at the time of booking, the value of such articles and paid a percentage charge in addition to the freight charges.

You are invited to contact the nearest Station Master if you desire to have more information on the subject or to refer to the books mentioned above.

CHIEF COMMERCIAL SUPDT.

SOUTHERN RAILWAYS MAGAZINE

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"Aftermath of Regrouping"

THE regrouping of all the railway systems has been completed, and India has now only six railways—Northern, Eastern, Southern, Western, Central and North-Eastern. The integration of the last three systems to be brought into effect—the Northern, Eastern and North-Eastern met with considerable opposition of bitter criticism. Even after the official inauguration of these three remaining systems on the 14th April, there was still hope that certain modifications suggested especially by the Government and Commercial interests of West Bengal would be conceded. After a lot of high-powered activity at the Centre the final verdict came in the form of only one concession, that the Sealdah Division and part of the Loop Section of the former East Indian Railway would remain with the Eastern Railway instead of becoming part of the North-Eastern Railway. The other modifications hoped for—i. e. the Allahabad Division of the old E. I. Railway, up to Delhi to be part of the Eastern Railway, and the headquarters of the North Eastern Railway to be at Calcutta instead of Gorakhpur was not conceded.

What was the reaction to this ? Certain Members of Parliament and of the State Assembly in West Bengal promptly issued a call upon the people of West Bengal to observe the 7th May as a day of protest against the recently-introduced railway regrouping, and this protest was to be in the shape of a token strike for a day by railwaymen and shopkeepers, bazaar dealers, workers and students were exhorted to co-operate in sympahty by observing a hartal. The West Bengal Government in a press note while deploring the weapon of a token strike and a hartal to voice dissatisfaction and advising action in a more rational and constitutional manner, did feel that in spite of representations from Commercial bodies, industrialists and even the State Government, the Central Government had not given all these protests the consideration deserved, and that it would have been far better if further investigation of the problem by experts had been resorted to before the final decision had been taken.

The May 7th hartal and token strike, according to all press reports was one of the most effective organized in Calcutta for some years, and which brought the railways and the city's transport to a standstill for nearly 12 hours.

Following close on this successful hartal the Joint Council of Action of the E. I., B. N. and Assam Railways have now proposed to convene a conference of newly elected M. P's and M. C's in Delhi towards the end of May to apprise them of the whole question of regrouping of railways so that they might present a united front in Parliament when the subject comes up for discussion.

Is the present stage of regrouping to be irrevocable? Will those who voiced their protest by a token strike and hartal be emboldened by their success resort to more of these for longer periods? O. will the body who are hoping to enlist the newly elected Members of Parliament to be on

(Continued on page 7 bottom)

Notes and Comments

OUR NEW MINISTER FOR RAILWAYS

The announcement of the personnel of the new Nehru Cabinet and the inclusion of Shri Lal Bahadur Shastri as the Minister for Railways once again reveals the importance attached by our Prime Minister to the future role which this biggest single national enterprise viz. Railways are expected to play in relation to the economical development of the country. The selection of Shri Shastri for Railways who is also the General Secretary of the Indian National Congress is significant, in that, it was Shri Lal Bahadur Shastri who reorganised the Indian National Congress and made it a fitting instrument to fight the General Elections on adult franchise on a scale unprecedented in the history of any country. A much greater task lies ahead for our new Railway Minister in that he has to bring concrete results out of the regrouped Railways for the benefit of the common man. Even though, he is new to the technicalities of Railway Transport, he is a seasoned administrator and with the help of the expert advice tendered by the Members of Railway Board, he will be able to bring about the requisite efficiency. Railwaymen of all ranks therefore welcome their new Railway Minister and hope that under his regime their prosperity will be assured while they in turn will put up their best to make the Railways the pride of our Nation. The budget session of the Parliament is not far off and we may expect an announcement of the policy to be pursued by the Minister. There cannot be any complete break with the past but one may expect changes in administration especially in view of the effective opposition the leftist parties are expected to put up. The Railways in India, have, though recovered from the ravages of the World War II have not yet been made the efficient hand-maid of the people and the development is not uniform. The economical crisis which is enveloping the Nation will surely affect the Railways too and this is the time that the Railways should be steered ahead with ability. We are sure that our New Railway Minister will rise to the great task and will come well in the task.

At a ceremony held in Rashtrapati Bhavan, New Delhi, on May 13, the President, Dr. Rajendra Prasad, administered the oaths of Office and of Secrecy to the Prime Minister and the other members of the new Council of Ministers.

Photo shows the President administering the Oath to Shri Lal Bahadur Shastri as Cabinet Minister. He has been allotted the portfolio of Railways and Transport. Others seen in this picture watching the swearing-in ceremony are Maulana Abul Kalam Azad and Rajkumari Amrit Kaur (back to the camera).

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SOUTHERN RAILWAY'S CONTRIBUTION

While the people welcome the great services rendered by our National Army under our patriotic Commander-in-Chief General Cariappa to relieve the water scarcity in the Rayalaseema, the contribution of the Southern Railway towards this might be unknown to many. For the first time in the history of our country such Governmental agencies like the Railways were harnessed to a noble cause with the result the common man has come to feel that the Railways exist for the people. The Railway Board have promptly moved in the matter and ordered that drinking water should be supplied free of cost and transportation charges. Drinking water was made available by the Railway to the public at Cumbum, Giddalur and Markapur Road stations in the Kurnool district and at Razampeta Yerraguntla in Cuddapah district. The operating department which is directly responsible to arrange these, have done well under the able COPS Mr. Sarma to translate into action and thus helped the suffering men, women and children at the famine affected areas. It is after all the feeling that Railways, Military and all other limbs of the Government exist for the people that go a long way in bringing true democracy into existence and we may really be proud of the fact that Railways and Military have their side actively succeed in the near future in influencing the Centre to revoke their decisions in some modified form?

We end on a note of conjecture, but in the hope that whatever the outcome Indian Railways will be allowed to settle down to a period of stability so that they can go ahead to give the nation the best in the way of efficiency, speed and comfort.

come forward to this job, though in a small way but for a great cause.

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INDIAN RAILWAYS CELEBRATE CENTENARY IN 1953

Big plans are being made to celebrate the 100 years of Railways service in India in 1953. The meagre news that appeared in the Dailies do not give the great event and its importance. On the Southern Railway this event will be celebrated by the starting of the Integral Coach Factory at Perambur for which work has already been commenced under the able supervision of Shri M Ganapathy, Engineer-in-Chief. Exhibition of Railway models, Trains will be held at important cities and the service rendered by the Railways during these 100 years of existence will be made known to the people. It may be interesting to recall that exactly 100 years back the Vulcan Foundry in England sent 8 passenger engines to India and it took us nearly 100 years after the attainment of Freedom to construct our own Locomotive Factory at Chittaranjan. We hope that the Railway Board and the Southern Railway authorities will not fail to evoke the enthusiasm of Railwaymen by enlisting their co-operation in these celebrations by introducing prizes for the best Locomotive Driver of long service with no accident record or a Station Master and a Guard.

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SENIORITY COMMITTEE FOR SOUTHERN RAILWAY

The Seniority Committee under its judicial Chairman Shri Srinivasa Iyengar is doing very useful work and its final labours it is hoped will bring relief to a large number of railwaymen. The Railway-Board, it is understood, have extended the period of the functioning of the Committee upto end of July 1952 and have asked them to prepare printed Seniority lists of staff. It must be noted that in the past many junior men were promoted out of the way in the respective Ex-Company regimes and it is no use trying to maintain the *status quo* by telling that any radical alteration will upset the whole arrangement. Railwaymen if they are enthused for work must feel genuinely that they can expect justice at the hands of the Committee and one way is to take the total length of service irrespective of the posts one had occupied in the course of railway work. Mr. Chandwani, the able Ex-Deputy General Manager of North Western Railway devised a formula, taking the total service of a railwayman in deciding his seniority and it is but fair that this principle is applied to the railwaymen in the integrated Southern Railway. It is no fault of a railwayman with a greater service to be occupying a junior post when his compatriot with lesser service occupy a senior post. This must be set right here and now and if the Committee is bold enough to take this course and get promotion to some neglected by efficient men of long service, it would have carned the gratitude of railwaymen.

*** *** ***

NON-GAZETTED RAILWAYMEN GET MORE BENEFIT IN SERVICE CONDITIONS

The Railway Board must be congratulated for boldly revising the discipline and appeal rules for non-gazetted railwaymen. The new rules which come into force from 1—5—52 permits railwaymen who are under orders of dismissal to prefer an appeal to the General Manager which was not conceded previously with a request to send their cases to the

if the affected Railway employees so desire. This is no mean achievement; for the first time in the annals of Railway history an impart al judicial tribunal will be asked to sit in judgment over the action of a Railway Officer and the very fact that a dismissed employee can take his case to the Tribunal will set the tone of these Officers, who will think not once but twice before they take such a drastic action. Railwaymen have been agitating for this right for a long time and it is a fitting tribute to the retiring Minister for Railways Shri N. Gopalaswami Iyengar to have conceded this at the request of the AIRF. Another concession now given is that any Railway servant or a Trade Union official can accompany an affected Railway employee and assist in the enquiry proceedings. The Officers should also show the proceedings to the employee if desired. The discrimination shown between a Railway employee who was put in less than seven years of service and some with more have been removed. It is earnestly expected that with the liberalisation of these rules, a sense of security will prevail amongst Railwaymen and and they will consider themselves as part of the Nation and put in their best efforts for the Nation.

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ONE YEAR OF REGROUPING ON THE SOUTHERN RAILWAY

By fourteenth of April 1952 Southern Railway has completed one year of regrouping and it is time we take stock of the achievement and failures of the experiment.

The smooth working of the integrated Southern Railway without the absence of serious complaints is itself an achievement as it is on this integrated administrative set up the future depended. Two entire company managed systems with different outlook and traditions and one quasi state system of princely order were merged into one and in the words of a chief "We are levelling down certain things to achieve uniformity and better standard throughtout the system instead levelling up the already better system. This levelling down is necessary for sometime to come. The pooling of rolling-stock, the abolition of interchange points, the standardisation of stores at the main heads, the distribution of Ex-S. I. Railway personnel throughout, are the immediate achievements. The abolition of the General Manager's administrative set-up and handing over them to the respective Heads of Departments is a great step forward and credit must be given to Mr. T. A. Joseph the present Deputy General Manager for this achievement. The establishment of the Personnel organisation for dealing with staff matters is a great forward step and has achieved much results within the short time of its inception. In the Operating Department on which the brunt of regrouping fell the indefatigable Shri Sarma the COPS who spared no pains by over-working himself, spectacular results have been achieved. Two time-table revisions have been undertaken in spite dearth of Engines and Rolling Stock. Transport of Food grains in large quantities were made with a coal crisis and water crisis which was the direct result of failure of monsoon for five successive years. Above all the industrial development of South and the heavy movement of Coal from North to South on the meagre line capacity of the North East line is a problem that would defy the ablest of Operating Heads but thanks to the present Chief this was achieved solely on his ability to get things done. In short, each Head of Department cooperated with each other under the able guidance of the General

Manager and marked the first mile-stone of the integrated Southern Railway. We hope the coming of rains as we write this, will bring solace to the railwaymen and prosperity to all and solve the watering difficulties to Engines of the Southern Railway and bring happiness to one and all.

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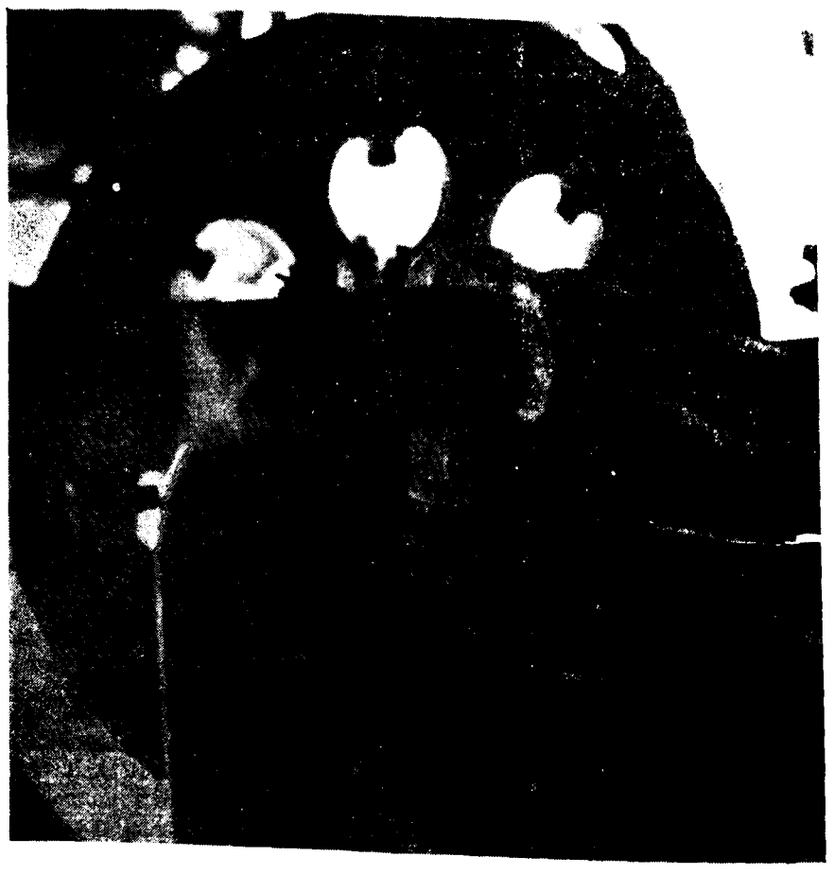
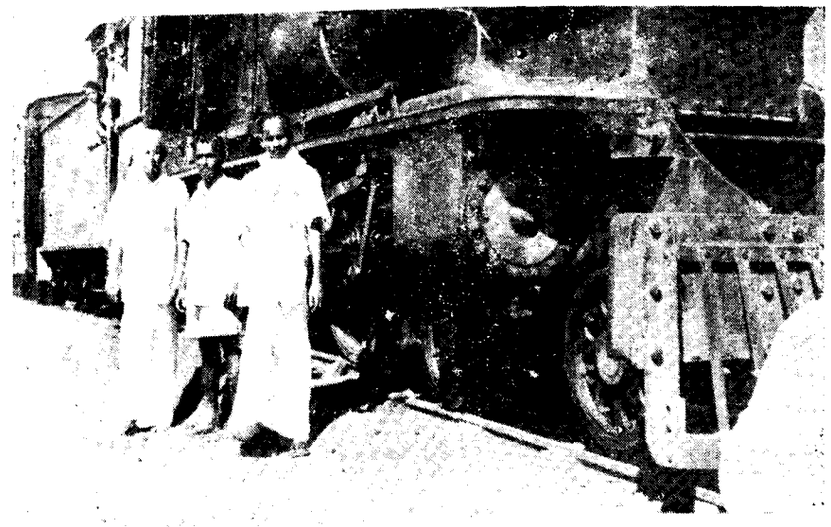
PAP GADGET

We have published a news item in our January issue about the dispute arising out of the above invention. Last month we published another letter from Messrs. Heatly Gresham Ltd. Calcutta who stated *inter alia* that the first Vacuum Brake was invented by members of the Gresham Family. Again we had a discussion with the Branch Secretary of the Southern Rialway Workers' Union, Trichinopoly on the subject. Now it is stated that the above invention is quite different from Auton atic Vacuum Brake system. Hence in order to satisfactorily clear up the misunderstanding we are publishing below the full text of a letter No. PC/ACDTS dated 21—10—50 addressed to the President, standing Screening Committee (Inventions & Suggestions) by the Deputy Chief Mechanical Engineer (Power) Ex-S. I. Railway Trichinopoly and copy endorsed to the Secretary, Workers' Union Branch, a copy of which was handed over to us by the Branch Secretary of the Union :—

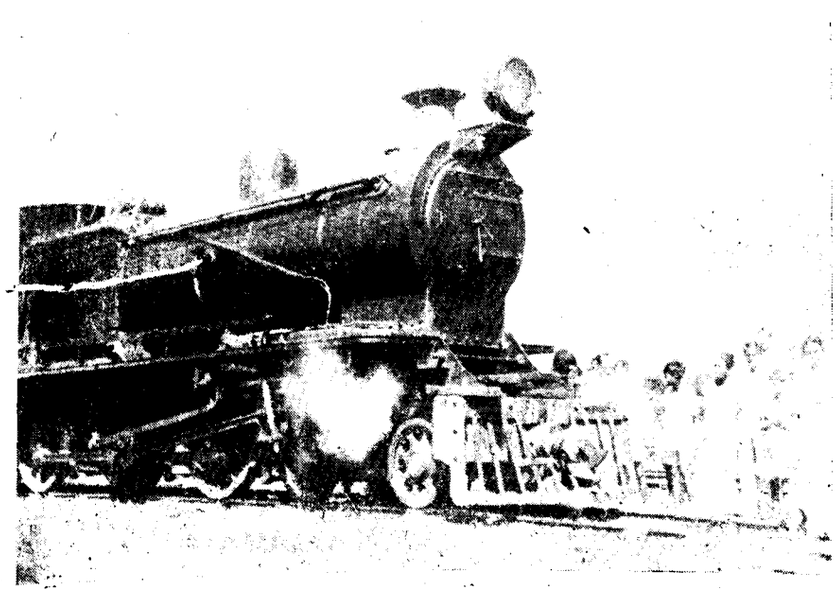


A View of the PAP—Gadget

"I attach herewith a plan and an explanatory note on a safety device submitted by Fitters, Messrs.



LEFT TO RIGHT : *1 T. M. Arumugham Pillai, 2. M. Ponnuswamy, 3. N. Periasamy, President, S. R. Workers' Union. The three inventors were snapped by the Administration immediately after the successful trial test of the Gadget.*



The apparatus is being tested by the Dy. C. M. E. (Power)

N. Periasamy, M. Ponnan and T. N. Arumugham Pillai. The Fitters and the Workers' Union Secretary approached me some time ago and asked for permission to have one of these gadgets manufactured in Shed for trial purposes. As it appeared to be something in suggestion, I permitted them to go ahead with the work and eventually one was put on test Both the C. M E. and myself inspected this arrangement and my remarks are as follows :—

"The idea of the gadget is that should a rail be removed, the front bogie wheels of an engine will drop. On dropping the axle comes into contact with the trigger of the valve and opens it (as shown in the elevation in dotted lines) drawing air in the train pipes. This will have the result in putting the brakes on the train immediately the front wheels derailed and dropped. We could not put the gadget to actual test, but it is very evident that the trigger would be lifted and air admitted as soon as the wheels dropped.

The principle of the arrangement is that the brakes would come on as soon as the bogie wheels dropped, in the case of an accident and the necessity to rely on the driver to apply brakes will not arise, the time lag from the time the engine bogie wheels derailed to the time the driver puts the brakes 'ON' will be avoided.

The principle is certainly excellent and the Fitters have given the matter quite a lot of thought, and in my opinion, it might result in saving a certain number of lives in a big accident.

This arrangement will only work, however, if the front bogie wheels of the engine derailed. A serious accident might take place where the other wheels of the engine or tender or the carriages may derail without the bogie wheels of the train engine being derailed. To overcome this, therefore, the principle could be modified to work off the rail and not only from the front bogie axle."

DO YOU ?

Do you throw empty bottles or tins from a moving train ? A Gangman or other Railway employee working on the line may receive serious injuries if you do.

Do you light a methylated spirit stove in your compartment or throw a burning match on the floor ? Fires often result when you do.

Do you lean out of a window or rest with an arm or leg protruding out of the window ? Serious accidents have happened to passengers who do.

Do you attempt to board or alight from a moving train ? If you do, please don't ; for many fatal accidents have resulted to people who do.

We are somewhat more than ourselves in our sleeps, and the slumbe of the body seems to be but the waking of the soul. It is the ligation o sense, but the liberty of reason, and our waking conceptions do not matel the fancies of our sleeps.—*Sir Thomas Browne.*

New Delhi News Letter

RAILWAY BUDGET 1952—53

In presenting the Railway Budget for 1952—53 before the Parliament on 22nd May, 1952, Shri Lal Bahadur Shastri, Minister for Transport, referred to the White paper which was already presented in February this year by his predecessor Shri Gopalaswami Ayyangar, giving details and salient features of the financial administration of the Railways during the current year, a review of the development of rail transport in India, the diverse problems which the Railways have had to contend with and the plans which have been initiated to resolve them, to enable the Indian railways to fulfil their appropriate role in the economy of New India.

The first point of major developments since presentation of the estimates in February last on which Mr. Shastri observed was the scheme for welding together the numerous railway systems in India to form one co-ordinated system divided into adequate number of major zonal Administrative units on the basic consideration of administrative and operational efficiency, as also of ultimate economy, having received general support in the country. He however, regretted that the last phase of this great administrative reform, viz. the formation of the three zones in the Northern and Eastern sectors of India had occasioned bitter controversy, sometimes acrimonious in certain quarters. He stressed the fact that in completing the integration of railways in the last mentioned sectors the Railway Ministry had endeavoured to secure the greatest measure of agreement from the States Governments concerned and the Trade and Industry of these States, keeping all the time in view the paramount needs of administrative and operational efficiency, the economic affinity of contiguous regions and the natural flow of traffic. He said "Any plan which places the overall needs of the country and the community above all other considerations must necessarily conflict with some purely local or regional preferences and sentiments while synchronizing with those of some others. I am confident that I am voicing the feelings of all the sections of this House—that the people of this young Republic today are capable of rising above the narrow parochial and provincial sentiments and prejudices in the larger interests of the unity, solidarity and prosperity of the Nation as a whole. I regret and deplore the suggestion, therefore, that we have sacrificed efficiency, economy and the principles of integration on political and provincial considerations."

The Sealdah Division having been now attached to the Eastern Railway, the North Eastern Railway is purely a metre gauge system and there can be no question of locating its headquarters at any station other than one on the metre gauge system. In connection with the Allahabad Division, the Hon'ble Minister remarked that a great deal had been said in the Press and in the various memoranda to the Railway Board based on opinions like those of the Wedgwood and Kunzru Committees, but in arriving at the decision to integrate Allahabad Division with the Northern Railway the Goverment had given the fullest and most careful consideration to all such opinions to the extent of their validity in the altered conditions prevailing today. The point made by them that the inclusion of the Allahabad Division, along with the other two Divisions of the ex-E. I. Ry., in the Eastern Zone, would give it elbow room and operational flexibility to achieve this end,

could not be maintained as these three Divisions could only produce about 400 empties against the 1,000 required daily at Moghalsarai for coal traffic. To attain the better movement of coal traffic and to secure more effective co-ordination, a Deputy Director of the Railway Board has now been posted at Moghalsarai to ensure the flow back of an adequate number of empties through Moghalsarai into the coalfields, by an overall regulation and adjustment of traffic throughout the Railway system in the country, which is undoubtedly an improvement on the arrangements in force before integration.

With regard to the future of the Sealdah Division, it was considered that its attachment to the North Eastern Railway would facilitate the flow of traffic both in and out of the Port of Calcutta, even though a short Broad Gauge link with an entirely Metre Gauge system was not an ideal operating plan. On protestations by business interests of Bengal and the Bengal Government's inclination to support their view, this Division has been attached to the Eastern Railway for the unity of the Broad Gauge system in Bengal. On a re-examination and review of the tentative plan to maintain the uninterrupted flow of traffic to and from the Port of Culcutta, it was considered necessary to provide for a wider and more effective measure of co-ordination over all the riverine interchange points of traffic than was envisaged in the original plan and for this purpose an officer of the status of a Director of the Railway Board designated "Director, Rail Movements" is already in position and has taken over-all charge fo regulating traffic in this area.

To allay the misgivings in the minds of the staff, the Hon'ble Minister reiterated the assurance given by the Prime Minister and his predecessor that by reason of the formation of these three zones, there would be no retrenchment and no non-gazetted staff would be transferred without their consent and the organizational arrangements, including the location of offices are therefore being adjusted to this end.

With the completion of the process of integration of Indian Railways into a single unified undertaking, the H. M. said "It has also been considered necessary to make some alterations in the financial and accounting structure of the Railways. Hitherto, the earnings and expenditure were worked out separately for each Railway system in a meticulous manner involving a lot of avoidable expenditure. The reason for this arrangement was mainly historical as each Railway system was originally incorporated as a Company and had both an independent administrative and financial existence. With the completion of integration, the whole conception of the Indian Railway system has changed radically in so far as there is now only one railway undertaking in India ..... A natural corollary to this new concept is that the accounts of the Indian Railways should be compiled for the system as a whole and not for its various constituent units. It has, therefore, been decided to eliminate from the financial accounts unnecessary interdepartmental and inter-railway adjustments, such as adjustments on account of freight charges on carriage of railway stores including fuel, by rail which inflate the figures, both of earnings and expenditure, and also the inter-railway adjustments. In consequence of these decisions, the gross traffic receipts of the Railways will be reduced by Rs. 16·31 crores with the reduction of a corresponding amount on the expenditure side."

Shri Lal Bahadur Shastri further remarked that since the presentation of the Budget in February last, the financial position had been further reviewed and it has been found possible to accommodate within the overall allocation of funds, certain additional works which will accelerate the removal of transport bottlenecks on certain sections of the Railways and to increase substantially the provision originally made for labour welfare, particularly housing. "The Railways have set for themselves a standard of housing for labour at Chittaranjan which has elicited appreciation as the ideal housing for labour anywhere in India. As the largest employer of labour in the country, it has been the constant endeavour of the Railway Ministry to create conditions of work commensurate with the status of labour in the economic and social life of our welfare State. We have formulated comprehensive plans for not merely building new houses with improved amenities, but also undertaken the remodelling and renovation of existing houses to bring them up to standard. ... ... In the old Company days, passenger amenities, particularly in the lower classes, were neglected and housing of labour attracted very little attention and was generally considered infructuous expenditure. Some of the colonies which we have thus inherited are, if I may be permitted to quote the Prime Minister, a disgrace to the country. I wish to assure this House that the Railway Board is only too conscious of its responsibilities in this matter. Within the limitations of its resources—material, man-power and financial—plans are being implemented to reproduce standards akin to those of Chittaranjan—over the whole field of railway housing. This attitude finds concrete expression in the large provision made under housing and labour welfare in the estimates."

Shri Shastri referred to the fact that all the important facts of railway operations are being reviewed by high-powered committees. The Indian Railway Stores Committee has already reported and the Fuel Committee's final report is expected shortly. Between Ministries of the Government certain adjustments in the existing machinery for procurement had to be carried out and the Railway Board have been given the responsibility for procurement of specialised railway stores. This is expected to result in considerable improvement in the utilization of repair facilities in the railway workshops. Non-availability of adequate quantities of spares etc. was interfering with the planning of production which impediment would now be quickly removed.

The Hon'ble Minister referred to the celebration of Railway Centenary in 1953 and revealed that it is proposed to organise a Railway Exhibition at Delhi in connection with these celebrations which will not merely give a historical representation of development of rail transport in this country but will also exhibit the principal items of railway equipment in use, thus affording industries in India an opportunity of considering the feasibility of establishing manufacture in a larger measure than at present. Provision has also been made in the Budget estimates for the construction of a long overdue appropriate passenger station at New Delhi with all modern facilities for the travelling public, including retiring rooms for lower class passengers.

In concluding, Shri Shastri assured the House that it would be his constant endeavour

to maintain the steady progress achieved in operating efficiency, to foster better and closer relations and understanding between labour and administration and to continue to improve the scale of amenities made available to the travelling public and labour. He was confident of receiving support and encouragement from the House and from the Members of the public outside, and the willing co-operation and loyalty of all categories of railway employees, which were afforded in such ample measure to his predecessor in office, to enable him to fulfil his heavy responsibilities as the custodian of the largest nationalised undertaking.

1952—53

RAILWAY BUDGET AT A GLANCE

(Figures)

Gross Traffic Receipts	2,82,16	Lakhs of Rs.
Working Expenses	1,87,69	,,
Appropriation to Depreciation Reserve Fund	30,00	,,
Payments to worked lines	24,00	,,
Total working exp:	2,17,93	
Net Traffic Receipts	64,23	,,
Net Miscellaneous expenditure	6,76	,,
Net Railway revenues	57,47	,,
Dividend to General Revenues	34,00	,,
Net Gain or Surplus	23,47	,,

Proposed distribution of surplus of 23·47 crores:—

Development Fund	12·00 crores.
Revenue Reserve Fund	11·47 crores.

Duties high, noble, silently important as any that can fall to a human creature, duties that, if well discharged, constitute woman in a soft, beautiful, almost sacred way Queen of the World, and which, by her natural faculties, graces, strength and weaknesses, are every way indicated as especially hers.—CARLYLE.

Our London Letter

By A Correspondent

THE annual luncheon of the Institution of Locomotive Engineers was held at the Dorchester Hotel, Park Lane, London, on Friday March 7. The number of members and guests who attended the function was 574. Mr. Julian S. Tritton, President and Partner in the firm of Messrs. Rendell, Palmer & Tritton was in the Chair. It had been decided to make this year's affair a Commonwealth one and this was borne out by the number of distinguished guests present which included Commissioners from many countries of the Commonwealth and Empire. Mr. V. K. Krishna Menon, High Commissioner for India, was the principal guest and he proposed the toast of "The Institution." In his speech he paid tribute to those British engineers who had established the Indian Railways nearly 100 years ago—a system which provided the principal means of distributing food to the people of India. He said that on the Indian Railways by far the greater number of locomotives at work had been designed and built in Great Britain. The first locomotive for India had been built in Britain in 1852 and in the hundred years that had followed an average of 100 locomotives a year had been delivered. Referring to the locomotive works at Chittaranjan, Mr. Menon said that the locomotives under construction there would play a vital part in the life of India. It was probable that long distance passenger traffic in India would be taken over by the aeroplane. The railways in India were dependant on the skill and generosity of the British manufacturers and the Ministry of Supply. At the present time India had 397 locomotives on order from the United Kingdom.

Mr. Julian S. Tritton, responding to the toast, thanked Mr. Menon on behalf of the Institution for the good wishes he had just expressed. It would be seen from the list of eminent guests that they had decided to make this luncheon a Commonwealth one. This year they thought it fitting that their President, as an overseas man, should emphasise the importance which the Institution attached to the work of its members in the Commonwealth and overseas. He felt that this was suitable on the occasion of the year of his Presidency because he had been privileged to serve the Indian Railways for the greater part of his life. He said that he was very glad of having been privileged to live during this half century which had witnessed almost the complete cycle of development of railways in India. This vast system, built under British private enterprise and operated for the major part of its existence by British engineers, had by them been brought up to a standard of operation which compared favourably with any in the world. For many years it had provided the cheapest third class travel in the world. It was the pioneer of the standardisation of locomotive and rolling stock on a large scale. Later it had been fused into a vast organisation under state control and now the full cycle had been completed by the Government coming into a goodly heritage in which it was taking full advantage under national management. Mr. Tritton said that one of the highlights of his career had been the occasion on which, after luncheon at Government House, New Delhi, he had found himself seated between Lord Mountbatten and Pandit

Nehru discussing the future of Indian Railways at a time when it had been decided that they should run under their own steam. On this occasion Pandit Nehru had said that they would continue to look to the British railway engineer for technical assistance and hoped it would be forthcoming under the new conditions: he had added that they knew where to get the best value for their money.

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The new British Railways Ship SS "Normannia" made her maiden trip on the night on March 3—4 on the Southampton Le Harve route which is operated by the Southern Region of British Railways. She was launched last July by the Hon. Pamela Hurcomb, daughter of Lord Hurcomb, Chairman of the British Transport Commission. The new vessel is the second railway ship to be so named: the first operated on the same route and was lost at Dunkirque in 1940. The SS "Hantonia," at present working the Le Harve service, will be retired after a career of 40 years including service in both world wars. The SS "Normannia" has a gross tonnage of 3,543 tons and was built by William Denny and Brcs. Ltd. She has accommodation for 1400 passengers which is nearly three times that of the Hantonia. The new vessel has an overall length of 309 feet, a speed of 19½ knots and carries a crew of 71. It has one large stream lined funnel, two tripod masts, a raked stem and cruiser stern. Sleeping accommodation is provided for 325 persons in either private cabins or lounges and twenty motor cars can also be carried. A principal feature of the new ship is the installation of a Denny Brown stabiliser. The decision to fit this stabiliser follows the successful operation of similar plant now installed in

a number of cross channel steamers, in which rolling has been almost eliminated.

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The London Midland Region are in the process of completing a modern electro-mechanical signal box in replacement of the old No. 5 box at Stafford. The existing 123 lever frame had become uneconomical to maintain and was unsuitable for extension and for handling the newly designed permanent way layouts being put down there. The old cabin was a tall one with the upper deck nearly 23 feet above ground level, to permit the signalmen being able to have visibility over an adjacent overbridge. This meant that during adverse atmospheric conditions objects on the ground nearer the cabin could not be distinguished easily. The new box is designed in accordance with present modern standards, faced with hand made bricks and with concrete roof and generous protective canopy. Wide vision windows are provided and the building is centrally heated by a thermostatically controlled gas fired boiler. Electric lighting is used throughout. The upper deck of the new building is only 12 feet 6 ins. above rail level but the loss in vision is amply compensated by the fact that the area is completely track circuited throughout and signals are electrically repeated. The new 150 lever mechanical frame is of the standard London Midland Region pattern with catch handle locking. All points and subsidiary signals will be mechanically operated while running signals will be of the colour light type. Single arm ground signals have been used throughout with stencil letter indicators where it is necessary to show the route which has been set up. The colour light running signals are provided with junction indicators and position light subsidiary signals as required except for two locations where theatre type route indicators are provided, the speeds at these places being low. The junction indicators will also display the route for the subsidiary signal—the first time this has been arranged in a London Midland scheme. The cabin is provided with duplicate illuminated diagrams, one at each end of the lever frame. They are made of white plastic with black lines and letters The lever name and pull plates will be similar and the lever handles are clad with white plastic covers. The lever frame is mounted in the new signal box on the side away from the running lines so that the signalmen will have a clear view of the latter through the wide vision windows: the concrete roof is extended to provide a canopy which protects the windows from glare and driving rain. To warn passengers that they are about to arrive at Stafford, a large vitreous enamel station name sign has been fixed to the face of the signal box which will be illuminated at night. In addition, a small vitreous enamel name plate will be fixed at each end of the box so that it may be identified easily by train crews.

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The rolling stock building programme of British Railways has been affected by the reduced steel allocation. Much of this has been devoted to track maintenance. At Derby Works, construction of new passenger coaches has been stopped and the building of all steel wagons considerably reduced with the result that over 200 men have become redundant. The necessity to abandon passenger vehicle construction is viewed by the railway world with regret but the restriction on the building of wagons is quite likely to be more serious. This is particularly so having regard to the rate

of vehicle condemnation during the past few years. This curtailment in wagon construction must have an effect on industrial development and the defence programme. Apparently the redundant staff are likely to be absorbed into alternative railway employment but unless the steel position improves in the near future there is the danger that some of this skilled labour will be permanently lost to the railways.

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There is a growing tendency for the British Railways to replace restaurant cars by buffet cars and this seems to satisfy quite a large section of the travelling public. News has been received that recently 40 services have been replaced. There must also be many travellers who will regret the absence of full restaurant car services particularly those on the longer runs such as London to Edinburgh. The curtailment of facilities available for those prepared to pay for them is not the happiest way of advertising the amenities of railway travel in Great Britain. In air transport, all lines offer similar inducements in the matter of speed so that the highest importance is placed on catering as a means of attracting traffic.

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British Railways are making an urgent appeal to all their 590,000 staff to recover iron and steel scrap. Every ounce, nut, bolt, fishplate or scrap of these metals in workshops, sidings and along the 19,000 miles of track is required if the target figure of 650,000 tons—and more—is to be reached and passed during the present year. Nothing is too small and everyone's help is asked as new steel for rails, locomotives, carriages and wagons cannot be obtained if the scrap is not supplied to the makers. Mr. R. Varley, late General Manager of the Mersey Railway, is co-ordinating the drive for this vital scrap material.

*** *** ***

News that a West of England London express was stranded for an hour and a quarter in the Box tunnel in early March would have caused a great commotion a century or so ago when it would have been regarded as a remarkable escape that passengers should have passed unscathed through such an extraordinary experience. There was great opposition to tunnels in the beginning of railways. The question of survival in a tunnel was a good deal canvassed in the early days and learned counsel angered Brunel by suggesting that no passenger could possibly survive two journeys through the Box tunnel. This was an opinion so widely held, even by doctors, that a good many people took what was considered a wise precaution, in the early days of the Great Western Railway, by leaving the train at the station before the tunnel, covering the distance between the two stations on the surface by chaise and joining a train again when there was no longer any risk in doing so of exposure to the dangerous atmosphere of the tunnel.

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A circus elephant stopped the Gothenburg—Stockholm night express about half way on its journey to the capital. Riding with two others in the luggage van it playfully pulled the emergency brake lever with its trunk. The keeper explained: "He plays a piano in the circus and must have been trying to practise".

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(Continued on next page bottom)

The Liverpool Overhead Railway

The Only elevated Railway in the U. K.

By A Correspondent

THE elevated railway, which is quite distinct from aerial or rope railways, is primarily intended for short distance urban and city traffic. In busy cities, rapid transit lines have the option of going underground or above street level. In London, the rapid transit lines are all in tunnels while in New York, Chicago and other towns in the U. S. A both underground and elevated railways are in service.

Many of the main line railways entering London have to carry their tracks on viaducts and this is particularly so in the South London area where the tracks of the southern region enter Waterloo, Victoria, Charing Cross, Cannon Street, etc. From early history the railway has had to approach the metropolis above ground and the first public railway to enter London, the London & Greenwich Railway, was carried on more than 500 arches to reach the terminal.

The Liverpool overhead is the only short distance rapid transit line in England which has most of its mileage above ground. This railway has been correctly designated "the first overhead electric railway in the world." It is, however, neither the first overhead railway or the first electric railway. The New York elevated line claims the first distinction and the City & South London Railway the second, the initial section of the latter having been inaugurated by the Prince of Wales on November 4th 1890.

A plan for an elevated railway from Mersey Forge to Huskisson Dock, a distance of about four miles, was laid before the Mersey Docks and Harbour Board in 1852 but nothing came of it. This was to replace a length of double track which traversed the docks and on which horse drawn goods wagons and omibuses for passengers, used to run. The method of operation proved cumbersome and there was much congestion. In 1877 the Dock Board promoted a bill for a single line railway, with crossing stations. The Board of Trade threw out this proposal on the grounds that they favoured a double line railway. A period of inaction followed and the sanction expired but it was again revived ten years later. The Dock Board considered that the building and running of a railway was rather outside their competence and therefore decided to lease their privilege to a Company. The Liverpool Overhead Railway Company was formed with the late Sir William B. Forwood as Chairman and the construction work, designed by the engineers, the late Sir Douglas Fox and Mr. J. H. Greathead, was commenced by the

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The Station Master at Euston, British Railways, London Midland Region, recently received a letter addressed to "Mr. Master, The Station Esquire, London, England." It was found to contain a single sheet with writing in Arabic or some similar language. A translation by one of the station staff showed that it was a request to the B. B. C. to play two records over the Arabic service of its overseas broadcasting system.

contractor, Mr. Willans, in 1889. The line extends the full length of the Mersey Docks, on the west bank of the river Mersey.

The first portion between Alexandra and Herculaneum was formally opened by the Marquis of Salisbury on 4th February, 1893 and for traffic on March 6th. The northern extension from Alexandra to Seaforth was opened on 30th April 1894 and from Herculaneum to Dingle on 21st December, 1896, a total length of 6½ miles. The railway is unique in that six miles of its length is supported on girders and bridges, above street level while half a mile is in tunnel. This is at the southern end of the route where the line terminates at Dingle Station which is underground. The span of this tunnel is 26ft. 2 ins. expanding to 52 ft. for the station.

Generally the track on the elevated section is supported on wrought iron girders, 4 ft deep, with a 16 ins. flange supported on wrought iron girders, 4 ft. deep, with a 16 ins flange supported on columns 13" x 18" placed 22 ft. centre to centre, at a normal span of 50 ft. and an average height of 16 ft above road level. Lattice bracing is adopted between the columns.

The flooring is made up of arch plates 5/16 ins thick, bent to a radius of 12 ins. with a foot surface 16 ins. wide on the top rivetted to intervening tee bars and fixed at 2 ft. 6 ins. centres. Hand railings and curved plates are attached to the top flanges of the main girders. Drainage is carried out by means of pipe outlets passing through the panels of the main girders and discharging into gutters and down spouts fixed to the columns.

The girders and floorings were assembled and rivetted and then transported over the structure and placed into position without interfering with the road traffic directly underneath. A special form of erecting apparatus was used consisting of lattice girders supported on legs resting on the ground at the front end and at the other end supported on girders already in position. On these lattice girders suitable cranes were erected so that the completed span could be launched forward into position. As many as twelve spans ranging from 50 to 70 ft. were positioned in a week of 5½ days representing 650 feet of completed viaduct.

The longest span on the railway crosses the Cheshire Lines Goods yard just before the line enters Dingle tunnel and is 200 feet long, the main girders of lattice type, with parallel booms, being respectively 220 feet and 225 feet long.

There are four bow string girders with a span of 98 feet each, all the remaining girders being of the plate iron type varying in length from 30—75 feet. The railway from Seaforth to Herculaneum forms a continuous iron bridge 6 miles long with the exception of a length of about 250 yards where the line descends almost to road level under the L. M. Region high level.

Special difficulties arose with regard to dock bridges. The most formidable was the crossing of the entrance to Stanley Dock. Here a very cleverly designed hydraulic swing bridge of the double deck type was constructed at a cost of £ 20,000. The upper deck carries the overhead railway while the lower is used for the Dock Railway. The lower deck can be raised and lowered at any time to allow small vessels to pass whereas the upper deck is only swung open at night, after traffic, for larger vessels, with masts, to enter or leave the dock.

In addition to this, there are three tilt bridges situated at Langton, Sandon and Brunswick and these are also worked by hydraulic power. These bridges were constructed to allow loads that would not pass under the structure to gain access to the docks after traffic. Owing to the adoption of floating cranes by the Dock Board they are seldom used at the present time.

The permanent way consists of flat bottomed steel rails weighing 60 lbs. per yard fixed on longitudinal timbers held down by means of iron lugs rivetted to the floor and oak keys. The normal size of timber is 10 ins. x 5 ins. but increased where necessary for super elevation and check rails. One rail is used for the traction return current and the other for the signalling track circuits. Originally the conductor rail, fixed between the running rails, consisted of an inverted channel carried on insulators supported by cross timbers. In 1905, the conductor was changed to a flat bottom section of 70 lbs. per yard, supported on porcelain or siluminite insulators located 19½ ins. from gauge line, outside the track.

From the time of opening automatic signalling has been in use on the railway with the exception of terminal stations. The original system was invented by Mr. Illius Timmins. All signals were replaced to danger by means of a treadle actuated by the trains as they passed. Some distance ahead of the station starting signals was a contact maker on which a brush on the rear portion of the train made contact. Provided the starting signal immediately in the rear of the train was at danger, an electric current was sent to the Home and Starting signals in advance of it, operating them to the clear position. Originally batteries were used for this work but later they were removed and the traction current used instead.

In 1921, colour light signals and track circuiting was brought into use The first section between Alexandra and Herculaneum was opened on July 17th 1921. This was the first installation of colour light signals (then known as daylight signals) in the United Kingdom. Each station is equipped with a Home and Starter with 300 feet overlaps (or adequate distance). The distance required to stop a train, with full brake application, at 25 m. p. h. is 150 feet.

Emergency crossovers are provided at certain stations, worked by ground frames and suitable interlocked with the automatic signalling. There are 65 two aspect colour light signals on the railway and 50 are completely automatic. In this pioneer installation of colour light signalling it is interesting to note that even in the brightest sunlight the aspects could be clearly observed at 3000 feet. Each signal is provided with an automatic train stop operated by a small induction motor. When the signal is at danger the train stop arm is verticle so that if a following train should over-run the signal the arm would engage with a trip cock on the leading motor truck which would be knocked open, allow all the air in the train line pipe to escape and thereby effect a full brake application irrespective of any action on the part of the motorman.

There are 17 stations on the overhead railway and with the exception of the underground terminal at Dingle they are all constucted in timber. The platforms are about 120 feet in length. All stations and signal cables are equipped with Gent's Pulsynetic electric clocks which are controlled by master clocks at Seaforth and Stanley Bridge. The latter clock was necessary on account of the circuit being broken by the bridge being opened other than overcoming the difficulty by the

expensive means of running a cable.

Originally, trains were composed of two carriages. Each carriage was 45 feet long and 8 ft. 6 ins. wide, and had a seating accommodation for 16 first class and 41 second class passengers. There were 30 coaches in all making up 15 two coach trains. Later, eight three coach units were introduced consisting of two third class coaches, 42 ft. long and one 1st class trailer 32 ft. long.

Like the original locomotives used on the City & South London Railway, the armatures were wound directly on the axles and the magnets were suspended by means of springs attached to the bogie frames at either end of the motor. These motors developed 60 h. p. and their weight, without, wheels was 3 tons each and that of the complete motor truck 5 tons 7 cwt. A. C. I. shoe was used for the centre conductor.

In 1901 an order was given to Messrs. Dick Kerr & Co. Preston, to fit the trains with four 100 HP geared motors having an acceleration of 3 ft. per sec. This decreased the journey time from 32 mins. to 21 mins. The increased acceleration had a detrimental effect on the rolling stock, permanent way and structures. In 1908 it was decided to limit these motors to series working which increased the running time to 28 mins. This arrangement was found to be inefficient and in 1921, when the question of the replacement of motors arose, it was decided to order 75 HP motors with the usual series parallel method of operation.

The first trains were fitted with the Westinghouse air brake system which received the air supply from reservoirs on the trains These were charged from storage tanks at Seaforth and Dingle. In 1922 the trains were brought up to standard and each fitted with its own air compressor.

The company's generating station is at Bramley Moore Dock, near Nelson Station. Until 1926, the carriage sheds and workshops were situated at New Gladstone Docks but they had to be demolished in the course of dock development. This really did the railway company a good turn for the old shops were badly equippped and laid out and as the Dock Board had to pay for the cost of new accommodation, modern shops were put down at Seaforth Sands.

Sindri—Realisation of a Dream

By A. Parthasarathy

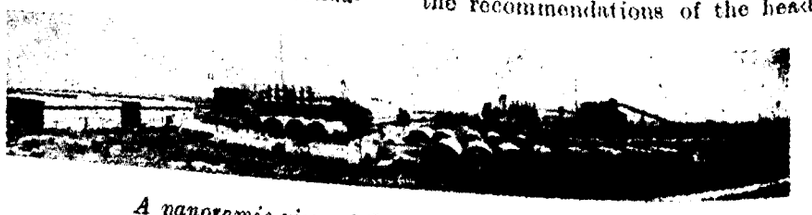
Public Relations Department,
Sindri Fertilizers & Chemicals Ltd.

THE opening of the Sindri Fertilizer Factory by Pandit Nehru on the 2nd March 1952 augured well for India's self-sufficiency in food and industrial progress. It was a great day—a convincing proof of the fine start that has been made for the economic development of our great motherland.

Sindri is the fruitful achievement of over five years' toil and the gigantic plant has now started pouring out the valuable chemical fertilizer which India needs for her prosperity—all this thanks to the brains and sweat of those who were commissioned to execute this project.

Prior to World War II India was importing nearly 4 lakh tons of artificial fertilizers annually which represented only about a fifth of our potential requirements. In view of the huge amount of foreign exchange lost in this regard, the Food Grains Policy Committee set up by the Government of India recommended in July 1943 that steps should be taken to produce in our country nitrogenous fertilizers to the extent of 3 50,000 tons per year which would almost mean self-sufficiency in fertilizers for the time being, besides the saving annually of about 12 crores of rupees—not an inconsiderable factor at all. The Government were quick to act on the recommendations of the Committee and brisk consultations with experts, surveys of raw materials available, etc., followed. In order to decide upon the most practicable method to proceed with, a Technical Mission from England was invited to India consisting of two experts from the Imperial Chemical Industries and an expert from the Power-Gas Corporation Ltd., who today are outstanding in the world in the field of chemical plant manufacturing. After extensive surveys and negotiations with Government authorities and industrial representatives the Mission finally submitted its report towards the end of 1944 that India could to start with, produce 3,50,000 tons of Ammonium Sulphate annually through the Gypsum process Two alternative sites were proposed; the first being Hardnaganj near Aligarh and the next being Sindri in Bihar. It was however decided to have the factory located at Sindri in preference to Hardnaganj, as Sindri has had advantages.

No time was lost in implementing the idea and a Mission was deputed to visit the U. K. for exploring the means in regard to supply of the intricate plant and machinery. Detailed specifications were drawn up for machinery which enabled reputed plant manufacturers world over to submit competitive specific tenders. On the recommendations of the head



A panoramic view of the Sindri Fertilizer Factory

of the Mission, the Government engaged a firm of American Specialists. The Chemical Construction Corporation of New York as Designing Engineers to design the entire factory, supervise construction and see the factory into production. A well-known consortium of U. K. chemical plant manufacturers, The Power-Gas Corporation Ltd., were also employed to manufacture, procure and erect the equipment in accordance with the designing engineers' specifications. The agreements with these firms were signed in February 1946 and in June 1947 respectively these actually fixing the "starting dates" for work on the project, though preliminary work at site was started even prior to this. 3½ years after the signing of contracts, the once arid stretches of Sindri proudly present today the completed factory The first consignment of the precious 'white manure' that this factory is designed to produce—Ammonium Sulphate—poured out of the factory when on the historic day of March 2, 1952, our beloved Prime Minister Pandit Nehru performed the opening ceremony of the factory amidst scenes of great enthusiasm and pride.

Opinion has been unvarying with regard to the fact that Sindri presents the proud picture of Free India's advance towards industrial prosperity. The capital cost of the project is finally estimated at Rs. 23 crores which is well worth the expenditure considering the dividends expected of this national investment. Besides providing employment to hundreds of Indians, Sindri has been designed to produce 350,000 tons of chemical fertilizers annually which in turn should produce 875,000 tons of extra food annually. In terms of money, by attaining for the time being self-sufficiency in the field of artificial fertilizers, India will save annually 12 crores of rupees which otherwise goes out of the country to buy imported fertilizers.

The reasons that contributed to the selection of Sindri in preference to Harduaganj are worthwhile probing. In its full production capacity, the factory and its connected activities were estimated to consume some 12 million gallons of water per day, 700 tons of coal, and 600 tons of coke, besides the basic raw material "gypsum," 2,000 tons of which would be needed in order to produce 1,000 tons of finished product per day. Sindri lies amidst the rich coal belt of Jharia and the problem of fuel supply was easily solved. The question of water supply also did not present great difficulty as Sindri is situated on the banks of the river Damodar which, though mainly a monsoon river, has been supplying the required quantity of water throughout the year by

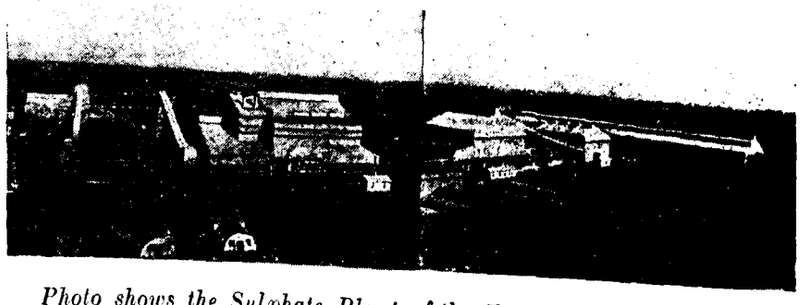


Photo shows the Sulphate Plant of the Factory. In the background is the 600 ft. long reinforced Concrete Silo capable of storing 90,000 tons of Ammonium Sulphate.

means of well-planned scheme executed by the Engineers. A dam on the Gowai river, a tributary of the Damodar, capable of impounding 1,000 million gallons of water was constructed as also an infiltration gallery was laid out to tap the sub-soil water of the river bed during the dry season. This infiltration gallery is a novel experiment in India and has proved a great help in supplying water during the dry season.

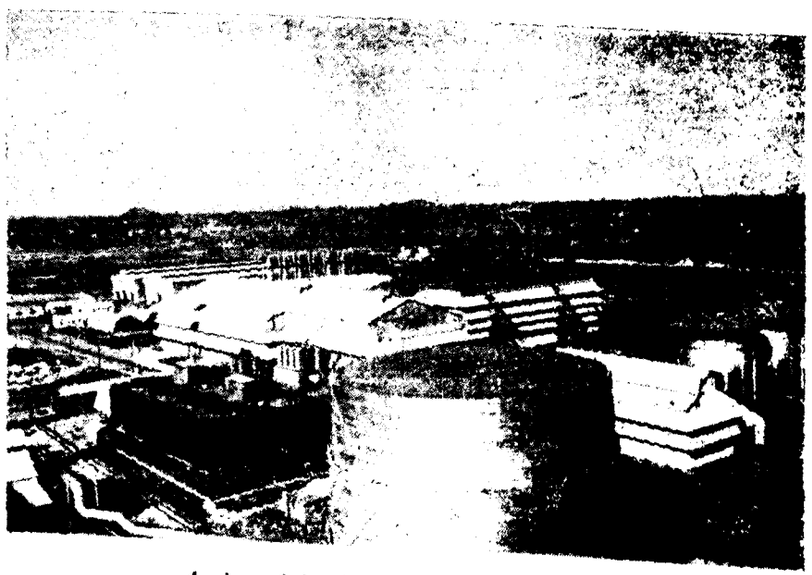
The factory draws its chief raw material, Gypsum, from Rajasthan. Natural sulphur would have been ideal for the manufacture of Ammonium Sulphate but India's resources of this commodity are very small so that Gypsum was the only alternative. Wagon loads of Gypsum have been pouring into the factory daily and a stockpile of nearly 125,000 tons has been built up.

To give a brief description of the factory itself, it is made up of four main groups—Power House, Gas Plant, Ammonia Synthesis Plant and Sulphate Plant.

The Power House group contains the complete plant for generating 80,000 KW of electric power and is perhaps the heart of the Factory. Besides feeding the entire factory and the environments, it also supplies power to the Damodar Valley Corporation's Grid.

The Gas Plant or the Nitrogen Fixation Plant as it is called, consisting of 8 gas generating units, is intended to produce the required quantity of gas mixture for Ammonia synthesis. The plant is designed to produce 33,000,000 cubic feet of raw gas per day.

The Ammonia synthesis plant is for producing 270 tons of pure ammonia per day from converted gas by the Nitrogen Engineering Corporation process. The converted gas is compressed to a pressure of 520 lbs. per sq. inch pressure in a battery of six storage compressors. After various processes, the purified gas coming out of the sixth stage of compression is circulated over a catalyst at

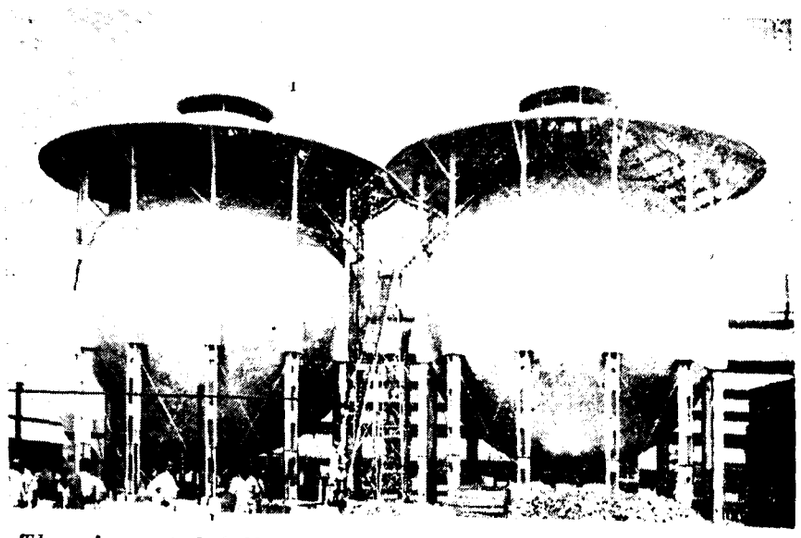


A view of the Ammonia Synthesis Plant

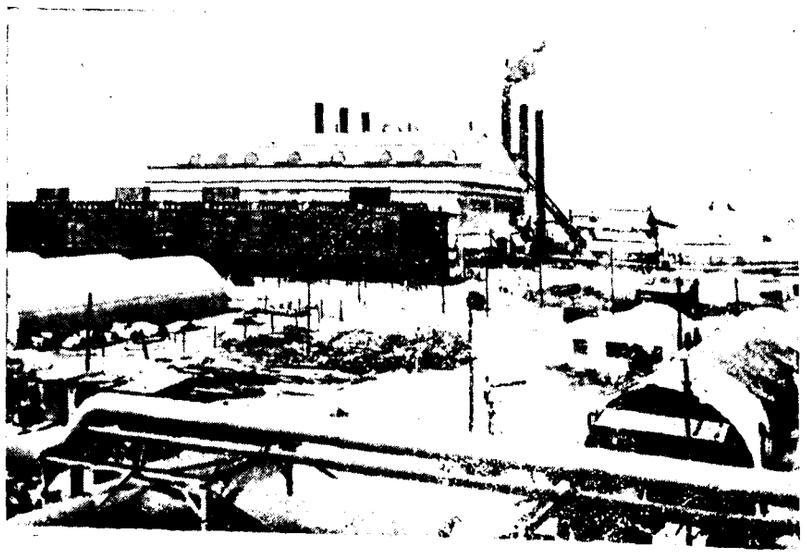
500°C temperature when Ammonia is formed which is then cooled and sent to the storage—two spherical shaped huge welded steel tanks known as the "Horton Spheres" each capable of holding 800 tons of ammonia.

The Ammonium Sulphate Plant is another important section of the factory as it is here that the finished product, Ammonium Sulphate is obtained. In this section a solution of Ammonium Carbonate is reacted with finely ground Gypsum in the presence of an excess of Carbon-di-oxide and pumped through a series of reaction vessels. As a result of double decomposition, Ammonium Sulphate and Calcium Carbonate are formed. Calcium Carbonate is filtered out in rotary vacuum filters and the remaining Ammonium Sulphate solution after further purification, is evaporated to produce crystals of Ammonium Sulphate—the finished product. This is sent either to the bagging plant or stored in a huge monolithic reinforced concrete silo capable of storing 90,000 tons of the finished product. This silo is 80 ft. high, 600 ft. long and 144 ft. wide at the base, the whole structure being water-proof and air-tight. Besides a constant humidity of 50%, a positive air pressure is maintained inside so as to prevent caking of crystals during storage. This silo is filled by an overhead conveyor from the Sulphate plant and material for transfer to the bagging plant is reclaimed by underground belt conveyors.

The Sindri factory when in full production is expected to throw up some 900 tons of Calcium Carbonate sludge per day as a by-product. Plans have been drawn up for the utilisation of this sludge for the manufacture of cement and a factory will be set up soon to produce about 600 tons of cement per day. Besides this, a Methanol/Formaldehyde Plant will also be shortly set up to produce 10,000 tons per annum of



These huge steel balls are known as the "Horton Spheres"—welded steel tanks each capable of holding 800 tons of Ammonia



A sectional view of the Sindri Factory showing the 80,000 KW capacity Power House with the water cooling tower alongside

pure Methanol and Formaldehyde using the waste gases of the existing gas plant as one of the basic raw materials. Certain other extensions are also contemplated such as a Coke Oven plant for the production of 1,000 tons per day of high grade coke, a plant for the yearly outturn of 100,000 tons of Ammonium Nitrate, a plant for producing 30,000 tons of Urea, an

Ammoni um Phosphate plant and so on.

Sindri provides a good training ground for our young engineers which is undoubtedly the most valuable advantage to renaissant India. The Bihar Government have taken a wise step by establishing an engineering college adjacent to the Sindri factory where the young generation of our country will receive technical education associated with practical training.

The "steel city" now proudly stands today towering against the horizon and surrounded by a well-spread modern township to provide accommodation for the 3,000 employees of the factory. The entire area covers 10 square miles of picturesque country. Besides houses with all modern amenities, the workers have been provided with various other requisites of life· hospitals, schools, playgrounds, recreation centres, etc.

To put it in a nutshell, Sindri is the realisation of a dream and should be the harbinger of industrial and economic prosperity of India. There need be no doubt that with the fruition of the various river valley schemes, industrial projects and research laboratories, India will in the very near future march abreast with the other progressive countries of the world towards solving her own problems and making her contribution to the peace and progress of the world.

More Lignite Burners for Australian Railways

SUCCESSFUL tests by the State Railways in Victoria, Australia, within an X-class goods engine equipped to burn pulverised brown coal (lignite) will be followed by further experiments with a fast R-class passenger locomotive. It is proposed to fit more engines with this equipment as fuel supplies become available.

The State Electricity Commission in Victora has a huge expansion scheme in hand to step up the product of brown coal, generally for the increased demand for electric power, gas making, general industry and Railways. Victoria has vast brown coal fields in the Latrobe Valley where drilling has so far proved 19,000 million tons of easily accessible reserves.

Railway electrification proposals will increase the electric power demand and the envisaged steam locomotive conversions will substantially increase the demands for brown coal dust.

The State Electricity Commission is supplying each week 70 tons of this dust to the Railways. This enables the brown-coal-fired X—class engine (hauling about 650 tons) to run about 10 round goods trips of 120 miles each week, between Melbourne and Seymour. Railway and State Electricity Commission engineers are now planning to make sufficient fuel available in 1954 for 30 engines. They also envisage ultimate railway demand exceeding 200,000 tons of brown coal dust a year.

The Railways will anticipate progressive increases in the supply of fuel by converting engines to burn it, and by building additional tank wagons to bring the fuel from Yallourn and Morwell in the Latrobe Valley. Overhead refuelling bunkers are also being designed, and a prototype will be installed for trial this year.

If gas turbine locomotives become a practical proposition in Victoria, it is probable that they will be fuelled by pulverised brown coal.

Last year the Railways Department, at the invitation of the Bituminous Coal Research Committee of Baltimore, Maryland, U. S. A., shipped four tons of Yallourn pulverised brown coal dust for testing as a possible fuel for firing such locomotives. The results were very encouraging and the fuel was found to give a combustion efficiency of 99 per cent. This is superior to the results obtained from any of the American bituminous coals so far tested for gas turbine engines.

The act of imagination is ever attended by pure delight. It infuses a certain volatility and intoxication into all nature. It has a flute which sets the atoms of our frame in a dance. Our indeterminate size is a delicious secret which it reveals to us. The mountains begin to dislimn, and float in the air.—EMERSON.

Accounting for Ticket Sales

By P. H. S. Rao

THE general accounting procedure for the sale of tickets follows the assessing of the correct charge for the service, collecting the amount, keeping acurate record of the transactions, assembling and balancing the items for a given period, and reporting the transaction and the amount in a uniform way to the accounting department.

Each station is a distinct accounting unit and is held responsible for ticket stock supplied and all money received from the sale of tickets. The booking clerk is required to keep a set of books showing in detail each transaction. These details must be reported to the accounting department for checking and auditing purposes, and for the purpose of distributing the revenue to the proper accounts. A balance sheet has to be kept.

Line-haul passenger revenue is derived from two sources, (1) from the sale of local tickets and (2) from a railway's proportion from the sale of foreign tickets.

This revenue is accounted for on a forwarded basis; that is, the station selling the ticket is charged with its value and must collect this amount and account for it. From an aecounting standpoint, the relationship between the carrier and a passenger is concluded when the ticket is sold, though no transportation service has yet been rendered. The specific and distinct nature of passenger transportation makes this situation possible. Because of this fact, there is usually one station concerned with the accounting procedure in collecting and reporting an item of passenger service and this is the selling station.

The compilation and balancing of the station account relating to passenger revenue and the forwarding of collections are required to be done daily, but monthly reports are submitted to the accounting department.

To obtain a specific understanding of the accounting procedure in selling local and foreign tickets at a station consider two concrete cases.

Case No. 1. Local Ticket Sales

A passenger purchased a local card ticket at Bangalore City to Madras paying Rs.6–15–0. Trace the accounting procedure at Bangalore City.

1. The booking clerk at Bangalore City extracted a card ticket from the ticket tube with the printed destination, Madras, shown.

2. He dated the ticket, delivered it to the passenger and received the fare, Rs. 6–15–0.

3. The sale of the ticket was entered in the Daily Trains Cash Book and the proof of Trains Cash Book.

4. The total amount of the ticket sales for the month was carried as a debit item in the monthly balance sheet.

5. At the end of the month the classification of passengers was compiled and forwarded to the accounting department with the necessary supporting papers.

(Continued on next page bottom)

Aspects of Railway Working
"Complaints and Suggestions"

By A. H. Pearson

TAKE about five to seven hundred locomotives, a thousand or more passenger coaches, forty to fifty thousand goods wagons, and to this add stations, miles and miles steel tracks, signals, yards, bridges, loco sheds and last but most important, over a hundred thousand employees, and you have a large railway system. This huge public utility organisation provides transport for millions of passengers and millions of tons of freight from one year's end to another.

6. The total of the local ticket sales as shown on this report was posted to the monthly balance sheet sent to the accounts department.

Accounting for Foreign Ticket Sales

When a foreign ticket is sold by one railway and the transportation is furnished by two or more railways, the amount collected must be apportioned among the railways according to the basis agreed upon. This involves separate reporting of foreign tickets and the maintenance of separate records of foreign tickets sold at stations.

Case 2. A ticket was purchased at Bangalore City, a station on the Southern Railway, to Bombay, a station on the Central Railway, routed via Raichur, the junction of the two lines. Outline the procedure at Bangalore City in accounting for the fare, Rs. 38-6-0.

1. The ticket seller at Bangalore City secured the proper ticket from the ticket tube, stamped it and presented it to the passenger from whom he collected Rs. 38-6-0.

2. He entered the ticket in his daily trains cash book, under foreign tickets sold.

3. The amount was carried to the balance sheet as a debit item under the heading "Foreign Passengers."

4. At the end of the month the sale was reported through the Foreign Classification of passengers to the accounting department for auditing and distributing purposes.

The accounting procedure is practically the same as the method employed in accounting for a local ticket except that a different set of books and reports is used.

General Principles of Accounting for Ticket Sales

From these descriptions, it is evident that regardless of the amount of initial work in assembling and checking the figures, the accounting principles are identical at all booking offices.

These principles may be summarised as follows:

1. A record of the ticket stock furnished, used, and on hand must be maintained.

2. The lawful fare must be collected for each ticket sold and remitted to the Cashier.

3. A complete station record of the disposition of the tickets and the amounts received from this sale must be available.

4. Each transaction involving the disposition of a ticket, whether by sale, cancellation, lost, stolen or spoiled, must be reported to the accounting department for auditing purposes.

It would be a miracle of efficiency for a vast and complicated organisation like a modern railway system to function to the entire satisfaction of all who use it. So anything short of expected perfection is open to complaints, criticisms and suggestions, and Railways are no exception.

How *do* these complaints arise? Some inconvenience is felt on a train journey: a train may be running behind schedule; a merchant may find his consignment damaged in transit; and so the complaints come in. Each day the post brings to the headquarters, divisional or district offices complaints of all kinds. But those that are most common and prevalent will suffice to show what action is taken by railway administrations on these complaints.

Supposing the complaint is of the type that brings to notice the late running of trains. This 'behind-schedule' train running may not be an isolated case, but a regular occurrence over a particular section. The Operative executives must know the reason for this tardiness. Enquiries are then ordered and usually a Traffic Inspector is put on the job to watch the running of a particular train or trains over a particular section. Perhaps for a week or ten days he will travel on those trains over the section taking note of each minute lost and the reason why. If some mechanical factor in locomotives or coaches is the cause he reports this, and the department concerned then tackles the job of removing the cause. If detentions are being caused at stations due to the staff working in a dilatory, careless or indifferent manner, those responsible are soon spotted, and disciplinary action is taken. The travelling public are rarely aware of the fact that where railway personnel are responsible for such complaints being made, they are punished in accordance with prescribed disciplinary rules.

The travelling public often make complaints about the inadequacy of train services, or inconvenient train timings, or some stations being overlooked in the way of providing stoppages of fast mail or express trains. If even one extra train is asked for over a particular section, the non-railwayman does not realise what is involved in providing that extra train. More locomotives, more coaches, more staff, the question of line capacity over a busy section, and scores of detailed operational factors. Even if in reply to a complainant the details were explained, he not being an initiate in rail transport matters, would be in a fog to understand sympathetically the railway viewpoint.

Although railway administrations may be handicapped by lack of locomotives, coaches and and other material factors, wherever possible, and where large common interests are served, the Railway does everthing within its resources to provide the additional train services, or other amenities for the benefit of passengers.

Quite frequently amidst the arduous duties of a hard day, some of those railwaymen who are mostly in contact with the public, may have, without deliberate intent, been a little curt in meeting a requst, or given some information to a passenger. The result, is usually a strong complaint from the passenger accusing the railwayman for discourtesy. Every such complaint is promptly investigated, and if it is of a serious nature, confronted enquiries are held by Senior Railway Officers with the complainant and his witnesses present. If the railwayman is actually found guilty of gross incivility to the public in the discharge of his duties, severe disciplinary action is taken against him, which may even be removal from service.

Complaints of bribery and corruption are viewed very severly. When such complaints are made, sifting investigations are made, usually by a Committee of Senior Railway Officers, with both the complainant, his witnesses and the accused railway staff present, so that both parties can have every opportunity of proving or disproving their case. If the evidence is 'cast-iron' against the railwayman, he gets what is due to him—loss of his job, and perhaps he may even end up facing trial in court.

Apart from a reasonable standard of comfort in trains and rapid and punctual transport, those who travel expect other facilities. Waiting rooms may be dirty and uncomfortable, the service rendered by refreshment rooms or food-vendors indifferent, inadequate drinking water supplies at stations, station lighting, cleanliness in compartments, and scores of other little details. It is obviously not always possible for a railway administration to provide every detailed item asked for, but every complaint or suggestion is considered and met where possible. After all, the passenger and the merchant is the Railway's customer, and every railwayman would like to feel that he is giving all possible satisfaction.

There was a time when the man who made a complaint was told by his fellow travellers that he was wasting time, pen, ink and paper, as in all probability the complaint would not get beyond a routine clerk, or find its way into a wastepaper basket. But that is not the case these days. Special organizations for dealing with complaints have been set up on each railway system to ensure that no matter what the complaint may be, every possible action is taken to investigate the complaint, and remove the causes for such criticisms.

Danish Gift Consignment for India

A fresh Danish gift consignment dispatched by the Danish Indian Relief Committee in Copenhagen has now arrived in India.

The consignment consists of 34 cases of vitamin pills, approximately 2 lakhs, of which 14 cases will be distributed by the Minister for Health, Government of India, whilst 10 cases each are consigned to Servants of India Society, Madras, and the Arcot Lutheran Church, Tiruvannamalai, respectively for distribution by them.

The Committee have advised that Sub-Committees have been formed in large provincial towns in Denmark and that the collecting of further funds is progressing. About Kr. 115,000 are available at present in addition to medical goods at an estimated value of Kr. 30,000.

Shortly, a consignment of 45 small-size agricultural water pumps will be received in India. These have been donated to the Committee by the Danish manufacturers for use at the Tainining Centre at Sevagram, Wardha or at other places in India where they may prove useful.

TOURIST SERIES—VII

At Tourist Interest on Southern Railway

Thiruvannamalai

By L. N. GUBIL

THIRUVANNAMALAI, otherwise known as Arunachalam, meaning the "Red Mountain" is a hill in the North Arcot District. It is supposed to contain the Thejavirya or the lingas of Earth, Water, Wind and Ether. Regarding the origin of this Linga of Fire, tradition runs as follows :—

Once upon a time there arose a quarrel between Mahavishnu and Brahma as to who was the Supreme one. As both of them claimed to be supreme, the matter could not be settled between themselves and they approached the Lord of Mount Kailas to settle the dispute. Siva thereupon stood like a mountain of fire and addressed them thus: "Oh! Ye brothers, listen ye to my words. You see my present huge fiery form. That one who is able to see my bottom or my top will be declared to be the supreme being." Thereon Lord Brahma took the form of a Swan and Lord Hari the form of a Boar. Both went in search of Siva's Head and Foot respectively. After having gone a long way, they found they were far from reaching their destination. So both had to retrace their steps accepting their defeat and inferiority to Lord Siva. Their pride was thus put down.

This, according to tradition, is the origin of the Tiruvannamalai temple. Worship of the elements has even been an important function in the Hindu religious experiences and regular fire is worshipped as a God. The present mountain is supposed to have cooled down from its original fiery form, and even now a walk round the hill, (the distance which is covered by a metalled road is nearly 8 miles) is considered to bestow upon the person who takes to it, good health and prosperity. Krithigai is the foremost festival of this hill, and pilgrims from far and wide flock to the hill on this memorable occasion.

Krithigai is one of the twenty-seven constellations detailed in the Hindu almanac and is supposed to be the head of a group of six stars. These six stars have been represented as women who wedded the moon The Skandapuranam, one of the eighteen Puranas of the Hindu religion, tells us that Skanda, the commander of the celestial Gods, was suckled by the six stars known as the Krithigai sisters, when first he was taken from the Saravana Pond, wherefrom he had his being, and that he bore the name of Karthikeya on that account. Every month we have this Krithigai day which is very sacred to the Lord Muruga, and most of the Saivites observe this as a day of fast and prayer. All the Siva temples celebrate this in a fitting manner once in a year in the krithigai month. But it is in the Tiruvannamalai Temple that this festival is celebrated in a markedly magnificent manner.

The car festival also takes place and Siva and his consort, Parvathi, known in this holy shrine as Arunachaleswarar and Apetakuchambal respectively, appear well decorated on their sacred white bull and are worshipped by thousands of devotees. The festival which comes off every year in the Krithigai month usually lasts ten days.

The above festival is observed in all Hindu house-holds, and on the Krithigai day countless lights are put upon front of buildings, and the beautiful galaxy of lights is a very fine sight to look at. The fire God is thus worshipped, and the belief prevails that such worship brings the people health, wealth and prosperity.

In fine it must be said that this festival, as others of its kind, has an abiding place in every Hindu heart, and serves as an occasion for many Hindus of all castes and creeds to congregate at a particular place for the common purpose of worshipping God which in that way serves as a cementing factor. The internal or esoteric significance of the festival is equally great. We can interpret the holy beacon in the following day. The light that is lit is the light of knowledge. The lamp is love, devotion is ghee, and mind is the wick and so on The festival is one of the biggest in Southern India, and is held in very high esteem by the Hindu population in general.

To be honest in a right line and virtuous by epitome, be firm unto such principles of goodness, as carry in them volumes of instruction and may abridge thy labour. And since instructions are many, hold close unto those whereon the rest depend.—SIR THOMAS BROWNE

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EDITORIAL NOTICE

The Editor invites contributions to the Magazine on a variety of topics—short stories, technical features written in simple English understandable to the laymen, Aspects of Railway Working, places of tourist interest, News from home line, activities of Railway Institutes etc. All copy should be brief and typed as far as possible.

Photographs illustrating social functions, sports events, scenic sports etc. are also invited. All contributions should reach the Editor not later than 5th of each month. Rejected Mss. will be returned provided sufficient stamps for postage are enclosed. No responsibility will be borne for copy lost in transit.

Views expressed in this Magazine should not be taken as having official authority.

All correspondence should be addressed to "The Editor, Southern Railways Magazine, "Post Box No. 17, Tanjore, (South India.).

SOUTHERN RAILWAYS MAGAZINE

VOL. III NO. 12 — JUNE 1952 — ISSUED MONTHLY

Railways and Parliament

AFTER the presentation of the Railway Budget for 1952—'53 by Sri Lal Bahadur Shastri, the new Railway Minister, in Parliament, on May 22, he has had to face a barrage of questions in a number of lively debates during the fortnight that followed.

The main objections came from the West Bengal M. P's who reopened their attack on the continued controversy of regrouping, after Sri Gopalaswami Ayyengar had vigorously defended the Government position. Whether there will, in the future, be any re-opening of the question of regrouping with a view to appointing an expert committee still remains a matter of conjecture; but it would appear that although the Government are not averse to considering some minor adjustments, the main principles of regrouping already in operation will continue.

And then Sri Lal Bahadur Shastri threw his ministerial bombshell, when he announced that it was the intention of the Government to abolish first class travel on Railways, and extend the facilities of air-conditioned travel. The abolition of first class accommodation was hoped to be phased and accomplished within a period of two years.

What exactly will the abolition of first class travel achieve? Will the coaches so released, and thus available for conversion either to third or intermediate class, offer adequate relief to overcrowded third class travel? The levelling out of different classes of travel is an admirable *desideratum* as a long-term measure, but unless the abolition of any particular class of travel is likely to give quick results in effecting a substantial improvement in the lot of the passengers who travel in the lower classes, the time does not seem to be opportune to try another experiment with Indian Railways so soon in the wake of a major experiment like regrouping, and more especially because of the failure of a recent experiment in the abolition of one class of travel; a failure that was extremely costly to railway revenues, and which had to be abandoned.

One is struck with the thought that it appears only to be the great national asset of railways which is the target for major experiments, when it would be wiser to let railway administrations get ahead with their legitimate jobs, that of providing quicker, safer and improved conditions of transport. With these experiments being thrust on to railway administrations at short intervals, those responsible for their efficient operation are not given enough time to stabilize the results of these experiments. Perhaps a period of a decade or two before any new experiments are thought up would give railway administrations and railwaymen the opportunity they need to make Indian Railways second to none in the world.

Notes and Comments

RAILWAY ADMINISTRATION AND EMPHASIS ON HUMAN ASPECT

The reported directive and appeal of our Prime Minister Mr. Nehru to the administrators of the country to descend from the ivory towers of Government offices and see the human aspect of every problem once again shows the victory for progressive forces and successful functioning of democracy in India after the General Elections. The Railways as one of the biggest single nationalised undertaking engaging nearly 10 lakhs of personnel and earning a gross income of 282 crores of rupees must in all earnestness undertake to develop this aspect of human approach both in regard to the staff it employs and the public it caters to. This is, because Railway Transport touches the life of the community at innumerable points, and if there is any deficiency or inefficiency anywhere people attribute it almost exclusively to Railways. In the words of our Prime Minister:— "The governance of any country in the world today is no easy matter and the governance of a great and varied country like India is perhaps as hard a task as any in the world today. Any person who is associated with this governance must approach this great task with humility as well as with a measure of faith. Whether we are small men or big we are engaged in great undertakings affecting the life and future of vast numbers of human beings." Our esteemed Chief Minister Rajaji expressed in a similar term at the conclusion of the Rayalaseema tour:— "I wonder how we can do it unless we make fundamental changes in our whole conception of Governmental activities. The time is gone when we can keep a large section of people below the minimum standards of life and get the wherewithal out of them for maintaining modern amenities for a smaller section of the people. Universities, modern sanitary conveniences, beautiful dustless road, splendid buildings, centres of higher education—all these seem to me a sin and a mockery in the background of the poverty that I see all along the land and which the draught aggravates and brings to public notice."

This is not to say our Administrators all lack this human aspect. In Railways it is the vision and human aspect shown by the Administrators that is responsible for so much improvement visible all round. But what is lacking is, organisationally a continuous process of training is not being given to younger administrative officers. Mr. Ryan an American Railway expert who visited India as the consultant of the World Bank Mission said that he was struck by the waste of labour in all the workshops he visited. "The productive work per man had declined since the pre-war period." The Indian Officers also lack certain essential qualities. Though technically competent and keen, they seemed to lack drive and show less ability in handling labour. They also shirked responsibility and much time was wasted in passing the documents down to the assistants to work out the answers and get authorisation from the superiors. Excuses for not taking action were seized upon, if they could be found." No other time is best suited to bring about an improvement in the administrative machinery of railways than at present. The Railways have been divided into six well-knit zones but the problem varies in each zone. The Railway Board must sympathetically understand the problem of each zone and consider improvements. For example on the Southern Railway, the personnel employed is one of the finest in

"HAUNTED"

the whole of India but the problem of tackling them with the human aspect has not been given the attention it needed. The staff must be made to feel that they have also a part to play in the running of the railways and the officers above them must associate with them and more emphasis must be laid on this aspect. It is however gratifying to learn that one or two top administrators in spite of handicaps are getting along boldly with the changes and the Chief Operating Superintendent, Southern Railway Shri Sarma, who is a devoted nationalist and who has a wide experience as a Public Relations Officer is trying the functional system of working his department thereby associating the staff with the work of officers and making them feel they have some useful part to play. We are aware that handicapped as he is by the past legacy, Shri Sarma will find it hard to go ahead but his noble work will pave the way for all Indian Railways for a new experiment in staff relations and the success Shri Sarma's effort bring, will be watched with interest all round. It is by using tact and appealing to positive sentiments as of loyalty, personal pride in work and the social satisfaction that comes from collaborating with others in the achievements of some worth while purpose, the experiment is expected to succeed and the emphasis on human aspect laid by our Prime Minister will be followed. In terms of human energy released the result will be formidable and we hope that our national railways will set an

example of the human aspect enunciated by our Prime Minister.

*** *** ***

AIRF MEETING WITH THE RAILWAY POARD

The ensuing meeting of the Railway Board with the AIRF to take place in July 1952 will be an eventful one. The Railway Minister Shri Lal Bahadur Shastri said that he wanted two months' time to study the position before the meeting. There is a great expectation among railwaymen about the successful outcome of this meeting especially the present labour Minister Mr. V. V Giri who was associated with AIRF for nearly twenty years in the past happens to be in the Nehru Cabinet. The weightage to pre-1931 staff, the incorporation of dearness allowance with the salary, the grainshops abolition or continuation since decontrol of foodgrains, the welfare of staff after integration are some of the top-priority matters that need immediate attention. There is a general feeling amongst railwaymen that funds allotted to their welfare are not being properly spent as the machinery is lacking. Take for example the medical facilities. Even though large sums are spent under this head, proper distribution is lacking. With the introduction of Personal Organisation and attention paid to Labour welfare many day to day grievances can be redressed easily if some human approach is made by Officers. Take the question of granting of casual leave and issue of passes etc. If these are done timely fifty per cent of the grievances will disappear. It is earnestly hoped that our new Railway Minister with the expert knowledge of the Labour will do something concrete to keep railwaymen contented so that they may give their best to the country.

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ATA's NEW PRESIDENT

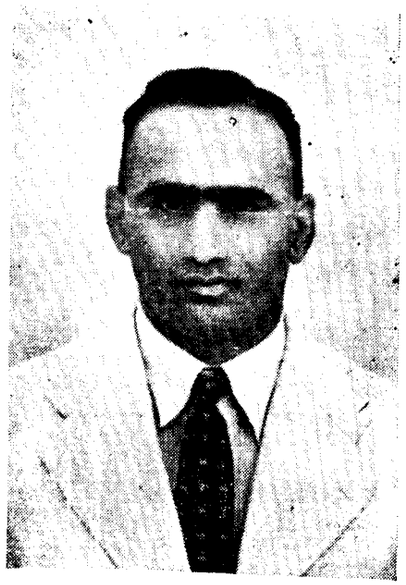
We are glad to hear that Shri Kiron Kumar Roy, Managing Director of Airways (India) Ltd., Calcutta has been elected as President of the Air Transport Association of India for the current year. We have mentioned in these

The President of the ATA

columns the contribution made by the Airways (India) Ltd. for the promotion of civil aviation in general and Shri Roy in particular. We are sure that Shri Roy will strive his best to effect improvements on this hitherto neglected industry viz., Aviation.

Shri Haradatta Rai Sugla, General Manager of Bharat Airways Ltd., Calcutta and Shri P. M Reddy, General Manager of Deccan Airways Ltd. Hyderabad have been elected as Vice-Presidents of this Association. These two personalities need no introduction at all. It may be recalled here that Shri Sugla was formerly the President of this Association and during his tenure the industry faced with many problems and crisis. It is gratifying indeed to note that Shri Sugla rose to the occasions which are of course numerous to mention, to the admiration of all.

We take this opportunity of extending our good wishes to the



Vice-President of the ATA

President and Vice-Presidents of the Air Transport Association of India.

DO YOU ?

Do you throw empty bottles or tins from a moving train? A Gangman or other Railway employee working on the line may receive serious injuries if you do.

Do you light a methylated spirit stove in your compartment or throw a burning match on the floor? Fires often result when you do.

Do you lean out of a window or rest with an arm or leg protruding out of the window? Serious accidents have happened to passengers who do.

Do you attempt to board or alight from a moving train? If you do, please don't; for many fatal accidents have resulted to people who do.

New Delhi News Letter

THERE were discussions on various matters during the Railway Budget debates in the Houses of Parliament. The topics touched were various ranging from betterment of service conditions of the Railway staff, amenities to the travelling public, etc., to the construction of new lines, including doubling of some sections of the Railways and the necessity to eliminate overcrowding of class III carriages. The Railway Minister assured the House that everything possible was being done in the matter of staff amenities and welfare, the details of which require a lot of time and space.

Incidentally, it is learnt that an Officer on Special Duty is touring on Indian Railways with a view to examining the possibility of establishing co-operative societies and stores. It is to be seen what are the proposals of this officer after he has gained local knowledge of each big station and important Railway Centre with a concentration of Railway community.

It is understood that fabrication of steelwork for the setting up of the Integral Coach Factory at Perambur will soon be commenced. This is another source of employment to many of the unemployed.

There were demands for provision of passenger amenities, such as foot-overbridges, raising of low and rail level platforms to high level at some stations, refreshment rooms, bathing facilities, etc., etc. to the class III passengers. In this connection it was stated that on each Railway these particular demands are now to be considered by a Passenger Amenities Committee which is composed of the General Manager as Chairman, the Engineering, Operating and Commercial heads of departments and members nominated from amongst the members of the local Advisory Committees. The conclusion is that such demands from the passengers are now considered by the representatives of the travelling public who constitute the committee and is an advancement towards democratic dealing of the subject matter.

On the subject of construction of new lines and restoration of those dismantled during the War, it was explained by the Minister for Railways that this subject is discussed from time to time by the Central Board of Transport. It is the business of this Board to consider what lines are necessary to be constructed and the order of priority; whether other modes of transport are available in the locality and the need to avoid duplication of transport facilities and road competition; the need for opening up any new part of the country for its development. It was also stated from the Government's point of view that the adequate return on Capital or the profitable investment are not the sole criteria for the construction of a railway if there are other reasons calling for the construction or restoration of such a section or railway.

Doubling of the Madras-Waltair Section was also discussed. The Government's view was that doubling being a very expensive proposition, various other methods of increasing the capacity of the line are under examination, e. g. opening of more crossing stations, running of more and longer trains than at present, commensurate with the traffic requirements and tractive power available, and increasing the length of sidings in station yards to hold longer trains for crossing purposes, etc. etc. Resort to doubling would only be made when all these measures cannot cope with the ever increasing demand for transport.

A member of the House of People went as far as the suggestion to convert all the narrow gauge and metre gauge sections of the railways in India to broad gauge and it was obviously to be replied by the Government that such a project was neither financially justified nor warranted by Traffic requirements.

In connection with the Centenary celebrations of Indian Railways in 1953 the Railway Ministry will have compiled a Centenary Volume, giving a complete history of all Indian Railways during the past 100 years their order of development and the methods of working the railways, the primitive engines and carriages as compared with the present day types of rolling stock etc. Suitable photographs will illustrate the various types of structures and stock. An eminent journalist of repute is stated to have been entrusted with this work who may tour all over the Indian Railways to collect the data to be incorporated in this Volume.

New Delhi Station will, it is understood, be expanded to include a new multi-storeyed building with provision for retiring rooms for the third class passengers, also, besides the other improvements to make it look worthy of the Capital City of the country. But this would not in any way reduce the significance of the Delhi Junction Stat on which must be touched by trains from and to all directions. The provision of retiring rooms for the class III passengers, if it materialises before the close of the hundredth year of railway construction in India, would certainly be a landmark for the class of passengers who patronise the railways the most.

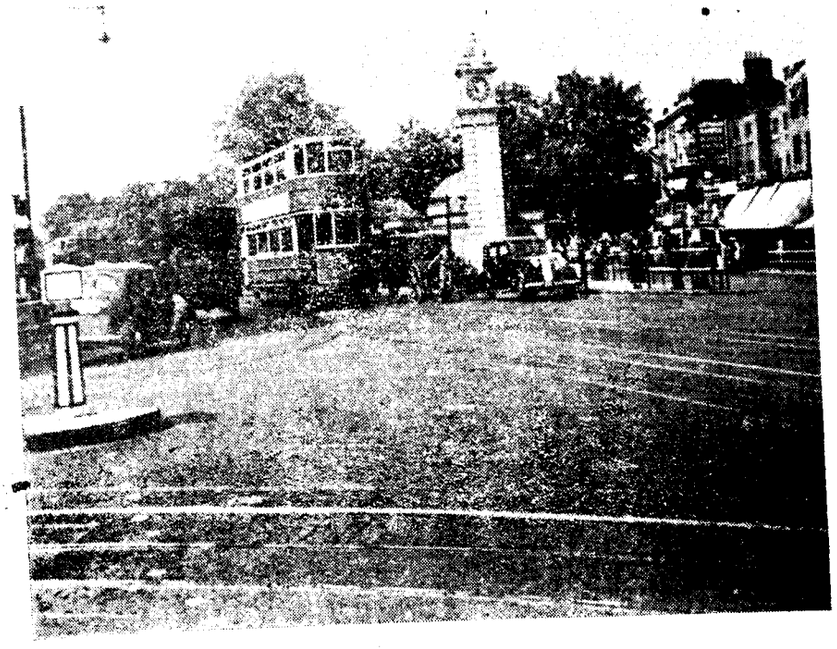
Our London Letter

By A Correspondent

JULY this year will mark the end of London's tramway system. The first tramways in London appeared towards the end of the eighteenth century and consisted of the system run by the London United Tramways Company and the South Metropolitan Tramways Company. The main system in Central London and Northern suburbs was owned and maintained by the London County Council. All these tramways were taken over by the London Passenger Transport Board in April 1933 which in turn became the London Transport Executive, in January 1948 on the formation of the British Transport Commission.

The total number of electric trams operated by the London Transport Executive was 830 with a route mileage of 102. The Transport Executive also operated 1764 trolley buses with a route mileage of 255. Both trams and trolley buses are being replaced by the ordinary type of omnibus.

At the beginning of the present century the London County Council displayed considerable energy and foresight in taking



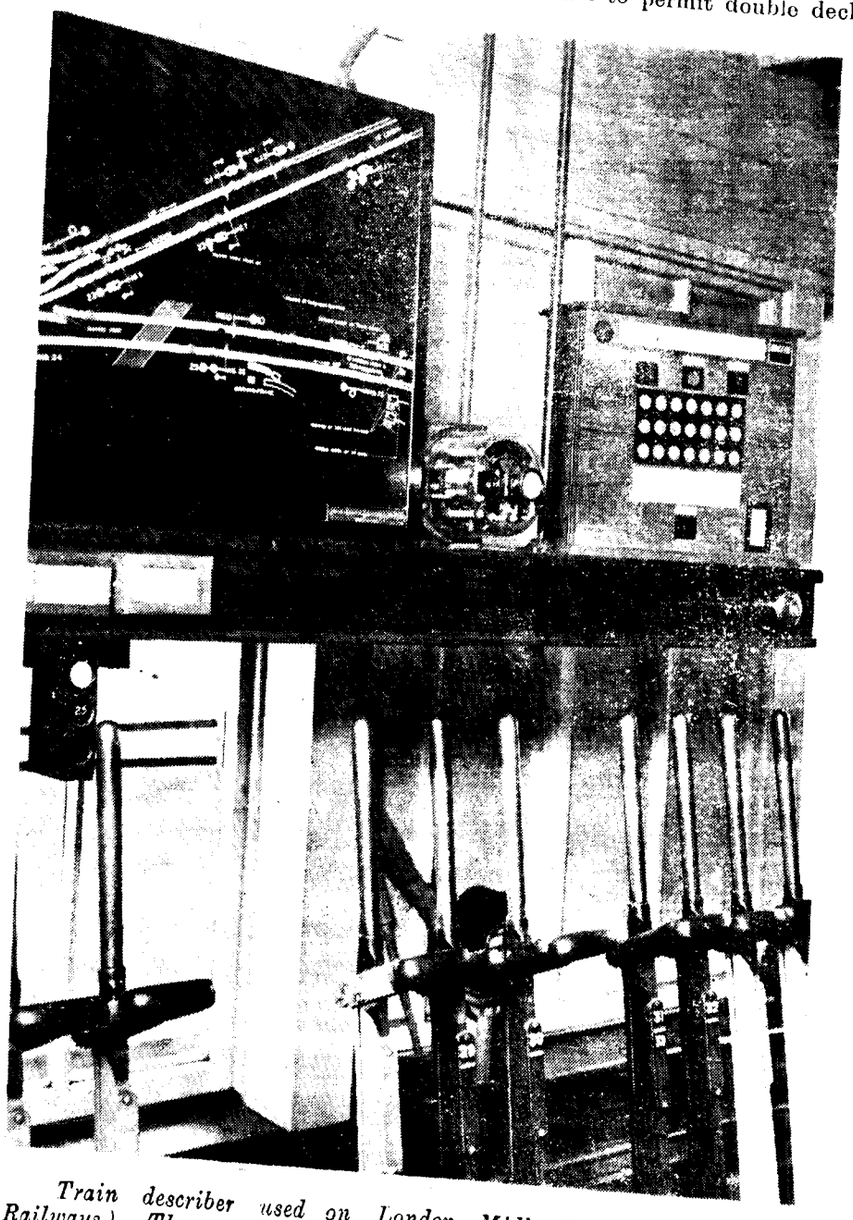
London tramcar junction

London trollybus

advantage of an area of slums in the Borough of Holborn to link the tramway systems north and south of the River Thames. The clearance of this slum area permitted the construction of a broad thoroughfare running southwards from Theobalds Road and bisecting Holborn to join at the Southern end another broad, semi-circular thoroughfare named Aldwych. In order to link the tramway systems a low level tunnel was constructed from Theobalds Road to the Thames Embankment immediately adjacent to Waterloo Bridge. This subway, which was five furlongs in extent, was opened on February 24th 1906. Only single deck trams could be used in this tunnel and they ran from Highbury Station to Kennington and from Highbury to Tower Bridge. The tunnel was also used to carry gas and water-mains under the new street. In addition to the high cost of construction, long negotiations were involved terminating in the payment of £ 24 650 to parties who had interest in storage arches and cellars under Wellington Street which is an approach to Waterloo Bridge. In pursuance of the policy regarding the withdrawal of the trams, the subway was totally closed at midnight on April the 5th this year. The original form of construction presented many engineering difficulties. At the entrance in Theobalds Road the trams had to run down an incline of 1 in 10, 170 feet long and 20 feet wide. The tracks then entered two cast iron tubes 14 feet 5 inches

in diameter and 255 feet long which took the track under the Holborn branch of the Fleet sewer and two pipe subways, running up a 1 in 10 gradient into Holborn station. After this the tracks ran in rectangular tunnel 20 feet wide with a roof of steel troughing below the street.

On February 2nd, 1930 the subway was closed until January 14th 1931 to deepen the floor of the tunnel to permit double deck cars to be run. The original tunnel mouth at Waterloo Bridge was designed to have the same architectural features as the bridge before it was reconstructed. It has not beer decided how this tunnel can be utilised now that the tram service has been withdrawn although several suggestions have been received.



Train describer used on London Midland Region (British Railways). The annunciator can be seen on the right showing first, second and third trains.

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Mr. T. S. Lascelles has been elected President of the Institute of Railway Signal Engineers for the present year. In a vote of thanks to the chair, it was pointed out by Mr. T. Austin that Mr. Lascelles had unusual experience with then Institution as he had occupied the position as ordinary member, Member of Council, Librarian, Secretary, Treasurer and now President. During the difficult time experienced during the last war the Institute owed its existence to his untiring efforts. Mr. Lascelles in his address had referred to the endeavours made in 1910 to form the Institution to cover the profession of railway signalling. At that time many Signal Engineers were hoping for the extension of power railway signalling which was not realised owing to the outbreak of the first world war in 1914. He reviewed the progress of safety devices on railways to the present time showing the extension in the requirements of the then Board of Trade up to 1889 when block working, inter-locking, and continuous brakes were considered essential for use on passenger lines. He further traced the progress to modern times with the short career of the three aspect signal which was replaced by multiple light aspect signals in 1925 by Ministry of Transport requirements.

Mr. Lascelles is Director and General Manger of W. R. Sykes Interlocking Signal Co. Ltd. He joined that company in 1909 and was engaged at first on the construction of mechanical locking frames and signal fittings and later on the installation of block, track circuits and other electrical apparatus on various railways in the South of England, Scotland and Ireland. He became Signal Engineer to the company in 1927 and was appointed to the Board and made General Manager in August 1942. He joined this Institution of Railway Signal Engineers in 1913 and was a Member of Council from 1925 to 1935 when he became Honorary Treasurer. In October 1947 he was elected Honorary General Secretary and Treasurer in which office he continued until December 31, 1949, shortly afterwards being elected Vice President. From 1924 to 1945 he was in charge of the Institution's library and was Honorary Editor of their journal from 1935 to 1947. Mr. Lascelles has always been keenly interested in signal practice in other countries on which he has contributed many papers to the Journal. He has also maintained prolific correspondence with the signal engineers and operating officers abroad.

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At the opening of the Liverpool Street—Sheffield Extension of the Eastern Region, British Railways, temporary train describers were provided. They have now been replaced by fully automatic describers and the installation is believed to be the most extensive in the world. On the main lines the system extends from Liverpool Street to Romford and it also covers the branches from Bethnal Green to Hackney Downs and from Bow Junction to Gas Factory Junction. Descriptions sent from terminal to terminal are automatically transferred from signal box to signal box according to the progress of the train. The indications in

each box shows the first, second and third trains in section with their descriptions and destinations and records their arrival at the various controlled signals until the appearance of a "last sent" indication. The equipment was designed and installed by the Siemens and General Electric Railway Signal Co. and is adaptable for use in signal boxes with lever frames or with relay interlocking panels.

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Exactly one hundred years ago, 1852, the first locomotive was despatched from the Vulcan Foundry for service in India. The order was for eight 5 ft. 6 in. gauge 2-4-0 passenger engines and these were ordered to open the first public railway in India from Bombay to Thana—part of the former G I P. Railway. Up to date nearly 2,750 Vulcan Locomotives have been supplied to India, which is equivalent to an average of more than one per fortnight for a hundred years

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A black and tan Manchester terrier recently boarded the 8-5 P. M. train for Southampton at Waterloo Station when no one was looking. It was found the next morning at Southampton Station, sitting up comfortably in one of the carriages and greeting the porters with a friendly growl and a tail wag. As the traveller was "without visible means" the police asked Our Dumb Friends League, Southamptom Branch, to collect the dog, which, as it happens had choosen the league's most up to date dog and cat's home for a holiday. During the past twelve months the branch has received a Scottie which travelled from Yelverton and changed trains at Exeter and a cat which took a train from Portsmouth.

Tail Lamps

By A Correspondent

A number of years ago several accidents occurred which brought the tail lamp into prominence. In the U. K. inspecting officers commented on its importance and the technical press had much to say about it.

It is "that last line of defence" protecting a standing train from a rear collision. It is, in reality a signal with no overlap or adequate distance but with a sighting distance dependant on curves weather conditions and its own efficiency. It is impossible to institute remedial measures to improve the first two conditions but it would appear that in condition three there is room for improvement It also distinguishes the last vehicle on the train and is replaced by a tail board by day. This informs station masters and signal men that the train has arrived complete at their station.

In the case of electric tail lamps, a very efficient indication is obtained On the electric services of some railways the lamps are duplicated so that in the event of the train lighting failing, an emergency battery supply, also used for lighting the coaches, which illumin tes the emergency tail lamp. On other railways only one lens is employed, illuminated by two bulbs one being energised from the main supply and the other from the emergency supply. In these cases it is essential to see that the emergency supply is available when required.

Some ten years ago an instance occurred on a railway in India where a collision was caused due to the emergency tail lamps not being in operation, a railway servant was killed. As the accident is not without interest, it is proposed to briefly describe what happened. An electric train was coasting past a Home Signal when all the lights failed The motor man decided to wait until he stopped in the station before making an examination. When the train stopped the guard took his tri-colour hand signal lamp and went to the driver with the idea of showing him a light while he changed the fuses. In the course of testing several fuses blew when it was decided that the train could not continue in service and would have to be removed. The signalling at this station was semi automatic and at the time of the accident an illuminated 'A' (Stop and proceed Rule) was exhibited at the Home Signal. A following train waited the prescribed two minutes. (G. R 277) proceeded to the station and collided with the stationary train.

This was another case of the human element. The Station Master on duty could have prevented the accident had he remembered that automatic working was in operation by replacing the King Lever and converting the Home Signal to a Stop Signal the illuminated 'A' being extinguished. The guard should have seen that the emergency lighting was out and he could have taken steps to protect his train by the use of the tri-colour signal lamp The driver of the following train could have, in all probability, prevented the collision or mitigated the results had he seen a red light at the end of the train, and also proceeded with caution instead of at a speed of about 20 m. p. h. Further, as there was a curve at this

place and the next signal ahead could not be observed, the provisions of G. R. 280 should have been carried out. Instead of this, the guard rode with the driver and lost his life. The subsequent enquiry revealed that it was doubtful if the battery switch had been closed when the train was taken out of the stabling sidings at the commencement of the trip.

This type of accident emphasises the advisability of providing means of making it compulsory for a motorman to close his emergency lighting switch. It should not be possible to start the train when the switch is open but the circuit must be interlocked with the main train lighting system so that the interlocking feature is out during daylight.

In addition to the electric emergency tail lamp, it would appear that "the last line of defence" should be an oil lamp. Interlocking features will ensure that lamps are connected to the emergency supply but there still remains the possibility of a fractured filament.

Some objections raised against the oil tail lamp is that it is messy and costly to maintain. It is required to be transferred from one end of the train to the other at terminal stations and on this account the efficiency of the indication it displays becomes doubtful. This can be overcome by instituting supervision which will compel the staff to take a more intelligent interest in the lamps by seeing that they are kept clean, wicks trimmed and burning at their proper height. Whatever objections can be raised against the oil tail lamp, there are several instances on record where, had it been provided collisions would have been either prevented or their results considerably reduced.

Hitherto, the red light has always been accepted as the colour meaning "Stop." There can be no possibility of a single red tail lamp being mistaken for a signal on open sections where the signal aspects are exhibited at a considerable height above rail level. In tunnel sections and brick cuttings there is the possibility of signal lights being located at approximately the same height as the tail light. A case happened in 1939 where a driver was temporarily deluded into believing that the tail lamp of a stationary train was a signal, and being puzzled by its position a few precious seconds were lost before the brakes were applied. A tail light of a totally different colour would probably prevent such a delusion but as the signalling system has claimed red, yellow and green, there only remained purple, the colour used for danger several decades ago and this was abandoned due to its low transmission value.

The colour of the rear portion of train is perhaps a subject worthy of some consideration. A train painted the same colour as the surroundings is not so easy to distinguish, either by day or under the headlamp, as one of a more contrasting colour. On some railways abroad signal red is used and on the straight road this can be seen for several miles and is easily picked up in the engine headlamps at night. An alternative is white and black stripes painted diagonally with a circle of red reflector studs which would pick up the light in day and the engine head lights at night.

The rail lamps of trains on the railways of the United kingdom have the outside case painted white. This makes them visible for a considerable distance by day and also acts as a tail board.

Diesel Electric Trains for Egypt

WE recently took advantage of an opportunity to attend a trial run and inspect the first of a number of five-coach main line diesel-electric trains being built by the English Electric Company, Ltd., for the Egyptian State Railways These trains have been specially designed to provide luxury travelling facilities between Cairo and Alexandria, and on the route to Luxor. They are intended to cover the 130 miles between Cairo and Alexandria in a scheduled time of two hours ten minutes, including a number of intermediate stops.

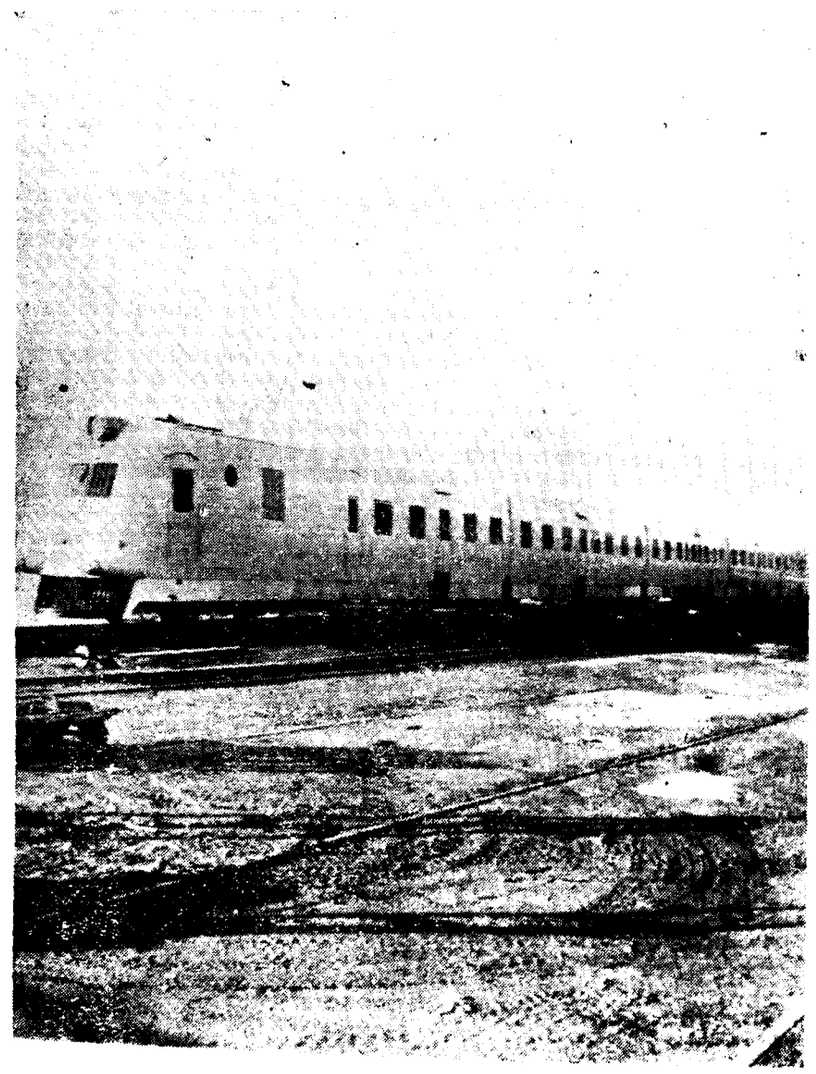
When these trains were being considered it was stipulated by the Egyptian Railways Administration that they should be of the lightest possible construction, to give the highest power-to-weight ratio; and that they should have high operating speeds coupled with reliable service in the somewhat dusty atmosphere which prevails in the districts in which they were required to work. It was also considered desirable that there should be a high degree of interchangeability in respect to the engine and other parts common to the new rolling stock and to the locomotives already supplied to Egypt by the Company. With these requirements in mind the company designed the trains and received an order for nineteen five-coach articulated trains and eleven three coach trains for suburban services. The three-coach trains will consist of three articulated units similar in all respects to the five-coach trains except that they will have one instead of two power units.

The first of the new trains, which has completed its trials and is about to be shipped to Egypt, is shown in the illustration on this page. Its five coaches provide seating accommodation for sixty first-class and 112 second-class passengers, and a well appointed buffet in the centre of the train has cooking and refrigerating equipment installed. The first-class coaches are fully air-conditioned.

In these five-coach units, which are 255 ft. 3 in. long overall and weigh 149 tons 9 cwt. fully laden, power is supplied by two 400 h. p. diesel-electric generating units, one at each end of a train. The power from each engine is transmitted to two traction motors on the motor bogie situated under the articulated joint between the first and second coaches. The trains are designed for a maximum service speed of 75 m. p. h. and an initial acceleration of about ¼ mile per hour per second.

In the table which follows are given some of the leading particulars of the new train.

Track gauge	1ft. 8½ in.
Overall length of five-coach train	255 ft. 3 in. Overhead stocks.
Overall width	9 ft. 6 in.
Overall height	12 ft. 6⅝ in.
Distance between bogie centres	46 ft. 3 in.
Wheelbase of motor bogies	8 ft. 7 in.
Diameter of motored wheels	40 in.
Diameter of unmotored wheels	34 in.
Maximum axle loading, express units	15·4 tons.
Fuel tank capacity	400 gallons.
Diesel engine, cylinders	10 in. bore by 12 in. stroke.
Diesel engine, rating	400 b. h. p. at 750 r. p. m.
Traction motors	4 self-ventilated.
Gear ratio, express units	59/17
Maximum starting tractive effort	18,000 lb.
One-hour tractive effort	9,500 lb. at 22 m. p. h.
Continuous tractive effort	7,250 lb. at 29·5 m. p. h.



The electrical equipment and the engine were designed and built in the English Electric Company's works at Stafford and Rugby.

The 4 SRKT 400 h. p engine fitted in the trains is a four-stroke, cold-starting, compression-ignition unit, with four cylinders in line and employing direct mechanical fuel injection. The Buchi system of pressure charging by a blower driven by an exhaust gas turbine is used. Aluminium alloy pistons in the engines have three gas and one oil control ring above the gudgeon pin and one oil control ring below. Cylinder liners of cast iron are clamped at the top end only to facilitate inspection. To eliminate the vertical unbalanced secondary forces inherent in a four-cylinder engine, a positively driven balanced system is used. Two counter-shafts with distributed balance weights are geared to the main crankshaft and rotate at

twice the engine speed. The upper half of the crankcase has large inspection doors through which the pistons connector-rods and bearings can be withdrawn if necessary. Separate covers give free access to the camshaft drive.

Bryce fuel injection equipment is fitted and separate injection pumps mounted in line with each cylinder of the engine and driven from a camshaft, are individually adjustable for injection timing and the quantity of fuel. The engine is governed through the electrical control equipment relating to the field of the generator. A sensitive mechanical governor with hydraulic servo gear operates the fuel control shaft. Engine speed is varied in three steps of idling at 300 r. p. m., 450 and 680 r.p m., by means of electrically operated solenoids, which vary the loading on the governor. Co-ordination between the solenoids and the variation of the governor field is designed to

ensure that the maximum loading imposed on the engine is automatically limited to correspond with available engine output. This arrangement, in addition to avoiding critical speeeds, also prevents overloading of the engine and ensures that full engine horsepower can be utilised for a wide range of speed and tractive effort.

A radiator fan is situated in the side of the engine compartment and a fan mounted in the roof draws air in through louvres in the side of the coach and expels it through the top. Dust is removed from the air being drawn into the engine compartment by air filters fitted with removable felt pads.

The engine and the generator are rigidly coupled together to from a single unit, which is supported at three points only. This arrangement makes the power unit independent of the warping and twisting stresses which are inevitable in traction work and which might otherwise upset the alignment of the engine and generator.

The self-ventilated, single-bearing generators coupled to the engines are of the direct winding type and have a separately excited field winding, a decompounding series winding, and a further series winding, which is only used when the generator is motored from the batteries for starting the engine. Each generator supplies power to two series wound reversible traction motors. The generator compartment, which also houses the control equipment, is sealed off from the external atmosphere to prevent dust penetrating into the mechanism. Electro-pneumatic relays are housed in sheet steel cubicles fitted with large doors to permit easy access. An exciter mounted on a shaft extension of the main generator in addition to spplying direct current to the main generator field, provides power for a compressor motor, charging the batteries and operating the control equipment.

The driving cabs at each end of the train are roomy and well arranged. The driver sits in the centre of the cab and large windows give him an excellent view of the line. He has a neat control switch panel in front of him and all the main driving control gear is arranged close to hand. A 14-inch searchlight at roof level gives a powerful forward beam of light at night. In each cab is a master switch, a reverser control and a main controller, from which complete operation of the train, including control of both engines, is available. When the master switch is moved to the "start" position the electrically-driven lubricating oil priming pump, which is energised from the battery, starts up. When the oil pressure has built up to a safe valve a pressure switch in the oil circuit closes and completes the circuit to the batteries. The generator then motors and starts the engine. Should the battery be too low to start the engine an emergency start switch can be operated and the train can be pushed a few yards by another locomotive. The traction motors then act as generators and supply current to the main generator, which turns the engine.

The master switch can be set in an "engine only" position if it is desired to run the engines alone for warming-up or testing purposes. With the switch in this position the controller can be moved to speed the engines but no power is supplied to the traction motors. When the master switch is placed in the "off" position the fuel supply to the engine is cut off and it stops. If the air pressure for the braking system or the oil pressure of the engine lubricating oil circuit falls below a safe valve, auxiliary circuits cut off the power to the

motors and the train is automatically brought to a stop. A deadman's safety device is fitted on the main controller to provide an additional safeguard against accidents. This device is controlled by a pedal in front of the driver's seat and the pedal must be kept depressed whilst the train is running.

Westinghouse compressed air braking is fitted throughout the train and mechanical hand brakes, which work on the power car bogie wheels only, are also provided.

The all-metal coaches of the train are designed integrally with the underframe and are carried on fabricated bogies. The underframes of the power coaches are made up from fabricated rolled steel sections and plates, whilst those of the passenger coaches are of lattice girder construction. All the framing members are of co'd pressed steel section and the main pillars, of flanged "U" section, are carried from the underframes by flanged plate outriggers and further reinforced by gussets. The steel sheeting, which forms the outer panelling of the coaches, is attached to the frame members by a combination of arc and spot welding and riveting.

Solid rolled steel disc wheels are pressed on to the axles and the journals are fitted with tapered roller bearings, carried in cast steel housings. Long laminated overhung axlebox springs are fitted and adjustable spring hangers have auxiliary coil spring. Coil-type body suspension springs are carefully proportioned to work in conjunction with the

(Continued on next page bottom)

Discovery of Asokan Pillar at Bhubaneswar

By K. C. Panigrahi, M. A.,

Curator, Orissa Provincial Museum

IT is a known fact in the Indian history that the Kalinga war proved to be a turning point in the career of Asoka and also in the history of Buddhism and the world. The terrible war, in the words of Asoka, resulted in one hundred thousand people killed, one lakh and fifty thousand carried away as captives and many more that number dying of the starvation and disease that followed in its wake. In an age when the accepted form of warfare was mainly a hand-to-hand fight unlike the modern warfares of mass murder, these figures would have been staggering to a war-like but noble monarch. Horrified at this immense carnage of his own creation and struck with remorse, Asoka gave up, as he himself tells us, the conquest by sword and turned to the conquest through Dharma. Missionaries were sent to far-off lands, rocks hewn and pillars set up to bear his immortal edicts, conferences were held for religious discussions, morality as the essence of humanity was stressed and the emperor himself set the standard of an ideal life by denying himself the princely pleasures and food and buying himself in the duties of the state for the uplift of the people. Defying the ravages of the times for nearly twenty two hundred years, his edicts incised on rocks and pillars in various parts of India have come down to us and the truths contained in them still serve as the beckon lights to the erring and war-torn humanity and especially to divided India now engaged in the senseless destruction of an unparallel character.

But the country of Kalinga which roughly comprised the Southern coastal districts of

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axlebox suspension to give smooth, even riding of the coaches.

The floors of the coaches are of tongued and grooved boards bolted to the underframe, covered with a quarter-inch thickness of "Insulwood" and overlaid by heavy linoleum. The interiors of the first-class coaches are panelled in "Sundeala" and finished in high-grade enamel. Seats in the first-class compartment are upholstered in moquette or hide. the seat frames being of steel and timber and the cushions of "Dunlopillo" In the second-class compartments fixed seats have angle-iorn and tubing frames upholstered with spring filled cushions covered with rexine. Full air conditioning is provided in the first-class compartments, the air being supplied by sets driven by 90 h. p. oil engines in each engine cab and cooled to the required temperature by refrigerator units All windows in these first-class compartments are fixed, whilst those in the second-class compartments are of the half-lift type.

During the trial run which we attended the train attained a maximum speed of about 77 miles an hour and at this and all other speeds the riding was very comfortable. (*The Engineer*)

modern Orissa during the Asokan age and which was directly responsible for scuh an epoch-making change, was not yet known to have possessed any Asokan pillar. although Asoka's rock edicts still exist at Dhauli near Bhubaneswar and at Jaugada in the Ganjam district. The absence of an Asokan pillar in Kalinga

'The Lion capital front view,' Bhubaneswar

would appear contrary to the logical sequence of the events that must have followed its conquest for, as a conquered country it must have received the emperor's special attention for good government and also for the promulgation of his Dharma. Relying on such a possibility, years ago in the nineteenth century Dr. Rajendralal Mitra had suggested that the colossal lingam now enshrined in the Bhaskareswar temple at Bhubaneswar might have been a remnant of an Asokan pillar. But since his suggestion was based on no other evidence save similarity. most of the later scholars writing upon the monuments at Bhubaneswar, took no notice of it and some even directly refused it. The truth has however come out. The unquestioned eveidence, now available, prove the existence of an Asokan pillar at Bhubaneswar beyond any doubt The circumstances leading to its discovery form an interesting story of the triumph of archaeology, which is being related below.

Following the suggestion of Dr. Rajendralal Mitra when I subjected the colossal lingam of the Bhaskareswar temple to close examination, it was found to be one very unlike the numerous Siva lingams of Bhubaneswar. Its dimensions are unusual for an ordinary Siva lingam, being nine feet high, twelve feet and five inches in circumference at its base, enclosed by a sakti with an outer circumference of about 20 feet. Like other lingams it has no smooth surface. but on the contrary the original smoothness has been destroyed by deliberate heavy chiselling It has no rounded top, but in its place there is a tapering projection indicating the remnant of a nonlithic pillar. Its sakti, instead of being made with a single block of stone as is the case with all others, is made up of four pieces joined together. This device indicates that the lingam was *in situ* and the sakti has been fitted to it later on. These peculiarities of unusual character led to further scrutiny which revealed the traces of Brahmi letters on veritical portion of the lingam where chiselling seems to have been less heavy. The attention of the archaeologists working in the Sisupalgarh excavations was drawn to these traces, but since they were of doubtful character admitting an honest difference of opinions, they became sceptic, although they agreed with me that the lingam was of unusual character and that the deliberate chisellings all over its body were inexplicable.

Further searches therefore continued, which resulted in the discovery of a railing pillar half-buried in earth about 375 feet to the North of the northern door of the temple. This pillar has four sides of which the broader two have leaf-shaped sockets that evidently received the cross-bars (suchis) from both sides and the narrower two have each a decorative female figure. At the top, there is small projection which was fitted into the socket in the copying stone (ushnisa). This pillar might or might not have been connected with a railing fence usually found round the stupas and Asokan pillars, but its discovery gave an incertive for the search of the capital of the Asokan pillar to complete the series of evidence and to make them conclusive.

Fortunately only about 40 feet from the Northern door of the temple the top portion of a figure, very much weather-beaten, but sharply distinguished in colour and fabric from the stones of the temple, was discovered and this, when dug out, proved to be the front portion of a colossal lion usually found at the

top of an Asokan pillar. On the receipt of the news of its discovery, some members of the Excavations Branch of the Department of Archaeology, then working at Sisupalgarh, came to the spot and took a photograph of it *in situ*.

The lion measuring 3 feet and 7 inches in height and 8 feet and 7 inches in circumference at its broadest part, is now in the Orissa Provincial Museum at Bhubaneswar and since its discovery, it has been examined by some eminent archaeologists including Mr. A. Ghosh, the Deputy Director General of Archaeology for Exploration. With due regard to the series of evidence connected with its discovery, nobody has yet been disinclined to take it to be the lion of an Asokan pillar. The Asokan pillar so far discovered are known to have possessed capitals consisting of four lions standing back to back, a single line or a single bull. The lion discovered at Bhubaneswar belongs to the second category of the Asokan capitals. It possesses the features of an Asokan lion, but not the high polish usually found on the Mauryan sculptures. The absence of the high polish is no doubt due to the type of stone utilised for its curving, which is incapable of receiving it. The artists of the Asokan age (probably the court artists) working on the fine-grained Chunam sand stone have succeeded in imparting almost a metallic polish to some sculptures of the period, which may be observed except in the sculptures of local stone by the local sculptors. It may be mentioned here that even a festidious examination by a number of archaeologists has of late failed to discern any trace of the Mauryan polish on the colossal elephant which is to be found above the Asokan inscription at

Dhauli near Bhubaneswar. It is now time that the set notions about the peculiarities of the art products of different cultural epochs, should be changed.

The manes on the left side of the lion have been partially chiselled down to accommodate two lines of inscription in the Southern script of the fifth or sixth century A. D., which indicate the latest period when the pillar could have been converted into a lingam and the lion buried. There are also chisel holes in rows on the same left side, which further indicate that there was deliberate attempt to break it into pieces. While digging it out, it was found that the lion had been laid in a pit with four stone slabs on four sides to keep it in position. It had thus been given a decent burial so that the posterity could get no scent of the vandalism wrought on it. It seems that the country which was to a great extent responsible for the spread of Buddhism in India, and Asia, at some stage of its history wanted to root out Buddhism from its own soil It is difficult to say when and how this great change took place. but this lion with the chisel holes and the pillar with its inscription destroyed serve as the mute witnesses of a violent religious upheaval that must have taken place.

There is a huge fragment of a bell capital still lying in a tank known as Asoka Jhara situated near Rameswaram hallf-way between the Railway station and the Lingaraja temple. It is however difficult to ascertain whether this bell capital was also a part of the same pillar of which the lion and the lingam are the remains. The bell capital is made of altogether a different type of stone which shows that it might have originally belonged to another pillar.

The present temple of Bhubaneswer dates back to a period not earlier than the twelfth century A. D., but there is evidence in the body of the temple and in its environs to show that it occupies the site of an earlier temple It seems that a temple had been built to enshrine the pillar converted into a lingam, but when the earlier temple was ruined, the present temple was constructed. There are also the remains of an ancient well with steps (vaphi) to be found about three hundred yards to the north of the present temple, which might have been a contemporary of the Asokan pillar or of the earlier temple. (*Copyright*—NNF)

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Principles of Station Accounting

By P. H. S. Rao

IV. ACCOUNTING FOR TICKET SALES

The steps taken in the accounting for the sale of tickets may be briefly stated:—

1. The Booking Clerk sells a ticket to a passenger from the ticket stock supplied by the accounts office at a fare published in the Coaching Tariff of the Railway

2. The transaction is carried through the Station account– a record is made in the trains cash book and it is reported monthly to the accounting office.

3. The accounting office audits and checks the reports, makes the necessary adjustments, apportions the revenue to the proper accounts and between the foreign lines interested and prepares entries for the general books of the railway.

BOOKING OFFICE—

THE ORIGINAL SOURCE OF PASSENGER REVENUE

Practically all revenue from the transportation of passengers originates at the booking office. These may be classified according to the volume of business transacted and the location.

1. Small offices located at the very small towns where the Station Master acts both as Booking Clerk and Goods Clerk.

2 Larger Booking Offices where the selling of tickets is done by Booking Clerks under the supervision of the Station Master or a Chief Booking Clerk.

3. City Booking Offices located in the business sections of large cities in charge of a Booking Clerk.

4. Joint Booking Offices which are Joint City Booking Offices selling tickets for several lines.

PASSENGER FARES

A fare is the price paid by a passenger for the transportation furnished by the Railway. These are published in the Coaching Tariffs.

Passenger fares may be divided broadly into two classes—local and foreign.

A local fare is the fare between two points on the same railway.

A foreign or joint fare is the fare between stations located on different lines

Passenger fares are determined by the Traffic Department of the railway and are published in Coaching Tariffs. These tariffs are the source of all rules, fares, routes and contracts between the railway and the passenger. Their importance is well illustrated by the following rulings of the Inter State Commerce Commission:—

"1. A through fare from point or origin to destination of a passenger is the lawful fare applicable to that movement.

2. No carrier can lawfully apply to transportation over its line any fare or charge that is not plainly stated in its own tariffs at that time.

3. A carrier may apply to through tickets fares to or from stations to or from which no joint fare is furnished by using lawfully published locals in connection with other lawfully published tariffs."

THE TICKET

A ticket has three primary functions:—

1. It is the contract between the carrier and the passenger covering the transportation service.

2. It is the written authority for transporting a passenger.

3. It is the basis of passenger revenue accounting.

A large number of ticket forms are in use to expedite the sale of tickets, to minimise the clerical work involved and to provide for systematic ticket records and accounting procedure. All tickets may be grouped into a few classes and classified according (1) to their destinations—local or foreign; (2) trains on which valid—Mail or Ordinary, (3) time limits—single journey, return tickets and monthly tickets, (4) status of their purchasers—first, second, intermediate and third class; and (5) forms most commonly used—printed card tickets, blank paper tickets, etc.

From an accounting standpoint, tickets may be grouped into only two classes:— (1) local and (2) foreign. A local ticket authorizes a movement between stations on the same railway; a foreign ticket authorizes a movement over two or more railways.

SELLING TICKETS

The process of selling a local ticket is comparatively simple. The booking clerk goes to his ticket tube, selects the printed card ticket or makes out a blank ticket to the required destination, hands it to the passenger, and collects the proper fare, as stated in the fare list.

In selling the foreign ticket, the process becomes more complicated. He must consider the route, the connections, the rate and the ticket form to use. He is required to accommodate the passenger as much as possible in acceding to his desires in regard to the route, the making of connections, and the choice of trains and connections.

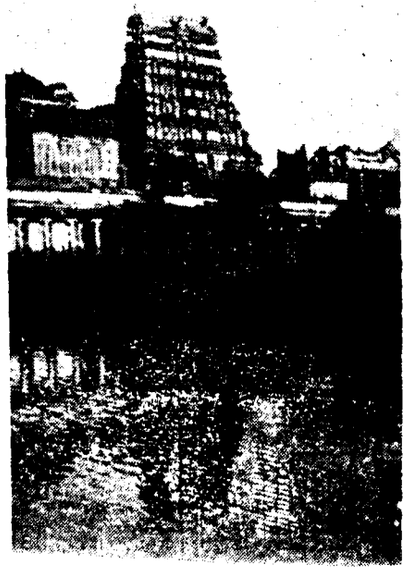
TOURIST SERIES—VIII

Of Tourist Interest on Southern Railway

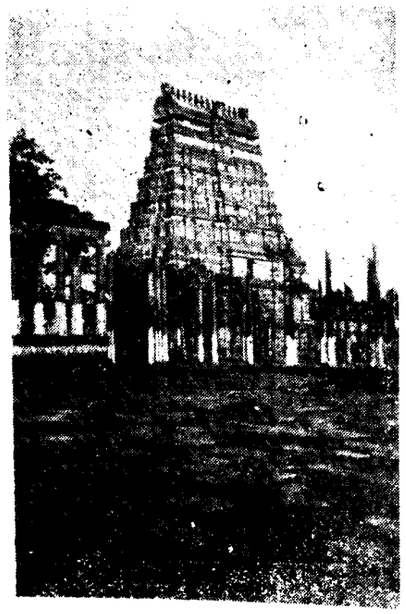
Chidambaram

By L. N. GUBIL

WHO has not heard of Lord Nataraja of dance fame and with his Nandanar episode. His temple is situated in Chidambaram an ancient historic city in South India associated with honoured names of Gnana Sambanda the great Saiva Samayacharyar, of Manicka Vachakan equally famous Adiyar of Saint Nanda, who stands symbolical of the fundamental equality of all mankind in this land of varied castes and creeds and a large population of untouchables. This holy place has recently become very prominent on account of its association with munificent charities of the family of Raja of Chettinad towards education and a University in the name of the founder of the family called Annamalai University exists today. This place is of great sanctity to the Vaishnavites also. The shrines Sri Govind Raja who may be called the twin of Sri Nataraja has been in existence for long in close proximity to the more famous Saiva Shrine and has been rendered illustrious by the songs in its praise sung by the famous of Alwars Kulasekaraperumal and Thirumangaimannan to quote only a few. This town has played a very prominent part in the cultural life of South India. It has been combined in itself the essence of the cultures of both regions being situated on the border line between the Chola Mandala and Nadu Mandala. The history of the temple goes back to the early centuries of Pallava rule to a time when the Cauvery had not yet been branched out into its various channels and it has received large additions in the shape of Mandapas, Prakaras and towers from succeeding dynasties like the Cholas and Pandyas the great Rajas of Vijayanagar who succeeded them and the greatest educational benefactors of modern times Pachaiyappa Mudaliar of the 18th century and the present Raja of Chettinad, his family and his respected father the late founder Raja Sir Annamalai Chettiar. The thousand pillars Mandapam is a prominent feature of this spacious temple It has served as the Coronation hall for anointment of many a Chola and Pandya ruler. One of the prakaras of the temple is associated with the name of Vikrama Chola. The northern tower of the temple was built by Krishnadevarayar whose figure is still preserved in one of its riches. Likewise the eastern tower stands as a monument to the philanthrophy of Pachaiyappa and the southern tower with the fish



The temple and tank, Chidambaram



Another view of Chidambaram Temple

crest of the Pandyas. The vitality of the South Indian philanthrophy displayed so much in its temple and temple treasures has had the last link in its long chain forged by the Raja Sahib of Chettinad whose generosity has closed the long-drawn-out quarrels between the Vaishnava and Saiva shrines and both metaphorically and physically covering the breach between them in the shape of a mantapa which connects the two Shrines and brought about the renovation of the Vaishnava Shrine Garbagraha This place had long and continuous association with learning which can be illustrated by the fact that a saint of the 14th century Umapathy Sivacharya one of the founders of the Saiva Siddhanta School belonging to the Dikshata community of this place adorned a Vedic College in the spacious times of the Cholas and later. It is appropriate that Annamalai University at Annamalai Nagar near Chidambaram is an ornament now to the historic town of Chidambaram. Besides the University there are several high schools in the town. Of the several festivals in the temple from time to time the Arudra festival comes foremost in popularity.

The mere mention of the town reminds of the Arudra Dharsanam otherwise known as Thiruvathirai which comes off every year in the Tamil month of Margazhi. The five act Dance of Sri Nataraja is a peculiar feature of this holy Shrine the five acts referred to being creation, protection, annihilation hiding and showing grace. This dance is supposed to be performed by Sri Nataraja in the interest of the innumerable beings under the sun. The dance is specially worshipped in the month of Margazhi. On that day grand Abishekams are performed and elaborate archanas are offered. Pilgrims from far and wide throng to this holy town through specially arranged trains and other conveyances to receive His blessings. The temple happens to be one of the pancha Bhutha Sthalams and as such is held in high esteem by the Hindus. "The Mattayadi" a part of the Arudra Darsan festival deserves special

Lord Nataraja, Chidambaram

mention. The misunderstanding between the Lord and His wife Parvathi is smoothed by proper mediation "Now that even Gods quarrel as human beings" is to be copied but how such quarrels in a family between a husband and a wife, should not be taken deep to the heart as to cause permanent separation but should be treated lightly and forgotten the next moment as bubbles disappear on the surface of water. There are thousands and thousands of things to be said about Chidambaram but let us not tire our readers with further details. Let us leave the city for the present with the seeds sown and await the days to go there again to reap the fruits

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We run headlong after all sorts of misery, and are willing to be freed from them. Every day we run after pleasure, and before we reach it, we find it is gone, it has slipped through our fingers. Still we do not cease from our mad pursuit, but on and on we go, blinded fools that we are.

—*Vivekananda*

Southern Railway—
One Year Working of Regrouping

By C. Moorthy

THE RAINS

Those of us who witnessed the historic regrouping ceremony of Southern Railway in the Park Town building of the General Offices last April little thought that the transformation would be effected so smoothly and efficiently in these days. Yet, one year has passed and this year had been of great stress and strain to the authorities in the Southern Railway. The end of April and the beginning of May, this year, witnessed water scarcity unprecedented in the history of Madras and this water scarcity was felt keenly for the Engines. But events moved quickly with the arrival of rains at the end of May and the city of Madras and suburbs around smile with water and greens appear everywhere. The Railwaymen, thanks to the rains, appear smart in their uniforms and trains pass majestically greeting the water-logged lakes everywhere. The cool breeze greets the passenger everywhere and it sounds as if the fragrance of "Southern Railway" is gently wafted in the wind. Our mind naturally goes back to April 1951, when the Southern Railway regrouping was in the offing and discordant voices struck tunes of of pessimism. Undaunted, unostentatious and patriotic-minded General Manager and his trusted lieutenant—Chief Operating Superintendent—organised the whole show slowly and silently and thanks to their hard work, we are in a position to come out and say, "we have come out successfully in the first round."

ONE YEAR OF REGROUPING

One year is too short a period to assess the economic benefits accrued by the regrouping scheme, but this period is sufficient enough to tell us where we are. To know the effects of regrouping one should understand the set up prior to regrouping. The ex-S. I. Railway with its magnificent Railway personnel was manned by officers trained to suit a company managed system. Being a terminal railway, the problems that confronted the Railway was purely local, but the monster of labour problem haunted them at every time. The industries grew in abundance, particularly cotton and cement and the area it served comprised of literature and cultured people who demanded more amenities. The Ex-M.S.M. Railway had to face the problem of transporting transit traffic from other railways. Though the local industries are not as developed as the Ex-S. I. Railway, it had enough to cater to. Here, the impact of pre-nationalistic administration was more severe, with the result when the changeover from Company Management to State Management came, many Senior European Officers have left and a vacuum was created. Patriotic Indian Officers who were not given a chance to work as Senior Administrative Officers were asked to shoulder undue responsibilities and they did it well. Here too the Railway Personnel were magnificent but they were put to much hardships due to various historical reasons. The problem of the Ex-Mysore Railway was not very great as it was a tiny railway not up to the standard required of a Class I Railway. But here again, the Railway personnel was good. Such was the background exactly one year back. Now all these are forgotten and ask railwayman and he will reply majestically "I belong to the great Southern Railway."

POOLING OF STAFF

How was this possible within such a short period? Firstly Railway working is common everywhere and railwaymen feel that they are one with another. Secondly the pooling of railway personnel had made possible to bring about improvement everywhere. What then is the criterion for an efficient railway working? If a third class passenger gets a ticket quickly at the counter he feels satisfied that he is treated well. If a merchant who goes to a goods shed to book his goods, gets his business done quickly and efficiently he feels pleased at the railway. If the carriages are clean and the trains arrive destination punctually the people are pleased over the performance and has a good word for the Engine Driver, the Guard and the Station Master. If an enquiry, or complaint or a refund application is made to the Head Office or the Regional Office and a prompt reply is received, he is pleased over the railway working. Yet judged by the performance and the absence of scathing criticisms in the Press or in public one can say without shyness that the regrouped Southern Railway maintained its past reputation of Ex-Railways but tried to improve in certain aspects also. It is to the credit of our patriotic General Manager whose name will go down in the history that such transformation was made possible, silently, smoothly and effecively without much ado. Next to our General Manager the credit must go to the Chief Operating Superintendent who worked all the twentyfour hours to bring about the change effectively as far as the Operating

Department was concerned and also to the Deputy General Manager (Personnel) who organised the Railway personnel to the new set up. Of course, the other Officers also did very well, as far as their departments were concerned but one should clearly understand that the guiding spirit behind Southern Railway regrouping are the three men. Let us see then how these were achieved, what are the organisational matters involved and what are the failures in the course of this and the next articles that are to appear in these pages.

POOLING OF RESOURCES

Next to pooling of staff, pooling of the existing resources, such as Locomotives and rolling stock and other equipment were the main objective of the regrouping and this was achieved to the maximum possible extent. An outstanding example of this was even known to lay pressmen who reported on the other day that a thirtyfive-ton Steam Crane was moved from Villupuram to restore the accident occurred at Chitoor the equipment belonging to the Ex-S I Railway while the accident happened at ex M S M Railway The press report stated that this is one—the examples by which the public were benefited by the regrouping scheme But there are many other things which the public may not be aware of such as pooling of engines and equipment During the time when there was acute scarcity of water everywhere the pump engine at Jalarpet broke down and the whole junction was without water for a few days. A pump was rushed from Golden Rock and the water problem solved. In a similar manner there was acute shortage of engines on the North eastern line of the ex-M S M Railway and engines were moved from the Ex-S. I Railway to relieve the shortage. But all these are not easy matters. Past tradition on each railway counts effectively and we must know what the past tradition was to assess the true implications of the working. On the ex-M. S. M Railway the departmental mentality was at the zenith. If an Engineer sees that a particular loco shed is short of water for locomotives, he will not move unless the Power Man or Traffic Man moves. Even then he would want orders from his Chief. Similarly the Traffic Officer will not move unless his boss moves him. It would be interesting to observe here that the Railway Board in their memorandum on the formation of the Southern Zone on Regrouping of Railways have stated :—

"In order to ensure efficient administrative control in the three regions Deputy Heads of Departments of the three major departments viz., Operating Mechanical and Civil Engineering will be posted at the regional centres The deputy heads will be individually responsible to their respective heads of departments. The Operating Deputy who will be responsible for both Commercial work and General operation in the region, will be entitled to demand such assistance from other deputies as would enable him to discharge his responsibility."

"These Regional Deputies vested with adequate financial and other powers are expected to deal expeditiously and effectively with most of the work arising in the region The delegation of enhanced powers commensurate with the responsibilities is expected to lead to more efficient and quicker disposal of the work in the region. This would relieve heads of departments from the large volume of work now referred to head quarters

(*Continued on next page bottom*)

Aspects of Railway Working

"Signalling on Railways"

By A. H. Pearson

TAKING it superficially the purpose of signals along the tracks may appear to be only for stopping or starting trains, or to indicate an obstruction or a clear line ahead. But signalling on railways has a very much more important function, as although signals are indications to the driver of a train for stopping and starting, adequate and efficient signalling is also essential to control and speed up the movement of trains over various sections of a railway system.

Take a closer look at a railway signal, and what does one see? A tall, or short post, with a semaphore arm visible on top by day, and a red, green or white light indication by night. When approaching or rolling out of large stations or yards, one can observe scores of signals; some solitary, others in pairs, or up to a dozen even perched high on what is known as a signal gantry. To the passenger looking out of a carriage window the sight of so many signals is bewildering, and he may wonder why so many seem to be scattered around the yard haphazardly; but the train and station operating staff know how vital to efficient working is each signal and the driver of a train by a mere glance can immediately tell which of these scores of signals are meant for his train.

The manual operation of mechanical signalling apparatus and gear is usually controlled from cabins in a station yard. At stations of lesser importance there are at least two cabins, one on either side of the station precincts, and at large stations with yards, there are a number of such cabins, each controlling the signalling of certain portions of the yard.

The most noticeable feature of a signal is the lever frame. Each such frame is equipped with from ten to sixty levers. When the cabin man receives an order to set the road for the reception of a train, or to get some shunting movement in progress, he passes on the order to the signalman, who pulls the levers required to lower signals, set points etc. When the lever is pulled over, through wires, pulley wheels, rodding and cranks, a signal arm perhaps a half mile away is actuated and points also set. When the particular train movement has been completed with safety, the lever movements are reversed, the signal goes back to danger, and the road restored to normal.

and thus free them for more intensive inspection work and for concentrating on major problems and policy."

The major difficulty that confronted the head of the department was in the practical application of this policy This one year was full of difficulties particular to the Operating Department as it is that department which is responsible for general operation and thanks to the indefatigable present Chief Operating Superintendent who by his intuitive knowledge of organisation ahd experience, made the best of a worst situation. He has to get on with the Officer personnel handed over to him and it is no easy job to fit them in the revised set-up and tune them to the national needs. In our next article we shall discuss this in detail.

(*To be continued*)

All signalling gear in cabins and station yards must be maintained to function efficiently. If a particular signal, or points fails to function, the cabin man or station master must call in the aid of the Signal Engineering staff to rectify the defect. No time can be lost in repairing signal faults, as even one signal or point, failing to function smoothly, is likely to impede the free flow of trains over a section, or retard yard operation. While mechanical signalling apparatus is out of order and during repair jobs, staff are posted at the points concerned to pass trains or control shunting movements by hand-signals according to the prescribed rules.

Every failure of signalling gear is recorded by the cabin man or station master in his 'signal failure' register. On inspection, Signal Inspectors scrutinize this register in detail, as frequent failures indicate faulty material or maintenance, and special action taken to eliminate the defects.

What causes a signal failure? Obviously, a break or obstruction somewhere between the lever frame and the signal or point, in the connecting gearing of wires, pulleys rodding etc. Some of these are incidental in day-to-day manipulation, but at wayside stations, or large yards where signalling gear runs alongside the tracks to distances remote from station or cabin, thefts of material often occur. Certain types of pulley wheels are also good makeshifts for use over wells in neighbouring fields. So the villagers often help themselves to these pulleys. Criminal gangs may also cut signal wires, or damage rodding, to keep a signal at danger and bring a goods train to a stand from which they intend to raid the contents. Mischievous urchins may wedge a piece of metal or stone between a pulley wheel and roller to spike the free movement of the rodding.

Signals and signalling components are not the only apparatus that has to be kept in good working condition. Every station and yard has a number of facing and trailing points, and these too must be constantly checked. Points are those parts of the track which switch a train from one line to another. Of the two, facing points are most important, as a defect in one of these, may cause an oncoming train to take the wrong road, or jump the tracks with disastrous results. Signalling staff take no chances with facing points, as continual pounding of heavy trains over these points wear down the nose producing sharp edges. At a certain stage of sharpness the offending sharp-nosed rail has to be replaced.

By day signals may be plainly visible to drivers of approaching trains for quite a distance, but visibility by night of signal light indications must also be clear. A dim signal light may cause a nasty accident. To ensure clear night visibility all signal lights must be kept spotlessly clean. This job is done by the lampman in the station lamproom. Every day he polishes lenses, trims lights, keeps lamp reservoirs clean and well-filled with oil.

Although railway signalling has progressed like other mechanical and technological apparatus, from the simple method of waving a red or green flag by day, and a red or green light by night to modern methods of interlocking and automatic electric signalling, the bulk of signalling apparatus on railways in India is still of the mechanical type, and whatever may be the progress, the main objective of railway signalling is to keep those trains rolling as fast as possible, but with safety.

FOR THE RUNNING STAFF

Don't Get On or Off a Train in Motion

If you have to, *Beware* of *Plantain Peels* and *Orange Peels* on the platform, and be sure of your grip.

When a train is in motion, everybody inside the train (including the Guard the Driver, the Fireman and the TTE) is in motion—*in the same direction* and *at the same speed* as the train. Don't doubt it—EVERY PARTICLE ON A MOVING BODY PARTAKES OF THE SAME MOTION—a principle in Physics.

Getting Off a Train

When you jump on to the platform from the running train, your feet contact the platform first. On contacting, the feet are suddenly brought to rest, whilst the rest of body continues in motion. The result is, you fall like a stick in the direction of the motion.

How, therefore, should you get off a moving train? Of course, by reducing the speed *gradually not suddenly. On alighting, run a few feet in the direction of motion, gradually slackening the speed and eventually to rest.* Can a man do so with all speeds? Surely not, but only with the maximum speed naturally gifted to man, say up to 5 or 6 miles per hour. At no higher speed of the train should you attempt this.

Getting On a Train

When you jump from the platform on to the running train, your feet contact the floor of the moving train first. On contacting your feet are suddenly put at a speed whilst the rest of the body continues to be at rest. The result is, you fall like a stick away from the direction of motion.

How, therefore, should you get into a train in motion? Of course *by first raising the speed of your body to that of the train, and then boarding the train.* So, run a few feet in the direction of motion alongside the train but not too close to it; when the speeds are equal, or nearly equal (that is when the RELATIVE MOTION is zero, in the language of Physics), get the sure grip and then board. Can a man do so with all speeds? Surely not, but only with the maximum locomotion that God has given to man say 5 or 6 miles per hour. At no higher speed of the train should you attempt this.

This KNOWLEDGE will SAVE YOU FROM ACCIDENTS—LOSS of LIFE or LIMB.

(Issued in the interests of the Travelling Public)