



South rail news

1957 - April

VOL - 4, NO-1

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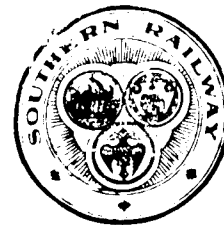
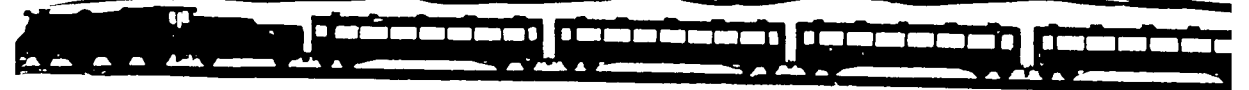
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Southern Railway

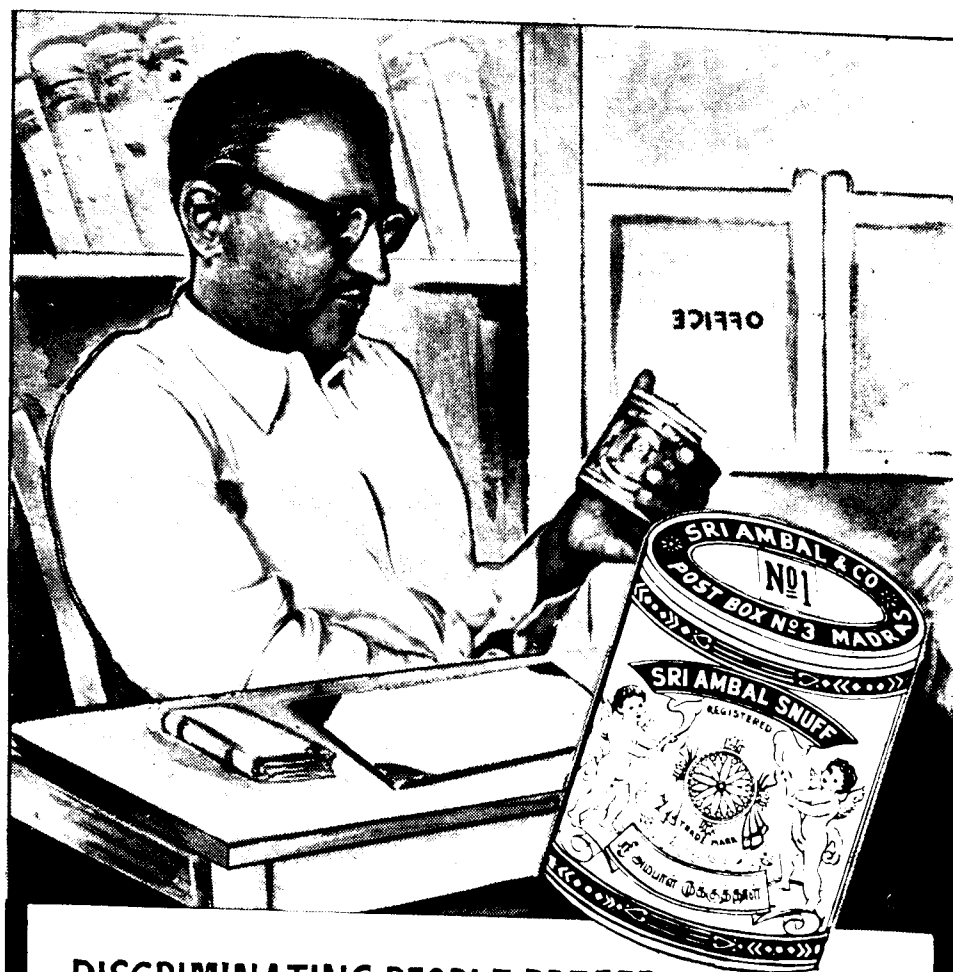
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VOL IV

APRIL 1957

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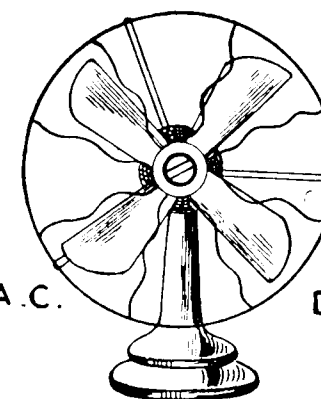


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NEW DELHI
18th February 1957

I am glad to know that you are publishing the Third Annual Number of SOUTHRAILNEWS. From the account I have it is likely to be a useful publication. I wish your Annual Number success.

S. RADHAKRISHNAN,
Vice-President.



CAMP : CALCUTTA
9th March 1957

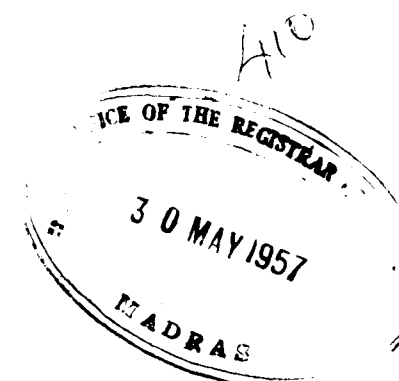
It is good to note that SOUTHRAILNEWS is now getting to its fourth year of publication. The Southern Railway can take pride in their magazine having maintained fairly high standards and for publishing useful and informative articles.

The publication helps to create and strengthen the bonds of railwaymen of all categories and making them realise how common are their interests. It gives them a correct perspective in feeling that they belong to a large and strong fraternity of workers who have to serve the public.

I trust the magazine will continue doing this good work and will make everyone of us realise that courteous, prompt and efficient service to those requiring railway transport is our prime concern.

I send the SOUTHRAILNEWS and all those associated with it my cordial greetings and good wishes.

P. C. MUKERJEE,
Chairman,
Ministry of Railways (Railway Board),
Government of India, New Delhi.



With the March 1957 issue, Southrailnews magazine has completed its third year of publication and with the April 1957 number, this magazine enters the fourth year of its publication. The patronage of our advertisers and the earnestness and enthusiasm of our contributors have to a large measure contributed to the success of the magazine. One of the main objectives of the magazine is to develop esprit de corps among all classes of railwaymen. It is gratifying to note that several members of the staff have come forward with their contributions and more literary talents which were latent in our staff have been discovered.

Building of better understanding between the railway and its users has received necessary attention. As advised by the former Railway Minister, Sri Lal Bahadur Shastri, during the third year of its publication, the useful role which railway magazines can play in not only educating railwaymen in the better performance of their duties but also in bringing home to the public at large the special problems or difficulties facing the railway and the way they are tackled was kept in mind.

Through the magazine, we solicit the goodwill, sympathy and understanding of the staff and the public which are necessary for the achievement of our gigantic Second Five-Year Plan. On the threshold of the fourth year of the Southrailnews, I congratulate all those who have been associated with the running of the magazine successfully.

This issue is being published during the Railway Week, from 10th to 16th April 1957, to mark the 104th Anniversary of the inauguration of the first Railway line in India and to organise a kind of get-together among the Railway staff and also to focus the attention of the public on the various activities and achievements of the Railways.

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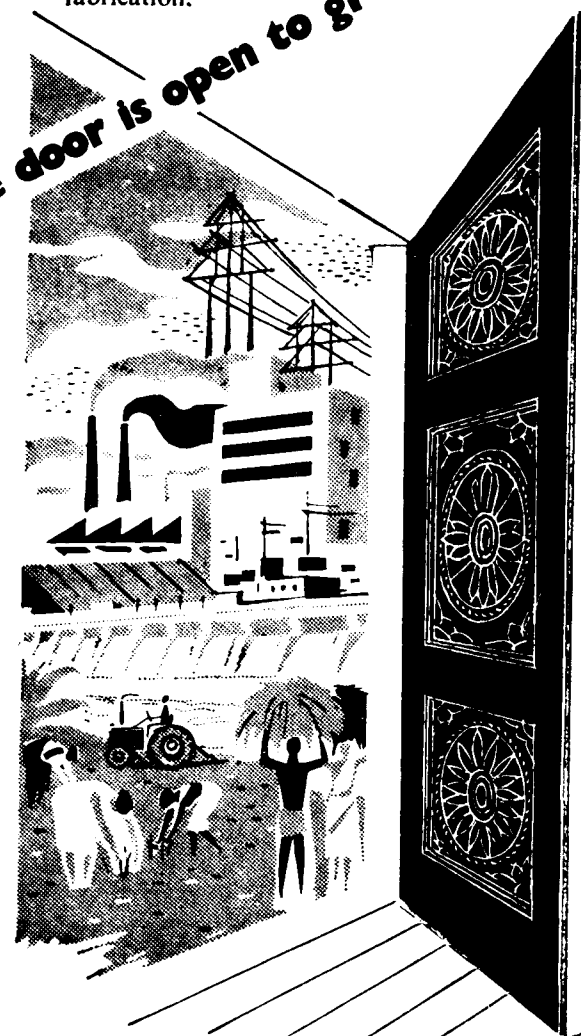
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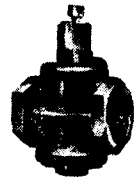
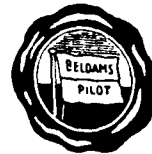
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The Divisional Superintendent, Southern Railway, Trichinopoly, invites Sealed Percentage Tenders for Piece Work Contracts for Execution of Works and Supply of Materials for P.E. 30-4-1958, for Villupuram and Cuddalore Sections to reach him not later than 12 noon on Wednesday the 24th April, 1957.

2. Tenders should be submitted in the prescribed form obtainable from the office of Divisional Superintendent/Works Branch, Trichinopoly on production of the receipt for the amount of Rs. 5 (Rupees Five only) paid to the Divisional Accounts Officer, Trichinopoly or to any Station Master on the Southern Railway towards the cost of the tender form. In no circumstances will the amount paid for the tender form be refunded.

3. The tender form is not transferable.

4. The tenderer should submit along with the tender the Income-tax Clearance Certificate in original or an authorised copy thereof or if he has no taxable income, a sworn affidavit duly countersigned by the Income-tax Officer to that effect.

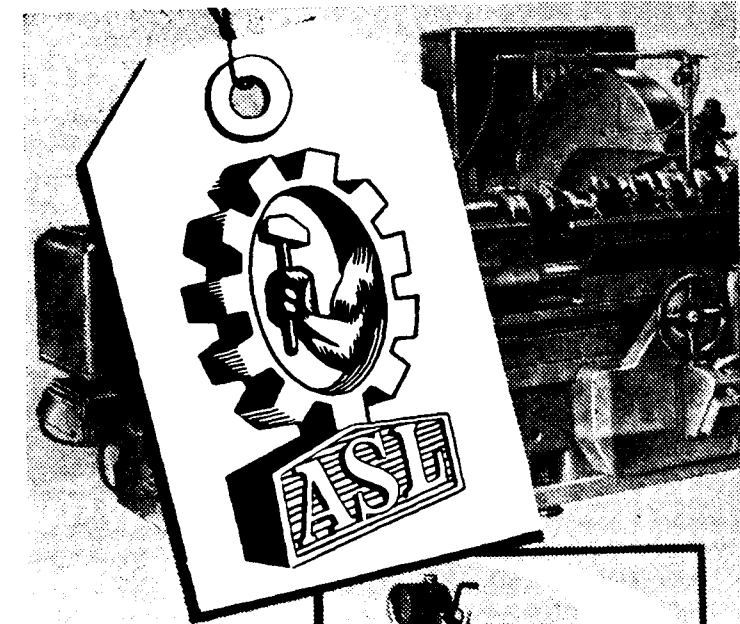
5. The tender forms will not be issued after 15 hours on Tuesday the 23rd April, 1957.

6. Earnest money of Rs. 1,000 (Rupees One thousand only) should be paid in advance to the Divisional Accounts Officer, Trichinopoly and the receipt submitted along with the tender. No demand draft or cheque should be attached to the tender.

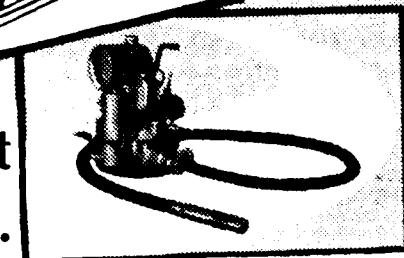
7. The earnest money will not be accepted after 12 hours on Monday 22nd April, 1957.

8. Tenders received will be opened at 14-00 hours on Wednesday the 24th April, 1957 at the office of the Divisional Superintendent/Works Branch, Trichinopoly.

9. The Divisional Superintendent reserves to himself the right to reject without assigning reasons any or every tender or part thereof and does not bind himself to accept the lowest or any tender or part thereof.



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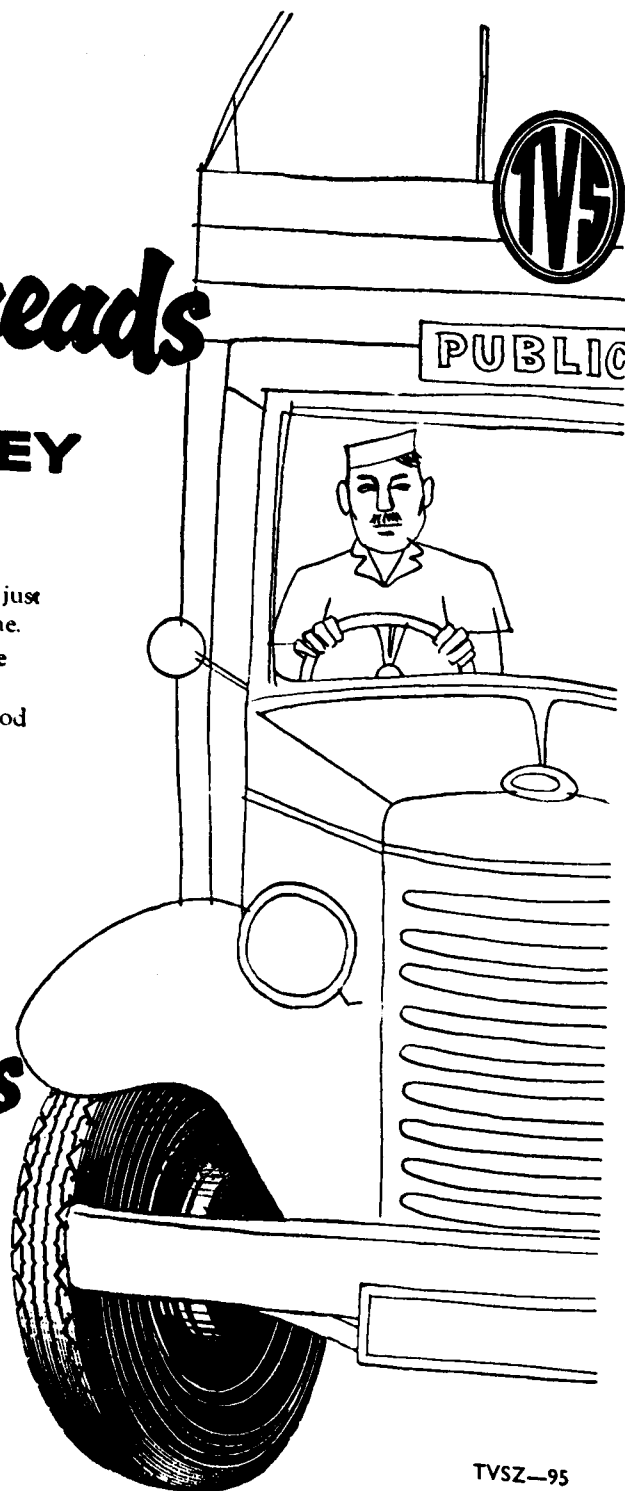
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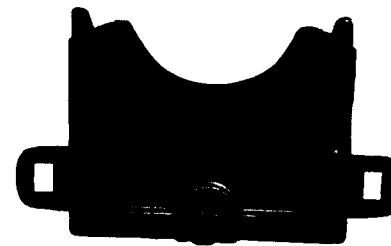
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SOUTHERN RAIL NEWS

(Official Organ of the Southern Railway)

VOL. IV

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No. 1

K. SRINIVASAN, Editor

All contributions must be clearly typed and double-spaced on one side of the paper only, and signed, not necessarily for publication but as a guarantee of good faith.

Manuscripts and photographs, not accepted for publication, will be returned only if the sender so requires and encloses the usual stamped, addressed envelope.

Contributions should be addressed to the Editor, not by name, and reach him not later than the 10th of the previous month.

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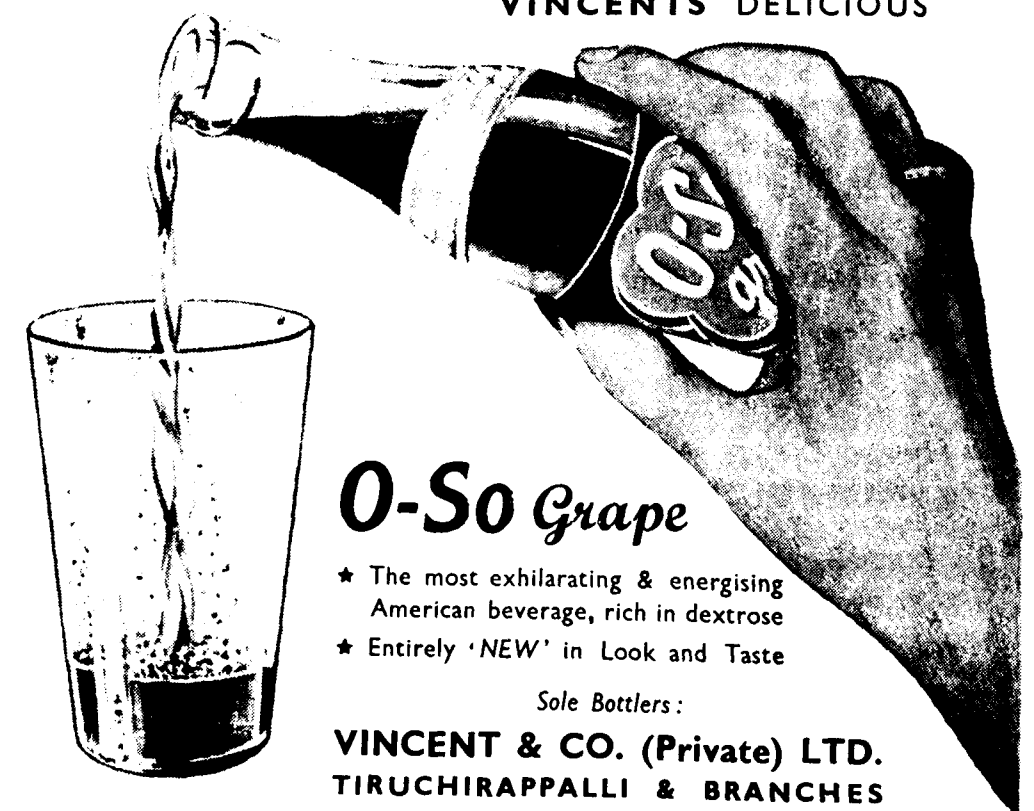
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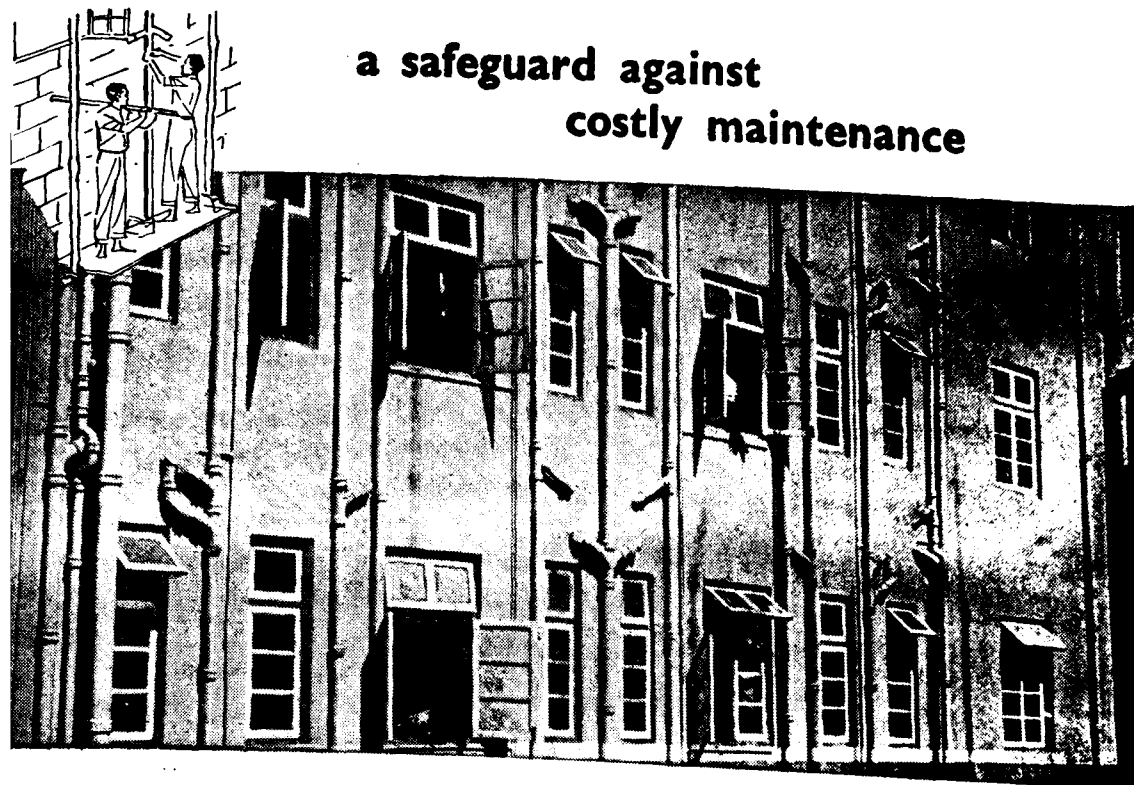
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SOUTHERN RAIL NEWS

VOL. IV

APRIL 1957

No. 1

ABOUT OURSELVES

WITH the March 1957 issue, Southrailnews completes the third year of its publication and with the April 1957 issue, it enters the fourth year of its publication. It is needless to say that all important events on the Railway and instances of good work are being published in the magazine. It is gratifying to note that staff are taking more interest in reading the magazine and sending contributions. We will be failing in our duty if we do not thank our advertisers, subscribers and contributors for the interest they have taken contributing to the success of the magazine.

During the year 1956-57, besides the Second Annual Number, another special number was published on Mahatma Gandhi's birthday. Both these special numbers were well received by the public, the staff and the Press. In several issues, propaganda has been done impressing on the staff the importance of placing integrity on a high pedestal. Several articles were written on the problems facing the railways and the way in which they are tackled.

During the fourth year of its publication, a new feature being introduced will be on how the railways are not only grubbing for facts but also are striving for enlightenment. The first type of researchers are merely churning over old ground. The second type are those who strive for enlightenment and are searchers who make the basic discoveries, new methods, alternative interpretations, etc. It is also proposed to devote some space to the problem of road-rail controversy and transport co-ordination.



WORLD BANK'S AIM TO ASSIST RAILWAYS' SECOND PLAN

THE Mission has expressed their opinion that every effort should be made for improving the operating efficiency of the Railways for which there is apparently still considerable scope. This need not stand in the way of acceptances by the experts of either the proposed scale of new investment or the percentage of its foreign exchange component, which is irreducible. These two aspects are quite different. Even when efficiency is stretched to its utmost practical limits, the investment in rolling-stock and track would still remain inadequate to meet all the demands that will be made on the Railways during the Plan period. The experts now in this country are studying the Indian Railway development plan on behalf of the World Bank for a practical and well-defined problem. Last year the World Bank surveyed all its general aspects and felt convinced about the vital role that transport has to play in making the Second Plan a success.

The Railway Ministry have shown that the operating statistics of the Indian Railways have been heartening and also indicated clearly that they have taken measures for further improvement of operating efficiency. The Railway Board have already had the benefit of the advice from another American Technical Team during 1956. The main task now is of assessing the extent to which India should now receive a general assurance

of Bank's aid to cover foreign exchange, of which the Railway requires 425 crores and the actual manner in which that assistance should be phased. In this connection, it has to be specially borne in mind that the outlay on Railways is not for general development which may be adjustable according to circumstances but is an integral part of vital industrial projects for coal, steel and cement. No further abridgement of the Plan without affecting the schedule of these key projects, will be possible.

Capital saving methods have been applied as far as possible by the Ministry of Railways. Many new lines which are essential for opening up undeveloped regions have been cut down and the increase of capacity for passenger and general goods traffic kept to the minimum. The schemes for electrification and interim Diesellisation in this area, besides those of new lines and doubling of track and open line works have to move sufficiently faster to be ready in time to serve the new steel and cement plants and help them to go quickly into production. The figure of Rs. 425 crores required in the form of foreign exchange is rather a large sum and would have to receive the closest scrutiny. In meeting the whole or the bulk of this amount of foreign exchange, the Bank would be providing a major part of the aid expected from it in connection with the Plan.

NOTES ON CURRENT RY. TOPICS

WORLD BANK TEAM'S IMPRESSIONS OF TOUR

Mr. J. E. Slater, leader of the team of railway consulting engineers sent by the World Bank, has expressed the opinion that the Indian railways were "headed in the right direction".

In a radio interview Mr. Slater pointed out that the quantum of goods lifted by the Indian railways would increase by about 50 per cent during the Second Plan period.

He remarked: "That is a task which is formidable for any organisation and I really very much admire the courage with which the problem has been faced. Beyond that, I admire the ingenuity and the care and the planning which have been directed towards meeting it. I think it is quite clear that the basic problems are recognised."

Mr. Slater was asked whether he would like to offer his comments on the way those who had framed the Railway Plan had approached their problems. He said: "Quite frankly I have been very much impressed with the great effort and care which has been taken by the Railway Board, the General Managers and their staffs towards these problems."

PURPOSE OF TEAM'S VISIT:

Questioned on the purpose of the team's visit to India, Mr. Slater said that two of the important objects were, firstly, to consider the soundness of the Second Five-Year Plan in so far as it applied to the railways and, secondly, to go into the financial ability of the railways to provide

that portion of the funds which would be called for under the Plan itself.

"In this connection", he said, "it was important first to have a look at least a fair sample of the lines and the yards which are important in the handling of the trade from the point of origin to the point of destination, to have a look at the workshops, to have a look at the railway line itself and, in addition and perhaps most important of all, to discuss these problems with the General Managers of the various Railways and their important officers."

"This we have already done with respect to the lines of the Northern, Eastern, South-Eastern, Central, Southern and Western Railways and we have had discussions with the General Managers and staffs of all of them up to this moment excepting the North-Eastern Railway."

Mr. Slater explained that the team was not able to go up to the North-Eastern Railway as the demands on their time made this very difficult.

FOREIGN EXCHANGE INVOLVED:

Replying to a question whether the team's findings would have a bearing on the capacity of the Indian railways to cover that part of their Plan which was going to be dependent upon the availability of foreign resources, Mr. Slater said: "The World Bank has asked us to give our independent opinion as to the ability of the Indian railways to provide their portion of the funds which, under the Plan, they would have to provide—in other words, the total amount needed by way of new capital improvements. It was



anticipated that with their reserve funds, and other funds of the railways, they would carry on certain works themselves, largely of course those which could be done in India, such as doubling of the track and the construction of coaches, wagons and locomotives.

"In addition to that, there is the question of import of equipment. This is where the Indian Government apparently has approached, amongst others, the World Bank. It is a question of foreign exchange when you come to additional locomotives in order to build up the supply more rapidly, in connection with the demands of certain types of steel or rail for which the capacity in India is not quite upto the needs of a very rapidly expanding programme. It is here that foreign exchange would be needed. The Bank itself would make its own decisions in due time for its discussions with the Indian Government."

OPERATIONAL EFFICIENCY:

Mr. Slater was asked whether he could make a comparison between the operational efficiency of the Indian railways as he found them today and what he knew of similar efficiency in other countries which were relatively more advanced than India.

Mr. Slater said he thought it would be entirely improper for one who had only spent a few weeks in a country, and who was only becoming familiar with its railways, to attempt to make any comparison, favourable or unfavourable, with the railways in other countries. The fact of the matter was that the problems were completely different.

He said one should consider the problems of the Indian railways, as

to what they were doing for themselves and what they were able to do for themselves and whether they were headed in the right direction or not. "In that respect I would say I feel they are in the right direction," he remarked.

CONDITIONS SIMILAR TO AMERICA:

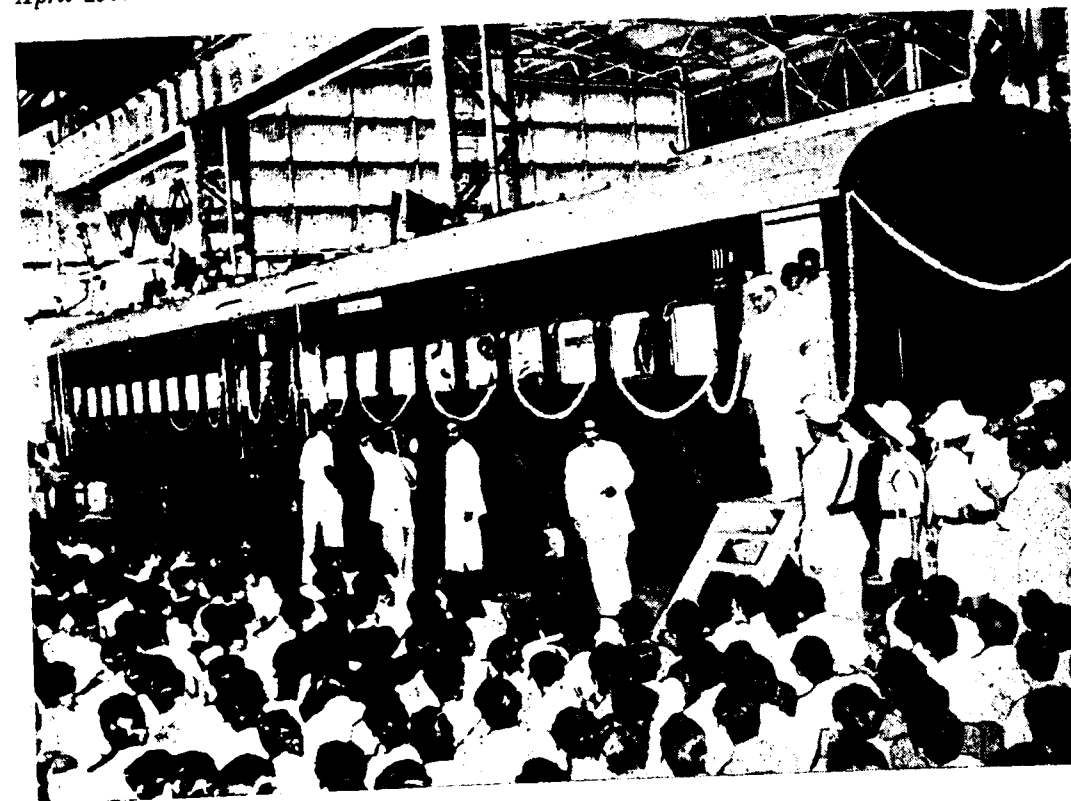
India, Mr. Slater said, was a country which was very rapidly growing. It was in the process of becoming industrialised. From a country where the type of operation was now more like that of Europe, calling for the type of equipment which was used in Europe, it was rapidly approaching the type of equipment which was much found in the United States and in other countries of larger boundaries. After all, India was a very large country and it was capable now of approaching the type of operation which had been very successful on the American railways.

India, Mr. Slater added, was almost fundamentally an agricultural country. The Five-Year Plan now contemplated a very large increase in the capacity of the country for producing steel; it contemplated a very rapid increase in the amount of coal which was being mined and of ore which was being used for steel and for export.

Mr. Slater went on: "That type of operation is quite different from the type of operation which is involved in a country which is dominated completely by an agricultural economy".

LINE CAPACITY:

Mr. Slater said that it was quite clear to him that the basic problems were being recognised by the Indian



His Excellency Sri A. J. John, Governor of Madras, getting down from the first furnished coach, in the Assembly Shop of the Integral Coach Factory, after inspecting it, when he visited the Factory on 21-2-57

Railways. Among these was the question of line capacity. Line capacity was dependent upon three basic factors—adequate locomotive power and wagons, capacity of the crossing loops, and yard capacity. In a country where the line was complex and where the operation was complex, as it was in India—the complexity being greater with the movement of coal, steel, iron, cement and so on—the yards were of absolute, vital importance.

"We looked at many of the yards all over the country in order to get some measure of what is being done," said Mr. Slater. "In all these measures there was a great deal of care

and thought given, and I can quite frankly pay tribute to the planners in this respect."

EXTENSION OF ELECTRIFICATION:

Mr. Slater was asked whether the Indian Railways' attitude towards the problem of changing over from coal to electric traction, wherever possible, was indicative of the correct approach. He replied: "Yes, I think so".

Referring to the railway electrification programme during the Second Plan period, Mr. Slater had the following remarks to offer: "Here some interesting studies have been made which indicate that in India the

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electrification problem is different from that in the United States, or even elsewhere, because you are rapidly getting into availability—a large amount of cheap hydro-electric power. And that is going to make things easy, especially with the elimination of the handling of coal which would give added capacity for other things to be handled; and hydro-electric power costs less than coal itself.

“So it would appear—and it has appeared to the planners—that certain lines beyond those electrified could be electrified with advantage. That generally has the advantage of reducing expenses and also has the advantage of utilising this power and of adding to the capacity of a line.

“In the various countries of the world—these include the United States—the use of diesel electric power has become of tremendous importance. In the United States, at the present time, I do not think steam locomotives are even manufactured.

“The problem in India is quite different, because until India finds her own resources of petroleum, it will have to import diesel fuel. That creates the problem of foreign exchange and costs and that sort of thing. That

is why she may be more justified in using electric traction to a greater extent than she would be if there were ample resources of fuel in the country.

“On the other hand, I do feel that because of the greater efficiency of either the electric or the diesel electric locomotives, she must look forward to a long period for the gradual change-over, if not entirely, to a major use of electric and diesel electric traction.”

RAILWAY MINISTRY'S ANNUAL REPORT

The Railway Ministry's Annual Report for 1955-56 discloses that the volume of both goods and passenger traffic handled during the year constituted a record in Indian Railway history.

The report, which deals with the last year of the First Five-Year Plan, brings out the effect which increased economic activity in the country has had on the railways. The volume of goods traffic handled during the year showed an increase of 17.79 per cent over the first year of the Plan, while the number of originating passengers during this period increased by 5.30 per cent.

April 1957

NOTES ON CURRENT RAILWAY TOPICS

7

The report also brings out the fact that, as a result of special steps taken, the intensity of wagon usage touched towards the end of the year a new peak breaking all previous records.

RECEIPTS AND EXPENSES:

The gross traffic receipts of the Government railways during the year amounted to Rs. 316.29 crores made up of Rs. 107.71 crores under passenger and Rs. 180.28 under goods, the balance of Rs. 28.30 crores being contributed by parcels, luggage and other miscellaneous sources of revenue.

The ordinary working expenses during 1955-56 amounted to Rs. 212.95 crores, or Rs. 7.08 crores more than during the previous year. The appropriation to the Depreciation Fund was Rs. 45.41 crores, including Rs. 41 lakhs chargeable to the capital suspense of the Chittaranjan Locomotive Works as depreciation charges accruing on its plant and machinery, etc. Payments to worked lines as their share of net earnings amounted to Rs. 27 lakhs.

The operating ratio during the year was 81.95 per cent, as against 81.77 per cent in the previous year.

After meeting all the charges, including the appropriation to the Depreciation Fund, which has been raised during the year from Rs. 30 crores to Rs. 45 crores, the net revenue on the results of working for the year was Rs. 50.34 crores, out of which Rs. 36.12 crores were paid to the general revenues as dividend under the Revised Convention of 1954. The net surplus for the year amounted to Rs. 14.22 crores of which Rs. 7.08 crores were allocated to the Development Fund and Rs. 7.14 crores to

the Revenue Reserve Fund, as against a surplus of Rs. 9.10 crores in the previous year, which was wholly credited to the Development Fund.

Earnings from the carriage of goods (excluding miscellaneous receipts from wharfage, demurrage, etc.) rose from Rs. 156.45 crores in 1954-55 to Rs. 177.92 crores in 1955-56. The factors responsible for this increase were the increased volume of traffic handled and the longer leads of traffic.

The average receipts per freight ton-mile amounted to 10.8 pies as against 11.1 during 1954-55. The corresponding earnings per passenger per mile increased from 5.15 to 5.34 pies.

LARGER TONNAGE, MORE PASSENGERS:

The year 1955-56 recorded an over-all improvement as compared with the previous year, despite heavy rains and dislocation to train services caused by certain abnormal factors.

Goods traffic lifted by the Indian Railways during the year touched 115 million tons and 36,458 million ton-miles, breaking the previous year's record of 107 million tons and 32,126 million ton-miles.

Passenger traffic, too, showed an upward trend. The number of originating passengers rose from 1,261 million in 1954-55 to 1,297 million in 1955-56. Passenger-miles increased from 38,649 million to 39,084 million.

During the year under review, revenue loadings (wagons loaded for the public, etc., excluding those on account of railways' own service needs) averaged 11,377 per day on broad gauge and 7,264 on metre gauge, as against 10,672 and 6,489 on the broad and metre gauges respectively during the previous year. This marked an

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increase of 7 per cent on broad gauge and 12 per cent on metre gauge.

Taking into account non-revenue loadings also, an average of 13,420 broad gauge and 8,028 metre gauge wagons were loaded every day, as against the corresponding figures of 12,532 and 7,215 during the previous year registering increases of 7 and 11 per cent respectively.

GREATER ECONOMIC ACTIVITY :

Another indication of the improvement made during 1955-56 is afforded by net ton-miles per wagon-day, which rose from the previous year's figure of 483 to 541 on broad gauge and from 194 to 203 on metre gauge. This is an increase of 12.08 per cent on broad gauge and 4.64 per cent on metre gauge. These results have been achieved as a result of steady effort to secure better wagon-loading and better wagon-usage.

Passenger train-miles increased during the year by 1.74 per cent to 115.63 million, compared with an increase of 1.20 per cent in passenger-miles. Goods train-miles totalled 82.57 million, representing an increase of 7.08 per cent over previous year's figure, the comparable increase in ton-miles being 13.6 per cent.

The higher level of earnings and performance of the railways have to be viewed against the background of the general economic situation in the country. The agricultural production during the year has been generally satisfactory despite setbacks caused by floods, cyclones, etc., in some parts of the country. Industrial production gathered further momentum and registered an increase of eight per cent over the previous year. There was a substantial rise in the output of coal from 36.9 million tons to 38.5 million tons.

PASSENGER AMENITIES :

Special attention continued to be paid to the provision of amenities for passengers and other railway users at stations and in trains. Electric water cooling plants were in service at 260 important stations at the end of the year as against 158 at the end of the previous year.

During the year 1,241 new coaching vehicles were placed on line—449 broad gauge, 744 metre gauge and 48 narrow gauge. Of these 852 were lower class coaches built to improved specifications, 305 being broad gauge, 499 metre gauge and 48 narrow gauge. Also, 437 broad gauge, 221 metre

gauge and 16 narrow gauge new locomotives were placed on the line.

A total of 4,892 fans were fitted in second (former inter) and third class coaches, and of these 4,451 were in the third class.

During the year under report the provision of sleeping accommodation for third class passengers was extended on four pairs of broad gauge and two pairs of metre gauge trains.

CAPITAL OUTLAY :

The total capital outlay on all railways on March 31, 1956, amounted to Rs. 975.50 crores (including lines under construction), as against Rs. 910.91 crores on the same date in the previous year. Of this, Rs. 968.98 crores represented the capital-at-charge of the Indian Government Railways. The balance of Rs. 6.52 crores was the capital raised by companies and district boards.

The total route mileage of all railways in India at the end of the year was 34,736 of which 34,182 miles were under Government management. The balance of 554 miles represented the mileage of minor railways under the management of Non-Government agencies.

A length of 132.18 miles of lines was opened, of which 52.96 represented new lines (including 25.12 miles of conversion from narrow to metre gauge) and 79.22 miles represented restoration of lines dismantled during the last war. At the end of the year, 581.73 miles of lines were still under construction, including the Khandwa-Hingoli link (187.23 miles), Quilon-Ernakulam (96.55 miles), Indore-Dewas-Ujjain (50.08 miles) and certain lines in the steel plant areas.

STORES PURCHASES :

Indian Government Railways paid for stores valued at Rs. 126.28 crores during the year, of which the value of indigenous materials amounted to Rs. 93.65 crores. Stores worth Rs. 15.18 crores were imported direct, while Rs. 17.45 crores worth of foreign stores were purchased through agents in India.

The value of railway equipment and stores ordered by the Railways during the year amounted to Rs. 219.29 crores, of which Rs. 47.56 crores worth of stores were ordered directly by the Railways. Railway equipment and stores valued at Rs. 99.77 crores were ordered by the Railway Board, while orders for stores valued at Rs. 50.30 crores were placed through the Ministry of Works, Housing and Supply. The balance of the orders were placed through other Ministries.

SETTLEMENT OF CLAIMS :

The Railways settled 435,694 claims during the year, compared to 387,761 in 1954-55. The number of unsettled claims at the end of the year stood at 73,162 as against 56,045 at the end of the previous year. The average time taken in the settlement of claims was 51 days as against 61 days during 1954-55.

In addition to general measures like the P.L.M. campaign undertaken by the Railways for the prevention of claims, other steps taken included Ellis Patent locks for wagons, escorting of trains by the Railway Protection Force, special watch at transshipment points, and patrolling of affected areas notorious for running train thefts and yard thefts.

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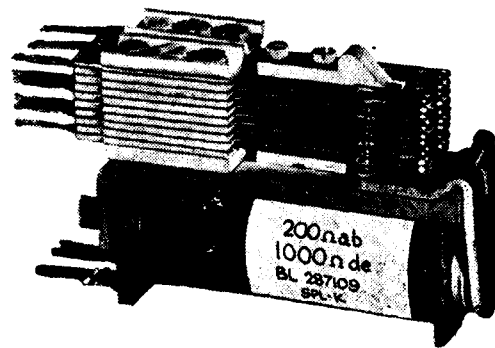
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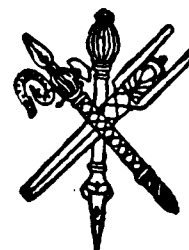


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STAFF MATTERS :

The Indian Railways are the largest single employers in the country. The total staff on Government Railways—permanent, temporary, open line and construction—was 1,027,162 on March 31, 1956, as against 983,215 (revised figure) on March 31, 1955. The increase is principally due to the setting up of the organisation to cope with various developmental works and projects in connection with the Railways' Second Five-Year Plan.

Salaries, including allowances, provident fund and gratuity paid to the staff of the Government Railways during 1955-56 totalled Rs. 148.56 crores, as against Rs. 140.63 (revised figure) during the previous year. The increase was due to the increase in the number of staff, annual increments, contributions to provident fund, special contribution to provident fund, gratuities, etc.

During the year, 8,645 quarters of different types for various categories of staff were constructed.

Railway administrations continued to take active steps to develop staff canteens, and to establish and enlarge the activities of co-operative societies for distribution of consumer articles.

The medical organisation on the railways continued to look after the health of the staff and provide medical aid to them and their families.

A new welfare measure introduced during the year was the provision of rest houses for Class III and Class IV employees at selected hill stations or seaside resorts or in pleasant surroundings where they can spend their holidays inexpensively and in reasonable comfort.

Another new welfare activity was the organisation of railwaymen's children's camps.

A drive was launched to ensure that cases of settlement dues of railway staff who had retired or had died were paid expeditiously.

In accordance with a recommendation of the Estimates Committee of Parliament, an increase of 20 per cent in the number of railway institutes for recreational purposes has been planned during the Second Five-Year Plan period.

CORDIAL LABOUR RELATIONS :

Relations between railway administrations and labour were generally satisfactory. There were no major strikes during the year, although a number of occasional stoppages of work occurred.

The permanent negotiating machinery, set up in 1952 with a view to maintaining contact with labour and resolving disputes and differences which may arise between staff and the administrations proved useful to the staff as well as to the administration.

CONSULTATIVE BODY MEETINGS :

The National Railway Users' Consultative Council held only one meeting in September 1955 and made recommendations on a variety of subjects. At the Railway level, the Railway Users' Consultative Committees representing local interests held in all 83 meetings.

At the invitation of the Government of India, the Fourth Session of the Railway Sub-Committee of the Inland Transport Committee of the Economic Commission for Asia and the Far East was held in New Delhi towards the end of March 1956. Among the

The lengths of all the 12 months have been fixed and the new year will always commence from the day following the vernal equinox. Thus, the days of the new calendar would have a permanent correspondence with the days of the present Gregorian calendar.

COMMITTEE'S RECOMMENDATIONS:

A Committee was appointed in November 1952 to examine the existing calendars which have been followed in the country and submit proposals for an accurate and uniform calendar for the whole of India. The Committee submitted its report in 1955 and the Union Government decided to adopt a unified National Calendar based on its recommendations.

The Committee found that no less than 30 different calendars, differing in the era-beginning, the initial date of the year and, to some extent, in the methods of calculations were prevalent in different States of the country.

The Indian calendar-makers had taken the length of the year to be 365·25876 days while the correct length of the tropical year is 365·2422 days. This difference is partly due to errors of observations and partly to the failure to recognise the precession of equinoxes.

In addition to revolution round the sun and rotation round its own axis, the earth has another motion, viz., a slow conical motion of its axis round the pole of the ecliptic which causes the equinoxes to move backward. This phenomenon has been termed as precession of equinoxes.

DIFFERENCE OF 23 DAYS:

This error has been accumulating for nearly 1400 years with the result

that the solar year, instead of starting on the day following vernal equinox, i.e., March 21, starts nearly 23 to 24 days later. There is thus a clear difference of 23 days in the reckoning of seasons. The dates of festivals have consequently shifted by 23 days from the season in which they were observed about 1400 years ago. The Calendar Reform Committee considered it expedient to maintain this as a constant difference and stop its further increase.

There will be no deviation from the prevailing custom in the observance of various religious festivals. For religious purposes the new calendar will begin its lunar months from the day of the new moon and the month will be named after the Saur-masa in which the new moon falls.



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DUTY, DECORUM AND DISCIPLINE

OLDTIMER

WITH the dawn of Independence in India, the minds of most of its inhabitants, especially the educated class, underwent a revolutionary change. The Younger Generation, and more particularly the Government Servants, felt that they no longer were a subjugated nation, and they laboured hard to get rid of the slavish mentality and the subservient attitude that they had acquired under a Foreign Domination.

It was certainly the right attitude and our cheeks glowed with the exhilarating feeling that we were no longer working as slaves for a Foreigner, but were active participants and 'Shareholders' in the exciting adventure of building up the newly floated Joint Stock Company—Bharat Mata.

Let us take stock now of what we have achieved in the last decade as a result of these revolutionary changes in our mind. There is no gainsaying the fact that India has certainly increased its stature in the eyes of the World, thanks to that wonderful personality of our Prime Minister Jawaharlal Nehru. But what about us individually? Can we as Government servants conscientiously say that we are better now than what we were in 1947. By and large, the answer may be 'Yes', but let us not ignore the deterioration that has perhaps imperceptibly crept in certain facets of life, which are very noticeable, specially to those of the older generation who have had the advantage of serving for 2 decades before Independence under strict regimentation and discipline.

The one guiding motto of this older generation was 'Service before Self'. By and large, this applied to the Rank and File and there is not the slightest doubt that the work turned out by an individual then was quantitatively more than what his counterpart today is able to produce, although working in a more congenial atmosphere and drawing a higher salary. The reason for this is not easy to seek, but can it be due to the fact that we are too engrossed in fighting for our so called Rights and Privileges without caring to fulfil our Duties and Obligations as we should. Is it not high time therefore for us to ponder over this aspect, and develop a higher sense of Devotion to Duty.

Secondly, in an effort to disentangle ourselves from the cloak of subserviency which had enveloped us during the past regime, we are likely to forget common courtesies and may even run the risk of getting into the habit of impertinence and insubordination. Take a simple example. How many of us hesitate to address our Seniors as 'Sir', thinking that it is derogatory to do so. In actual fact, such thinking is born of some Inferiority Complex in the person himself. There is no better proof of good breeding than showing due respect to your elders and seniors. It ennobles your own mind and soul.

Lastly our sense of discipline has also suffered a set-back. This may also be due to some false and erroneous notions of one's own dignity and prestige. Simple courtesies like getting up from your seat when approached

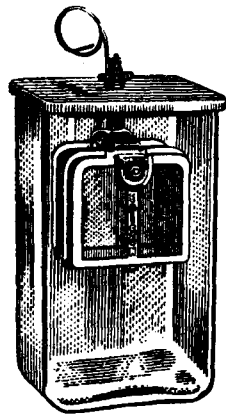
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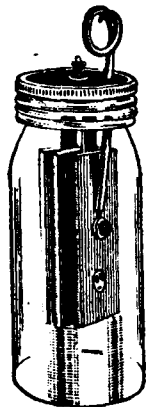
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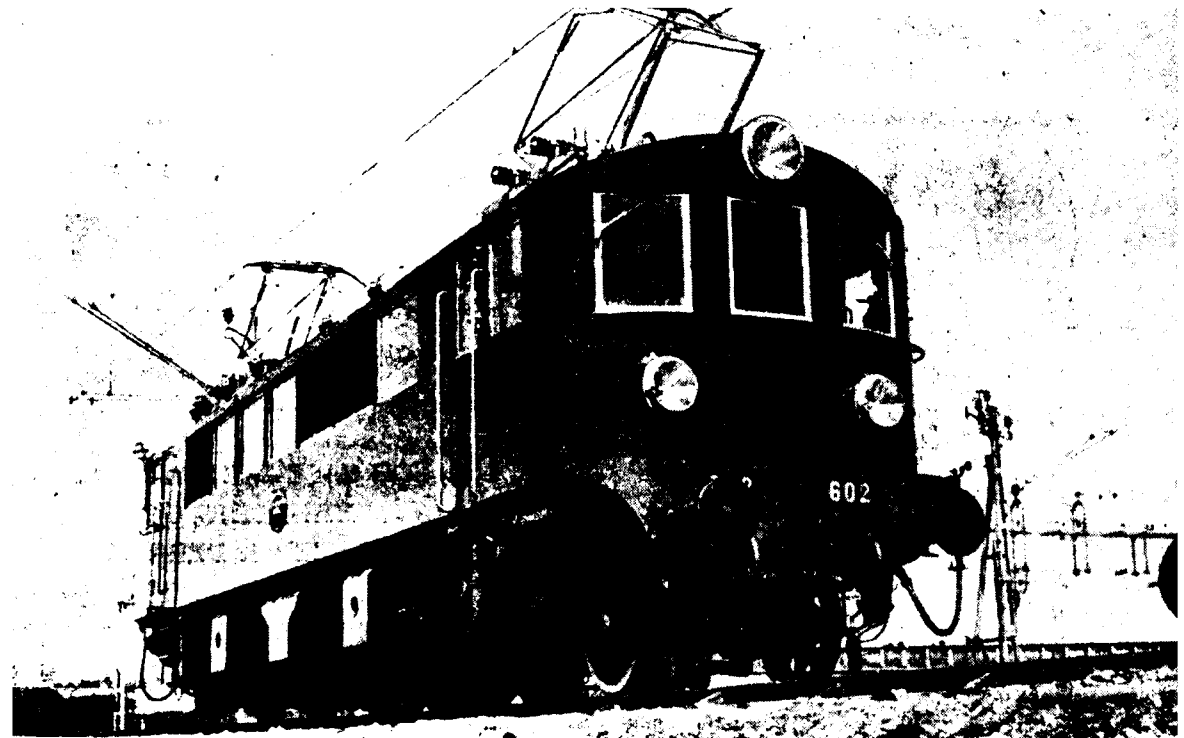
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WORLD OF RAILWAYS

ARTHUR L. STEAD

Our London Correspondent

ALL over the world, attractive railway carriages are being produced to cater for adult travellers. Now, from Sweden—where the State Railways have recently celebrated their centenary—comes news of special attention being paid to the needs of young patrons and their nursing mothers. In this snow-carpeted European land there have been introduced passenger vehicles operating in the long-distance services featuring special compartments for babies and their mothers or nurses.

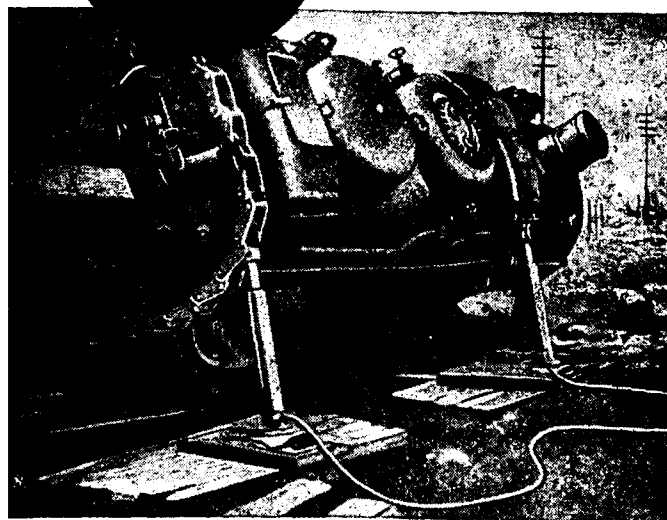
In general design, the new Swedish "baby carriages" take the form of double compartments, fitted with special nursing seats for mothers or

nurses, a miniature toilet, bath and drying-seat, hot-water geyser, food warmer, and other appropriate equipment. A cleverly sprung cot assures perfect sleep, and the white enamelled walls of simple-to-clean material meet all hygienic needs. Instead of mother and child being uncomfortable among a number of adult travellers—some sympathetic, some quite the reverse—they journey across Sweden either in the quiet comfort of their own private section, or along with another mother and child sharing the accommodation by mutual arrangement.

Actually, the Swedish Railways have always been thoughtful for the



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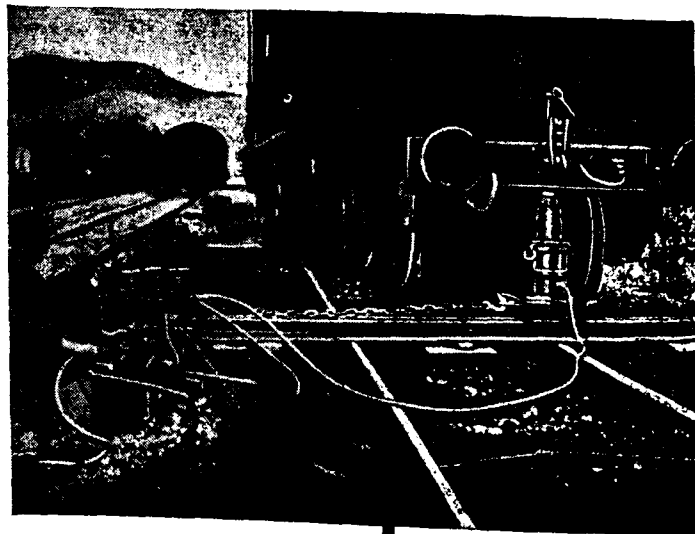
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youthful traveller. Until the special "baby carriages" were brought into use, the Swedish State Railways regularly used to reserve one or two ordinary passenger compartments in most principal trains for mothers with babies, while dining car staffs were always ready to go out of their way to furnish suitable food for young patrons.

Passenger fares in Sweden are specially arranged to attract family travel. For families with children under twenty years of age, a special type of railway ticket is issued. The conditions are that the children live at home; that not less than three members of the family travel at the same time; and that the journey is over 100 kilometres (62 miles). For the two oldest of the group, full ordinary fare is charged, but for the rest of the family party only one-fourth of the full fare is levied.

With a total length of 9,430 miles, the Swedish Railways have always been instigators of new travel ideas. They led the world in railway electrification and in the introduction of sleeping cars for the multitude. They also pioneered the train hostess plan, and were among the very first to utilise train-ferries.

The centenary of the Swedish State Railways actually was celebrated on December 1, 1956, the occasion being marked by a reception in the royal waiting room of Stockholm Central Station, a concert in the Stockholm City Hall attended by the Swedish King and Queen, and an issue of commemorative postage stamps.

Sweden's first railways consisted of two short sections, totalling 11 miles in length, between Gothenburg—Jonsered, and Malmo—Lund respectively. With a payroll of about 70,000 the railway is now Sweden's largest



Interior of one of the special "Baby Carriages"

employer of labour. Headquarters are at Stockholm, and from this point main-lines radiate South to Malmo (with train-ferry connection at that point for Copenhagen in Denmark); west to Gothenburg and the Norwegian capital city of Oslo; and north

A typical second-class coach on the Swedish Rly.



to the Arctic. From Trelleborg, in the south, there runs a main-line 1,370 miles long, linking Southern Sweden with Arctic Lapland.

The electric services from Trelleborg eventually reach Narvik, on the Atlantic Coast of Norway, and the Trelleborg—Narvik route forms one of the longest continuous electrified lines in the world. The 16,000 volt single-phase system is standard on the Swedish Railways, with 16—2/3-cycle current. Altogether, Sweden possesses 4,350 miles of electric railway, the very first Swedish electrifications dating back to 1895.

Something like 87 per cent of all traffic handled by the Swedish Railways is conveyed by electric traction. The remaining business mostly is handled by steam locomotives, *plus* a limited number of diesel locomotives. Ultimately, the complete Swedish rail network will be electrically operated on power secured cheaply from generating stations worked by the fast flowing rivers of Northern Sweden. For branch-line operation, use is made of light "rail buses," while the Swedish Railways are large operators of high-way buses, employing a fleet of more than 2,000 buses covering 22,100 route-miles. The State Railways, also, operate a big fleet of motor-boats and ferries, its sea-going ships connecting Sweden by boat train with the European mainland in Denmark and Germany.

Passenger carriages on the Swedish State Railways total 4,000 and goods wagons 30,000. Recent introductions include light-weight passenger outfits (electric) with a maximum speed of 75 m.p.h. These three-car trains accommodate 188 patrons.

Through passenger service is provided between Stockholm and other Swedish centres and London, one of the most popular trains being the "Nord Express" (London—Ostende—Brussels—Cologne—Padborg—Copenhagen—Malmo—Stockholm). In Sweden itself, an outstanding train is the "Midnight Sun Express", a truly unique service linking Stockholm with the Arctic.

Hauled by powerful electric locomotives, the "Midnight Sun Express" runs regularly during the summer months, the train comprising four sleeping cars, a shower room, two lounge cars, a dining car, a specially-designed photographic dark room where camera fans may develop and print their pictures aboard the train, and baggage space to which passengers have access at all times.

The "Midnight Sun Express" is really a luxury hotel on wheels, operated specially for tourists who wish to view the natural phenomena known as the "Midnight Sun," met with, in the Arctic Circle at the height of summer. To reach Lapland and the region of the "Midnight Sun," the traveller moves almost due north from Stockholm, and the further north one goes the shorter becomes the summer night.

The "Midnight Sun Express" provides a nine-day cruise through some of the most alluring country in the world. Accommodation is strictly limited and must be reserved in advance, the train becoming living quarters for passengers throughout the trip. The Arctic Circle is crossed at Boden station, and "Midnight Sun" patrons are there given special certificates registering their having

penetrated the Polar Region, and given the opportunity of mailing cards to their friends postmarked "Arctic Circle."

In the Far North, the "Midnight Sun Express" proceeds over the world-famous "Iron Ore Railway" across the frontier of Sweden to the Norwegian seaport of Narvik. This is one of the most thrilling railway rides imaginable, with the train moving along tracks passing through massive snow tunnels and skirting breathtaking abysses. Throughout its entire trip in the Arctic, the "Midnight Sun Express" runs day and night in perpetual light, daylight being continuous in this region in the summer throughout each twenty-four hours.

Variety is indeed to the fore in Swedish rail travel. By way of a change from the wonders of travel in the region of the "Midnight Sun," the Swedish Railways offer patrons many cheap bookings including the crossing of the Baltic by massive train-ferries. Between Sweden and Denmark, train-ferry traffic has been maintained from Malmo to Copenhagen since 1895. Another ferry line operates between Elsinore and Helsingborg, to provide an alternative route between Sweden and Denmark. Linking Sweden with Germany is a fine ferry service between Trelleborg and Sassnitz, with through carriages working between Stockholm and Berlin and other Central European points. Steam operated ferries, employed before World War II, have now been replaced by modern diesel vessels.

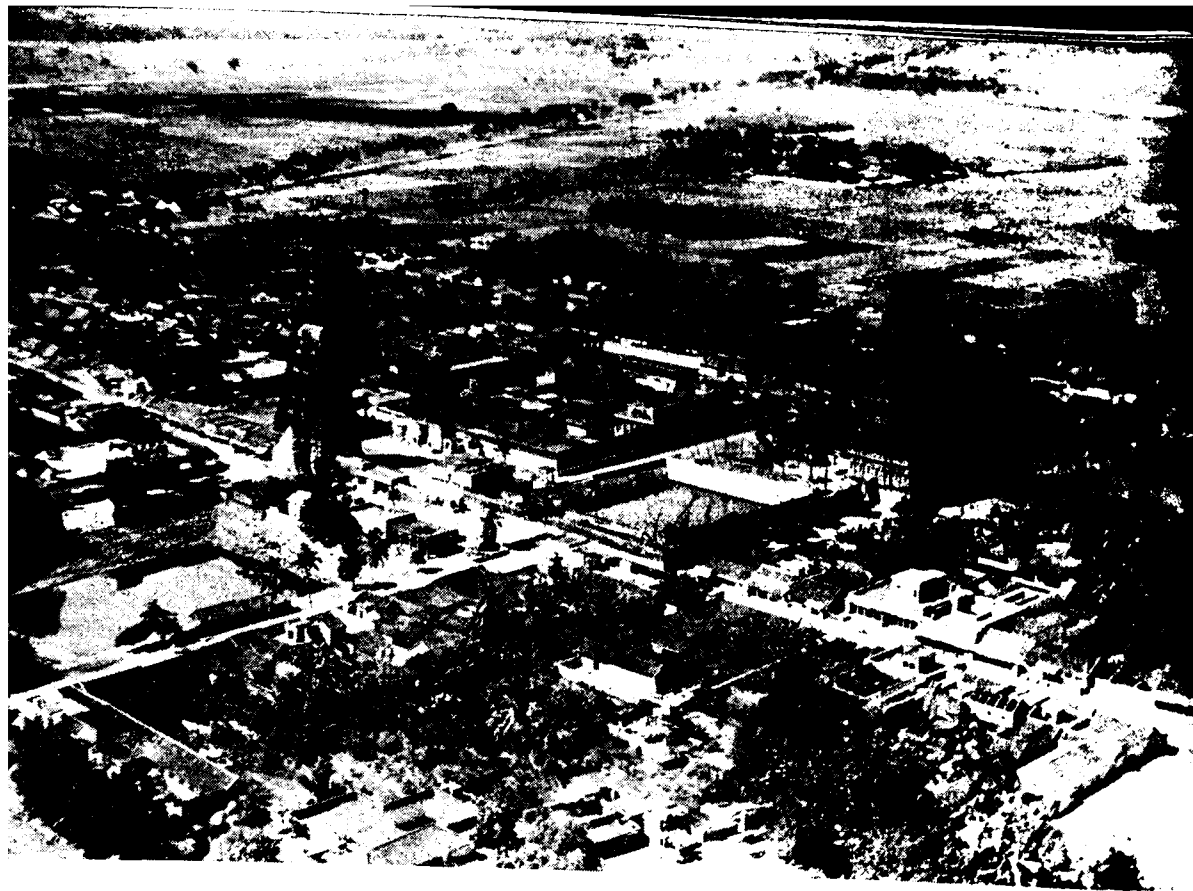
In most of the Scandinavian countries, cleanliness is much to the fore on the railways. Sweden is aided in maintaining travel cleanliness by

the general employment of electric traction, and another feature which appeals greatly to patrons is the enthusiasm for gardening on the part of the Swedish Railway staffs. The Swedish Railways encourage their employees' love of flowers, and themselves are large planters of flowers and trees to beautify their premises.

The Swedish State Railways undertaking is split up into six districts for administrative purposes, each district having its own regional chief and regional officers. In this way, local needs and tastes are studied and met in a manner impossible with one central direction. There are 2,815 stations on the Swedish Railways, and all the more important centres enjoy railway road motor collection and delivery services for luggage and goods traffic.

Naturally, the Swedish Railway family are immensely proud of their achievements during the past hundred years of operation. Most of all, however, they are delighted to give special attention to the young traveller, and in the many travel innovations particularly designed to care for mother and baby we have a fine indication of the enterprise and the thoughtfulness of the go-ahead Swedish Rail undertaking.

The output of locomotives during 1956-57 is expected to be progressively increased to about 200 average Broad Gauge annually by Chittaranjan Locomotive Works and 100 average Metre Gauge by Telco; the production during 1955-56 being 125 and 50 locos respectively.



Panoramic view of the temple of Sri Bhaktavatsaleswarar

TIRUKAZHIKUNDRAM THE SACRED HILL OF THE KITES

T. N. SRINIVASAN

ONE of the most peculiar phenomena connecting the Supernatural and the mundane affairs is the daily feeding of two sacred kites or vultures at the famous hill-temple at Tirukazhikundram, a place of religious importance in the Chingleput District. This *kshetram* is about nine miles to the south-west of the Chingleput Junction railway station, which itself is about 35 miles south of Madras on the main metre gauge line of the Southern Railway. This place is well connected by bus traffic, as it is situated on the road leading from Chingleput to the world-

famous place of archaeological interest — Mamallapuram — now popularly known as Mahabalipuram. The *Skandha puranam* gives the exact position of this sacred site as being situated one *yojana* west of *mahodadhi* (the modern Bay of Bengal) and half-*yojana* north of the *ksheeranadhi* (the present Palar river), possessing as its centre the reputed hill dedicated to the Lord Vedagiresa.

The present-day town of Tirukazhikundram is, though small, a well-laid out place round the main shrine with a fine tank in front of it. Standing on the main road to Mahabalipuram

April 1957

TIRUKAZHIKUNDRAM

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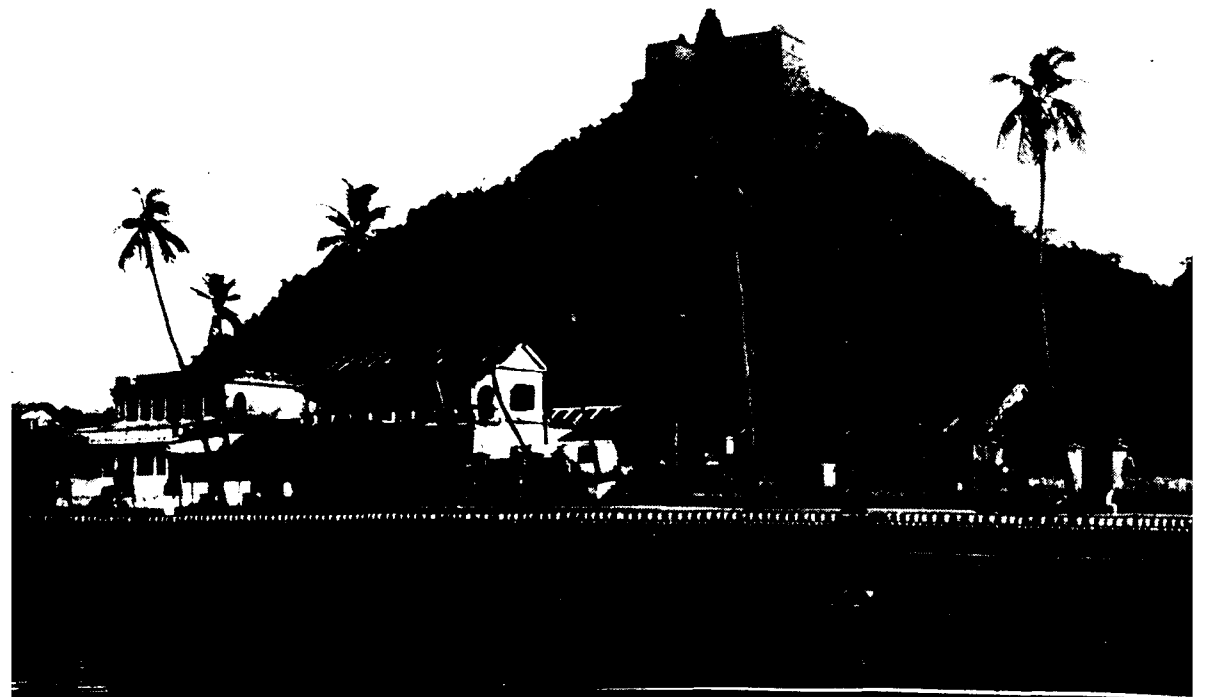
is the famous hillock, known even in puranic times as *Vedagiri*, for the Vedas themselves worshipped the Lord Siva of this place. This hill is also known as "*Dakshina Kailasam*", as it was one of the three hillocks which were sent to the South by Siva, the other two being those at Kalahasthi and Sri Sailam respectively.

Before proceeding to this sacred hill-temple, it is customary to visit the Lord at the lower temple and before doing so, the pilgrim invariably takes his bath in the sacred tank here known as "*Sankha tirtham*". It is fairly a big tank and is said to possess miraculous effects, especially for those who are suffering from dire diseases, when a course of bath in this tank regularly for some specified period had cured very many, which even medicines failed to accomplish. Yet another peculiarity of this tank is

that once in twelve years or so, a very strange phenomenon occurs in this tank. A few days before the occurrence of this rare unusual thing, a sort of strange noise is heard from the waters of this tank. On a certain day a new conch emerges out of the waters of this tank and drifts towards the stone bank. The temple priests who are there receive the conch with religious rites and after due oblations, it is taken to the temple in procession and installed in the main shrine, for being used for the *abhishekam* of the deity. At times the old conches are sold and they fetch good prices, for some of them are of the rare type known as *valamburi chanku*.

The big temple at the foot of the hill is rectangular in shape, having a gopuram on each side, the southern one being the tallest of the four.

Vedagiri hill temple with Sankha Tirtham in the foreground



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April 1957

TIRUKAZHIKUNDRAM

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But the entrance to the temple is through the eastern gopuram, which takes one to a broad courtyard, in which there is a small tank on the southern side and a few mandapams on other sides. At one time this prakaram was said to have been full of plantain trees, as the *sthala-vriksham* of this *kshetram* is this *kadali vriksham*. Passing across this great courtyard and through the second gopuram known as the *rishi gopuram*, the inner enclosure is reached. In the mahamandapam that fringes this gopuram are installed the *balipeetam*, the *dwajasthambam* and other usual appendages like the *dwarapalas*. A very fine sculptural representation of Siva, in his ferocious aspect as *Veera-bhadra*, is installed here and worship is offered to this image.

Circumambulating this prakaram, the pilgrim worships at the shrines of Shanmuga, the goddess of this place (known as Sri Tripurasundari Amman) and other minor deities. Coming round, the central shrine of Siva is reached, whom the local legends call as *Sri Bhaktavatsaleswarar*. One peculiarity to be noted here is the shape of the vimanam of this deity. It is of a rare type and resembles the apsidal towers of the buddhist viharas, since the spherical top portion is cut in front, resembling that of the famous shrine of Chattanathaswamy at Shirkazhi in Tanjore District.

This ancient temple is of hoary antiquity and it was here that Lord Siva appeared to the saint Manikka-vasagar in the form of *Sri Dakshina-murthi* and initiated him into the secrets of the holy *panchaksharam*. Hence the shrine of this aspect of Siva in the southern prakaram of this temple is held in great reverence.

Puranically, this temple is said to have been founded by a Chola prince named *Suraguru*. It appears that this prince was then camping at the famous Mamallapuram for a short while, when the people of this locality sought his help to clear the forests round this place from the devastations caused by the wild animals living there and especially a huge porcupine. So the prince went a-hunting and in his zeal to catch this wild animal he accidentally shot at a cow and killed the animal. To his amazement he saw a divine damsel emerging out of the body of the dead cow and ascending towards the Heavens. It was no other than the divine dancer, *Tillothama* who was cursed to be in that form by Nandideva, the devout servant of Siva, for having disturbed him while he was in deep meditation.

But the sin of killing a cow made the prince get that scourge of diseases—leprosy. While he was much grieved at his plight, he was assured by the Lord that he would get back his original form, if he bathed in the Nandi tirtham of this place. Obeying the divine order, the prince was restored to his former glory and in gratitude to this divine benevolence, he caused this temple to be constructed and installed the deity. The sins out of the body of the prince emerged out in the form of a black crow, which became fossilised in the shape of that barren hill near the tank, which is still known by the name "*Kakkai-kundru*". As distinct from the surrounding hills which abound in green vegetation, this hill is distinctly barren and bleak in appearance. Sculptural representations of this puranic story are carved out in the pillars of the mahamandapam of the lower



Apsidal Vimanam of the lower temple

temple, while stray epigraphical records (giving fragmentary references to this story) can still be seen amidst the many inscriptions that are to be found here.

After worshipping the Lord at the lower temple, it is customary for the devout pilgrim to proceed to the sacred Hill-temple. This hill is situated at a short distance away and is about 500 feet in height. This can be ascended by the finely carved steps that have been provided. At intervals there are small mandapams where the climber can rest for a while and continue the ascent without fatigue. The top is crowned by a lovely little temple dedicated to Lord

Siva, who is known locally as *Sri Vedagiriswarar*, for the Vedas worshipped Him here. The four vedas are compared to a mountain and were at one time together. The *Rig Veda* was the root, the *Yajur Veda* the base, the *Sama Veda* the beautiful sides of the mountain, while the *Atharvana Veda* was the peak of the mountain. Later the homogenous mountain was divided into several portions by Brahma and sages like Bharadwaja and others. Sad at this division, the Vedas sought the help of Siva to keep them in tact. At the advice of the Lord, they were sent to the earth and asked to remain at this sacred spot as a hill and worship Him for sometime. To meet their prayers Siva appeared on the top of this hill as Vedagiresa and blessed

The shrine of Sri Vedagiriswarar of the hill temple



Feeding the sacred kites on the hill temple

them. Hence the name of Vedagiri to this hill.

Commanding a grand view of the entire surrounding areas, this temple, though small, is a lovely one. In fact it is a composite one made up of a rock-hewn shrine forming the basement and a later shrine constructed adjacent to the old one. The so-called '*Orukal-mandapam*' is the ancient shrine dating back to the Pallava period, dedicated probably to the Tirumurthis—Brahma, Vishnu and Siva—as is usual with the Pallava monarchs like Mahendra Varman and others. The shrine of Sri Vedagiresa was later added on, perhaps during the Chola period, as can be seen by the differences in styles of architecture.

This place is famous as *Pakshithiratham*—water made holy by the sacred birds and also as *Tirukazhikundram*—the hill of the sacred vulture. This anecdote is still in vogue, for even today, the incident of the two vultures visiting this place and being fed by a special servant of the temple known as *Pakshi pandaram* can be witnessed at about noon on the top of this hill. Just at noon, the pandaram takes with him a vessel with fresh cooked prasadam of sweet pongal and sits on a plank on the top of a separate rocky prominence. After

chanting some manthras, he calls for the birds. Answering his calls, two white vultures hover in the sky and then slowly come down. They settle themselves in front of this pandaram, who offers them the religious type of oblations and then places before each of them a small plate of this prasadam. The birds calmly partake a portion of this food and fly away. Later this prasadam is distributed to the many that are there to see this wonderful sight and incidentally the pandaram makes money out of the sale of this sacred food from the pilgrims, who clamour for the same.

The puranic version that is attributed to this unique incident

Bull mandapam of the lower temple; the hill temple can be seen in the background



is that two sages worshipped the Lord here during the four Yugas. In the *Krita yuga*, the famous yogi *Vridhasravanas* created two vultures named *Chandan* and *Prachandan* who were proud of their prowess. To quell their arrogance, they were cursed by Siva to remain on earth and worship Him in the coming Yugas. In the *Treta yuga*, these two vultures became *Jatayu* and *Sampathy*, and their part in the Ramayana is too well known. In the *Dwapara yuga*, the vultures were *Samphuguptan* and *Mahaguptan*, the two brothers who (in spite of Siva's interference) fought with each other in regard to the greatness of Siva and Sakti. In this *Kali yuga*, they were born again and were assured of salvation after the completion of the Kali age. They are named *Sampu* and *Adhi* and worship Siva as in the previous yugas in the form of two vultures.

However, the appearance of only two vultures here every day and their boldly approaching the pandaram and eating the prasadam offered to them from the hands of this person is not a recent one. Even as early as 1664 there are evidences to confirm this incident. In one of the mandapams on the hill, signatures of several Dutch gentlemen written in Dutch characters have been detailed in the report of

the Epigraphical Department of the Madras Government in the year 1908-1909. Some of them were important officers in the then Dutch settlement at Madras and they testified to the appearance of two vultures and their being fed on this hill, when they had occasions to visit the place.

These sacred birds are said to bathe at the Holy Sethu in the South early in the morning, come to Tirukazhikundram at noon time for feeding and proceed to Kashi in the North for their night stay. However, weird it may look, these birds are not seen afterwards here. That they remove themselves to a distant place, is evidenced by an incident that occurred some decades back which was reported in the Press also. On the morning of 17th June 1921, at about 9 A.M., some pilgrims taking bath in the sacred *Potramarai tank* of Sri Meenakshiamman temple at Madura witnessed two peculiarly white vultures taking bath in that tank. They got them photographed and sent it to Tirukazhikundram as they believed that the two birds resembled those that usually come at the latter place. They also enquired, whether on that particular day, these birds came in their usual time. Of course, the birds did come as usual and the photograph of the two birds that were

seen at Madura was very similar to those that are fed here. This clearly indicates the belief that the birds are of divine origin, capable of movements of high magnitude.

This sacred hill is also known by the name *Rudragiri*, for the Rudrakotis forming the army of attendance of Lord Siva were cursed because they attacked the asuras severely during the churning of *Kshirapathi* in their zeal to snatch away the nectar of the Gods—*Amrutha*—when it came out of the ocean. To purify their sins they were directed by Siva to worship Him at *Vedagiri* and hence the hill came to be called *Rudragiri*. This hill is said to contain very many rare herbs and plants that are only to be found in the unapproachable regions of the Himalayas. On account

of this uniqueness people who are suffering from diseases like Tuberculosis are advised even by allopathic doctors to stay at this place for some time. The usual custom both among the devout and the diseased is to undertake what is called '*Giripradakshinam*', whereby they walk round this sacred hill in the early hours of the morning along a bridal foot-path which is carved out right round the foot of the hill. Cases of complete cure are very often reported, though this may more probably be due to the fresh breeze that emanates from this area.

A week-end visit to this lovely-sacred spot enables the visitor to combine piety with physical comfort. Places for comfortable stay are available here and regular bus services from Chingleput make the journey delightful.

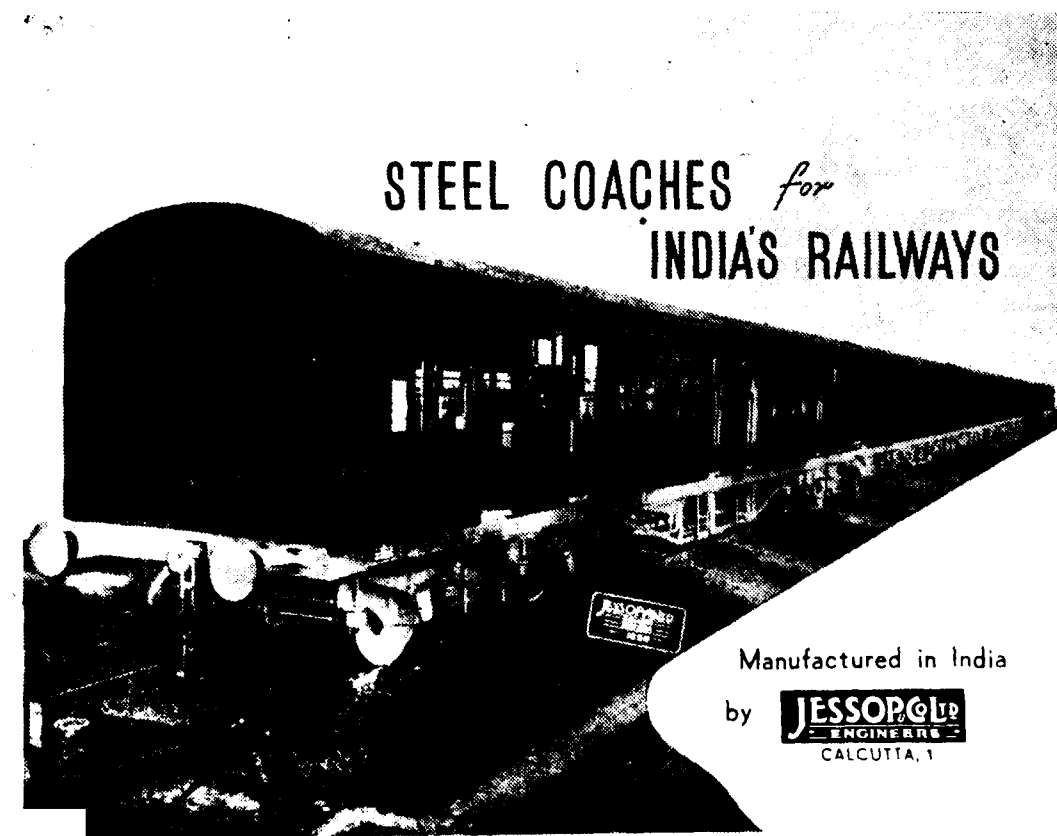
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THE SIGNIFICANCE OF TRANSPORTATION

(I)

OPRAIL

LET us go far back into the history of transportation in the life of man to the far remote past when man had not even invented the wheel or domesticated an animal. What do we find?

Prehistoric man was compelled to roam widely, mainly for food and shelter, and for fear when he was fleeing from some enemy, either man or beast. At that stage the only means of transport that man had at his disposal was himself. That is in himself he already possessed two of the three elements of transportation—the vehicle and the motive power. The third element—the way—being the earth or water over which he moved.

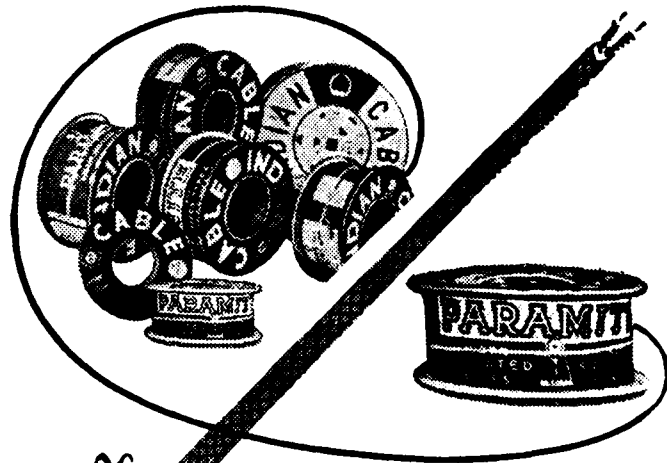
As long as man was himself the vehicle and the motive power for his means of transportation, his range of movement was restricted. But man was created with a gift not given to any other living creature—the spirit of intelligence, or mind, that could think ahead, that could sit down and ponder and wonder, and eventually devise ways and means to make conditions of life smoother and easier, or complicated.

When prehistoric man used his intelligence, perhaps the first thing he did to improve his methods of transport was to discover that certain animals could be tamed and yet live in amity with him. Then he discovered that these animals could not only cover longer distance but also carry heavier burdens than he could.

Thus the pack-animal was perhaps the earliest method of transportation, providing both the vehicle and the motive power. Among those first domesticated by man were horses, donkeys, camels, oxen, llamas and elephants.

Then came the next stage. Man found that the burdens his pack-animals could carry were limited, and that he must find some means by which he could move much larger loads over land. Applying his mind to the problem, he devised drags and sleds. These drags and sleds were not mounted on wheels, as at that stage the wheel had not been invented, and they moved over the ground on flattened lengths of wood. Man did not have the motive power for these vehicles, as having trained the pack-animals into his service, he now taught these animals to pull the drags along when hitched.

Primitive man living near streams and rivers and lakes found himself faced with a formidable obstacle. Movement over land had to some extent been overcome, though slowly and laboriously. Man was now challenged with finding himself a means to move his loads over the surface of water. Once again his mind and imagination came to his aid. At some time when he was sitting on the banks of a river or lake he must have observed the large branch of a tree that had been torn off in a storm, floating on the surface of the water. Well, here was the clue to his means of transportation over water.



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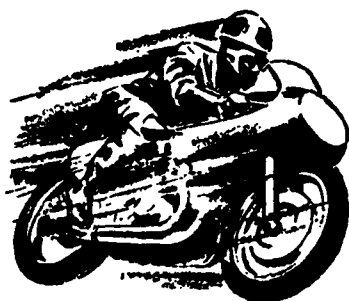
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With his primitive tools, he cut down several logs from trees in the vicinity of his dwelling place, lashed these together with strips of dried skin, and thus provided himself with a raft on which he could load his goods and chattels, and pole himself across the water.

Another type of prehistoric boat was the dug-out, which primitive man made by burning out a hollow from thick tree trunks. Canoes were also used extensively by some primitive peoples for river and water borne transportation. In fact, there are places in the world even today, when the steam and internal combustion engine is so common, where the canoe, of practically the same primitive design, is still used to negotiate swift-flowing rivers. From the crude raft and canoe man improved on his boat-designing until he discovered long oars and poles, and learned that he could move downstream with the current. Then he found a new source of motive power for water transport—the power of wind. To trap and utilise the wind, man soon discovered the use of the sail, first made of bark and skin, and ultimately of some strong fabric.

Then came the day when man invented the wheel, perhaps one of the most important inventions of all time. When he learned to fashion wheels man learned to mount his drags on the wheels, and he found that this primitive cart, pulled either by himself or by one of his domesticated animals, could move faster and more easily, and yet carry a larger load. As time went on, man devised various types of vehicles to carry both himself, his family and his goods. And with the invention of the wheel, man thought

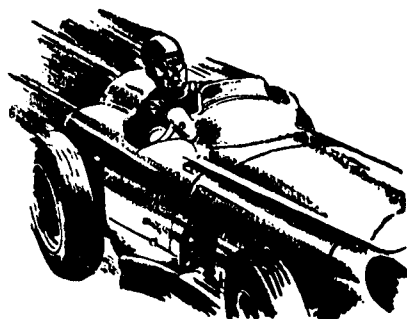
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more on the lines of modern transport operators—increasing pay-loads with increasing speed—but yet not forgetting what was the most important feature of transportation—safety.

So far we have been looking at the two elements of transportation—the vehicle, and the motive power. From man providing both, then using the domesticated animal as both elements, and the third element, the way, being merely a well-worn trail or footpath beaten out by the footsteps of man and animal. When wheeled transport came into being, man realised that the rough-shod and beaten-out trail paths were not the best medium for faster transportation.

Man now realised that the third element—the way—had to be improved before he could hope to move his animal-drawn vehicles at a faster pace. So the beaten-out footpaths and trails were turned into roads linking village to village, town to town and city to city. It was these roads that became and remained the only highways of transportation in all countries of the world for many centuries. Man also learned how to build better and harder roads, so that his wheeled carts and coaches could be drawn by his horses at a faster speed, and could also stand up to the increasing demands of traffic that must perforce move over these highways day after day.

With water transport man did not have to worry so much. The streams, the rivers, the lakes, the seas, the oceans—these were already provided by nature as the third element of transportation: so man did not have to think up ways and means to improve the surface of the water. His main problem here was to build

larger and stronger ships that could take larger cargoes, and yet move these enormous loads over the waters much faster. To do this he learned how to design the sail rigging of ships so as to get the maximum power out of every passing wind.

On land man had now reached a stage where he moved faster on his animal-drawn vehicles, and on the water in his sailing ships. But he was not content. He knew he could move still faster and carry much greater tonnage. Engineers brooding over these problems of harnessing various types of motive power knew that there was yet something better they could tap for moving their vehicles over land or sea. Around them were two common elements fire and water, and although man must have boiled a vessel of water time and time again and watched the steam arise, he found no use for it. Until one day one man found what power was lurking in the steam that came from heating water with fire. From this discovery came the steam engine.

First, this steam engine was used to pump water, or he used for producing power in small factories. Eventually it was mounted on wheels and became the prototype of the locomotive. But the steam locomotive being cumbersome and heavy it was found that this vehicle could not run on ordinary metalled or hard-surfaced roads, as the heavy iron wheels would cut the road-bed into rubble. The third element—the way—now had to be adapted for this new giant. Thus was born the twin steel rails that became the permanent-way on which steam locomotives attached to coaches would move passengers and freight

by the millions. The steam engine soon found itself inside the bowels of ships and beforelong down came the old-fashioned sails. Ships too now moved under the newly discovered steam-power and ousted wind-power.

With the discovery of electricity and oil, man used both these sources of immense power for purposes of transportation. In many parts of the world, where electricity was easily available at a low cost, the electric locomotive replaced the steam. It was the same with oil. The invention of the internal combustion engine culminated in the vast automobile industry. Man then used cars, motor buses and trucks also for transportation. The internal combustion engine soon found its way on to the railway tracks and into the large ocean liners. In countries where coal was scarce or hard to get, but where oil, even crude oil, was plentiful, the diesel engine ousted the steam locomotive for hauling both passenger and freight trains.

There is hardly any limit to what the brain and mind of man can discover

or invent. Birds can fly, said man, and dreamed of the time when he too would be soaring through the skies. With crude experiments of attaching fantastic contraptions resembling wings to himself man tried to fly, and failed. But each failure taught him something.

Then along came the inventor of the heavier-than-air machine that actually flies. It was the internal combustion engine that powered the machine that took off the ground and flew through the air. Soon small aircraft with only one pilot and perhaps one passenger or observer appeared. Within the space of less than half a century air transportation had made amazing and rapid progress. To-day giant air transports are flying all over the world, carrying passengers and freight that would have been considered fantastic at the dawn of this century. And with jet and rocket propulsion now a fact, man is striving for supersonic, stratosphere air travel.

(To be continued)

DUTY, DECORUM AND DISCIPLINE

(Continued from page 15)

and addressed to, by your seniors, which were the order of the day in the past, appears to have been forgotten, and ill manners seem to have taken their place. Slovenliness is also on the increase. Railway staff who are provided with uniforms do not take pride in turning up spick and span in them and would prefer to go about in a shirt and lungi, as if the uniform was a mark of servitude.

Too much of regimentation as in other foreign countries like Russia may not be healthy for our country, but compulsory military training between the ages of 16 and 18 for a period of one year at least would go a long way in producing citizens with a higher sense of Decorum, Discipline and Duty. We cannot afford to lose sight of the world of values which ultimately move man to action.

ON HYDROPONICS AND HORSE-TROUGHS

RAMA SRINIVASAN

I pretended to peer into the basket and exclaimed in mock surprise, "Drumsticks! How nice!! I didn't know we had a drumstick tree in our house!!!"

My husband put aside the newspaper to glare at me. "That remark was totally uncalled for," he retorted. "You know very well they are not drumsticks but cluster-beans. I realise I must change this week's formula a bit to suit the cluster-beans, but that does not alter the fact that you are being unduly critical and unco-operative. I see you have no praise to offer for my Zinnias."

I felt a bit abashed. The Zinnias had come out in glorious colours that week. But the general results of his experiment in hydroponics was making me sarcastic about the whole venture.

* * *

It all began one Saturday afternoon as he sat near a window looking glum and absolutely bored.

"What is the matter?" I enquired.

"Am feeling at a loose end," was the disgusted reply.

"In that case let us go to a picture," I suggested brightly.

"Oh, there is no good picture on," he replied sulkily.

"All right. I have one or two little things to buy. Let us go shopping and window-gazing," was my next suggestion.

"Not at the end of the month! I know how your window-gazing ends up," he answered heatedly.

I realised all this was leading up to something that was in his mind.

I waited silently for him to come out with it.

After a while he mentioned casually "I think I ought to have a hobby".

"Like carpentry?" I enquired innocently.

He looked at me sharply. "Don't be sarcastic. You know I gave it up only because unless I did so, you would not give up your knitting."

I clucked sympathetically. "I know. It is just that I too wanted to have a hobby." I said apologetically.

"It must be a joint hobby this time, like gardening," he pursued.

I nodded with approval and he started expounding his ideas enthusiastically. I then realised I had been hasty in giving my approval. His ideas on the subject were not the same as mine.

"I am going to try the hydroponics system," he declared grandly, as if he had invented the system.

"What is that?" I enquired in genuine ignorance.

He appeared to be shocked at this obvious shortcoming in my education and learning. He immediately assumed a Professorial manner and started to deliver a lecture on hydroponics, soilless cultivation, mineral manure, ammonium sulphate, superphosphate and so on, while I listened dumbly. When he felt he had explained to me sufficiently clearly this method of horticulture, he went on to point out the advantages of this method. The plants would take less space under this system, as they would spread their roots over a smaller area.

They would yield at least twice the amount of fruits and vegetables. They could be grown even on the terrace. And if they are grown on the terrace, then cows and goats could not get at them, could they? They did not need much special attention either. The administration of the salts once a fortnight, and just plain watering the rest of the days would work the miracle.

He went on and on in this strain, invoking mental pictures of our terrace full of vegetables, our little garden in the front a blaze of brilliant colours. "But", I began, and did not know what to say. It all just sounded too good to be true.

He began the experiment by growing a tomato plant and a Zinnia plant. To cut a long story short, the plants thrived in varying fashions with the food they got. They became a leafy foliage, the colour of which changed every fortnight, with the administering of a new formula. The Zinnias bloomed plentifully, though they were of a queer colour. The tomatoes grew in abundance in the size of marbles and small limes.

He was now glowing with triumph. "Look!" said he. "If one plant could grow so many tomatoes and a single plant bloomed with so many flowers, we can grow vegetables in our terrace and flowers in our garden the whole year round. We must build regular hydroponics tanks and get better seeds. And," he conceded, "I must perfect my formula to improve the size of the vegetables and the colour of the flowers."

He now plunged head over heels into the experiment on a large scale. To mention the financial damages involved, shall I tell you of the amount we spent on petrol, hunting for the

various salts? Or of how we had to get some of the salts in bulk from out-stations because they were not available in the city? (By the way, we have still lots left with us, if you are interested in taking up hydroponics as a hobby.) Or of how we bought a thousand bricks, four bags of cement, a lorry load of brick ballast, and sand, and got three cement tanks built in our little patch of lawn in front of our house? Of how the lazy mason and his two assistants we employed, took three days to build the tanks?

When I started calculating the staggering cost in terms of manure for so many years, my husband rebuked me. "After all this is a capital investment. In the years to come we only have to rake up the ballast and sand, before planting," he said, and I suppressed my irreverent thoughts.

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But I could not help laughing when the hydroponics tanks were completed. They looked just like horse-troughs.

"Just you wait and see what grows in them," said my husband proudly. "And," he warned me, "don't meddle with the garden without my permission".

I sighed with relief, thankful to be left out of the experiment.

To do justice to him, the results were quite satisfactory, as long as his interest in the hobby lasted. In his initial enthusiasm, as soon as he returned from office, he would go to the terrace to inspect the plants and count the vegetables. He would spend the mornings cutting dead-heads of flowers. The hardier flower plants like Zinnias and Marigolds, Gaillardias and Petunias thrived with the food they got. The leafy foliage and the flowers blooming plentifully, covered the "horse-troughs" and our front garden was a pleasant colourful sight for sometime. Visitors did not fail to admire the scene, while my husband beamed with pleasure. Only, they did not know that none of the more delicate plants survived more than two doses of the food they got.

In the vegetable patch on our terrace, tomatoes grew in plenty, but they rarely grew beyond the size of lemons. A few snake-gourds grew thick and strong, and we tried to eat the curry I made of it, with enthusiasm, in spite of the peculiar taste. We had a regular crop of a dozen French beans, half a dozen ladies fingers, a couple of brinjals, every two days.

My husband worked steadily on his formulæ, and gladly presented anybody who questioned interestedly

about his experiment, with half a dozen formulæ, with the remark: "Of course you have to experiment and perfect the formulæ to suit the individual plants."

For, that was exactly where he seemed to fail. What distressed him was that the food that suited the tomatoes killed the capsicum plants and turned the leaves of the ladies finger plants yellow. Half the plants dried up over-night, while he was still "perfecting" his formulæ.

"There will be so many tomatoes next fortnight, you will not know what to do with them. Be sure to make some jam," he would tell me one day, as he filled a basket with a dozen tomatoes. But alas! During the fortnight that followed, only the leaves of the plants flourished with the new formula.

"I think I have found out what was wrong with the formula for the ladies finger plant," he said one day. "I hope to have a better yield next week." But no! In a couple of days the plants became afflicted by a strange disease.

By now I was becoming sarcastic about the whole experiment. There was the incident about drumsticks and cluster-beans. Our cabbages also thrived in a similar manner and grew so thick and strong that even our milkman's cow refused to taste it, and turned its head away disdainfully.

In the face of such discouraging results, his enthusiasm diminished, and as in his other "hobbies" he started losing interest. The stage came when he started "forgetting" to mix the plants their food. Even the front garden was beginning to look neglected and withered. "It is a month since

the plants were given their salts" I reminded him one day as he was leaving for office.

"Oh, you mix them today definitely," he instructed me. "I don't get any time these days. Work is so heavy in office."

As the car was moving, he called out to me the proportion in which I had to mix the salts, and left in a cloud of smoke from the exhaust pipe. By the time I reached the shelf in which the various salts were stored, I felt I had not got the formula correct. I had seen him mixing the salts and I was sure his instructions were different. A slip of the tongue probably or perhaps I had not heard him properly in the roar of the car engine. I mixed the salts according to my own formula.

In the evening, when he returned from office he asked me to hurry up and get dressed to go to a picture.

"But I have not sprinkled the salts round the plants yet," said I.

"Oh give it to the servant. He knows as much about it as you do", he cried impatiently.

By the next day all the plants had dried up and withered. I was sure it was because the servant had sprinkled the salts right on top of the plants. But my husband put the blame on my formula. He found a convenient excuse for giving up gardening.

"How can I grow anything when you and that wonderful servant of ours are determined to destroy the fruits of my hard labour over-night?" he shouted.

I shrugged in resignation. I knew this had been coming for some time.

What distresses me is the dismal sight our front "garden" now presents, with the cement tanks looking more like horse-troughs than ever. They have taken up so much space, I cannot even have a decent patch of lawn in the front. After the amount we spent in building them, I cannot bring myself to have them destroyed, in case my husband's interest in hydroponics is revived next year. Perhaps you can suggest some new hobby which can utilise three "horse troughs" built in front of the house?

Alas! these days of "progress" and horseless carriages. The pity of it all is that the horse-troughs are of no earthly use even to the eight horse power in our car!



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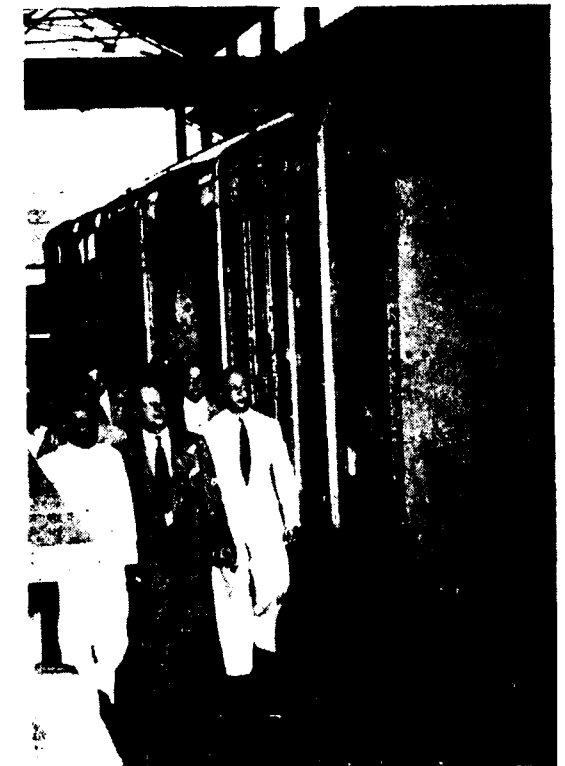
A. B. LAXMAN

Assistant Mechanical Engineer

UNDER Technical Co-operation Aid (Colombo Plan) Indian Railways are receiving of a large number of wagons and Southern Railway have been allotted with 2,500 Metre Gauge Covered wagons and 475 Open Wagons. These wagons are being supplied by Messrs. Metropolitan Cammel Carriage & Wagon Co., United Kingdom and Messrs. S. A. Baumme & Marpent, France. In order to avoid heavy freight charges for the carrying of these wagons in fully erected condition, the Railway Board have ordered these wagons to be received in knocked-down state with the idea of assembling them in India.

Messrs. Binny's Engineering Works Private Ltd., Madras, have agreed with the Railway Board to assemble and erect all these wagons allotted to Southern and Central Railways and their newly built workshops at Meenambakkam.

Shipment of these wagon components have commenced in April, 1956 and on an average 200 wagon components were received monthly and were given to Messrs. Binny's Engineering Works, for assembly. This firm being a beginner in the building of Railway wagons, their progress in the initial stage was not so satisfactory as expected but gradually the progress has been increased to 250 wagons per month. They have taken nearly 4 months to set up a momentum with novices entertained for this particular job. This firm is one of the reputed firms in Madras State in fabrication work and the interest taken by them towards

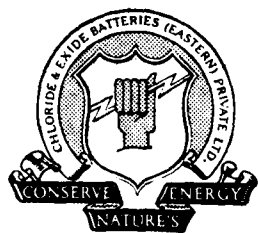
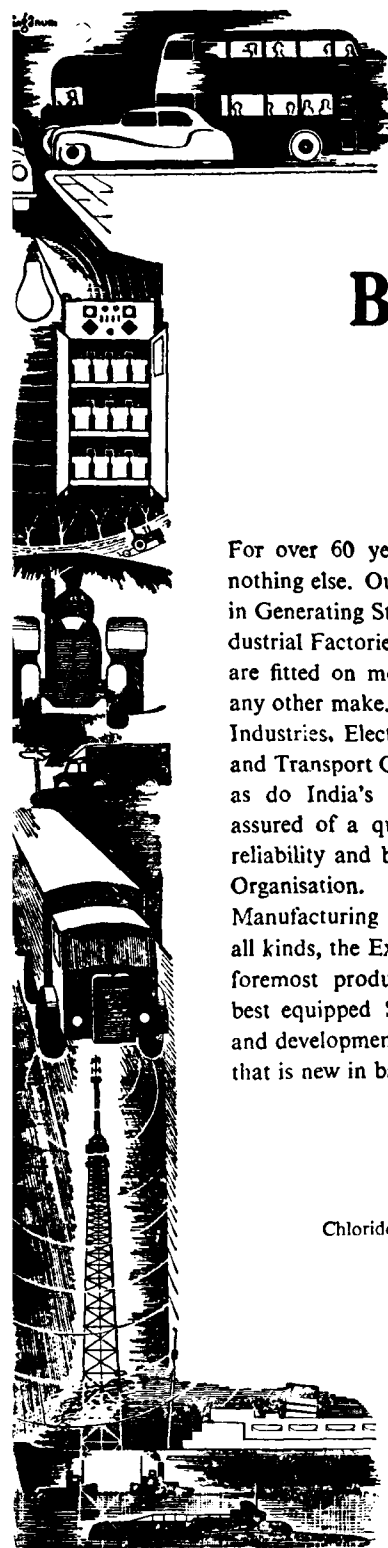


Mr. T. A. Joseph, G.M., S. Rlys., Mr. E. F. G. Hunter, Director, Binny's Engineering Works Private Ltd., and Mr. Robert M. Winfree, U. S. Consul in charge at Madras, inspecting the wagons at Meenambakkam on 23-5-56 when a token consignment of 12 wagons was handed over to the S. Rly.

the assembly of Railway wagons is highly appreciated, i.e., within a short period they were able to cope with the railway working.

Though the wagons are assembled by this firm, these wagons have to pass muster with the Railway authorities. For this, certain Inspectors from Railway are deputed to watch the assembly work at various

(Continued on page 58)



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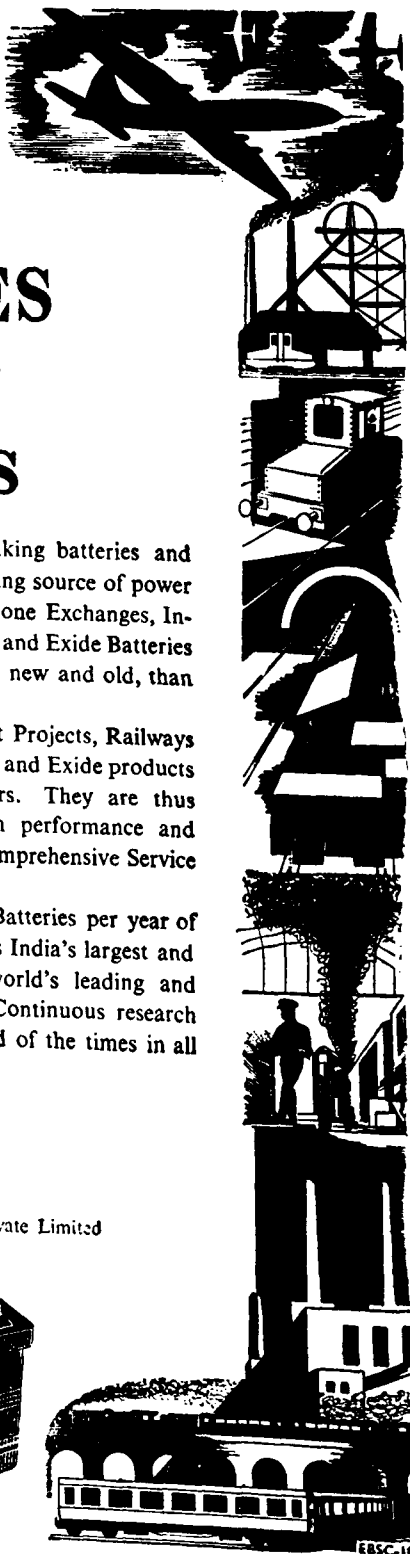
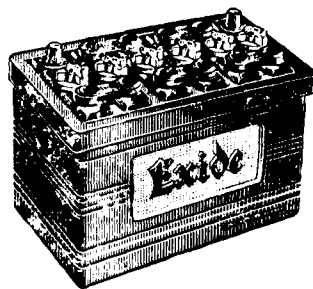
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MUSIC HATH ITS CHARM

Mrs. TRUESTORY

WHEN I went as a bride to my mother-in-law's house, I was asked by the various relations foregathered there, what my hobby was. Was it music, vocal or instrumental or painting or modelling or embroidering or even cooking? I had to sadly admit that apart from being a graduate, I was a mere cipher. This experience punched rather a big hole in my conceit. I had a faint suspicion that I might not be quite as wonderful, as I thought I was. This became a certainty when later on I was confronted by the very satisfying achievements of some of my friends. For instance there was the gentleman next door who devoted his spare time to carpentry and furnished his entire house with the products of his handiwork. The effect was very pleasing. A set of beautiful hand-painted cocktail glasses in a friend's house caught my eye the other day. Imagine my surprise when told that it was painted by herself, and I had thought her such a prosaic person! A friend of my husband pursues photography in his spare time. His photographs are as good as any taken by any first class professional photographer. With all these examples before me, I just had to do something about my woeful lack of a hobby. However I comforted myself that I was too busy—nobody could expect a hardworked mother of three children to find time for any sparetime activity. An uncomfortable voice whispered how on earth does our Prime Minister find time to write books amidst his other multifarious activities? So I just had to discover a hobby.

In December 1953, my youngest child having completed her third year had definitely emerged from babyhood, and thus allowed me a little leisure. We happened to have bought a second-hand piano just at that time to give piano lessons to my daughter and son. It occurred to me then that I myself might try my hand at this. Though as a child I had learnt a little of Indian music, I was completely unfamiliar with English music. My only excuse for this bold step was my genuine fondness for music. Thus began my short-lived career as a music student.

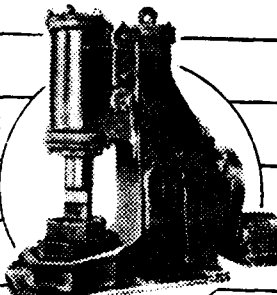
Our teacher, for my daughter and son were also taking lessons, believed in examinations. She trained pupils for the various grades of practical pianoforte examinations of the Trinity College of Music, London. There are eight grades—First steps, Preparatory, Advanced Preparatory, Junior, Intermediate Senior, Advanced Senior and Higher Local. After that there are degree examinations corresponding. I think to the B.A. or M.A. examinations of our University, which I think only the really gifted and persevering do well in. Though my children and I started learning at the same time, our teacher very flatteringly put me in the 4th grade, out of probably respect for old age, my daughter in the second grade and my son in the first. I know now that I should have appeared for the first grade, for the young are more apt and quick to learn than the old. My age was a handicap or it might be that I had no real talent. However my ego was tickled that I was considered good enough to appear for

the fourth grade and I applied myself to the task with great enthusiasm. The requirements of the examination were quite simple. We had to learn to play two studies, and two pieces of music, a few scales, be able to play a very simple and short piece at first sight, and answer a few ear tests. I quickly learnt the pieces and studies and was soon hammering away at the piano for hours on end. I never bothered to learn any other pieces of music, concentrating only on my examination pieces. Herein lay my greatest mistake and I would here and now advise anyone learning instrumental music, that a surer command of the instrument depends on a wider range of knowledge and that perfection in one piece does not ensure the necessary style or versatility. In my happy ignorance I thought I was doing very well. My teacher was all praise for me. Probably she was afraid to displease me by offering any criticism. However my children supplied this deficiency. They made me a target for their witticisms. My rather short and square fingers, my stiff posture at the piano, my grim expression, all came in for a lot of ridicule at their hands. I stoically bore all this privately determined to outshine them at the examination and thereby show them all!!

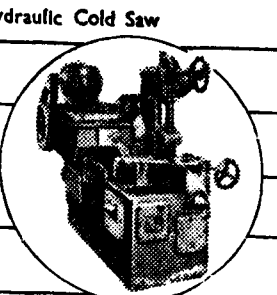
At long last, after 6 months of busy preparation, the great day of the examination dawned. My children dressed in their best, and I very modestly dressed in a cotton saree as befitted a mother appearing alongside her children for examination, went to the White Memorial Hall, Egmore, where the examinations were held. Our examiner, an Englishman sent by the Trinity College, might have

received a shock at seeing a middle-aged lady walking in boldly, all set for playing. Here I must mention that apart from me and two other College girls, all the pupils were mere children. I started playing and finished my first study. But half way through the second study, what was my chagrin to find that my fingers were trembling and my knees knocking together in sheer stage fright. Suffice it to say that I managed to plod through the pieces and *viva voce* and came out a very distressed and subdued person. In my nervousness I had given my worst performance. On the contrary my children gave their best, even though they had not put in half the effort and time that I had. Hence it is my belief that the young can attain a certain facility which the old take longer to achieve. However my motto has always been it is never too late. When the results were known a week later, my daughter had passed with Honours (above 85%), my son and I with Merit (above 75%). My son had scored 83% and I only 77%. I leave it to your imagination to guess at the ragging I was subjected to by my family.

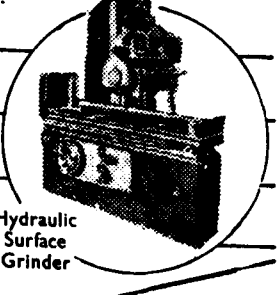
My teacher had unbounded confidence in my ability and musical talent though it was shared by no one else, not even by me. Therefore her next step was to prepare me for the sixth grade, senior, thereby skipping one grade. I went through the mill again for another year, my children also appearing for their next higher grades. I wish I could say that I came out in flying colours at least this once, but adherence to truth compels me to admit that I did little better than at my first venture. However I passed, and my



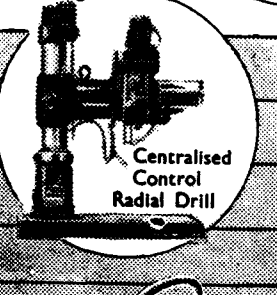
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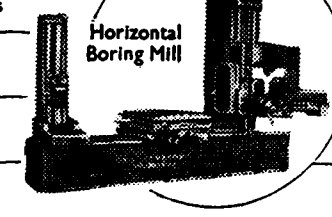
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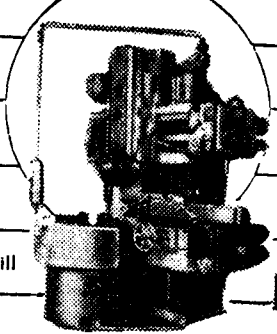
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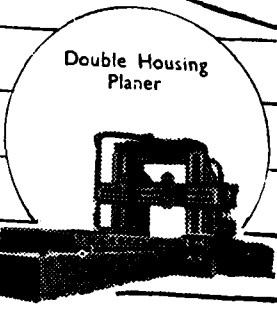
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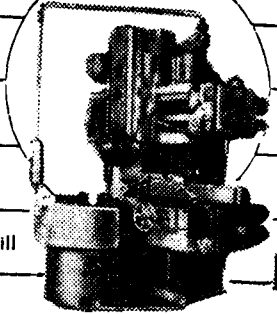
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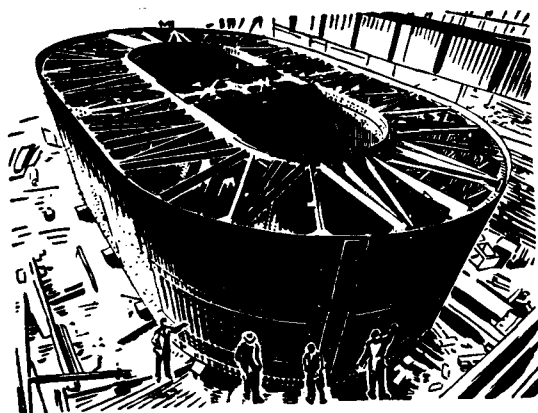
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certificates repose in the drawer of my writing table. My children as usual did better than me. Nothing daunted, I was preparing for Higher Local, when my fourth baby arrived on the scene and put an end to further music studies.

Though my musical career has been inglorious, it has been a rewarding experience. I reaped some real benefits out of it. My love for music has increased, and I can now listen to and appreciate music intelligently. Even now I occasionally play small pieces of music which gives me great pleasure. I am able to help and direct my children in their music. Given a little time I know I can learn to play any piece of music which is not too high-brow. Above all I have the satisfaction that I have mastered an art of which I knew nothing, in my middle age, and I fondly look forward to the time when my baby is grown up

enough to allow me a little leisure to learn to play all the songs I want to. I hope my experience will encourage at least one reader to open new vistas of interest and beauty. To those who feel that they are too old to cultivate a hobby, I would like to relate this incident. An old friend of my husband, on retirement from Government service, found time hanging heavily on his hands. Then he announced to all his friends that he would take to gardening. They all patted him on the back, declared it was a good idea, some even indulged him to the extent of presenting him with spade, bucket and watering can. They never for a moment dreamt that he would get down to it. Last time, barely a year later, my husband visited him and he was pleasantly surprised to see a bowl of choice roses in his living room. They had been raised by the old gentleman.

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RAILWAY SIGNALLING PRACTICES

(IV)

T. S. PARTHASARATHY

Deputy Chief Operating Supdt. (Coaching)

THE following factors are usually taken into consideration when the nature of the signalling to be provided on a railway is to be decided:

- (1) Importance of the railway concerned.
- (2) Length of single line sections.
- (3) Length of loops.
- (4) Frequency of train service.
- (5) Speed of trains.
- (6) Type or types of traction used.
- (7) Costs the line will be able to support.

ECONOMICS OF RAILWAY SIGNALLING

In the early days of railway signalling, little attention was paid to 'economics' as installations were made primarily for increased safety. At present, the safety of train operation is taken for granted and signalling is justified by the reduced operating expenses. The insurance value of automatic block signals, interlocking, Centralized Traffic Control and other signalling is recognized as having an economic value although it is not always included in reports dealing with the economics of signalling.

Railway signalling development has been continuous from the early days of automatic block signals and mechanical interlocking to the present time when refinement of apparatus and developments have made possible many new applications without sacrificing any of the basic principles. The development of power interlocking, remote control, automatic interlocking, Automatic Train Control, continuous cab

signals, Centralized Traffic Control and car retarders has given impetus to railway signalling. These later developments have been designed for the promotion of transportation efficiency, increased safety and economy. It is logical that the additional cost of a proposed signal system over and above the basic requirements of safety should be justified by the saving in operating expenses or through the saving in capital costs because of the greater capacity and operating facility.

Economics of railways signalling involves the determination of the financial and operating reasons for the expenditure. It may also involve a comparative analysis of the proposed signalling and alternative improvements so that it can be shown whether signalling is the most desirable solution for expediting train movements and increasing capacity.

Railway signalling offers a means of improving operating performances by providing facilities for the more intensive utilization of existing trackage, generally at a lower unit operating cost and a lower unit fixed cost than could be achieved by other types of improvements and therefore gives more increased capacity and facility of operation with a higher return on the investment. As traffic growth is normally at a slow steady rate, it is generally more economical to provide for greater utilization of existing facilities than to provide larger sums for additional capacity which could not be utilized because the traffic would not be great enough for a number of years to bring about a



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suitable saving on the additional capital expenditure.

Signal apparatus should be of such type that may be used to advantage even if changes are made in the original track layout. For example, if a single line section equipped with automatic block signals is later converted into a double line, the signal apparatus may be relocated to fit the new track arrangement. Practically every signal installation contains an assemblage of certain basic apparatus which is largely interchangeable with that of other signal installations on the railway and therefore signalling may be economically applied to a relatively temporary traffic situation as well as to a situation which promises to be more permanent.

A modern signal system will frequently provide the additional capacity needed to handle a seasonal peak traffic of relatively short duration in the most economical manner because the capacity required is furnished at the lowest possible capital investment. Such a system will not only reduce the investment required to handle this

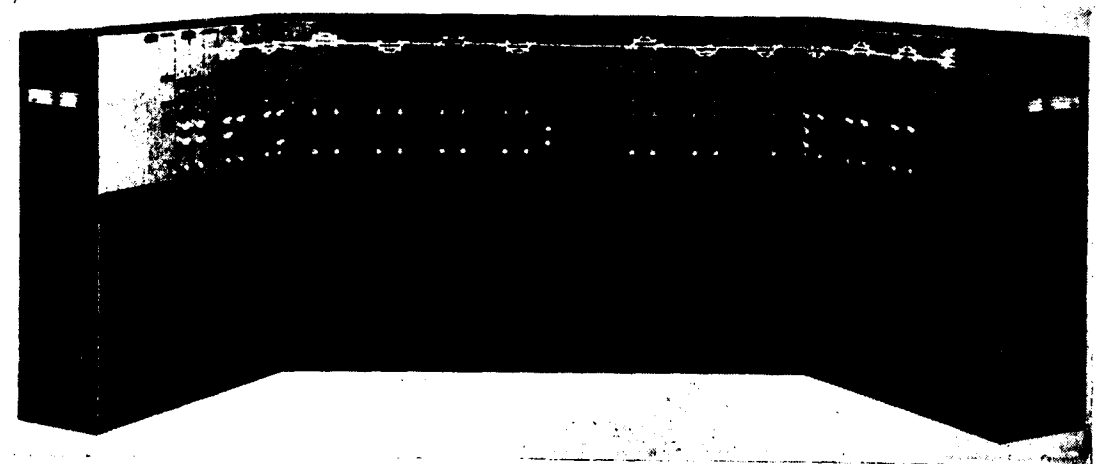
traffic expeditiously but will also bring about sufficiently improved operation during the periods of normal traffic throughout the balance of the year to make an attractive operating saving even at the periods of minimum traffic density. Modern signal systems do not require traffic at or near peak densities in order to justify the expenditure, although the rates of saving increase rapidly with increased traffic. The modern conception is to design the signalling to suit the traffic requirements.

METHODS FOR DETERMINING ECONOMICS OF SIGNALLING

The principal economic advantages of signalling systems and devices will result from expedited train movements, train stops and slow downs eliminated, locomotive and rolling-stock saving due to expedited movement, personnel relieved for other duties and elimination of extra track facilities.

These factors generally produce savings in the cost of maintenance and operation which can be determined by comparing train operations on

Centralised Traffic Control Machine



representative days under existing conditions with the improvement in the operations under the proposed signalling.

The general procedure in determining the estimated time saving, in train hours per day, of a proposed C.T.C. installation for example, is as follows:

(1) Select period in past performance which will approximate expected train density.

(2) Select consecutive test days of varying number of trains per day.

(3) Pick out 1, 3, 7, 15 or 30 days, depending upon the accuracy required and time available for the study.

(4) Chart the trains on a control chart to determine the actual total number of train hours required by all trains for the selected test days.

(5) Re-chart the same trains to show the probable performance in train hours with the new signalling.

(6) Translate the average daily saving to an annual basis to show the estimated saving per year.

(7) The procedure will vary on different types of signalling projects depending on the local conditions on each railway.

After determining the estimated train hours, etc., saved by the proposed signalling, the results should be translated to a rupee basis.

SAVINGS

Expedited train movements.—Include under this heading the train hour saving of goods trains based on normal time without crew wages, overtime wages and train mile saving.

STOPS AND SLOW-DOWNS ELIMINATED

Compute the savings in stops and slow-downs eliminated by the improved signalling for each train on the test days.

TRAIN STOP VALUE

The value of a train stop eliminated is predicated upon and will vary according to the characteristics and inherent differences in various classes of locomotives, the resistance to traction met under various conditions, such as grade resistance, curvature (equated to grade resistance), tonnage of train including locomotive, braking distance, cost of fuel, wages and delay time resulting from the stop.

There are many intangibles which may or may not enter into the train stop value, such as wear and tear or brake equipment, etc.



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The time lost is an important item in stopping and also in slowing down by increasing the train stop value, that is in cost, not work.

In some instances it may be essential to give consideration to the cost of regaining lost time where possible by running at higher speed and the inclusion of this in train stop value.

ECONOMICS OF AUTOMATIC BLOCK

The economy of train operation in an automatic block system results from a decreased number of operators and from providing facilities for several times the number of trains in the same track length with block protection and less delays.

The advantages are improved train operation, increased capacity and safety, eliminated delays especially during peak periods and reduction in block lengths.

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2. Reduced stores stock.
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4. A saving of time per indication, as light signals are practically instantaneous.

REMOTE CONTROL

Remote control is a term applied to a method of operating outlying signal appliances from a designated point. It is used to advantage where points are located some distance away



Colour light signals are instantaneous

from a station at an end of two main tracks, junctions, railway crossings at grade or at an entrance to a yard where an operator at a nearby station can control the position of the points and signals to allow trains to proceed without stopping or reducing speed below that specified in rules.

While outlying points may be operated manually by train crew, pointsmen or other designated employees, remote control gives the lowest annual cost of operation. The economic value of operating outlying points by remote control is dependent upon the cost of stopping and starting the trains that could pass over the controlled points without stopping. It becomes economically advantageous to remote-control an outlying point when the cost of stopping and starting the

applied in the analysis of the ultimate particles of matter. These, when energised, emit radiation also in quanta. It has also been proved that the ultimate particles of nature also have a 'wave' aspect. Thus the electron, though a particle emitting definite quanta of energy, has also a wave aspect. This was further amplified and elaborated by several scientists like De Broglie and Schrodinger in their new 'Quantum wave Mechanics'.

Closely linked with the new conception about the ultimate structure of matter are the great theories of relativity postulated by Einstein. It will be difficult to present the theory in simple form as it is highly mathematical. One or two basic ideas which enable us to understand why so much stress is laid on relativity will not, however, be difficult to grasp. Absolute distance not relative to some special frame is meaningless. Distance, lengths, volumes, all kinds of

space reckoning are likewise relative. A very homely illustration of a relative quantity is afforded by our own 'Rupee'. The man in the street is apt to regard a certain sum of rupees as an absolute amount of wealth, but dire experience has convinced all of us of its relativity!

From the subjective conclusions, Einstein and other scientists tried to state the fundamental laws of physics in such a way that it will be true for all observers under any condition. They have worked out a geometry, a geometry of the universe, the basis of which is objective and which has nothing in common with Euclidean geometry or Newtonian dynamics. Also in Einstein's theory, time and space are mixed up in a rather strange way. We have all been accustomed to treat time and space as separate entities in our conceptions of the physical world. But Einstein postulated that physical time is incongru-

ously mixed up with space—an idea very difficult to grasp for us who are steeped in the old idea of the physical world. This leads one on to the conception of the four dimensional space—time continuum.

From the special theory of relativity, Einstein has proved that no body is capable of moving at a velocity greater than that of light and that the velocity of light—186,000 miles per second or 3×10^{10} centimetre per second—is absolute and same for every observer. He also introduced the idea for the first time that energy has mass associated with it, and that mass can be converted into energy. Till Einstein's revolutionary theory, scientists had been accustomed only to thinking in terms of a separate conservation of mass and a separate conservation of energy but Einstein for the first time proved that mass is also associated with energy and *vice-versa*. This led on to his famous principle that mass can be annihilated into energy and he propounded the famous equation $W=MC^2$ where W is the energy obtained by the conversion of a mass M , C being the velocity of light. One can imagine what tremendous amounts of energy will be released when even one gram of a mass is converted into energy. It gives $(3 \times 10^{10})^2$ ergs. of energy. This led scientists to make attempts at transmutation of elements by trying to "bombard" the nucleus of elements. The old dream of the alchemist of converting base elements into gold was at last come true! But instead of trying to convert the base elements to gold, these scientific theories have been used to convert mass into energy for destructive purposes like the atom bomb and the hydrogen bomb. The

fundamental principle of these is the annihilation of mass into energy. Atomic energy can however be canalised for manifold useful purposes for the benefit of humanity.

Perhaps, the greatest change that has come about during the last half century is in regard to the approach of the scientists in regard to the conceptions of the physical world. It was the boast of the Victorian Physicist that he would not claim to understand a thing until he could make a mechanical model of it. Properties of liquids, solids, gases, etc., were attempted to be interpreted as machine like properties and if some phenomena could not be explained properly, "it was felt that only greater efforts were needed and the whole inanimate nature will at last stand revealed as a perfectly acting machine." Nature in building the universe was supposed to be dependent on just the same kind of resources as any human mechanic. However, the fifty years of the twentieth century, when the study of the behaviour of molecules, atoms and electrons was done more and more thoroughly, has shown that nature's activities defied all attempts of a purely mechanical explanation. The modern tendency of scientists is to consider the physical world as a symbolic world and to interpret nature's phenomena with the symbols provided by the mathematician.

All physical matter is now ultimately believed to consist of electrified particles which have a 'wave' aspect also. In short, the whole universe has been reduced to a universe of waves with quanta of energy associated with them. Even here, the modern theory asserts that the position of an electrified particle like the electron and its speed

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of motion through space at the same instant cannot be definitely determined. If we know that an electron is at a certain point in space, we cannot specify exactly the speed with which it is moving. In the same way, if we know the exact speed of an electron, nature refuses to discover its exact position in space. The modern theory is therefore that there is no determinism in events in which atoms and electrons, or the ultimate particles of nature, are involved—Heisenberg's "theory of Indeterminacy".

The last fifty years have seen epoch-making changes in our conceptions of space, time and matter. These theories have given a scientific explanation to many of the phenomena. It cannot, however, be said that the absolute truth has yet been discovered. It remains as elusive as ever!

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a feeling of fulfilment, a
feeling of going towards
fulfilment, a feeling of self-
reliance and a feeling of
courage to face our pro-
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have no doubt about it.

—Shri Jawaharlal Nehru

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ROAD—RAIL CO-ORDINATION AND MOTOR VEHICLES AMENDMENT BILL

K. S.

THE "UNCOVERED GAP" in goods transport capacity of the Second Plan is of the order of about 30 million tons. The increase of 'General Goods' traffic by rail by 30 to 35 million tons by the end of the Second Plan period would mean that the road hauliers would be required to do the correspondingly increased terminal services. With the development of agriculture, more and more bullocks will be withdrawn from the road to the field, leaving the road services to fill the gap. Moreover, the increased building and constructional activity which is going on in the country will demand large quantities of goods to be carried by road. The volume of this traffic must steadily grow. There are also several areas which are not touched by rail or where rail transport is inadequate. In these directions there is ample scope for the development of road transport, as a service supplementing the effort of the railways.

(a) The major portion of additional traffic will relate to coal and steel, which will move in bulk from centres of production to all parts of the country;

(b) For conveying the heavy minerals and bulky goods, rail transport is more suitable and cheaper. Sea freight for coal is said to be twice the freight for coal by rail and road freight probably heavier than sea freight;

(c) The Railways at the same time should not be deprived of a fair share of the high rated traffic for otherwise the railways will have

to increase charges for industrial raw products;

(d) On sections where there is a heavy movement of empty wagons development of road transport would amount to unnecessary duplication because it would mean empty haulage in one direction by road transport and rail transport. This is not desirable.

Allowing road transport to cater only to the higher-rated 'cream' of traffic would inevitably result in the railway freight for industrial raw products being enhanced substantially.

Motor Vehicles (Amendment) Bill.—The principal objects of the Motor Vehicles Act of 1939 were: the regulation of motor transport as to ensure road safety by bringing about improved standards of driving; to check unhealthy competition among the operating units; and to prevent competition with the railways.

After the Act was in operation till about 1945 it was found that while it succeeded in bringing about improved standards of driving and road safety there were certain defects in other respects particularly in regard to road-rail-Co-ordination. The bill brought before Parliament in 1955 is the latest attempt to review the 1939 Act in the light of these developments and also the change in our economic structure brought about by our First and Second Five-Year Plans.

From Static economy to dynamic economy.—Against the limited traffic offering in our static economy of the forties, the traffic now offering is

considerably more and the railway traffic has gone up to 92 million tons in 1955-56, and is estimated at about 160 million tons by 1960-61 with a gap of 30 million tons.

The most welcome provision of the New Motor Vehicles Bill in India, is that for setting up an All-India Inter-State Transport Commission with a full-time personnel "for the purpose of developing, co-ordinating and regulating the operation of transport vehicles" on Inter-State routes. However, a great deal will depend on the powers conferred on this commission.

The Inter-State Commerce Commission of U.S.A. controls the operations of all companies engaged in Inter-State Commerce whether by rail, water or motor vehicle. Sleeping cars, bus and express companies, as well as railroads, follow the Commission's rulings. Originally, the jurisdic-

tion of the Commission was confined to common carriers engaged in Inter-State transportation wholly by railroad, or partly by railroad and partly by water. Later its authority was extended to all important modes of transportation. To a limited extent even carriers by airplane engaged in the transportation of air mail come within the jurisdiction of this body. Besides the Commission's main task of promoting safe, adequate, economical and efficient transportation service, it is also charged with the responsibility of fostering sound economic conditions in the transportation industry. Such a Commission if appointed in "India" will, it is hoped, be able to examine the transport co-ordination problem in a detached manner and arrive at decisions which are in the national interest.

(To be Continued)

ON LAUGHING TO DEATH

S. R. SRINIVASA RAGHAVAN

Integral Coach Factory

I had the opportunity to watch closely the last days of two of my grand-parents. One, having lived a highly disciplined life till the age of 77, died in the most peaceful manner. In fact I did not expect that death would come to him so stealthily. But I heard later from my mother that her father had anticipated death in quite an accurate manner.

My maternal grand-mother, on the contrary, was a troublesome old guy during her last days, with blood pressure urging her on to all sorts of mischievous activities which were a regular nuisance to people in the household. Towards the last stages she got ulcers of a despicable kind all over her body and died a very sorrowful death.

Death by itself may not be so horrible, because it is after all a natural consummation of life. But the process of dying makes a world of difference. To have a peaceful retirement, with sufficient wherewithals secured for the morrow and with close and dear people around you to be of service in your last days, is a veritable good fortune. Otherwise the last lap of the life on earth becomes miserable, everybody around you accusing you of having spent a life of no use to anybody. The impulse of the moment does not permit one realise that destinies are after all different, that everyone has got an allotted mode of living and dying.

All these thoughts came to me when I read an item in the daily newspaper recently that in a Bangkok hospital a man laughed himself to

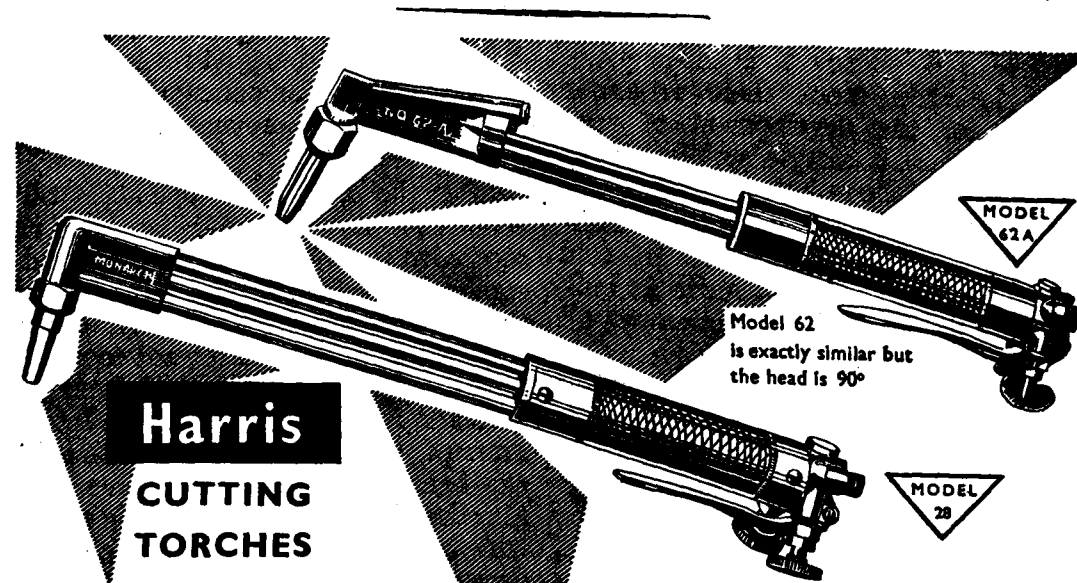
death. The tragedy was he was still in his twenties but the manner in which he died was really enviable. Just imagine a situation in which everyone of us, after having finished the allotted span of life on earth, sits quietly and laughs himself away to death.

The laugh represents the best of human emotions. Apart from the physical incongruities into which some people indulge themselves while laughing, the laugh by itself stands a show-piece of the best mental condition. There are different kinds of laughing: the bullet laugh, the machine-gun laugh, the airy laugh, and the laugh which contracts your whole body and threatens blowing it off to smithereens.

I for one would have liked to have been present at the Bangkok hospital while the young man was indulging in his last laugh. I am able to imagine that the laugh ought to have been a very prolonged affair, finally shutting his lungs off into inactivity.

I have heard about dying men still anxious about properties, futures (of course of others), and the like. It is really a highly tragic situation that a man in the arms of death should continue to entertain feelings of kinship with people around him and feel sore over his commissions and omissions.

Abbot, in his celebrated biography of Napoleon, has narrated at length the last days of the great monarch on the shores of St. Helena. Even as the emperor shot his way up from an



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insignificant corner somewhere in Italy, secured the renown of a born master of army strategy, gave Europe his *Code Napoleon* and lived a full and wholesome life, he also died the most peaceful death, though hounded out of Europe by his enemies.

Laughing one's way to death is a really wonderful thing. It is exactly similar to laughing oneself through an unhappy situation. It is the most natural invitation to the most natural result of life on earth. Like the swan that sings itself to death, man ought perhaps to know of laughing himself into the arms of death, which is the final destiny of every living being.

2,000 M. G. WAGONS FOR SOUTHERN RAILWAY

(Continued from page 39)

stages and to impart proper instructions on the spot and rectify defects, if any. By April, 1957 nearly 2,500 covered wagons, 4-wheeled have been assembled and were handed over to public use. On the Southern Railway there has always been acute shortage of wagons and adding of these 2,000 wagons to the existing wagon fleet will be a boon to the industrial community.

It is to be mentioned that these wagons bear a symbol of two hands gripped in hand-shake as a mark of gift wagons. Thanks to the American Aid.

HOW RAILWAYS ARE NOT ONLY GRUBBING FOR FACTS BUT ALSO STRIVING FOR ENLIGHTENMENT

THE Indian Railways regularly publish operative statistics such as gross ton miles hauled per train engine hour, wagon miles per wagon day and net ton miles per wagon day, average speed of trains, etc. For instance the average speed indicates whether trains are running to time or not. The higher the speed, the higher will be the gross ton miles per train engine hour and the lower will be the cost to the Railway. Gross ton miles hauled per train engine hour is one of the most important items of statistics and it is the true index of the operating efficiency. It shows the work done by the Railway (gross ton miles hauled) per unit cost expressed in terms of a unit of energy expended (for an engine hour). All the other items affect one or the other of the two factors of this item. The more the gross ton miles hauled per train engine hour the lower the cost to the Railway and the higher will be the revenue and profits. This is specially important during the Plan period where more goods trains are run and better results have to be obtained. This gathering of statistics may be considered to be one of the activities to be classed under grubbing for facts. The new suggestions made and conclusions arrived at regarding the working of the Railways in the matter of operation may be classed under striving for enlightenment.

Investigators may be divided into two main classes: those who strive for enlightenment and those who grub for facts. The first are the searchers to whom we are indebted for basic

discoveries of new methods, fresh valuations and alternative interpretations. The second are researchers who churn over old ground. In this article the writer intends to show how the Railways are grubbing for facts and at the same time striving for enlightenment.

RAILWAY TESTING AND RESEARCH:

Research work upon Indian Railways may be said to have begun in 1935 under the Central Standards Office, but the volume of work increased steadily and it was found necessary to create a separate Railway Testing and Research Directorate in September 1952. This has its headquarters at Lucknow and sub-centres at Chittaranjan in West Bengal and at Lonavla, near Bombay. Distribution of the works is outlined below. The Centre functions directly under the Railway Board, in charge of a Director, at present Sri S. L. Kumar.

The Centre publishes a quarterly journal called the "Indian Railway Technical Bulletin." Documentation Notes giving a survey of technical literature are issued every month to all the Indian Railways and to a number of Railways outside India, particularly those in the ECAFE region.

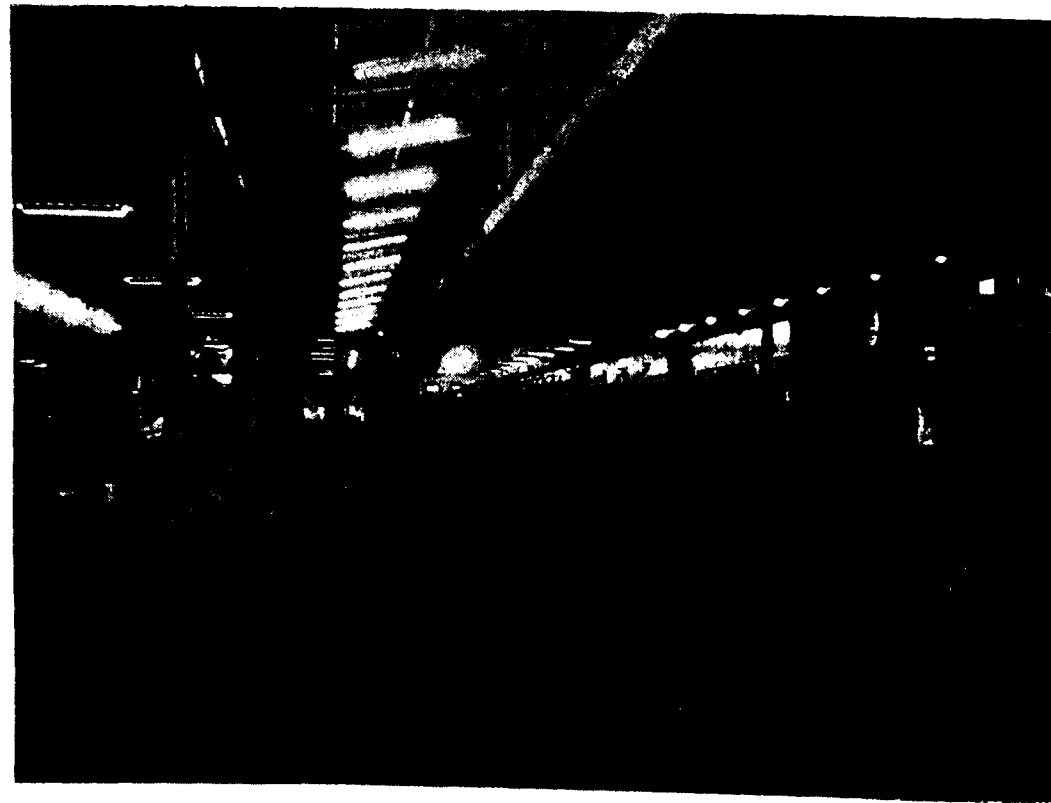
At Lucknow, problems concerning bridges, steel structures, mechanical engineering and instrumentation are dealt with. The Research Centre and Colony at Lucknow includes a fine modern air-conditioned administrative block and laboratories, and a library.



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Midnight in Madras Central Station

At Chittaranjan the buildings include a paint house with a floor area of 4,000 sq. ft. for the equipment required for the manufacture of paints, varnishes, resins and adhesives.

Soil mechanics courses are held at Lonavla for the engineering staffs of seven Railways and a cell has been formed on each Railway for solving routine problems.

To co-ordinate the work of the directorate and draw up priority programmes for its efficient operation a Research controlling Committee has been appointed under the Chairmanship of the Chairman of the Railway Board. Thus it is clear that the Indian Railways are progressing rapidly

in the scientific approach to efficient construction and maintenance and for ensuring safety in operation, economy in maintenance and self-sufficiency.

STEEL CASTING FOUNDRY AT CHITTARANJAN:

An agreement was signed on May 31, 1956 between the Government of India and the International Technical Co-operation Mission of the United States providing for the allocation of 144,000 dollars by the International Co-operation Administration for obtaining consultant and technical services for the completion of a steel casting foundry at the Chittaranjan Locomotive Works. The present agreement is a supplement of the

Technical Co-operation programme Agreement signed between the Government of India and the United States on January 5, 1952.

SOME USES OF LOCO COAL ASH AS A BUILDING MATERIAL ON THE RAILWAYS—MECHANICAL:

Large quantities of loco coal ash become available on the Indian Railways. In limited quantities they are being used as a non-cohesive embankment material under emergency conditions. They are also sold to industries for use in brick and lime burning. Nevertheless, considerable accumulations of coal ash take place, the disposal of which involves transport and high expenditure. The use of coal ash is, therefore, being studied by the Railway Testing and Research Centre with particular reference to its possibilities as a cheap building material.

The experiments carried out prove conclusively that coal ash can be used as Jack arch elements for roofing. The use of coal ash for construction work has bright future on the Railways which have abundant supplies of the coal ash.

The centre in every activity has as its primary object the obtaining of

new information in a specific field possessing importance to the Railway. It deals with and experiments with materials well adapted to experimentation as the uses of local coal ash as building materials. *This part of the investigation is churning over old ground.* The discovery that coal ash could be used as Jack arch elements for roofing is that part of the investigation which gives promise of leading to interesting and important problems and prepare the investigator for handling them.

NEW METHODS ALTERNATIVE INTERPRETATIONS, ETC.

APPLICATION OF SCIENTIFIC DEVELOPMENTS TO RAILWAY OPERATING SIDE:

There is also the need for the progressive application of modern scientific technological developments to railway operations with a view to increasing the efficiency of operation. This assumes special importance in view of the serious problem of the rising working costs and the possibility of substantial economies in operation which can be secured by increasing use of the contributions of science in various fields of railway operation. It will have to be carefully thought out what specific technological

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developments can be adopted for improving railway operations.

The emphasis is being shifted slowly from more investment on schemes to the search for ways of maximum utilisation of the existing capacity and the prospective additions to it proposed in the Plan.

The use of teleprinter and telecommunication services to report and regulate wagon movements will aid quicker movement of wagons. With present shortcomings of rolling stock and track, there should be unremitting effort in chasing wagons wherever they are, in loading and unloading centres, marshalling yards or break-of-gauge points.

INTENSIVE DEVELOPMENT OF RAILWAY WHICH HAS BEEN TAKEN UP INCLUDES THE FOLLOWING ITEMS :

(a) The track and signalling must be improved to make higher speeds possible over main line, and to provide for better utilisation of the physical assets; there will be an extended use of colour-light signalling, track circuits and automatic train control;

(b) Steam must be replaced as a form of motive power, electric or diesel traction being rapidly introduced as may be most suitable in the light of the development of the Plan over the years; this will involve the electrification of large mileages of routes, and the introduction of several electric or diesel locomotives.

MISCELLANEOUS :

An unusual complaint of bug nuisance was received frequently from passengers travelling by the Bombay Poona Janata Express. Two samples

of insecticidal varnish sent to the Central Railway by the Research Centre were found effective in destroying the bugs and also in preventing re-infestation for a period of two months.

In the field of passenger amenities, the advances made during the First Plan period are too well-known to need recounting. Some revolutionary reforms have been introduced in third class travel, in keeping with the dignity of the common man in a society which is working for a socialistic pattern of living. The passenger who now travels third, no longer does so with a feeling that he belongs to the "forgotten class."

FULLY AIR-CONDITIONED TRAINS IN INDIA :

Each train consists of seven cars; one restaurant car; one first class sleeping car, three third class chair cars, and two baggage, brake and power cars; the cars were built by the Western, Central, South-Eastern and Eastern Railways respectively.

The kitchen is divided into two sections, one for Vegetarian and the other for Non-vegetarian meals; each is provided with a separate electrical cooking range. Incidentally, this is the first time in India, that such kitchen arrangements are made in dining cars. Towel rails and wash-basins with mirrors above have been provided. The pantry has arrangements for a refrigerator and cold storage, and also for hot water supply.

Each rake will have two luggage brake and Power cars attached, the reason is to provide 100 per cent standby in case of emergency or during routine maintenance.

X-RAYS AND ITS USES

Dr. L. R. PARTHASARATHY, M.B.B.S., D.M.R.

Southern Railway Hospital, Madras-23

I thought that it would be better to pen something of my pet subject for this annual number and I shall narrate here just a few important facts about the uses of X-rays and the history behind its discovery. The story behind this medical speciality, viz., radiology, its origin, development and rapid growth to maturity, reflects the tempo at which medical knowledge has been expanding. Medical historians are unanimous in respecting the discovery of X-rays among the milestones that punctuated the onward march of medical science. I shall not hesitate to mention the 5 outstanding contributions in physical diagnosis in the preceding two centuries before the discovery of X-rays, viz.,

- (1) Discovery of circulation of human blood by Harvey in 1628.
- (2) Introduction of microscopy by Van Leeuwenhoek in 1670.
- (3) Initiation of percussion by Auenbrugger in 1761.
- (4) The invention of stethoscope by Laennec in 1819.
- (5) The gift of Ophthalmoscope by Helmholtz to the physicians in 1851.

It is needless for me to say that the discovery of X-rays is followed by a drastic alteration in the pattern of medical practice.

At present, in all the States of the country, particularly in Madras State almost every District Headquarters Hospital has an X-ray plant and I am sure this important facility will be extended even to the Taluq and Village Hospitals in succeeding Five-Year Plans. No doubt, the Railway is

not in any way behind this march of event and it is pleasing to note that every Divisional Headquarters Hospital is having an X-ray plant.

The great discovery of X-rays by the German physicist Wilhelm Conrad Roentgen took place on the evening of November 8, 1895, in the physical laboratory of University of Wurzburg. It is the genius of man and not the perfection of the apparatus and appliances that reveals the mystery of nature and the discoverer did not for a moment think that he had found a new form of rays, which has the strange and unbelievable property of penetrating matter opaque to light. Roentgen, the only son of a German cloth merchant was not a bright boy in the school. He was the victim of a fellow student's prank and was expelled from the school. He never matriculated! Roentgen married Bertha Ludwig, who was six years older than him. Roentgen was a strict man to deal with, even to his wife. He was fond of smoking and preferred ordinary clay pipes to costly ones. For the first time, he presented the X-rays to his wife's astonished eyes after the discovery. The radiography of his wife's hand has become historical as the first X-ray picture. Roentgen was one who followed the great tradition of the professors of the German Universities and did not make any money by any control or patent rights of his own discovery. He was the first to receive the Nobel Prize for Physics in the year 1901. He lost his wife in 1919 and he died on 10th February 1923 of Cancer of the inter-cities.

This discovery in one corner of the laboratory was flashed to the four corners of the world in no time. Newspapers and periodicals competed with one another in the publication of sensational stories of this discovery. To quote a few of the rumours afloat: one school of thought laughed it off as a big joke, another read it as a fairy tale and another thought it was a piece of hallucination of a sick mind or a trick of a practical juggler. It is said that a farmer curiously enough converted cheap pieces of coins totalling 13 cents to 153 dollars worth of gold in about 3 hours exposure to these rays and this attracted some who wanted to make money. Truth and untruth could not be discriminated and it took sometime to settle down.

The use of X-rays for the examination of human bodies is very well known to everyone in 1957. Patients and their relatives who flock to the Railway Hospital, Perambur, even of the illiterate class seem to have a greater faith in X-ray picture than in the kind words of a Doctor for a prescription or a surgical procedure. When the Railway Doctor pauses for a moment to think about the ailment of the patient, the latter does not hesitate to interrupt the thoughts and out he comes in his mother tongue "Doctor, why don't you take a photo and see" (photo—he means an X-ray picture). Ordinarily bones and joints are X-rayed, as they are, but for the visualisation of the internal and deep seated organs a substance is given which is opaque to X-rays and the examination is then done. The examination of the alimentary tract is done by a meal which is given to the patient and it is known as Barium meal examination. X-rays have become

indispensable for the detection of early tuberculosis and X-ray pictures are taken on a mass scale to detect early cases. It is a matter of gratification that the Railway Administration is the first Government sponsored institution in our country to introduce a medical check up for recruits taken up for jobs by routine chest X-rays. We have a plant installed at Perambur which has a photographic unit which can take X-ray pictures on a mass scale. We are going to install such units in Southern Railway Hospitals at Golden Rock and Madurai. Early detection of tuberculosis and other ailments by X-rays is a boon for maintaining the health of population as a whole and in this, the Railway has taken a lead. Children accidentally swallow metallic parts of playthings and foreign bodies such as coins, gramophone needles, safety pins, etc. This could be easily detected and located by this wonderful rays. In pregnancy, X-rays help the Gynaecologist and Obstetrician to know beforehand whether it is a case of twins or more in the abdomen. It is a common occurrence in the Railway workshops that a small metallic piece flies and get embedded in the tissues of the body of the workmen and this could be detected by X-rays. X-rays are admitted as evidence in courts to pay compensation for workmen who get injured on duty.

In abduction and kidnapping cases, in cases of murder, the period of conviction is quite different if the accused is below 18 years and to ascertain the correct age, X-rays are used. X-rays are also helpful in the Customs to check smuggling. High-healed shoes, false bottom trunks,

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people who had swallowed gold, diamond, etc., could be detected by X-ray examination. In the industrial field again, X-rays give a helping hand and internal flaws of mechanical parts are detected. It is pleasing that the Integral Coach Factory at Perambur has ordered an X-ray plant for its industrial use. In Western countries shops selling high class shoes have X-ray plants fitted up to X-ray "the feet in shoes" and give proper fitting to the satisfaction of the customers. Thus, the use of X-rays has come to stay in almost every field of human activity. X-rays are also used for the treatment of diseases like Cancer, malignant growths, skin diseases, etc. Roentgen, the discoverer called these rays as X-rays (X denotes nobody), and the discoverer has gone but he has immortalized the realm of science by his discovery and I take this opportunity of paying my humble tribute to that great man.

DO YOU KNOW?

Indian Railways represent a total capital investment of about Rs. 974 crores and are India's largest national undertaking.

* * * *

During the First Five-Year Plan, 1,053 locomotives, 4,554 coaches and 29,375 wagons (in terms of 4-wheelers) were added to the rolling-stock, which, after deducting the condemned stock removed from the lines, stood at 9,262 locomotives, 23,779 coaches and 251,407 wagons on April 1, 1956. The railway's plan during the Second Plan period is to procure 2,258 locomotives, 107,247 wagons and 11,364 coaches.

SOUTHERN RAILWAY

TENDER NOTICE

Tender No. S/236/1/EB1/467/PWP/1

Sealed tenders are invited for the supply of 1,500 Numbers of Carriage and Wagon Draw Bar Springs (Spring steel) and will be received by Controller of Stores, Southern Railway, Aynavaram P. O., Madras-23 before 15 hours on 22-4-1957.

The prescribed form is obtainable on payment of Rs. 5 per copy in cash or by M.O. Remittance by any other means will not be accepted.

Tender forms will not be issued after 12 hours on 18-4-1957.

Controller of Stores

BEAUTY IN BOOKS

S. VIJAYAVALLI

I do not mean books with fine get-up, merely. Of course, we all like books with attractive covers and coloured pictures. The child in us has not perished to be indifferent to such a charm. But what I mean, is a deeper beauty, the beauty of the contents of a book.

"Truth is Beauty: and Beauty is Truth. That is all you need to know on earth"—there, the poet has laid down the last word on Literature. So, books possessing beauty, become literature. While all of us accede to this standard, many of us fail to appreciate the roses in the desert and gems in the unfathomed depths of the ocean as Gray would grieve.

Striking instances of such abiding beauty passed unappreciated, are some flowers of the 'crime branch'—that branch of literature that is denoted as detective fiction. Who among us has not been thrilled to follow the best detectives—past-masters—in the pursuit of criminals?

Chesterton's Father Brown is one such favourite. With his small stature and idiotic countenance, he solved the most intricate problems of crime-way-life. For all his funny ways and foolish looks, he was a first class detective. A clergyman that he was, he converted Flambeau, the master criminal of Europe, into his best friend and to a right way of life. The very story of this conversion, spread among various stories, is splendid.

To take one palmary instance, "The Blue Cross" relates to the days when Flambeau was a law-breaker. Father Brown in it frustrates Flam-

beau's plans to steal the silver cross. Flambeau, for his part, has duped Valentine the famed French police detective who has followed him to England. Valentine in the end, arrests Flambeau. But before fettering him, he salutes the criminal acknowledging his capacity. Flambeau stops him in the act and points to the priest as the person fit to be bowed to, by both of them. They two stand bare-headed for a minute while the priest stands blinking. The master criminal and the best professional detective, paying their homage to a simple priest! Is it not beautiful?

Few would not have read Sherlock Holme's stories. He is a human sleuth seeking the criminals. He appears to have no tender feelings, caring not for others and considering not his own life. Yet one occasion lifts this hard mask and reveals the affectionate heart that lies within. Dr. Watson, his bosom friend and chronicler who accompanied him in pursuit of a criminal receives a shot. Luckily it proves not serious, in the end. Yet, for one moment, Sherlock Holmes is tormented by the doubt that perhaps he has imperilled his friend's life. Tears fill his eyes. Watson says that one moment was worth anything; it had revealed the affection, Holmes had for him. This passage in Doyle's book is touchingly beautiful.

Beauty of thought is what lies in the above instances. There is another beauty also, the beauty of Expression.

Uncle Abner, the master of mysteries is another first-rate detective.

(Continued on page 80)

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IT is not everybody that can be Robinson Crusoe, living all by himself in a lonely island, far from any kind of civilisation. The gregarious tendency in man is ever potent and so he lives in groups and clusters. Even in the remotest of villages, you will have a few others living in the same area with you. And if you happen to be in a big and crowded town, then of course, you will be surrounded by a host of neighbours, some good, some bad and others in different. But no matter where you are, your behaviour does affect the lives of those living near you. So it is, in a way, up to you to maintain good and cordial relationship with your neighbours. Whether or not you are a good neighbour depends more upon how you handle this human relationship, which is both casual and intimate. Unhappy and hostile relationship with those around can really make a person most miserable and can even go to the extent of imperilling one's sanity. Let us see now, how one can entertain and encourage good neighbourly feelings.

A good neighbour is neither a relative nor an old friend. He is both, more and less. You will find that a sound relationship with the folks next door depends upon basic congeniality and also etiquette. Being a neighbour is a matter of give and take on both sides. It really takes time, tact and a linking for people, to learn all the rules; being neighbours takes a set of good manners all its own.

When you become a neighbour, you will be one for many years. Neighbourliness may ripen into friend-

ship, but that ripening cannot be hurried. It is vintage stuff. Remember that, especially when you are a neighbour who pays a call. Most of your neighbours are glad to have you visit them. If they should not happen to be in the mood, however, they have enough polite veneer to conceal the fact that they have been unpleasantly interrupted. Usually, though a woman may be in the middle of housework, she is honestly glad to stop and chat for a bit. But when it becomes an almost daily occurrence, the visitor trespasses the limits of hospitality. You really want to be the raisins in your neighbour's bread and not the dough of it, to be sure. So, if you want your neighbours to be glad to see you, don't call too often, and don't stay too long.

If you offer any help to a neighbour, don't prostrate yourself. The general rule is not to do either too little or too much. I would accept from one of my neighbours an offer to pick up a loaf of bread when she shops, or a lift into town, much more readily and happily than the loan of a precious tablecloth, or an offer, let us say, to take complete charge of my children while my husband and I jaunt off for a cross-country walk. After all, when a neighbour accepts a favour, she is under obligation to you. Yes, she will think so whether you do or not. Everyone appreciates small thoughtfulness, but no one wants to accept a favour he cannot, or is not willing to repay. So curb your generosity a bit—give your neighbour a few flowers at a time, instead of stripping your garden.

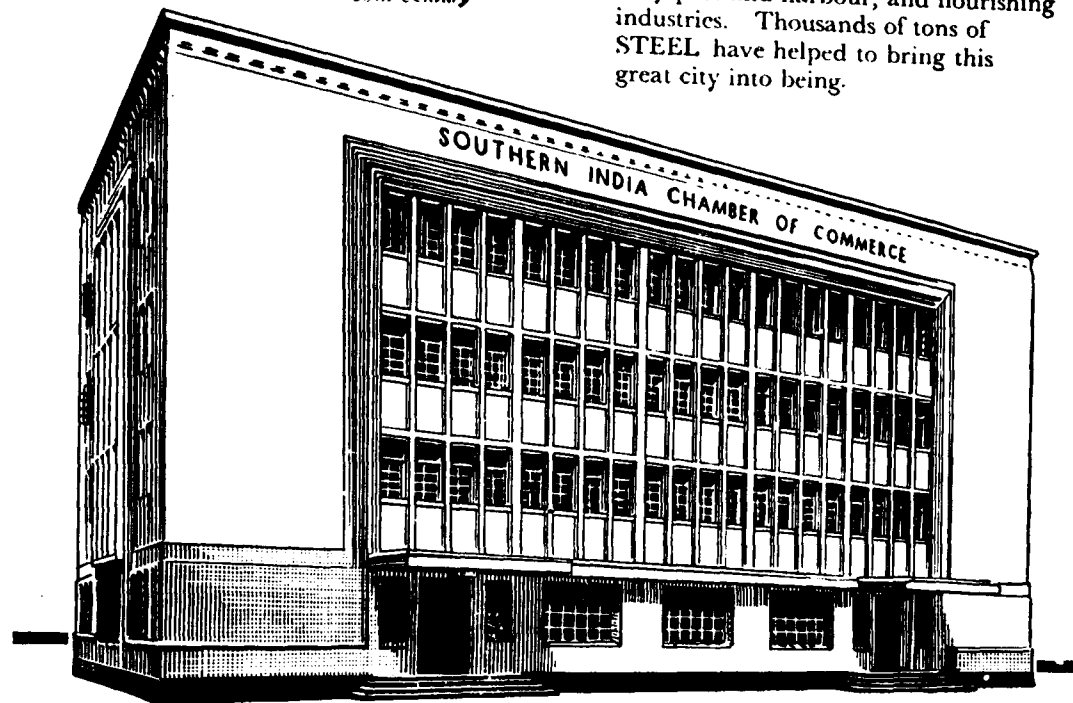
*"Where now the city stands,
there was once naught but the city's site." OVID*



Madras street scene
—18th Century

Madras

February 1640. Sailing along the Eastern coast of India Francis Day reached a tiny village of a few scattered huts. In a short time human hands raised a small town of palm-thatched mud houses. In the course of the centuries on this very site has arisen a modern city with well laid-out roads, palatial buildings, a busy port and harbour, and flourishing industries. Thousands of tons of STEEL have helped to bring this great city into being.



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April 1957

WOMEN'S PAGE

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Then make it a general rule to stay in your neighbour's place only briefly if she has visitors. They might be having something private for discussion and hence you shouldn't embarrass them by staying on. Chat for a few minutes, and then take your leave, and even if her invitation to sit down, sounds cordial decline it. And another important tip: never stay for a real visit when your neighbour's husband is home, unless you have something very important to discuss or if the subject-matter happens to interest the husband too. Given two women and a man, you generally do not have a romantic triangle; two women discussing just recipes, servants and patterns, can really bore a man to death. Unless you happen to have your husband with you, and the two men are hitting it off, I would advise you to state your business and be off.

When you are in your own home and a neighbour calls, be casually friendly. Don't stop in the middle of your cooking. Tell her what you are doing, ask her to come along into the kitchen while you finish—but get on with the job. If you were to call on me, and caught a glimpse of ironing being done, you would, I am sure, feel much more flattered if I had made you sit on the step-stool and finish it, than if I treated you like a V.I.P.

Are you about to go out? Are you expecting company? Then tell your neighbour so and she won't mind—there will be plenty of other chances to visit you peacefully. When those chances come, enjoy them. A neighbour can be a delight if you behave naturally from the start. Take, for instance, the matter of refreshments. If you have a pot of coffee on the

stove, offer her some. You will see your neighbour often, and so if you start out too elaborately, you may not enjoy it indefinitely, and she, poor woman, will have to reciprocate with equal fuss.

Whatever it is, do only what you can do without strain. If you are in the habit of wearing a housecoat all morning, keep it on when she drops in before noon; if your living room is not tidied up for the day, don't apologize or run around plumping up pillows and concealing dirty ash-trays. What is good enough for you is good enough for any drop-in caller.

If you have time only for a short visit, but would like to get something done later, don't protest when she makes her first move to leave. She will understand perfectly if you say: "I would like to sit here and talk all day, but I have promised little Ramu to mend his cowboy suit before lunch". Don't forget she is a housewife too and probably has a Ramu of her own.

Neighbours' children is another major problem about which you should be extremely careful. If one of your neighbourhood children ever really steps out of line—smashes a window or crayons the wall—do, if you can, deal directly with him, not with his parents. I imagine that if there were any statistics available on the subject, we would find that more neighbourhood quarrels have started over the behaviour of children than over any serious adult programme. Don't tattle to his folks unless you are at your wit's end; and even then, try to get the child's point of view. Don't forget that he is your neighbour too!

Really, neighbourliness is an art indeed!

THE TRADITIONS OF THE SERVICE

ONE OF THE SPECIES

IN the early decades of this century positions in the higher services which were held almost exclusively by Europeans were slowly being released to Indians and every such release used often to be accompanied in the Indian Press by a fan fare of trumpets that so and so was the first Indian to hold such and such a post. The atmosphere at the time was hence one in which such Indians usually felt themselves particularly on trial, what with certain Europeans particularly on the look out to catch and expose any mistakes made by these men so that the process of Indianisation could be thereby slowed down.

As a natural consequence of this state of affairs it soon followed, what with an increasing number of Indians holding important posts, that many an European Officer started to look not only at the contents of letters, recommendations, and notes but also the name of the person from whom the matter emanated, to see if it was from an Indian or an European and assess their contents accordingly.

When things were so, it once happened that one of the Indians to get so promoted to an important post had, unusually, a completely European name—let us say, John Bull.

Now, this gentleman not only had an English name but also wrote as strongly as an Englishman of the day, who had not to watch his steps constantly, with the result that a large number of Europeans were deceived into taking action on his letters as if they really originated from an European.

In the circumstance disillusionment had surely to come and with that much chagrin! But there was no law by which Mr. Bull could be made to change his name! And he was perfectly within his legal rights to

write as he did—And worst of all, the recipients had already approved of his actions by the time the truth of the colour of the writer reached their ears. Then there was the fact that even the slightest whisper that notes and letters were not judged on their merits but on the basis of the colour of the writer would have resulted in the native press raising hell, not to speak of the Legislative Assembly at Delhi.

The Government of the day had an European Home Member who had to find a cure for such headaches. He was a shrewd Scotchman but the problem was very baffling even to him. However, after many a sleepless night, this gentleman whom I shall call Homes, suddenly had a brain wave! Rumour went at the time that he was so much excited by his idea that he immediately phoned up his Chief, the Governor, though it was then midnight and it was against all etiquette to do so.

The solution was very simple. It resulted in Mr. Bull being announced in the very next "Honours" list as a "Rao Bahadur," a title reserved only for such Indians as had done particularly acceptable public service. This of course entailed every letter carrying Mr. John Bull's name to carry the Indian title too, as not to do so would have led to interpretations of disloyalty to Government! And knowledgeable circles in the higher echelons of the White bureaucracy saw in Homes being knighted in the same "Honours" list, Government's recognition of an eminently tactful solution of an extremely delicate imperial problem—whatever the official citation may have said of Mr. Homes or Mr. Bull's services to the Imperial Government!

CHILDREN'S CORNER

The Story of Fixer the Fox

FOXES have always been known as cunning animals, who sneak into a fowl house at night to steal fat chickens, which they enjoy as their dinner. And if a farmer ever spots a fox the first thing he will want to do, is to reach for his gun and put a bullet into that sly, slinky animal. But this is the story of a fox who used his cunning in another way; so we introduce "Fixer the Fox".

Once upon a time, on a very cold winter's evening the Count of Glint, young and handsome, but not so rich, was sitting by his cosy fireside, looking rather sad. At his feet, and curled up near the fire was his pet, Fixer the Fox. The Count suddenly heaved a big sigh and said loudly: "Ah, me, what's the use? It can never be." Fixer heard this and asked, "What can never be?"

The Count replied: "How can a poor Count like me ever hope to marry the young and beautiful daughter of the King?" Fixer grunted: "Huh, and why not? I'll soon fix that." The Count was doubtful. "You'll fix that, how?" Fixer's little foxy eyes glittered. "Just leave it to me. Don't you know our fat King loves eating apples. Well, I'll give them to him and say that you sent them. He'll do anything for plenty of apples." The Count replied: "Are you mad, Fixer? Where can you get apples at this time of the year, with snow all over the ground and not a leaf on trees?"

Fixer smiled. "You don't know anything, Count. But I know, where there is a magic apple tree, loaded

with apples at all times of the year. Now, just leave it to me, and I'll have you married to the king's daughter within two months; but on one condition....."

The Count now said: "Ah, I thought there was a catch to it. Well, name your condition." Fixer replied: "No catch. Only when I die don't throw me into a ditch or dustbin, but put me into a nice coffin, bury me in a grave, and put a nice tombstone over it with the words 'Here lies Fixer the Fox, my Very Good Friend'." The Count smiled. "Why, that's not much to ask Fixer. Don't worry you'll get your nice burial and tombstone, so get started to have me married to the king's daughter in two months time."

The next morning Fixer got hold of a basket, trotted off to his magic apple tree, climbed up, shook it and filled the basket with lovely, rosy apples. Then off he went to the king's palace, where he was brought before the king, and laid his gift at the king's feet.

"Sire," said Fixer, "I bring a humble gift from my master the Count of Glint, your loyal subject, and with his humble compliments." The king rubbed his hands together, rolled his eyes and replied: "Ha, my favourite fruit. But tell me, where did the Count get these, with all this snow around." Fixer answered: "Sire, my master can get anything." The king, picked out a fat, red apple from the basket and took a large bite, exclaiming, "Hmmm! Nice apples these. My compliments to the Count, and what can I send in return."

Fixer replied: "Nothing, Sire. My master is a rich man, and I'm sure he would feel insulted if you sent any gift in exchange." The king, by this time thinking of eating his second apple, said, "Oh, well, just give him my very best thanks."

A week later Fixer was back at the palace with another basket of rosy apples. The king accepted them with great joy, and again offered a gift in exchange. But Fixer refused to take anything but the king's thanks.

Another week went by, and Fixer presented the king with a third basket of apples. This time the king said, "Come, come, little fox, I cannot keep on accepting your master's apples and give nothing in return. It's not done, my dear fellow. I'm a king and must show I'm grateful besides just mouthing a few words of thanks. Now, what is it to be?"

This was the test. Fixer hesitated, then said: "The Count does want something very much, Sire, but I'm afraid you won't be able to give what he wants." The king was ruffled. "What! I, a king, cannot give your Count what he wants. Don't talk nonsense, little fox. The king can give anything, except of course such things as the stars and moon and so on, which only a madman would ask. Now, out with it, what is this precious thing your master wants so much?"

Fixer still hesitated, but then said, "Sire, my master wants to marry your daughter."

"What!" roared the king, "my daughter." But then he stopped roaring and thought of those lovely, juicy apples. "Why, certainly any

man who can produce such fine apples any time of the year, is fit to be my son-in-law. Now, trot off and tell the Count I'm fixing the wedding two weeks from date."

Within a few seconds Fixer was out of the palace and streaking off to give the good news to the Count. "I've fixed it, Count. You're to be married to the king's daughter two weeks from today, so let's get started." When he heard the great news, the Count was a little dazed. So he was to be son-in-law to a king, but how. He was so poor and he told Fixer this. "You don't have to worry about that, Count," said Fixer. "I've fixed up your wedding with the king's daughter and I'll soon fix the other things you want. But remember my condition, which is most important."

The Count of Glint married the king's lovely young daughter on the appointed day, with great feasting and rejoicing, and after it was all over the king said: "Now, my boy, you must take the bride home to your grand castle, and I'm coming along with you to see that she settles down nicely. Don't be alarmed, I'll just pop into for a day or so, look around, collect some more apples from you, and then back to my little palace..."

The Count almost jumped when he heard this, as he had no grand castle, but just an ordinary house. He was about to tell the king this, when Fixer, who was nearby, said: "Sire, that will be fine. We'll give you a grand welcome in our big castle."

The next day the Count, his bride, the king and his escort of armed soldiers set out on horseback to the Count's castle. Fixer had gone ahead

early in the morning and by the time the king's party started, he was at the steps of a grand castle. The owner of the castle, a huge, ugly old man, came out and told Fixer to be off, or he would club him, but Fixer threatened, "you can't do that to me, I'm the king's pet fox, and he wants the use of your castle for a few hours to rest on his long journey. And while he's here, you must not be seen. Only your servants must be ready to wait on him."

The ugly fellow was about to refuse, when Fixer told him to look up the road. "If you don't hurry and get yourself out of the way, you'll have all the king's soldiers on you." The old man was now afraid. "Where shall I hide?" Fixer replied to him: "Follow me," and taking him to the castle kitchen, opened the doors of one of the large empty ovens, said: "Get in there quick." The old man got in and closed the door and hid.

The king, the Count and the bride then arrived. The king looked around the castle with admiration. "This is a grand castle, my boy. My daughter is sure to like it." The Count was about to tell him that the castle wasn't his when Fixer gave him a nip in the leg to remind him. While the king and his party made themselves comfortable, Fixer had the oven lighted, and before long the old man was burnt to a cinder. So Fixer had fixed the castle too for his master.

Time rolled on. The Count and his lovely bride were happy until one morning while she was walking in the garden she saw Fixer lying still on the grass. She stopped to see what was wrong, when she screamed "Fixer's dead, Fixer's dead." The

Count heard her screams and came running out, and there he saw Fixer lying so still. His wife crying and saying, "he was such a nice fox and did so much for us; we must make a lovely coffin for him and bury him in a grave with a tombstone." But the Count replied harshly, "Rubbish, I'll get a servant pick him up and sling him into the ditch outside the castle wall. The rats and vultures can then have a meal off him."

But Fixer was not dead. He was pretending. He now jumped up and said, "So, you ungrateful twister. After, all I've done for you I'm to be thrown into a ditch for the rats and vultures. Well, kill me and go ahead to do what you say and then see what will happen to you."

The Count was now a little frightened and felt sorry for not remembering his promise. Fixer was right, as without his help he would never have been able to marry the king's daughter and have a grand castle. So once again he made a solemn promise that when Fixer died he would bury him decently and have a tombstone over his grave.

UNCLE TELLATALE.

The present installed capacity of building 20,000 wagons per annum is now being increased by another 16,000 wagons per annum. (The total indigenous production in the first year of the First Five-Year Plan was 3,700 wagons).



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THE INDUSTRIES OF INDIA— IRON AND STEEL

Booklet published by the Burmah-Shell Oil Storage and Distributing Co. (India), Ltd.

The Burmah-Shell—India's Life and part of it—which is playing an important role in the development of India's industry, Commerce, Irrigation Projects and Agriculture in the Five-Year Plans, is also blazing across the literary horizon by publishing valuable booklets under the series of the Industries of India, Projects of India, etc. The Booklet under review is the one pertaining to the Industries of India—Iron and Steel.

"Gold for the mistress—silver for the maid—
Copper for the craftsman, cunning at his trade ;"
"Good !" said the Baron, sitting in his hall, "But
Iron—Cold Iron—is master of them all."

The Baron in Kipling's 'Cold Iron' was not wrong after all, when he extolled the supremacy of iron over other metals. Kipling's verse may serve here as the introduction to the great story of a metal which has served humanity from time immemorial—a metal which has always signified strength and power. The origin of iron is shrouded in the mists of antiquity. To the early man, it was the "heavenly metal", a celestial gift to the world. Some scientists are of the opinion that the earliest specimens of iron came from meteors, due to some planetary phenomenon. Whatever its origin, iron became the constant companion of the iron-age man in his day-to-day existence. From it he has fashioned crude weapons that defended him against wild animals and helped him secure his food. We read of the Iron Age in India about 1000 B.C. In China, it was around 500 B.C. Homer makes mention of

steel working and hardening in Greece 3000 years ago. An iron blade, probably 5000 years old, has been found in one of the Egyptian pyramids. Alexander the Great, in his triumphant march, received gifts of Indian steel from the chiefs of the Punjab. Steel-making, as well as the damascening of soft steel, was practised in India from 300 B.C. The wrought iron pillar of Delhi (set up about 415 A.D. by Kumara Gupta I in honour of his father) is over 23 feet in height and weigh 6 tons. Iron smelting in ancient days was common on the banks of the Indus, the Ganges and the Brahmaputra. Heaps of quartz iron ore schist were powdered, winnowed in wind or washed in streams for small quantities of crude ore. The Wootz steel made in India long before the Christian Era maintained India's ancient tradition in steel-making and the richness of her iron ore. India's natural resources of iron ore are plentiful, but the next important raw material, coking coal, is not available in large quantities. The country's reserves are estimated as being sufficient for about 60 years only. Lack of Coking coal, however, can be made good by recourse to electric smelting of iron. The other important raw materials in the manufacture of steel are manganese, limestone and dolomite, all of which are found in abundance in India.

Today, the iron and steel industry in India faces the future with confidence. It is no longer the infant industry it was, handicapped by low production standards and suffering as the result of foreign competition. It has attained international standards

(Continued on page 80)



NEW COINS

From 1st APRIL '57

Exact value in existing coins

10 Naye Paise—(1/10th of a rupee)—1 anna 7.2 pies

5 Naye Paise—(1/20th of a rupee)—9.6 pies

2 Naye Paise—(1/50th of a rupee)—3.84 pies

1 Naya Paisa—(1/100th of a rupee)—1.92 pies

The old coins, namely, 1 pice or 1/4 anna, 2 pice or 1/2 anna, 1 anna, 2 annas, 4 annas, and 8 annas, will be in circulation side by side with the new coins shown above. Four anna coins and eight anna coins are exactly equivalent to 25 Naye Paise and 50 Naye Paise respectively and may be used as such for all purposes. Both the old coins and the new coins will be legal tender in payment or on account.

CONVERSION FACILITIES

CONVERSION FACILITIES WILL BE PROVIDED AT THE RESERVE BANK OFFICES, BRANCHES OF THE STATE BANK OF INDIA, OTHER AGENCY BANKS AND TREASURIES AND SUB-TREASURIES.

NEW COINS WILL BE GIVEN ONLY IN EXCHANGE FOR EXISTING COINS OF A TOTAL VALUE OF 4 ANNAS, AND MULTIPLES THEREOF e.g. 4 ANNAS, 8 ANNAS, 12 ANNAS, ONE RUPEE ETC.

CONVERSION TABLE

The conversion table gives the exchange value in Naye Paise (rounded off in the manner prescribed in section 14 (2) of the Indian Coinage Act 1906 as recently amended) for amount tendered in annas/pies coins. The exact Naya Paisa equivalent of the total amount to be converted is rounded off by ignoring fractions of 1/2 Naya Paisa and below, and treating more than 1/2 Naya Paisa as 1 Naya Paisa.

EQUIVALENTS IN NAYE PAISE FOR VALUE TENDERED IN ANNAS/PIES IN ANY SINGLE PAYMENT.

Old Coins	New Coins	Old Coins	New Coins	Old Coins	New Coins	Old Coins	New Coins
Annas Pies	Naye Paise	Annas Pies	Naye Paise	Annas Pies	Naye Paise	Annas Pies	Naye Paise
0 3	2	4 3	27	8 3	52	12 3	77
0 6	3	4 6	28	8 6	53	12 6	78
0 9	5	4 9	30	8 9	55	12 9	80
1 Anna	6	5 Annas	31	9 Annas	56	13 Annas	81
1 3	8	5 3	33	9 3	58	13 3	83
1 6	9	5 6	34	9 6	59	13 6	84
1 9	11	5 9	36	9 9	61	13 9	86
2 Annas	12	6 Annas	37	10 Annas	62	14 Annas	87
2 3	14	6 3	39	10 3	64	14 3	89
2 6	16	6 6	41	10 6	66	14 6	91
2 9	17	6 9	42	10 9	67	14 9	92
3 Annas	19	7 Annas	44	11 Annas	69	15 Annas	94
3 3	20	7 3	45	11 3	70	15 3	95
3 6	22	7 6	47	11 6	72	15 6	97
3 9	23	7 9	48	11 9	73	15 9	98
4 Annas	25	8 Annas	50	12 Annas	75	16 Annas	100

Rounding off as has been done in the conversion table is necessary only at the end of a transaction when any amount due in annas and pies is to be converted into Naye Paise.

You can make payment either in new coins or in old coins or by a combination of both according to the coins available with you.

The conversion table is, therefore, to be used only at the end of a transaction when payment has to be made or change has to be given as illustrated in the examples below.

EXAMPLES: (Where the amount due is expressed in annas/pies).

For 12 articles, costing $1\frac{1}{2}$ annas each, the total amount due is 1 Rupee and 2 annas, the purchaser may give the entire amount in old coins,

or

pay 1 Rupee and 12 Naye Paise (the equivalent of 2 annas according to the table is 12 Naye Paise).

In the above example, the purchaser may tender 2 Rupees, all in old coins, and ask for the balance. The amount to be given as change is 14 annas. This may be given wholly in anna coins or in new coins, or partly in old and partly in new coins. Let us assume that eight annas is paid in old coins and 6 annas is to be returned in new coins. Use the Conversion table to find the equivalent of 6 annas in new coins which is 37 Naye Paise.

EXAMPLES: (Where the amount due is expressed in Naye Paise).

An article costs 11 Naye Paise. One may pay this amount in new coins or in the form of 1 anna and 9 pies in old coins (the equivalent of 1 anna 9 pies according to the table is 11 Naye Paise).

If a person tenders 20 Naye Paise against 11 Naye Paise due, the change to be returned will be 9 Naye Paise or in old coins, the equivalent thereto namely 1 anna 6 pies.

For a payment of 11 Naye Paise, one may tender a 4 anna coin and ask for change. 4 annas are equivalent to 25 Naye Paise; the balance to be returned is 14 Naye Paise; this can be returned wholly in new coins, or in old coins, 2 annas and 3 pies according to the table are equal to 14 Naye Paise; one may give an anna coin (6 Naye Paise) and 8 Naye Paise in new coins.

It is not necessary to convert rates or unit costs expressed annas/pies into Naye Paise before working out the total amount payable.

EXAMPLES:

If 50 articles are purchased at 3 annas each, first work out the total amount in rupees/annas; You have to pay nine rupees and six annas.

If you have only Naye Paise with you, you find that six annas is equivalent to 37 Naye Paise. You accordingly pay 9 Rupees and 37 Naye Paise.

The result will be the same if you took the exact equivalent of 3 annas (18½ Naye Paise) and multiplied it by 50 but it would be incorrect if you had taken the rounded off equivalent of 3 annas from the conversion table (19 Naye Paise) and then multiplied it by 50.

Similarly, if you buy from anyone a number of articles at the same time at different rates expressed in annas or pice coins, first calculate the total amount due in rupees, annas and pies. Apply the conversion table to the annas and pies in the total amount, if you want to pay in new coins.

You may simplify conversions by remembering that

4 annas ... 25 Naye Paise
8 annas ... 50 Naye Paise
12 annas ... 75 Naye Paise
1 Rupee ... 100 Naye Paise

EXAMPLES:

(1) To make payment of $10\frac{1}{2}$ annas, you may first give 8 annas or 50 Naye Paise; the balance of $2\frac{1}{2}$ annas is equal to 16 Naye Paise;

(2) To make payment of 36 Naye Paise, you first pay four annas or 25 Naye Paise, and then the balance of 11 Naye Paise by tendering 1 anna and nine pies. DA 56/250

BOOK REVIEW

(Continued from page 77)

of production and can compete on equal terms with the world's best.

India's demands on the industry are heavy. National schemes of reconstruction necessarily have priority over private needs. For some time to come, there may be strict control over the consumption of this essential commodity. Imports will be required to meet the demand, until such time as the industry can increase its production sufficiently.

The booklet under review is quite informative, well got up with a central-spread, explaining with charts the world steel production, industrial production of iron and steel and *per capita* consumption of iron, which is specially illuminating.

S. VEDANTAM.

BEAUTY IN BOOKS

(Continued from page 67)

Describing him, the author says: "He gave one the impression of things, big and vast". This is said at the very outset of the story. We have not as yet seen proofs of Abner's power. Yet the conviction comes within us that he is competent. How is this born in us? It is the effect of that telling sentence—"He gave one, the impression of things big and vast."

This is what is termed the beauty of Expression; and when we have such perennial beauty—beauty of thought or beauty of Expression or both co-mingled, let us not pause to call it pure literature. For,

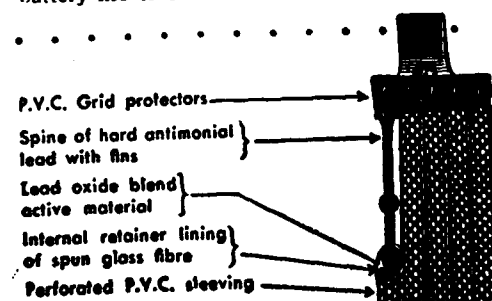
Full many a gem of purest ray serene
The dark unfathomed caves of ocean bear.
Full many a flower is born to blush unseen,
And waste its sweetness on the desert air.

Standard RPg railway batteries

Manufactured under licence from Messrs A. B. Tudor
of Sweden — Indian patent No. 47394

Standard Batteries Ltd. have pleasure in announcing that they have started manufacturing the special patented RPg positive plates under Indian Patent No. 47394. The lead acid train lighting batteries made with RPg positive plates and pasted negative plates have outstanding features in the heavy duty field and are exceptionally reliable.

The most important cause of battery failure is the shedding of active materials from the positive plates. The new 'Standard' RPg train lighting batteries have positive plates made up of patented Pg tubes, which prevent shedding, provide extra insulation, and thus prolong battery life to the maximum.



Cut-away view of
'Standard' RPg battery

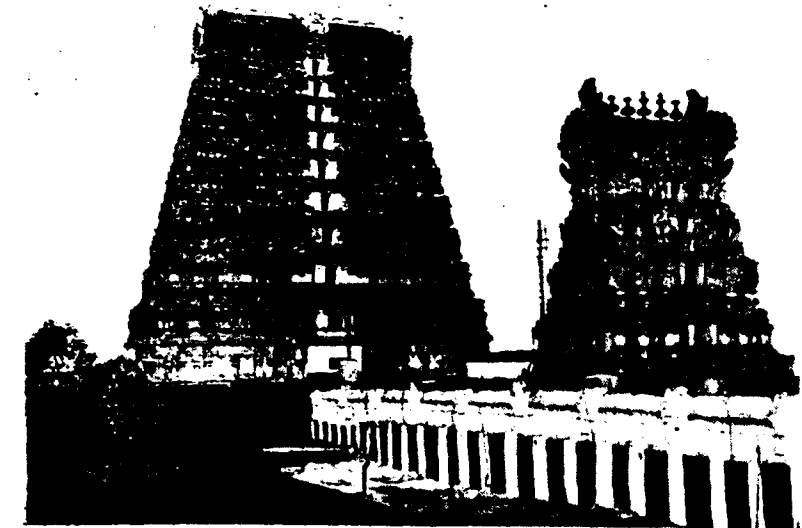


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STB. 3774 (A)



A view of the Temple Towers at Sankaranayinarkoil

SIVA AND VISHNU UNIFIED IN ONE IMAGE

P. S. VEDHACHALAM

Publicity Inspector

Sankaranayinarkoil (VIRUDHUNAGAR —TENKASI CHORD) has a famous temple, the peculiarity of which is that Siva and Vishnu are both worshipped in the form of "Sankaranarayana." The temple has a great tradition behind and owes its discovery to King Ugra Pandia, the ruling chieftain of these parts in ancient times. There are some exquisite carvings and murals in this temple.

The idol Sankaranarayana in this temple has the attributes of both Siva or Sankara and of Narayana or Vishnu—a coalescence of the Destroying and the Protecting Deities of the Hindu triad, rarely found in one and the same idol. This is indeed a unique feature in the principles of Hindu Iconography. It is a composite stone image in the temple—Siva on the right side with the river Ganga, the Moon, the coiled serpent, the trident and the garland of bones and Vishnu on the left, with His Sangu (Conch) and Chakram (disc), the pearl necklace and ear-ring characteristic of Narayana or Vishnu. The right side is white

and the left, usually blue in colour. All these details are beautifully carved in one and the same image. According to mythology, the unification occurred because the goddess Parvati or Uma did tapas (penance) to witness both the aspects in one and the same form. The festival connected with this is known as the Adi Tapas, which occurs in July-August, attracting thousands of pilgrims and is one of the biggest festivals in the South.

There are two other shrines within the precincts of the temple, the larger portion of which is occupied by a Siva Linga known as Vanmikinathan and the smaller one by goddess Gomathi Amman. In front of the goddess, Shri Chakkara Peetam is said to have been installed. It is stated that persons haunted by ghosts or sufferers from hysteria and other mental diseases get a relief if they are made to sit over the Chakkara Peetam for a period of 48 days. The shrine dedicated to the goddess Sri Gomateswari has attained some reputation on this account.

SRI T. R. RAMAKRISHNA SASTRI RETIRES

Senior employees in the Railway acquainted with Sri T. R. Ramakrishna Sastri, M.A., B.L., of the Statutory Audit department, will receive, with mingled feelings, the news of his retirement after a long and meritorious service of over thirty-one years.

He took a leading part in the All-India Annual Conference of the Class II Officers of the Indian Audit and Accounts Department in 1956 and was the elected President of the Central Association for that year.

It is a matter for gratification that Sri Sastri's knowledge and long and varied experience have been availed of by the Neiveli Lignite Corporation (P) Ltd., who have now employed him as an Assistant Accounts Officer.

After a brilliant academic career in the Muthialpet High School, Madras and the Presidency College, Madras, Sri Ramakrishna Sastri entered service in the Office of the then Government Examiner of Accounts, M. & S.M. Railway, nearly thirty-two years ago. As a Superintendent of several branches in the offices of the Government Examiner of Accounts, South Indian and B.B. & C.I. Railways and the Chief Auditors, G.I.P. and M. & S.M. Railways, for about 22 years and as an A.A.O. in the offices of the Chief Auditors, B.B. & C.I. and the integrated Southern and Central Railways, from 1950, he has been connected with the audit of several works, constructions, and the accounts of Workshops and Stores and appropriation accounts. Sri Sastri had also been entrusted with the audit of the accounts of the Hindusthan Aircraft (P) Ltd., and the Integral Coach Factory for some time. In every sphere, he brought to bear on his work, a keen intelligence, a good audit sense, perseverance, conscientious devotion to duty and integrity of a high order. Affable and genial in temperament, devout, simple and unostentatious in manners, though an auditor, he has been able to maintain cordial relations with the accounts and executive staff he came into contact.

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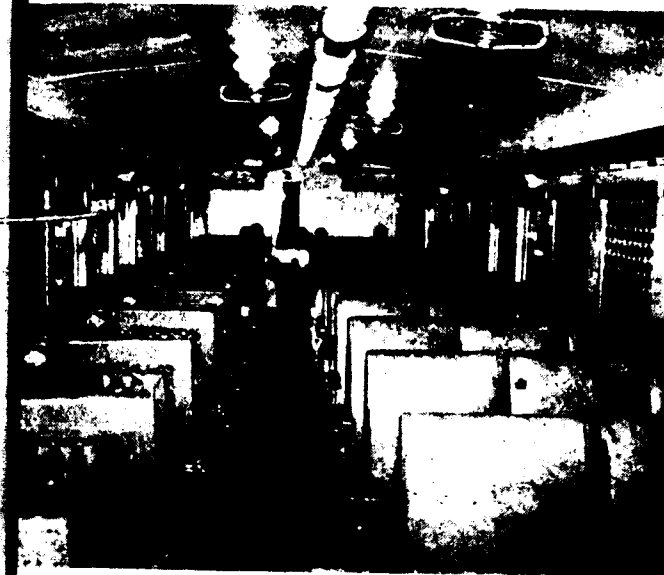
For further particulars and/or rules governing these investments please write to the National Savings Commissioner, Simla or to the Regional National Savings Officer of your State.

DA 56/51

April 1957

S. R. NEWS

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Inside a third class compartment in the De Luxe Vestibuled Air-conditioned train running between Madras and Delhi

The Ruler of Qatar visited Bangalore on 8th March



SOUTHERN RAILWAY

TENDER NOTICE

CHIDAMBARAM : REMODELLING OF YARD, STATION BUILDING, ETC.

1. The Chief Engineer, Southern Railway, Madras invites Sealed Percentage Tenders for the above work, to reach him not later than 12-00 hours on Monday the 29th April 1957.
2. The tender should be submitted in the prescribed form obtainable from the Chief Engineer's Office on production of a receipt for the sum of Rs. 10 (Rupees Ten only) paid to the Chief Cashier, Southern Railway, Madras-3 or the Divisional Accounts Officer, Trichinopoly or any Station Master on the Southern Railway towards the cost of the tender form. In no circumstances, will the amount paid for the tender forms be refunded.
3. The tender form is not transferable.
4. The tenderer should submit along with the tender the Income-tax Clearance Certificate in original or an authorised copy or if he has no taxable income, a sworn affidavit duly countersigned by the Income-tax Officer to that effect.
5. The tender forms will not be issued after 15-00 hours on Wednesday the 24th April 1957.
6. The total approximate value of the contract is Rs. 2,20,500.
7. The Earnest Money of Rs. 11,000 (Rupees Eleven thousand only) should be paid in advance to the Chief Cashier, Southern Railway, Madras, or to the Divisional Accounts Officer, Trichinopoly and the receipt issued by him should be attached to the tender. No Demand Draft or Cheque, etc. should be attached to the tender.
8. The Earnest Money will not be accepted after 15-00 hours on Thursday the 25th April 1957.
9. The tenders will be opened at 12-00 hours on Tuesday the 30th April 1957 in the Chief Engineer's Office at Madras.
10. The Chief Engineer reserves to himself the right to reject, without assigning reasons, any or every tender or part thereof and does not bind himself to accept the lowest or any tender or part thereof.

NEW ADMINISTRATIVE AND OUT-PATIENT BLOCK FOR OUR HOSPITAL AT PERAMBUR



Sri T. A. Joseph, G.M., cutting the tape
and declaring the building open
on 15-3-57



The new block, illuminated at night



Dr. V. T. Naidu, C.M.O., reading the report
Sri K. Sadagopan, CAO/ICF, who presided
on the occasion, is also seen in the
photo with GM



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Dr. A. Ramdos proposing vote of thanks



Sri K. B. Mathur, Member, Transport, Railway Board, with our COPS and others photographed at Bangalore on the 4th March

Sri S. K. Mukerji, CCS, Sri Ratan Lall, COPS, Dr. V. T. Naidu and other guests at the function



The Member (seated centre) and COPS (third from right) with other officers and staff





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yet to make a discovery of our home land, to know its great mountains, its beautiful valleys, ancient monuments, historic temples and new townships.

Standard Circular Tours

The Northern Railway is issuing at a concessional fare of $\frac{3}{4}$ th of the tariff fare, first, second, and third class tickets for a number of standard tours. These tours cover a number of specific itineraries, details of which are available from station masters on this Railway. In addition, if any itineraries are proposed by the public to the Chief Commercial Superintendent (Rates) of this Railway, they will be examined and concessional fares granted provided certain conditions are fulfilled.

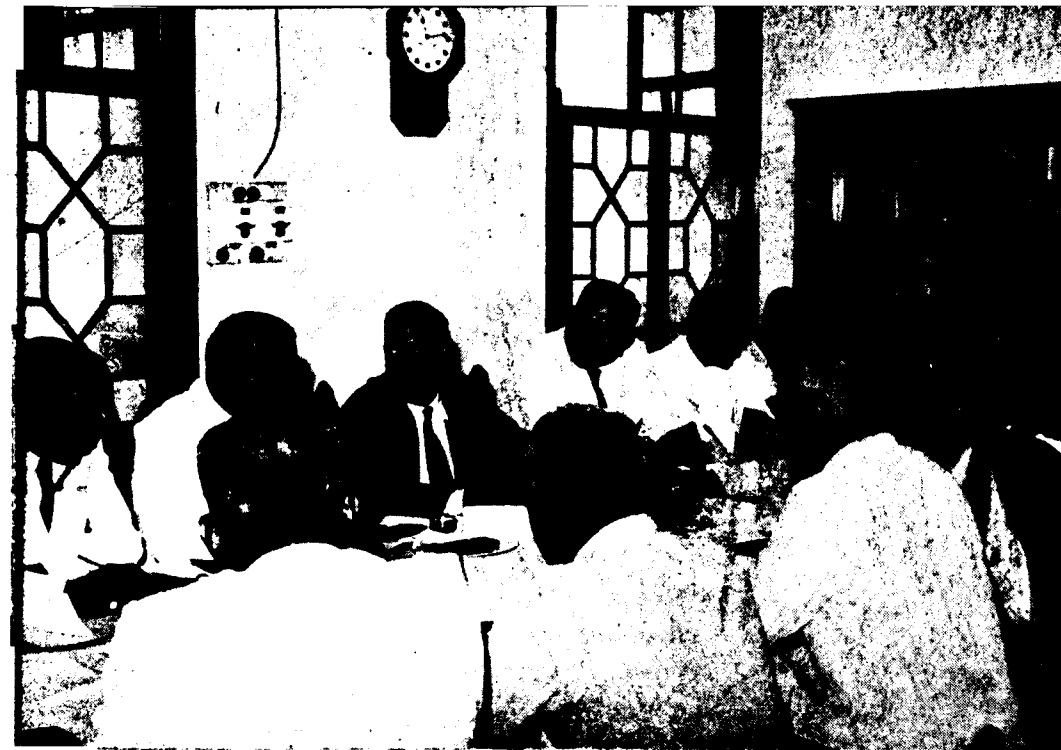
Special Trains

Requests for special pilgrim or excursion trains on the broad gauge will be considered and the following concessions will be permissible :—

- (i) Kitchen arrangement— One bogie vehicle will be attached free with each train.
- (ii) One conductor and four cooks/servants will be allowed to be carried free.
- (iii) For tours exceeding 1,500 miles and over, a concessional fare equivalent to $\frac{3}{4}$ th of tariff fare will be permissible under certain conditions.

For detailed information, please apply to the
Chief Commercial Superintendent (Rates),
Northern Railway, Kashmiri Gate, Delhi.

THE PUBLIC RELATIONS OFFICER, NORTHERN RAILWAY



RAILWAY MAGISTRATES CONFERENCE

inaugurated by the General Manager, Southern Railway, in the meeting room of the Railway Headquarters Office, Park Town, Madras, on March 14, 1957.

(Photos : P. S. Vadhachalam)



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April 1957

S. R. NEWS

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A NEW RAILWAY HOSPITAL was opened at Renigunta on the 21st February by Sri Ananthasayanam Ayyangar, Speaker, Lok Sabha. Photo shows Dr. Muthiah, who presided, speaking on the occasion. Also in the photo is Sri Ribeiro, D.S., Guntakal

Dr. Ragavendra Rao, D.M.O., Guntakal, Sri Ananthasayanam Ayyangar, Sri Ribeiro and Dr. Muthiah pose for a photograph



TRIPLE CELEBRATIONS S. RLY. BHARAT SCOUTS & GUIDES

The Southern Railway Bharat Scouts and Guides celebrated Lord Baden Powell's birthday centenary, the Golden Jubilee of World Scouting and the Silver Jubilee of the Southern Railway Scout Movement at the Indian Railway Institute Compound, Perambur on March 22, 1957. Groups of scouts and guides from all the Indian Railways were gathered.

The General Manager of the Southern Railway Mr. T. A. Joseph, who is the President of the State Council, took the grand salute, when Mr. S. K. Mukerji, State Commissioner and Chief Commercial Superintendent, hoisted the National Flag.

Mr. Joseph declared open the Hobbies and Handicraft Centre at the Institute. He pointed out that it required real imagination to organise a movement like scouting at a time when nothing like that was thought of. The only reason for such strength and growth of the movement was that it answered a need which was being silently felt at the time. The movement owed a debt of gratitude to the founder who combined training and pleasure together and instilled discipline in the partakers of it and at the same time built up the idea of citizenship and service amongst all.

A portrait of Mr. A. Ramachandra Rao, the first State Chief Commissioner and another of Mr. M. A. Merchant, a former Chairman of the District Scout Council, was presented to the Association by Messrs. Ambrose and Swami and the State Executive Committee, and accepted by Mr. Mukerji.

Mr. N. G. Hoskote, State Commissioner (Scouts), gave a résumé of the activities during the celebration week on the basis of reports received from the different railway centres.

On the second day, Mr. Sadagopan, Chief Administrative Officer, Integral Coach Factory, along with Mr. S. K. Mukerji, State Chief Commissioner and Chief Commercial Superintendent, Southern Railway, took the grand salute and reviewed the March Past by the Scouts and Guides at the European and Anglo-Indian Institute grounds.

In his opening address, Mr. Mukerji paid homage to the memory of the founder of the Scout movement and called for affirmation of faith in the ideals enshrined in the scout law and determination to implement them. The progress made by the Scout movement in the Southern Railway was gratifying, said Mr. Mukerji. The organisation had about 2400 members on its rolls, with each Division of the Railway functioning as a Scout District. Mr. Mukerji recalled Baden-Powell's definition of scouting as training in citizenship and said though in our country a considerable amount of work had been done in this direction, a lot yet remained undone.

Mr. V. S. Ramaswamy, Production Engineer, proposed a vote of thanks.

Mr. G. B. Ambrose was in charge of the scout group at the celebrations.

The Railway Protection Force Band was in attendance.



A REGIONAL EQUIPMENT ADVISORY COMMITTEE was formed on 22-2-57. Sri T. A. Joseph, GM, presided over the first meeting





**NATIONAL SAVINGS CAMPAIGN
DAY CELEBRATIONS
(22ND MARCH) AT
NEW GENERAL OFFICES,
PARK TOWN, MADRAS.**

Sri R. Gopalakrishnan, DGM (P), who presided over the celebration, seated in the centre. Also in the photograph are Sri R. Nagaraja Pillai, Personnel Officer and Sri S. Gopalan of the National Savings Department.

Sri R. Gopalakrishnan, R. Nagaraja Pillai and K. Subramaniam, Personnel Officer, seen in the audience witnessing the entertainments arranged on the occasion.

(Photos : P. S. Vedhachalam)



SRI R. K. VARMA, Dy. C. C. S. (RATES & DEVELOPMENT) RETIRES

(Photos : P. S. Vedhachalam)



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Baby B. Vasantha, daughter of Sri B. G. Balakrishnan, SAO/Finance, gave a Veena recital in the Museum Theatre on the anniversary celebration of Sri Lakshmi Vidyalaya on 27th February. Right: She also gave a dance recital on the same occasion



Southern Railway Team at the March Past on the opening day

SPORT

ADMIRABLE ACHIEVEMENT OF OUR ATHLETES

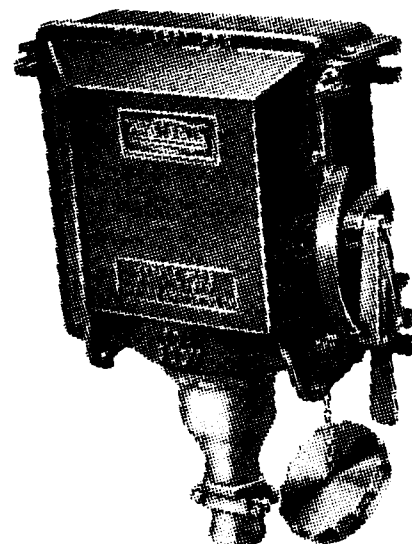
C. V. GOPAUL

"GREEN and white, we fly it right" has become a proved statement by the performance of our Athletes in the 23rd Inter Railway Athletic Meet at the Northern Railway Stadium, New Delhi, on the 8th, 9th and 10th March 1957. One could see everywhere from the fully packed Paharganj Stadium of the Northern Railway, smart Athletes running about

in different colours, among whom, the Southern Railway Athletes with their green shorts and white banians were well marked out. Apart from this colour aspect, our Athletes did really keep the Southern Railway Flag flying very high by their record breaking performances in the various events.

G. Laxman winning the 800 Metres. (1 min. 56 secs.—New Indian Railway record)

M. Peters finishing the 5,000 Metres. (15 min. 17 secs.—Another new Indian Railway record)



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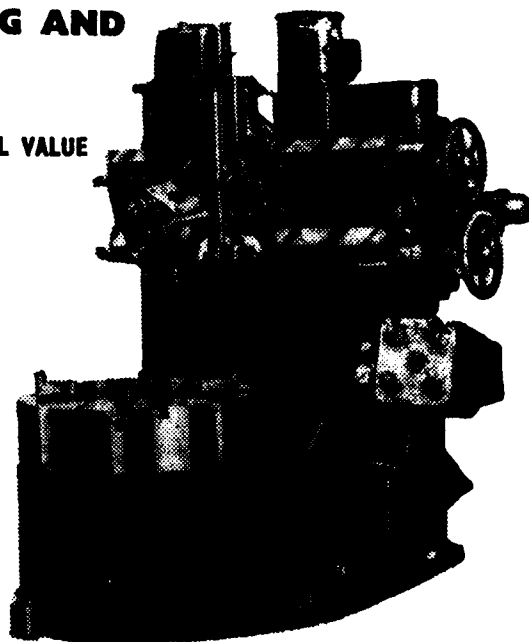
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April 1957

SPORT

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Vincent Martin at the finish of the 4x100 Metres Relay. V. K. Rai of Northern Rly. is the close second. (New All-India record—42.6 secs. by our Rly.)



Vincent Martin breasting the tape in the 200 Metres. (22.2 secs.—equalled Indian Railway record by P. E. Rodrigues, Ex-S. I. Rly.)

On the first day of the Meet, viz., the 8th of March 1957 itself, the coming events did cast their shadows before. The Southern Railway Athletes not only claimed first places in four events, but also lowered the previous records. C. M. Muthiah who came first in Hop Step and Jump clearing a distance of 47'— $\frac{1}{2}$ " bettered the previous record of 46'— $\frac{1}{2}$ ". Ian Trower jumping a height of 6'— $\frac{3}{4}$ " lowered the previous record by 3 $\frac{1}{4}$ ". Again, our long distance runners G. Lakshmanan and Peters set up new records in 800 Metres and 3,000 Metres respectively, the timings being 1 minute 56 seconds and 8 minutes 54 seconds. Any amount of words, I am afraid, cannot adequately describe the

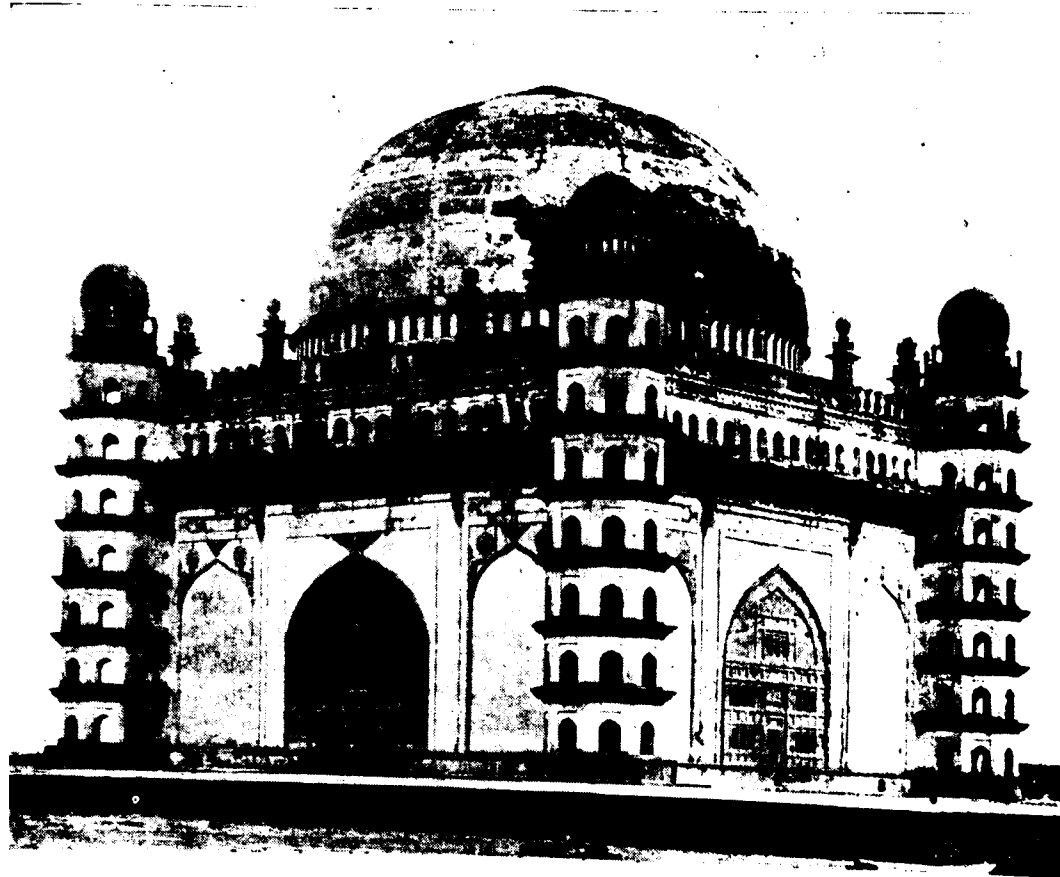
beautiful performance of G. Lakshmanan and Peters. The latter, especially deserves special mention. In the 3,000 Metres race, Peters was actually running fifth till the seventh lap. Just before half-a-lap distance, he overtook Gulzara Singh and Joginder Singh in a grand style by a sudden outburst of speed, and hit the tape keeping his nearest rival away from him by a distance of about seven Metres. The previous record for this item was held by M. Lakshmanan, one of our Athletes, and Peters lowered it by 7 seconds. The ovation given when Peters finished the distance in such a splendid manner, ran round the Stadium splitting the air. In addition to these first places, C. D.

J. B. Joseph winning the 400 Metres. (48.2 secs.—New I. Rly. record)



99123

SOUTHERN RAILWAY
VISIT KARNATAK
 AND
SEE BIJAPUR



The famous Gol Gumbaz, second only to the Taj in architectural importance, has a perfect whispering gallery and the largest dome in the world. A low whisper near the wall on one side can be heard by a person at the opposite point 124 feet away.

Bijapur was the capital of the Adil Shahi dynasty (1489-1686 A.D.). The history of Bijapur is of absorbing interest. "There is a combination of grandeur and grace about the architecture of Bijapur which is not approached elsewhere, and a beauty of ornamentation and execution nowhere exceeded."

Bijapur is on the Gadag-Sholapur Section of the Southern Railway.

Where to stay: There is a Dak Bungalow about a mile away and a Dharmasala about 1½ miles from the station; there are hotels in Bijapur Town (Indian style).



C. M. Muthiah & C. D. Cleur who came up 1st & 2nd respectively in Hop Step and Jump



Ian Trower who won the High Jump clearing 6' 2½" (new I. Rly. record) with M. S. Dhillon (N. Rly.) and C. M. Muthiah who shared the second place

M. Peters & G. Lakshmanan who tied for the Individual championship with 10 points each



M. Gabriel won the Marshal Tito Gold Medal for the second year in succession for outstanding performance. He won the 100 Metres—10.8 seconds





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April 1957

SPORT

105

Cleur claimed second place in Hop Step and Jump, jumping a distance of 46'—11", thus sharing the honours of beating the previous record of 46'— $\frac{1}{2}$ ". Likewise, in High Jump, C. M. Muthiah secured the second place. Thus, at the close of the first day of the Meet, the Southern Railway was leading by ten points, followed by the Northern Railway who had secured 15 points by winning in Shot Put and securing certain second and third places in the other items for the day.

On the second day of the Meet, there was again a repetition of record breaking events, Southern, Northern and Eastern Railways sharing the honours equally. The most spectacular performance of the day was that of Vincent Martin to win the 200 Metres by beating Alex Silveira of the Western Railway and V. K. Rai of Northern Railway who seemed to be very well-placed. Actually, Silveira looked like winning the event. It was a splendid sprinting from start to finish with a brilliant late dash to get the first place. He clocked 22 minutes 2 seconds equalling the record set up for this event by Rodrigues of the South Indian Railway in 1939. It was indeed a very grand show which earned the praise of one and all.

Coming to the other items of the day, Gulzara Singh of the Eastern Railway did a great feat in covering 10,000 metres in 32 minutes 31.4 seconds improving upon his own record of 33 minutes 24 seconds set up last year. It looked as though there was none to approach him, although for major portion of the distance, Subramaniam of the Southern Railway who secured the third place, was close on his heels. When just a small whisper was going round among the



R. D'Lassele who won the Discus Throw with a distance of 134 ft. 1 $\frac{1}{2}$ in.—a new Indian Rly. record

spectators that Southern Railway Athletes are good in track events, then came the most welcome announcement of D'Lassele securing the first place in Discus Throw and setting up a new record of 134'—1 $\frac{1}{2}$ ". R. S. Chauhan of the Northern Railway was a very close second and a tough contestant for the item. The honour of winning the Broad Jump item went to the Northern Railway for whom Shadilal cleared a distance of 23'— $\frac{3}{4}$ ", thus lowering the Indian Railways' record. Sankaran of the I.C.F. who is also the Madras State Champion in this item, was placed second. Here also, the Southern Railway did not miss to share a point as Muthiah was placed third.

The third and the most important day, viz., the 10th March 1957

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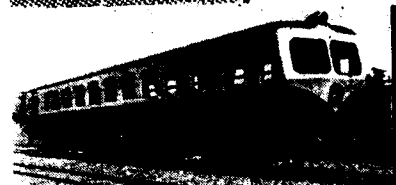
Sri A. B. Krishnaswamy, Captain & Coach of the S. Rly. Team receiving the Saudi Arabia Gold Cup for Inter Railway Athletic Championship

attracted a very large gathering of officers and other high ranking officials and it was really a very colourful sight, both of gentlemen and ladies. All eyes were on the score board and the general observation was that it was more a fight between the Southern and the Northern Railways, as the difference between points scored by the other Railways and these two Railways were far from anywhere being near. The first event for the day was 110 metres Hurdles in which again Premanandan secured the first place, timing 15 seconds and thus setting up another new record for the Indian Railways. C. D. Cleur, our veteran Athlete and a specialist in this item, secured the third place and earned one more point for the Southern Railway. This was followed by the 100 metres run where our Champion Athletes, Martin and Gabriel were

able to secure only the 2nd and 3rd places. Actually, a very fast race with the best timing was expected. However, both Gabriel and Martin missed the start and thus suffered. In fact, it was Gabriel who set up the best timing of 10.8" in the heats and this earned him the Marshal Tito's Gold Medal for the best individual performance. Then came 1,500 metres, the home distance of our popular long-distance runner, G. Lakshmanan. He covered this distance with such ease that the last round looked more like a 400 metres flat race. Such is the staying power and stamina of this Athlete and the readers of "The Southrailnews" will be interested to know that he has so far been second to none in this item.

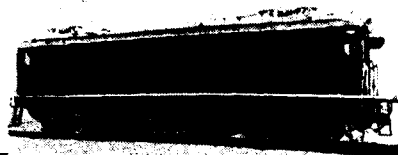
One success followed another and when the 5,000 metres was run, our Athletes, Peters and M. Lakshmanan

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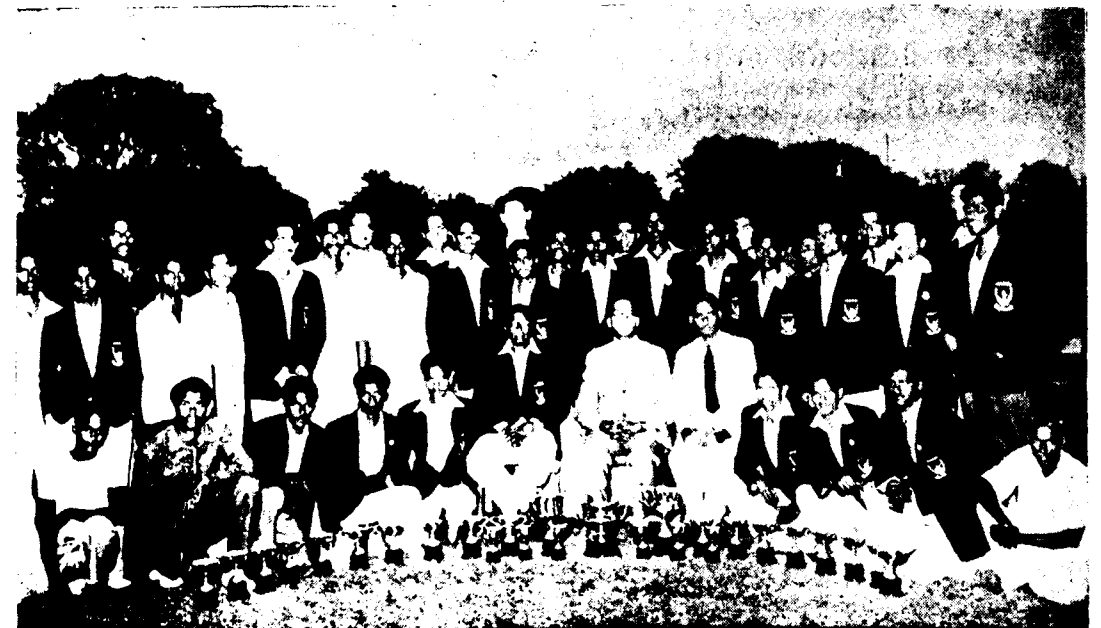
got the first and second places. It was a very grand performance of Peters and he caught unawares Gulzara Singh of the Eastern Railway, who was leading till the last lap followed by Joginder Singh of Northern Railway. It was really a very spectacular spurt of Peters. He had to run neck to neck for about 25 meters after which he put in a determined and excellent final effort to breast the tape first. In the meanwhile, Lakshmanan who was far behind, made up and got the second place. Peters did the distance in 15 minutes 17 seconds and set up a new Indian Railway record. In the next event, which was the 400 metres run, Joseph of the Railway Protection Force secured the first place by one steady run from start to finish, clocking 48.2 seconds, setting up again a new Indian Railway record. In the meanwhile, the Pole Vault was in progress and there was a long-drawn fight between our Champion Ramachandran and George of the Central Railway. Finally, George cleared a height of 12'-4½" a new

All-India Record while Ramachandran did 12'-2½". It will not be a surprise if Ramachandran upsets the balance at the next meet.

The most interesting items of the day were 4×100 and 4×400 metres Relay Races. The Southern Railway proved that there is nobody to beat them in these two items. The 100 metres relay was finished in a grand style by Martin who had to make up a bit to break the tape first. The timing of 42.6 seconds clocked by our Athlete for this item is again a new All-India Record.

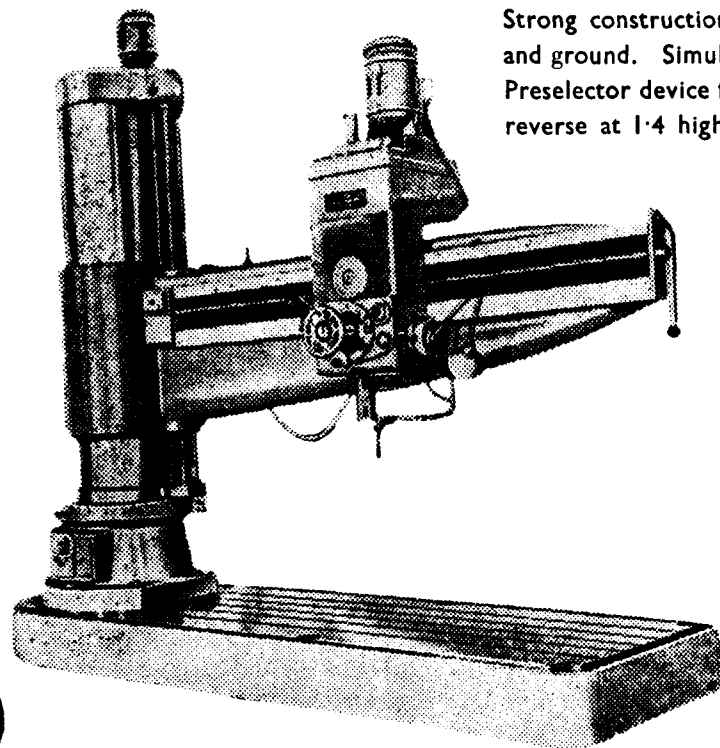
As a result of this wonderful performance, the Southern Railway won the King of Saudi Arabia's Gold Cup with a grand score of 93 points followed by the Northern Railway with 67 points and thus earned an everlasting honour, as this is the first Inter Railway Meet after the donation of the cup. Lakshmanan and Peters shared the honour of being adjudged as the best Athletes while Gabriel ran away with the Marshal Tito's Gold Medal for the best individual performance.

Group photo of the Southern Railway Team taken after the Meet (10th March)



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April 1957

SPORT

111



G. M. and other Heads of Departments receiving the Athletes on arrival at Madras Central on 13-3-57

Well, the wonder grows how the Southern Railway Athletes are able to put up such a good show, and retain the championship for the third year in succession. Results are achieved by efforts and efforts have to be taken by someone. It will not be a mystery to find out who this someone is. Without any further suspense, I may straightaway say that what our Athletes have achieved, are all due

to the unstinting efforts put in by Sri A. B. Krishnaswamy, who was himself a Champion Athlete in his days. He has spared no pains in learning all the modern techniques and insisting on the Athletes placed under his charge practising them to perfection. Let us, therefore, give Sri Krishnaswamy and his team a very big hand on this great and remarkable achievement of theirs.

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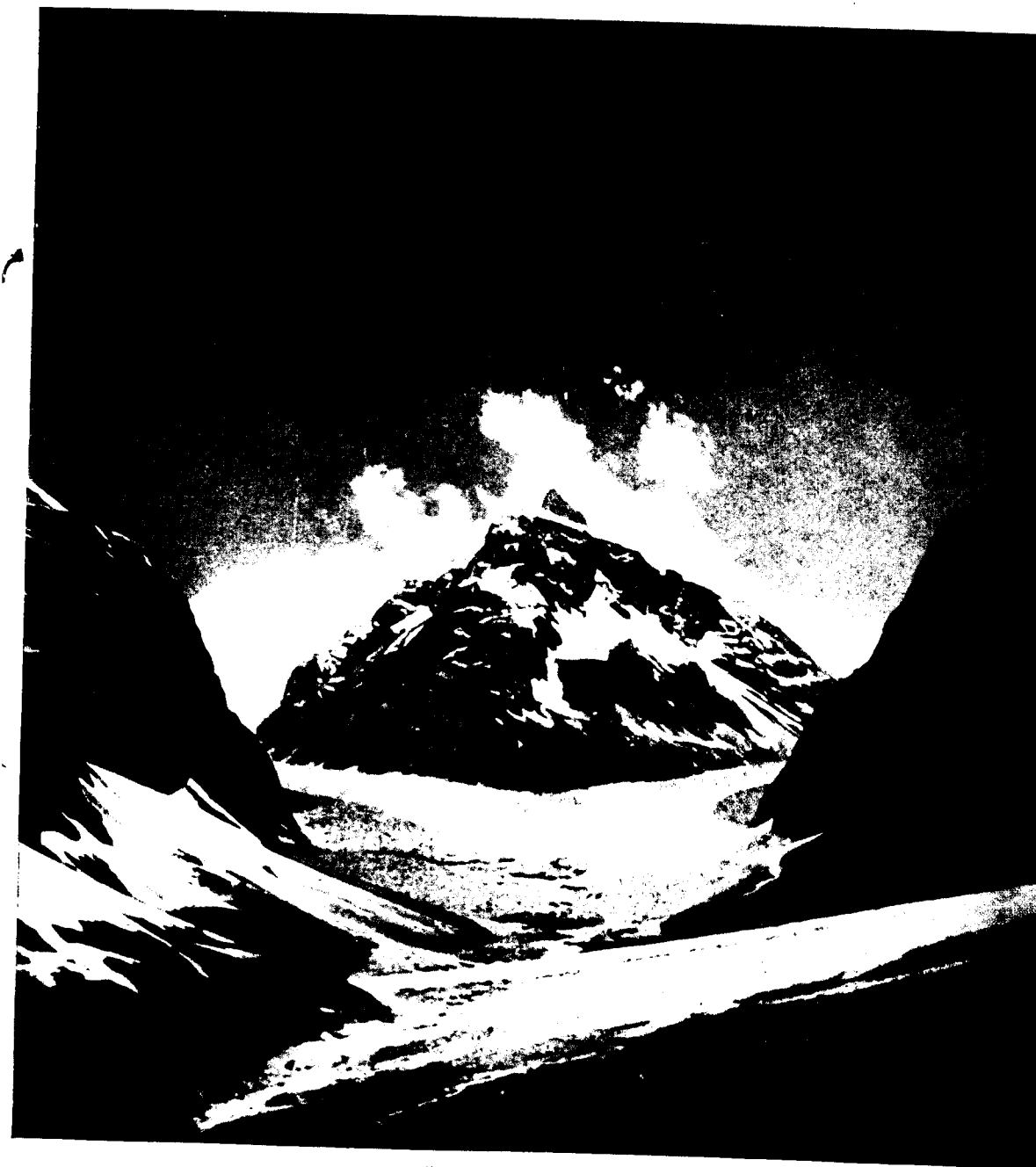


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SOUTHERN RAILWAY WELL SET ON SECOND PLAN TASKS

T. A. JOSEPH

General Manager, Southern Railway

The Southern Railway has made solid progress during the First Plan period, showing an increase of 11.6 per cent in the tonnage carried and 24.3 per cent in ton miles. Now it is well set on tasks of its Rs. 134 crore Second Plan, which is being tackled with "confidence and determination."

As we are gathering momentum for implementing the Second Five-Year Plan, it will be appropriate to review our achievements in respect of the First Plan period and see how we are poised for realising our ever-broadening objectives.

The Southern Railway was formed in April 1951. Its history has been almost coeval with the era of national planning, although Plan-consciousness was not generated and the impact of the Plan itself did not begin to be felt until nearly two years after the formation of the Railway.

There can be no question that overall railway productivity has developed significantly since regrouping. What should be realised, however, is that to take two or more separate undertakings, differing in history, in tradition, in the geographical distribution of their systems, in technical practice, in equipment and, generally in what one might call institutional upbringing, and to fuse them into one coherent unit is a task, like the building of Rome, that cannot be accomplished in a day. Nevertheless, whatever hopes, founded upon regrouping, may still remain unfulfilled, there has been, during the brief period that has elapsed since regrouping, commendable progress in forging a unity of policy and of practice in all the numerous and diversified activities involved, that must

eventually give to a zonal unit the stamp of a truly integrated individuality.

The better part of the First Plan period had to be spent in getting the constituent parts of the Railway to "shake down together" into a concordant whole. This was, indeed, a very necessary phase and was, in a sense, a part of the Plan effort, as without the pains of integration the field for the pervasive character of the Plan would not have been adequately prepared. It is in this perspective that the actual physical results achieved at the end of the First Plan period should be judged.

THE FIRST PLAN

In the First Five-Year Plan, the principal task in the field of rail transportation was to rehabilitate, to the extent possible, the assets which during the preceding decade had been subjected to unprecedented strain. As agricultural and industrial production increased, the pressure on the railway system began to be felt, especially from the third year of the Plan and the measure of requittal of the demand for additional transport was determined largely by the progress made in the rehabilitation of railway equipment.

The comparative output of transportation on the Southern Railway during the five years of the First Plan period is furnished below :

	1951-52	1952-53	1953-54	1954-55	1955-56	Percentage variation of 1955-56 from 1951-52
(i) Tons carried (in thousands) ...	14,188	13,908	13,991	14,608	15,837	11.6
(ii) Net ton miles (in thousands)*...	32,06,381	33,22,796	33,81,806	35,95,525	39,86,564	24.3
(iii) Passengers carried (in thousands) ...	2,34,260	2,16,439	2,06,926	2,12,228	2,22,743	— 4.9



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The setback in passenger traffic was caused by the economic recession in the middle of the First Plan period, mainly the result of the failure of the monsoons in successive years in this area. In spite of this recession, goods traffic registered substantial progress. Having regard to the relatively less developed areas served by the Southern Railway, the increases in respect of freight transportation are definitive, if not spectacular. There is no doubt that the volume of physical output has been affected by the corroding arrears of equipment rehabilitation.

REHABILITATION SHORTFALLS

The extent of the shortfall under the various rehabilitations heads will be apparent from the following particulars :

(i) *Permanent Way*.—The system has a route mileage of 6,064. At the beginning

of the First Plan, there were about 1,588 miles of track under speed restrictions mainly because the track was not strong enough to permit the running of the new standard locomotives at the maximum speed permissible for the sections concerned. During the quinquennium 1951-52/1955-56, 294 miles were rerailed, leaving a balance of 1,294 miles at the end of the First Plan period. A further 869 miles are expected to be rerailed during the Second Plan period, leaving only a small residue to be tackled in the subsequent Plan.

(ii) *Rolling Stock*.—Overaged rolling stock is a serious handicap to transportation output. In spite of large replacements, there was little improvement in the incidence of overaged units in the rolling stock holding of the Railway at the end of the First Plan period, as will be seen from the following details :—

	1951-52	1955-56
(a) Percentage of overaged locomotives (Normal life 40 years) ...	B.G. 21.5 M.G. 30.5	21.9 31.4
(b) Percentage of overaged passenger carriages (Normal life 30 years) ...	B.G. 28.2 M.G. 26.4	27.8 27.0
(c) Percentage of overaged public traffic wagons (Normal life 40 years) ...	B.G. 14.1 M.G. 16.7	14.7 18.6

New stock received during the period was just sufficient to replace the stock going out of circulation, and almost an equal number became overaged during the period. During the Second Plan period, however, it is expected that we will be able to catch up with the arrears mainly because of the production of locomotives in Chittaranjan and Telco factories, coaches in the Integral Coach Factory at Madras and wagons from indigenous sources. These will, of course, be supplemented by imports from other countries.

WORKING EXPENSES RISE

Considering that the Railway had to gear itself up to higher levels of traffic against the somewhat sombre picture of arrears of rehabilitation, the output of transportation actually registered towards the end of the First Plan is no mean achievement.

The working expenses of the Southern Railway in 1951-52 amounted to Rs. 35.2 crores while in the last year of the First Plan period the sum rose to Rs. 42.9 crores.

The increase in the working expenses might, at first sight, appear incommensurate with the variation in traffic between the two years. Two elements of cost, not altogether linked with the output of transportation, have principally contributed to this imbalance. These are, the cost of coal and the expenditure on staff.

COAL PROBLEM

In 1951-52 the payment for coal was only about seven crores, whereas in 1955-56 it mounted to nine crores. Apart from a slight increase in the rate of consumption owing to the use of heavier type of locomotives in passenger service, there has been a marked increase in the average cost of coal per ton at engine shed in the years under review as shown below :

	1951-52	1955-56
	Rs.	Rs.
Broad Gauge ...	43	52
Metre Gauge ...	51	55

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this Railway in view of the considerable distances at which the coalfields are situated. The annual coal bill represents nearly 21 per cent of our total working expenses. This high cost is due largely to the act of self-denial by which we have progressively diverted railway coal from the all-rail route to the sea route. At current rates, the average expenditure by the all-rail route is Rs. 48 per ton, whereas by the sea route it is Rs. 68. Presently, half the requirement of our railway coal comes by the sea route, releasing thereby capacity to the extent of about 100 wagons daily for the movement of other traffic on the tightly worked north-east line.

In 1951-52 the percentage of rail-borne coal was 64 and that of sea-borne coal was only 36. The allocation, in recent years, of a larger proportion of coal movement to the sea route is part of the policy of priorities in the national interest. Any attempt to move the whole of railway coal by the all-rail route will have serious repercussion on the economy of the areas drawing their consumption goods, via the North-East line.

STAFF COSTS UP

The expenditure on staff also increased materially during this period, partly due to increased numbers and partly due to increased wages.

The relevant figures are :

	1951-52	1955-56
Annual cost of staff ...	Rs. 19.5 crores	Rs. 22.8 crores
Total number ...	1,32,795	1,57,639

The substantial increases are the result of enlightened employment policies deliberately adopted by the Government and are not related entirely to fluctuations in the output of transportation. It is not necessary to catalogue here the numerous steps taken by the Ministry to place railway workers among the best looked-after in the country.

FINANCIAL RESULTS

Railways, as the most important undertaking in the public sector of our national economy, have to reach their targets with minimum expenditure. The figures given below indicate the trend of the financial results of the working of the Southern Railway :

Figures in thousand rupees.

	1952-53	1953-54	1954-55	1955-56
Capital at charge ...	1,19,54,25	1,21,73,80	1,27,95,36	1,33,95,55
Gross earnings ...	44,53,28	43,65,81	43,30,53	47,70,87
Ordinary working expenses ...	34,29,71	36,55,60	34,55,01	36,46,58
Appropriation to Depreciation Reserve Fund ...	4,20,35	4,21,55	4,24,24	6,47,62
Net revenue ...	6,03,22	2,88,66	4,51,28	4,76,67

In co-relating the expenditure of means to the end product due consideration has to be paid to the special features affecting railway operation in the regions served by us. The more important of them will bear consideration in the present context.

On the Southern Railway the preponderant route mileage is metre gauge, the actual figures being 4,160 metre gauge and 1,807 broad gauge. It is well known that relatively to broad gauge, the net financial return on working an average broad gauge, the net financial return on working an average metre gauge train mile is much poorer.

This Railway has the highest proportion of steep gradients in India. Operation over such terrain is not conducive to economy,

but is a factor to be reckoned with until funds are available for large-scale easing of grades.

PASSENGER TRAFFIC

The passenger content of the total traffic carried is of considerable consequence to us. As much as 40 per cent of the Railway's revenue is from passenger traffic. In the circumstances, great attention has had to be paid to this aspect of our business despite its not being so remunerative as goods traffic. The development of passenger traffic has tended to make the number of stations on our Railway the highest in India. Passenger station density being of the order of 21 per 100 route miles, our station working costs, particularly in respect of staff, are relatively higher.

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WORKS COMPLETED

The development part of the First Plan has been executed more or less in accordance with the sanctioned programme. The following are the more important line capacity works completed during the period:

(i) **Bezwada-Madras Section**

(a) Extension of loops to hold 80 vehicles at 50 stations. This has enabled longer goods trains to be run on this section.

(b) Additional loops were provided at 17 stations.

(c) Seven new crossing stations were opened.

(d) One flag station and one passenger halt were converted into crossing stations.

Consequent on the construction of the new crossing stations referred to in items (c) and (d) above, the line capacity of the concerned block sections has increased to the extent shown below:

SECTION	Original capacity	Increased capacity
Manubolu-Venkatachellam ...	16	22
Telamanchi-Alluru Road ...	13	20
Bitragunta-Musunur ...	16	22
Kavali-Tettu ...	13	18
Tettu-Ulavapadu ...	16	19
Surareddipalem-Ongole ...	17	23
Chinnaganjam-Vetapalemu ...	16	20
Appikatla-Nidubrolu ...	14	19
Tsundur-Tenali ...	17	23

(ii) **Arkonam-Erode Section**

Three new crossing stations were brought into existence on the Jalarpet-Erode Section. This has resulted in an increase in line capacity to the extent shown below:

SECTION	Original capacity	Increased capacity
1. Tirupattur-Kagankarai ...	17	23
2. Kagankarai-Samalpatti ...	15	23
3. Kalipatti Road-Sankaridrug	17	19

(iii) **Bezwada-Waltair Section**

Pasivedala Halt between Chagallur and Kovvur was converted into a crossing

station and thereby the line capacity of the Chagallu-Kovvur block section has been increased from 18 to 24 hours.

The above works have cumulatively enabled an increase in the daily intake of wagons at Waltair, Bezwada and Raichur as shown in the table below:

STATIONS	From contiguous Railways		
	Prior to Plan period	At the end of Plan period Today	
Waltair ...	205	270	280
Bezwada ...	150	250	325
Raichur ...	135	210	210

Some of the major items of work such as conversion of the Renigunta-Gudur section from metre gauge to broad gauge, remodelling of the Bezwada yard, doubling of sections of north-east line, etc., commenced during the First Plan period have telescoped into the second and are being pushed forward vigorously.

"SPIRIT WITHIN US"

Retrospect naturally leads to prospect. The Second Five-Year Plan, while bringing to completion the capital works carried over from the First Plan period, envisions further developmental expenditure to the tune of Rs. 134 crores. Of this amount, the supply of additional rolling stock accounts for Rs. 28 crores.

The execution of a programme costing Rs. 106 crores within five years will be a Herculean task, particularly in view of the persisting shortages in critical materials, such as steel, timber and cement.

The Southern Railway, however, has got down to this task with confidence and determination. In the final analysis, performance is not measurable by statistical slide rules or nicely calculated formulae. It is the spirit in which a job is tackled that really counts. To us on the Southern Railway, *Spiritus intus alit*—"it is the spirit within us that keeps us alive."

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THE DIVISIONAL SUPERINTENDENT, SOUTHERN RAILWAY, GUNTAKAL, invites sealed Lump-sum-cum-percentage Schedule Tenders for the following work to reach him not later than 12 noon on 22-4-1957.

Serial No.	Division	Name of the work	Total approximate value of contract	Earnest money to be paid
1	GUNTAKAL	PAKALA—Construction of 12 Units Type I Qrs. with Nurjee or Cuddapah Slab roofing.	Rs. 15,500	Rs. 775

2. Tenders should be submitted in the prescribed form, obtainable from the office of the Divisional Superintendent (Works Branch), Southern Railway, Guntakal, on production of a receipt for the sum of Rs. 10 (Rupees Ten only) paid to the CHIEF CASHIER, Southern Railway, Madras or DIVISIONAL ACCOUNTS OFFICER, GUNTAKAL at MYSORE or to any STATION MASTER on the SOUTHERN RAILWAY towards the cost of each form. Extra copies can be had, if available, on payment of Rs. 2 (Rupees Two only) each. In no circumstances will the cost of tender forms be refunded. The tender form is not transferable.

3. Tender forms will be issued upto 15 hours on 18-4-1957.

4. Earnest money as above should be paid in advance to the CHIEF CASHIER, Madras or the DIVISIONAL ACCOUNTS OFFICER, GUNTAKAL at MYSORE, NOT LATER THAN 12 HOURS ON 20-4-1957, and the receipt submitted along with the tender. No Cheque or Demand Draft, etc., should be attached to the tender.

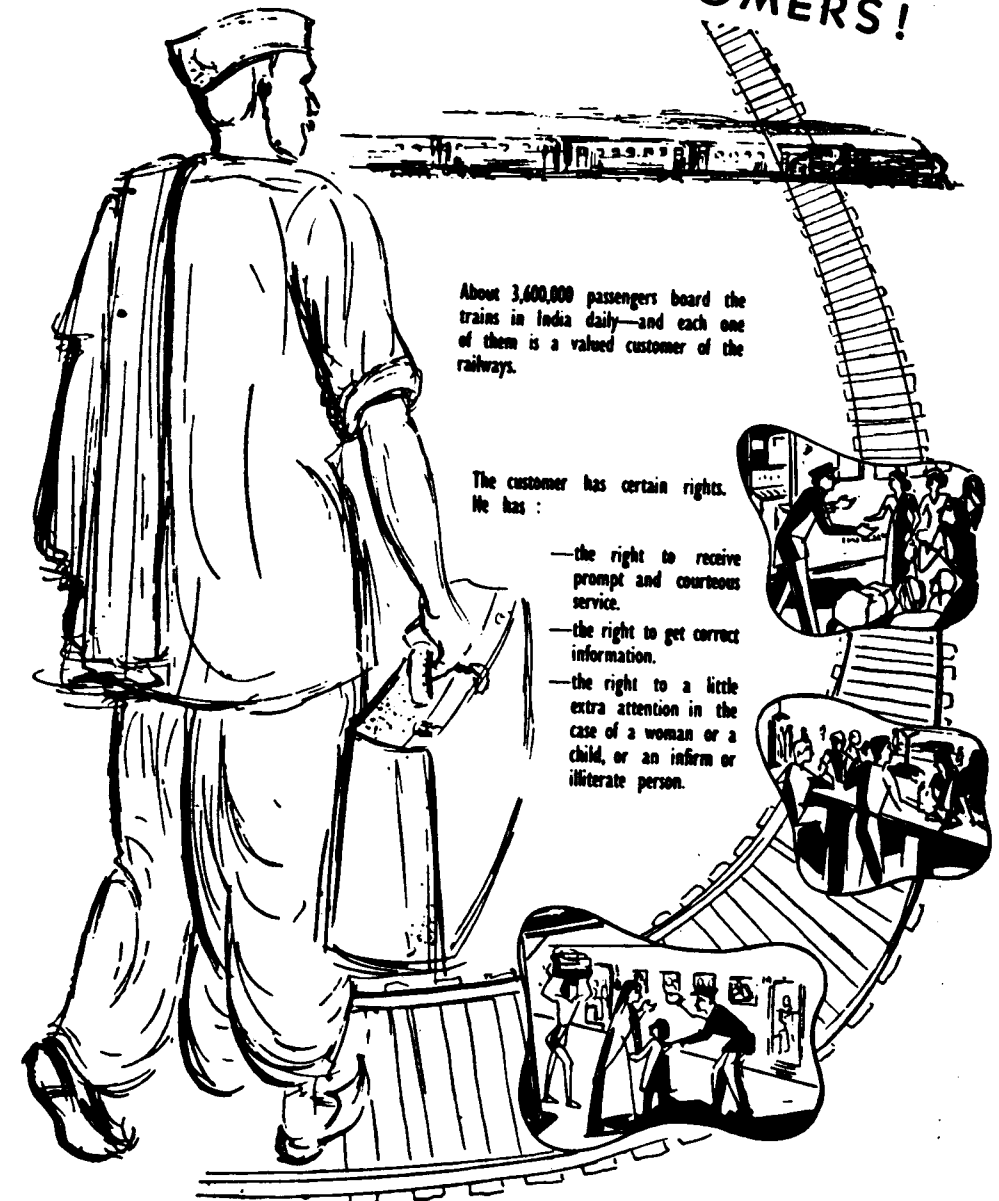
5. Tenderers are required to submit INCOME-TAX CLEARANCE CERTIFICATE Along with the tenders.

6. Earnest money is fixed at 5% of the value of the contract and the successful TENDERER will be required to furnish 10% of the value as per his accepted tender towards the SECURITY Deposit.

7. The tenders will be opened at 14 hours on 23-4-1957 at the office of the DIVISIONAL SUPERINTENDENT, SOUTHERN RAILWAY, GUNTAKAL.

8. The Divisional Superintendent reserves to himself the right to reject without assigning reasons any or every tender or part thereof and does not bind himself to accept the lowest or any tender or part thereof.

VALUED CUSTOMERS!



About 3,600,000 passengers board the trains in India daily—and each one of them is a valued customer of the railways.

The customer has certain rights. He has :

- the right to receive prompt and courteous service.
- the right to get correct information.
- the right to a little extra attention in the case of a woman or a child, or an infirm or illiterate person.

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