# SOUTH RAIL NEWS

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# SOUTH RAILNEWS

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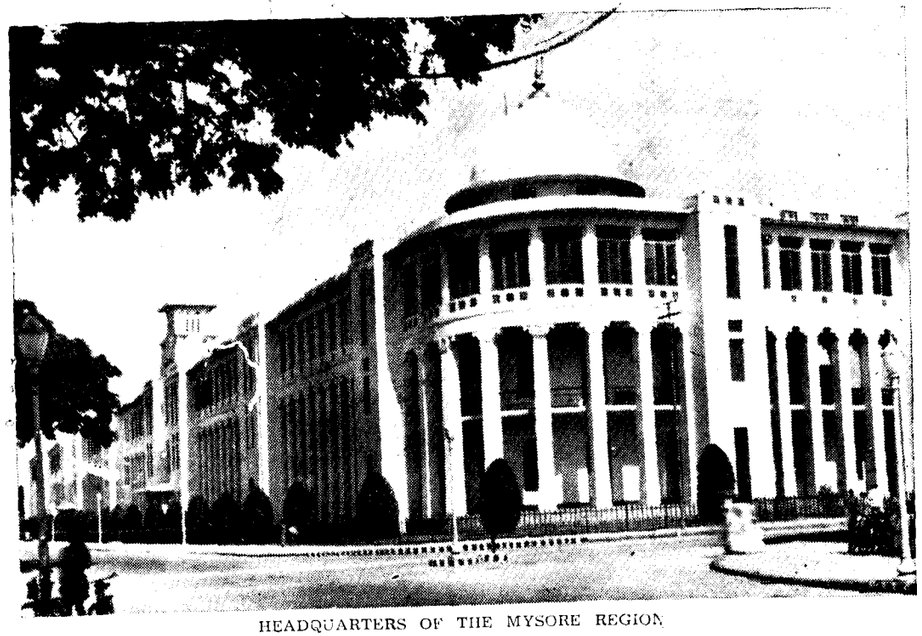

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**Annas Six**

*Manali (Kulu)*

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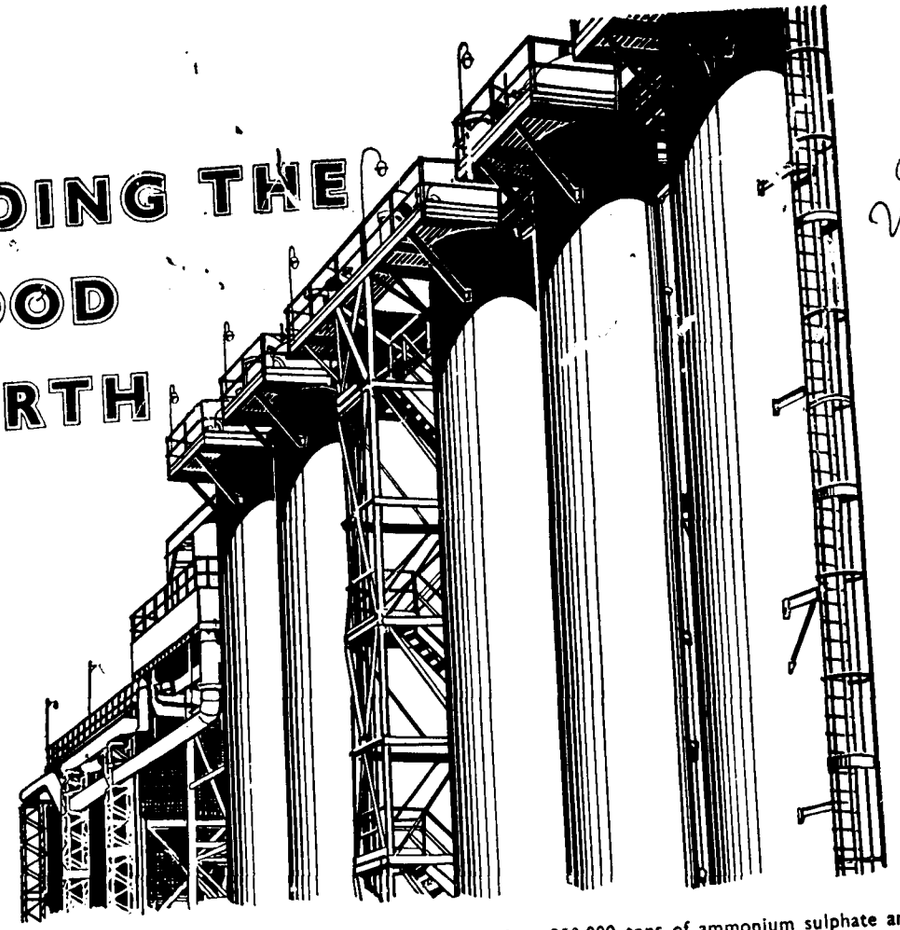
*Issued by*

THE PUBLIC RELATIONS OFFICER, NORTHERN RAILWAY

# AIDING THE GOOD EARTH



The Sindri Fertilizer Factory is the largest and most modern of its kind in Asia. Built at a cost of Rs. 23 crores this giant scheme includes gas ammonia and sulphate plants, a 90,000 storage silo, a power house and 12 miles of railway track. Apart from large quantities of other materials, no less than 12,000 tons of STEEL went towards the construction of this project which is designed to produce 350,000 tons of ammonium sulphate annually for India's agriculture. The enriched soil will yield 875,000 tons of extra food for the country each year—a valuable contribution from a new enterprise.

**STEEL FOR PROGRESS**

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# SOUTHRAILNEWS

*(Official organ of the Southern Railway)*

VOL. I — No. 2

MAY, 1954

*Editor:*
T. S. PARTHASARATHY


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# SOUTHRAILNEWS

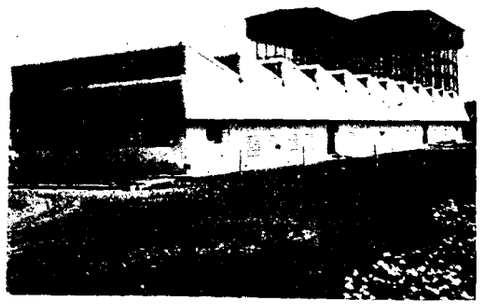
*Vol. I* *MAY 1954* *No. 2*


# Editorial Notes

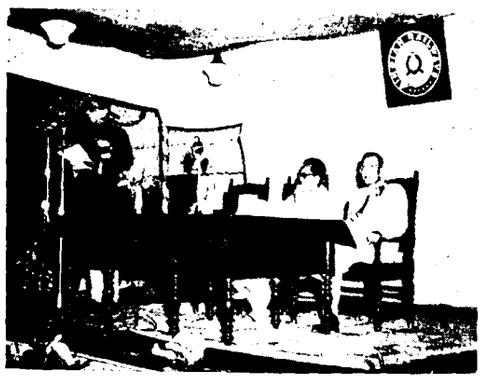
## TRAINING SCHOOL FOR I. C. F.

AN important landmark in the development of the Integral Coach Factory at Perambur was the recent inauguration of a Technical Training School by the Union Deputy Minister for Railways and Transport. The school is by way of response to the need felt by the Government of India for well-trained technicians when the industrial development of the country is forging ahead. The first batch of trainees who began work at the school was 70 strong, and more trainees will be taken in later and by the time the Factory goes into production, the Training School will have provided a number of persons capable of working in the actual manufacture of coaches. The school has its own satellite workshops, employing modern methods of training. A batch of 20 technicians has been sent to Switzerland for receiving specialized training in the manufacture of the modern type of coach to be produced at this Factory and, on return, the technicians will take up positions in the Factory.

The Deputy Minister took the opportunity to explain to the large and distinguished gathering that was present on the occasion, the various measures adopted by Government to make India self-sufficient in Railway transport equipment within a short time. His speech covered, in detail, the scope of the present locomotive-manufacturing and coach-building activities in this country, and stressed the fact that these, incidentally, provided employment for the people in these days of acute unemployment.



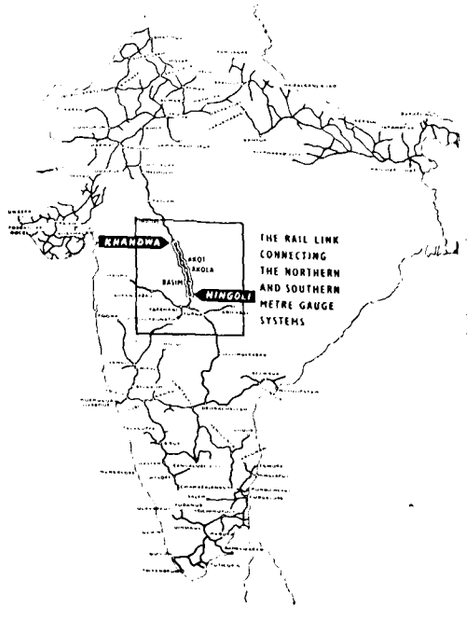
Elsewhere in this issue will be found a detailed article on the various aspects of the Integral Coach Factory, which is under construction and which is expected to go into production towards the latter half of next year. The progress made so far, as explained in the article, will encourage the hope that this target will be achieved, when the Indian Railways would have reached yet another important stage in their march towards self-sufficiency.



## AN ALL-INDIA M. G. SYSTEM

While the Broad Gauge system of the Indian Railways is a well-integrated unit, the Metre Gauge portion of the north with a mileage of 10,113 is separated from the southern portion with a mileage of 4,993 by a distance of about 200 miles. The nearest terminals of the two systems are Khandwa in the north and Manmad, Hingoli and Adilabad in the south. This gap, often referred to as the "Missing Link," has serious disadvantages in that it involves avoidable transhipment of goods and hampers the free movement of traffic from north to south. In the transfer of engines and stock too from the northern system to the southern, Metre Gauge stock has to be physically loaded into Broad Gauge wagons and transhipped before being used again on the Metre Gauge portion. A recent example was the physical transhipment from Khandwa to Manmad of the bogies forming the Indian Railways Centenary Exhibition Train (Metre Gauge).

From the operating point of view, the absence of a through Metre Gauge




connection from the north to the south stands in the way of Metre Gauge



stock being put to the maximum possible use as on the Broad Gauge, where the wagon pool ensures such an intensive use of resources.

The Khandwa-Hingoli Rail Link, the construction of which was inaugurated recently by the Union Minister for Railways and Transport, will, when completed, give the Indian Railways their first all-India Metre Gauge system which will enable traffic to be carried from Bhatinda in the north to Trivandrum or Tuticorin in the south without transhipment. The

operating advantages of this system will be considerable and many a transport bottleneck of the present will have been rendered things of the past when the Link comes into existence. An all-India Metre Gauge wagon pool, similar to the Broad Gauge pool, in place of the present Northern and Southern pools, will result in overall saving of wagon space on one gauge or the other, reducing transhipment to the minimum.

## 500th ALL-METAL RLY. COACH

The 500th all-metal third class coach was delivered to the railways the other day by the Hindusthan Aircraft Factory at Bangalore. These coaches, which are great favourites of the travelling public, are now attached to trains on all important trunk routes on the Broad Gauge and will soon take their place on the less important routes as well. The provision of heat insulation by a special process of sprayed 'limpet' asbestos, which keeps the interior of the coach cool during the hot season, the liberal supply of fans and lights, wider seats and bunks and a pleasing interior appearance make the standard of passenger comfort in these coaches immensely superior to that of the older models.

## AMENITIES FOR RAILWAY STAFF

The very substantial financial provision recently made by the Railway Ministry for providing various amenities to railway staff during the next financial year will be greatly welcomed by the large body of railwaymen in this country. Amounts exceeding Rs. 4·5 crores have been car-marked for constructing new quarters and over 95 per cent of the total allotment will be devoted to the requirements of class III and class IV staff. A portion of the allocation will be spent on improvements and alterations to the existing quarters.

The total provision made by the Ministry for staff amenities, in fact, exceeds Rs. 10 crores. New hospitals and dispensaries and improvements to existing ones will receive nearly Rs. 24 lakhs while separate provisions have been for improvements in railway colonies, new schools, rest houses, sports grounds, reading rooms, health and welfare centres, child welfare and maternity centres. Health and welfare services, education of children, canteens and other amenities are expected to cost Rs. 4·20 crores which includes Rs. 60·64 lakhs for education alone.

# A QUESTION OF DISCIPLINE


B. R. NANDA

*Public Relations Officer, Northern Railway*


IF there is one subject on which the older generation of railwaymen is unanimous, it is on the perceptible decline of discipline. The present generation is, in their estimate, not half as keen as the veterans were in their younger days. This is the reason, they say, why more and more men are doing less and less work. That the output has not fallen to a dangerous degree, is attributed to the presence of remnants of the old guard who apparently carry a burden out of all proportion to their aged shoulders. "Wait and see what will happen in a few years time" is the gloomy forecast often heard; there is an obvious sense of relief, if not pleasure, in those who make these forecasts at the thought that they will not be present in the degenerate days to come.

There is doubtless an element of inverted pride in the attitude, "After me the deluge." It is a human failing to talk of the good old days and to locate them in one's youth. Nevertheless, even after we have made large allowances for this natural tendency to hark back to the golden age, the fact remains that the running of the railways is not what it was a generation ago. Discipline was no problem at a time when the majority of the officers were Europeans; few members of the staff dared to step on the roads leading to their residences, nor were there any queues of interviewers in offices. "Orders Stand" was a rough and ready reply to representations. This is not to suggest that orders were ill considered; but they were rarely questioned. On several company railways, jobs hung by the slenderest thread, and if a man blundered he could be sacked on the telephone. There are stories of stubborn transportation officers who enforced punctuality by charging the guards a rupee a minute, of veritable Tartars whose presence at a station shook it like an earthquake. No wonder if under such hard taskmasters their establishments were like busy bees, that those who could not get through the day's work grappled with files at home with the help of thick glasses and a kerosene lamp. There were, of course, then compensations which are lacking today. Prices were low; on very modest wages one could adequately feed and clothe the family; accommodation was readily available in towns, when railway quarters were unavailable or inconvenient. There was an element of contentment which is absent today; railwaymen enjoyed their work and their privileges and were confident that their sons would find secure careers in the railways.

That picture has changed today. Discipline is in varying degrees of decline, its old sanctions—the fear of losing the job or of suffering a lesser knock—are no longer operative. There is a tendency to appeal for review and reconsideration of every order. "What do I care?" attitude is writ plain and large on the railways as elsewhere in the country. The nonchalance of the clerk who came half an hour late, and when questioned by his boss, unabashedly offered to put in an application for a day's casual leave, is almost typical. While a few continue to burn midnight oil, the majority are prepared to sit at the

desk only by the clock. The days of summary punishments are happily gone, but the procedure which has grown, and is growing for dealing with indiscipline and inefficiency is neither simple nor expeditious. Powers have been limited; counsels and cross examination permitted, the right to appeal at various levels laid down. Framed primarily to safeguard the legitimate rights of the employees, in actual practice, the new procedure often leads to protracted proceedings, during which a straight issue gets tied up into knots. After all, more important than the rules is the spirit in which they are worked. Italian railways once staged a standstill by working strictly to the rules. The object of any body of disciplinary rules is to get the best out of the organisation by providing a whip for the idle or the indifferent and not to side-track the energies of the organisations. How to balance the essential requirements of discipline against the just rights of the employees in a large public utility organisation is nevertheless a difficult problem.

The present maladjustment is sometimes blamed on the changed economic conditions owing to the increase in cost of living, the daily struggle with domestic problems. It is now nearly a decade since the last war was over; to talk wistfully of pre-war prices is, therefore, a waste of breath. And those who attribute their lack of interest in work to discontent with their wages need seriously to turn the searchlight inward and find out whether they are not merely "rationalizing" their conduct, and finding a respectable reason for not pulling their weight.

There is another school of thought which pins down indiscipline to 'independence.' Indiscipline seems to be in the air; evidence of it has been found in universities at one end and in the nurseries at the other. The hide-and-seek played between students and their so-called teachers has provided in recent months some fun to newspaper readers but much anxiety to the parents and the authorities. The latest demonstration in Calcutta is only an index of the temper of the times. The teenagers of that city, while taking their school leaving examination were presented with a history paper, which was 'stiff;' they left the hall and bludgeoned the unfortunate superintendents and invigilators who had nothing to do with the drafting of the questions but had only presumed to "supervise" the boys. This performance by the schoolboys in Calcutta brings out a feature which is relevant to every discussion of discipline. Immature people are unable to bear any frustration. Few of us, outside the kindergarten can, however, be in the fortunate position in which our wishes are horses on which we may ride at will. The habit of criticising every decision, which is unwelcome and of imputing motives to opinions which are uncongenial, indicate an inability to go through a frustration like an adult. In a large organisation, where there is an intersection of innumerable interests, it would be impossible to reach decisions which please everybody.

It is sometimes said that the indiscipline, in recent years, has been due to a mistaken notion of independence, the milk and honey conception of Swaraj which dispensed with such irksome things as taxes, and with work as a precondition for wages. This is a fanciful picture which could not last long, for if there is one lesson which we will have to learn, it is that Swaraj is what we make of it. Political independence thus has been an opportunity to build, and not a ready-made solution for all our ills. The opposition to authority during the freedom struggle may have engendered a critical attitude which has survived the conclusion of that struggle. The non-co-operation and civil disobedience movements were, however, launched not merely to defy the authorities, but to inculcate self discipline and strength of character in the people. The Mahatma was a hard taskmaster and was the hardest with himself. If indiscipline came in the wake of his movements, it did so owing to an imperfect understanding of his life and teaching.

The morale of a large national undertaking can in the last analysis be preserved by building healthy traditions. 'Punitive' discipline can only be partial solution, if any solution at all; its object is only to stir the indolent into activity, to put a premium on good work and a discount on indifferent work. To be exacting, yet human and understanding, is an attitude which requires constant vigilance. Discipline, like love and freedom, has to be conquered daily. No simple formulae can be prescribed for leading, rather than driving the rank and file. But a healthy climate has to grow. Where guilt is obvious, it would be decent to admit it, rather than fabricate a plausible structure of argument which buries the real issue out of sight. Truth need not be the first casualty in enquiries. In a healthy climate, few people would want to throw bits of grit into the machine, the smooth working of which is in their interest, in the interest of the whole organization of the country.

(Courtesy—Northern Railway Magazine)





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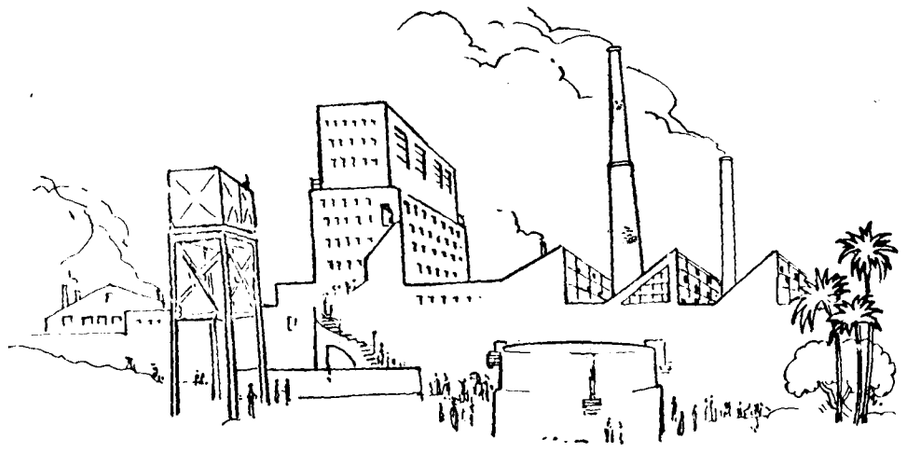


# THE INTEGRAL COACH FACTORY AT PERAMBUR

## ANOTHER STEP TOWARDS SELF - SUFFICIENCY

OF the Locomotive Works at Chittaranjan are rightly considered the foundation for national self-sufficiency in Railway transport equipment, the Integral Coach Factory, now being established at Perambur near Madras, is a fitting superstructure. With over 20,000 coaches on our Railways, the replacements alone will require about 670 coaches to be procured annually. Out of these, the Hindusthan Aircraft Co., Ltd., at Bangalore, were supplying about 120 Broad Gauge all-steel coaches built on underframes supplied by Messrs. The Tata Locomotive Engineering Co. The balance is being met to the extent possible from indigenous sources by manufacture in the existing Railway Workshops. There are today on Indian Railways, 7,000 coaches, which have long passed their life-limit, awaiting replacement.

The need for a Nationalised Railway Coach Building Unit had, therefore, become all the more important, when, after World War II, the Railways were called upon to face the increasing pressure of passenger traffic with depleted and over-aged coaching stock. Added to this, there is also considerable pressure for a very substantial addition to the present holdings of passenger coaches, if overcrowding in the trains is to be avoided and if the public is to be given better conditions of travel in the future.

Planned for an output of 350 coaches with single shift working, the Integral Coach Factory, when it reaches its full production, will be the largest in the East and second largest in the World providing employment for over 4,000 workers.

The history of this Project, in common with the history of all major undertakings, has been a chequered one. In 1948, the Government of India decided that a separate Railway Coach Building Works, just as Chittaranjan in respect of locomotives, should

be established. A Technical Aid Agreement was accordingly concluded with a Swiss Firm, Messrs. Swiss Car & Elevator Manufacturing Corporation, Ltd., Schlieren—Zurich, Switzerland, for obtaining technical assistance for the establishment of a Factory at Bangalore, where the manufacture of an improved design of all-steel light-weight integral type coach was to be undertaken to a design perfected by this firm.

At a certain stage in the planning of this Project, it was considered that the coach building works should be located in Bangalore, as an annexe to the Hindusthan Aircraft Ltd. However, when the Hindusthan Aircraft Factory was taken over by the Ministry of Defence from the then Ministry of Industry & Supply, this proposal had to be dropped and a new site had to be chosen.

After a comprehensive survey of several alternative sites for locating the Factory, preferably close to Railway Workshops, it was decided in June, 1951, that the Factory should be located on the vacant Railway land to the west of the Loco Repair Shops of the Southern Railway at Perambur. This site has the advantage that rail connections to the Factory are readily available and a suburban Railway station is close at hand for bringing workmen to the Factory. It has also the added advantage that, being close to the City of Madras, the employees of the Factory have all the amenities of a township, such as, educational facilities for their children, etc.

Work on the Project was taken in hand in February, 1952. A small workshop for repairing and maintaining a large number of items of construction equipment, such as cranes, concrete mixers, road rollers, etc., was first constructed. Stores sheds for stacking and handling a variety of material, e.g., steel, cement, pipes, water supply fittings, etc., were erected. Railway sidings to feed these store sheds were laid. An office building with a good drawing office for preparing designs was put up. In the meanwhile, foundations for the Shops, involving 2,500 piles of 16″ dia., driven to a depth of 40 ft., were being completed, and contracts for the fabrication and supply of steelwork required for the Workshops were entered into. By September, 1952, the Engineers in the field had brought the construction work into full swing. There was, however, a set-back in the receipt of fabricated steel, because of the protracted 'go slow' policy in the Steel Producers' Works at Burnpur culminating in a lockout. This meant a loss of about 6 months on the progress at site.

The Project can be divided into three main parts:

## Civil Engineering Works

These consist of the construction of ten large manufacturing units of the Factory with the necessary ancillary services, such as Railway yards, roads, water supply, drains and other civil engineering works. In the design of the layout of the Workshops, it has been arranged that most of the items of handling is done by mechanical means, such as overhead gantry cranes, etc. The Factory covers 8,48,600 sq. ft. and consists of 10 shops, the biggest being 1,000 ft. long and 260 ft. wide. The design of the steelwork of the structures has been drawn up on the most up-to-date lines with a liberal provision for welding. The Assembly Workshop rises to a height of 65 ft. above the floor level and carries heavy cranes, which, at a time of national emergency, can be switched over to the production of army equipment. The Workshops are all founded on R.C.C. piles with reinforced top caps to take the heavy stresses coming on them due to cranes and wind loads. The Shops are well ventilated with modern lighting and are provided with dustless concrete floors and up-to-date working conditions.

The magnitude of the civil engineering works can be gauged from the fact that the total amount of steelwork in the Shops is about 7,000 tons and the number of piles driven for the foundations is 2,500. An approximate tonnage of 19,500 cement will also be utilised in the construction of the Factory, its roads, machine foundations, etc. Work is now in progress on the erection of the Main Assembly Unit and the Store Shed has already been completed.

## Mechanical Engineering

The construction of a modern Railway coach, simple as it might appear to laymen, is a precision job. On the care bestowed on its design and assembly depends the safety of the travelling public. With the high speeds attained on our Railways, smooth running is of paramount importance. The coach to be produced in this Factory combines all the factors, such as, smooth running, light-weight and strength, which make it the latest in the field. It has been stated before that the type of coach to be produced in the Integral Coach Factory, is of a modern design of the integral type. The tubular character of the coach forms a structure of great strength along its axis. The design incorporates all welded trough floor system, integral with the body and permits the forces sustained by the coach to be borne by the entire body including the skin. It is this feature of the coach that gives it the name "INTEGRAL COACH."

An advantage of this type of coach is that it incorporates anti-telescopic construction. Its design combined with the fact that the carriage will be of all steel welded construction, will reduce the possibility of the carriages telescoping in the event of an accident, thus minimising casualties.

The carriage is designed for improved riding by the provision of shock absorbers and coiled spring axle-box suspension.

The Factory has been so planned that raw material will be received at one end, and processed through the Factory in a uniflow direction; the coach shell is finished by the time it reaches the other end of the Factory and from this end, one coach will be rolled out every 6 working hours, giving a total of 350 coaches a year.

The machinery and equipment, which include big guillotine shears, several brake presses, rolling and straightening machines and hydraulic presses of 800 tons capacity, are now being ordered after inviting global tenders. In the meanwhile, the preparation of drawings for the Sub Assemblies, schedules of raw material lists and drawings for the jigs and fixtures required for the various manufacturing processes are being got out

by our Swiss consultants. A batch of technicians has been sent out for obtaining specialised training in Switzerland in the manufacture of this modern type of coach.

The latest model machines will be installed in the Machine Shop and the Blacksmith Shop with a view to eliminate most of the handling by manual labour. This is necessary in a big workshop of this size planned for mass production to one standard design.

A very modern Tool and Die Sinking Shop and a Millwright Shop are also being provided with the latest machinery for producing complicated jigs, fixtures and tools required for the manufacture of coaches on a mass production basis.

## Electrical Appliances

The electrical services required for the Factory have also been well planned. The Main Receiving 11 K.V. sub-station will be fed from the Madras Electricity System and the 11 K.V. H.T. ring main cables will connect the 9 sub-stations, 6 for the Shops and 3 for the Staff Colony located at load centres. The H.T. supply will be stepped down 400/230 volts for supplying the network of different consuming equipment in the different zones fed by each sub-station.

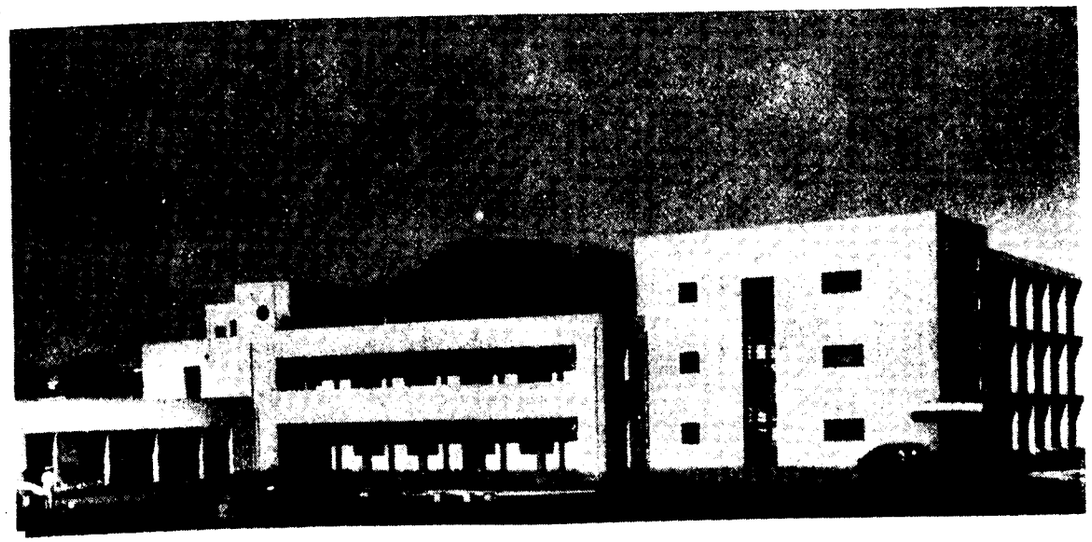
The total connected load for full production is expected to be about 10,000 H.H.P. with annual current consumption of 6 million units. There will be 13·5 miles of H.T. and L.T. mains inside the Workshops feeding about 713 machines. Thirty overhead travelling electric cranes in the Shops with an additional three traversers for transferring the coaches from one manufacturing Shop to another will operate in the Shops. Electric lighting of the Shops will be adequate with 5 to 8 ft. candles at working levels, and in addition, each machine will have its own special lighting for precision work.

## Training School

The subject of training technicians to man the Factory has received adequate and timely attention. At the present stage of industrial development of the country, the need for well-trained technicians cannot be over-emphasised. It has been the experience in the past that the production in Factories, recently set up in the country, on most modern lines, has not been upto the standards or of quantity expected, because of the fact that the workmen were improperly trained and do not have correct ideas of the feeds and speeds of work on the machines. The Integral Coach Factory Organization has, therefore, taken time by the forelock in starting a Training School well in advance of the date, when the Factory is expected to go into production. A separate Training School with its own satellite workshops employing modern methods of training giving the apprentices the best instruction to develop into efficient tradesmen has been started. It is also intended to give general and civic education to the apprentices in the School to make them better citizens of tomorrow. This School will be training about 600 men per year for the first four years when it will switch over to training apprentices on the regular scheme of 3½ years, when the number will be reduced from 600 to approximately 150 a year.

# RAILWAY RESEARCH CENTRE

## AT LUCKNOW



*[The recent opening of the Railway Research and Testing Centre at Lucknow has been hailed by all as a great step forward towards progress in transport efficiency in India. Research is the soul of progress especially in technology and Railways being the main arteries in communications, no effort made in railway research can be considered as superfluous. Mr. F. C. Badhwar, Chairman, Railway Board, speaking at the opening of the Research Centre, said that the Centre would cover an extensive range of research problems connected with the working of the railways on safety measures, prevention of accidents and steps to achieve economy would receive the highest priority. A summary of his thought-provoking speech on the occasion is published below.]*

"THIS modest Research and Testing Centre should be viewed in its proper perspective, in relation to the actual work being carried out either on or for our widespread railway system. The main purpose of the reorganisation which took place on the Indian Railways in 1951 and 1952 was to unify the many separate and differently organised railway systems in the country, and this Centre was one of the symbols of this unification. Though a large number of problems would be tackled directly at this Centre, many more would be directed and progressed by it in other laboratories and on our zonal railway systems.

Mr. BADHWAR DELIVERING HIS SPEECH

All our research and tests are of a practical kind and are performed, as far as possible, under actual working conditions. This Centre directs and co-ordinates the work that is being carried on simultaneously at, perhaps, two dozen other places, including some of our very well-equipped national laboratories, notably the Fuel Research Institute near Dhanbad, the National Metallurgical Laboratory at Jamshedpur, the National Physical Laboratory at Delhi, and the Institute of Science at Bangalore. It is difficult to give exact proportions, but generally speaking we expect that about 70 to 80 per cent of railway research problems will be investigated in other localities, though all of them will be carefully progressed and co-ordinated from the Lucknow Centre.

## Research Abroad

It is obviously in the interests of a nation to attain the greatest possible degree of self-sufficiency in manufacturing within its own boundaries all the things that it needs and uses, and to limit procurement from outside only to those urgently required items which it cannot make itself within the time in which they are required. Every country which aspires to be great should plan for keen and well-trained organisations of research workers, which should be provided with equipment necessary for their work.

It is, however, wasteful and unwise to ignore or refuse to benefit from the results of research undertaken in other countries. Our scientists, technologists, research workers, designers, inventors

and engineers should study developments in all advanced countries with a view to using them for the benefit of our own country and also with a view to supplementing the original work on which they themselves are engaged. I would go even further and suggest that English, German and French are useful languages for such workers in India to know. Their outlook in their own lines should be truly international.

At the Lucknow Centre, literature is received from and exchanged with a number of other countries, and on the basis of this literature a condensed information service is provided to all our Railways.

## Priorities in Research

The range of research that we propose to undertake is extensive and will grow as this Centre gets into its stride. It will cover most aspects of railway working, including operating problems and amenities for Railway users. Safety measures, prevention of accidents and steps to achieve economy will receive the highest priority, but less spectacular things will not be overlooked. The tests and trials that are carried out by this Centre have two main objects. The first is to ensure that all important components and equipment in use on the Railways are safe, efficient and economical in performance. Trials arranged for this purpose take into account modern developments in technology and such improvements as can be incorporated with advantage. Every new type of engine, carriage, wagon, rail, signalling equipment, etc., is thoroughly tested under all kinds of working conditions.

The second object is to ensure that the greatest possible degree of self-sufficiency is attained in respect of all railway requirements. We want everything used by us to be designed and made in India, by Indian workmen, with Indian material. We are not really particular whether a component is made in a railway workshop or by a private firm as long as the quality is good. Sometimes the Railways are, rather unfairly I think, accused of continuing to patronise manufacturers in India with foreign names instead of preferring firms with purely Indian names. It is forgotten, in this connection, that over 99 per cent of the labour employed in the factories which supply railway needs is Indian, and that the shares of most companies with British names are largely Indian-owned.

It is reported that between Rs. 500 and Rs. 600 crores worth of foreign capital is at present invested in Indian Industry. Efforts are being made to obtain more, to help in the early development of the country. In these circumstances, does it not appear illogical to expect the Railways suddenly to withdraw custom from well-established firms of high repute who have produced quality goods for us for many years, just because they have foreign names ?

It is the declared policy of Government to encourage all industries in India. The Railways themselves have in recent years made a significant contribution towards the realisation of this policy and by continually insisting on a high quality of goods and services, they will, I hope, be able in future to assist materially in raising the standards of manufacture of those who do not at present come up to the mark.

As far as this Research and Testing Centre is concerned as long as the manufactured article is made in India by Indian workmen and as far as possible from Indian material, it does not matter which particular agency actually makes it.

## Better Transport System

The trials, tests and research for which this Centre is responsible will be co-ordinated with the design and development wings of the Railways, and there will always be close and constant liaison between this Centre and our Chief Design Engineers. Such achievements as we can show will be looked upon by us as only another mile-stone on the road to progress which, in this scientific age, has no end. The Railways cannot, however, function or improve to any large extent in isolation from the rest of the country, and our rate of progress has necessarily to be linked with the rate of general development around us. Our aim is to provide as adequate, efficient and economic a transport system as we can with the resources available to us ; the Centre which is just getting into its stride will be a most valuable limb of our vast and many sided railway organisation and will enable us to fulfil this objective."

# BUILDING A MOUNTAIN RAILWAY ACROSS THE VINDHYAS

## CONSTRUCTION OF THE NEW DOWN MAIN LINE BETWEEN BUDNI AND BARKHERA

THE Central Railway crosses the Vindhya mountains on the Itarsi-Bhopal Section between Budni, on the north bank of the Narbada river and Barkhera, at the summit of the mountains. This route, which was orginally constructed in the year 1884, follows the valley of the Gadaria river practically the whole length, and ascends over sharp curves from Budni to Barkhera, which is 530 feet higher up, along a ruling gradient of 1 in 80. This steep gradient makes it necessary to work all ascending trains with bankers. Such banking not only increases the operating costs but also curtails appreciably the carrying capacity of the line.

Though this limitation of the transport capacity across the Itarsi-Bhopal Section was felt as long ago as 1910, it was not until after World War II that the paramount necessity of eliminating this bottleneck was realised. The demand for coal in the Ahmedabad area increased considerably and it became necessary to move additional coal traffic from the Pench Valley as well as from the Central Indian Coalfields. Coal traffic emanating from Pench Valley has of necessity to move across Itarsi-Bhopal section whereas the coal traffic from Central Indian Coalfields had also to be diverted *via* Itarsi-Bhopal in view of the fact that the Bina-Bhopal section was being worked to a saturation point. Added to this, the goods traffic moving from north to south also increased considerably. Doubling of the track on the ghats section was therefore considered to be the immediate solution to cope with the demand for moving additional goods traffic on the Itarsi-Bhopal section.

The straightforward method of laying the new line side by side with the existing one would, unfortunately, have perpetuated banking of the ascending trains and from the constructional point of view involved serious problems in the widening of cuttings, making up of embankments and the construction of bridges alongside the existing line. It was, therefore, a matter of great practical importance that the new line should be laid on an independent location on a sufficiently flat gradient so as to eliminate the banking of trains. Close survey work yielded satisfactory results and an entirely new route with a gradient of 1 in 125 was found practicable along a stretch of 16·15 miles with Midghat in the centre between Budni and Barkhera.

### Alignment of the new route

The new alignment has several novel features. Soon after it takes off from Budni, it takes a sweeping turn to the west and slowly ascends along the sloping hill-side of the first ranges of the Vindhya mountains. After a stretch of two miles, the alignment turns round a full circle over a "bulb" to catch higher levels on the same hill-side. The final choice of the "bulb" called for precision survey

work, and various alternatives were located and studied carefully, taking into account not only the initial cost of construction but also that of operation.

After leaving the "bulb" area, the new line wends its way along the foot of the hills crossing deep ravines and wild valleys over high embankments almost directly east and thereafter keeps to the hill-side of the existing main line till Midghat station is reached. At this station, the level of the new line is adjusted to be the same as that of the existing line to facilitate emergency crossing arrangements. In the Midghat area, the line goes through a tunnel under the existing catch siding.

After leaving Midghat, the line crosses a saddle off the main range of mountains through another tunnel known as Bhimkoti tunnel.

Thereafter, the new line traverses more or less easier ground and after crossing the Gadaria river, clings close to a series of cliffs along the river. In the section ahead, ground conditions are relatively easier and the line is located close to the existing alignment until it works out the difference in elevation and runs into Barkhera yard on the same level as the present alignment.

## Special Features

Soon after leaving Budni, the new line in this area crosses a wild valley over an embankment about sixty feet in height, exceeding 2,500 feet in length, while the rest of the "bulb" is in deep and heavy cutting. The problem of building up a bank of such dimensions was aggravated by the notorious black cotton soil of the Deccan which is about the most unsuitable material for high embankments. Further investigations fortunately revealed that below the surface-layers of black cotton soil 5 feet or 6 feet deep, there lay a deep layer of yellow clay which formed good material for embankments. It was, therefore, decided to utilize this good clay by excavating deep borrow pits about 15 feet in depth and construct the embankment mostly out of this material.

The bank has been designed on the principles of Soil Mechanics, and a profile for this embankment of gigantic proportions has been worked out scientifically. This not only guarantees safety and stability, but also ensures satisfactory performance under adverse conditions of weather and traffic. The earthwork was completely mechanised using a fleet of modern earth movers such as crawlers and motorised scrapers, excavators, dumpers and sheep's-foot rollers to ensure the construction of the embankment to rigid specifications. A fleet of twenty-one machines, operated and maintained by 78 skilled mechanics, completed over two-hundred lakhs cubic feet of earthwork in less than 200 working days!

Modern techniques have been adopted in the design of bridges which have been constructed and controlled concrete, both plain and reinforced, has been employed on a large scale in building durable and economical structures. The major bridge across the Gadaria river is a typical example of the construction methods and devices employed on the Project. The river crosses a gorge, and therefore



wingless buried abutments have been provided in economising the construction. Piers and abutments rising seventy feet above the foundations presented some problems in their construction: but mass concrete poured with steel slip forms answered the challenge. The mixes for the concrete were designed scientifically and this resulted not only in high and uniform compressive strength but also effected appreciable economy in the consumption of cement. The set-up for production of raw materials for the concrete and their mixing was semi-mechanised, and concrete in buckets was lifted to the tall piers with crawler cranes and derricks. Over seven lakhs cubic feet of concrete was used in building the bridges.

The new down main line crosses several ridges and high promontories from the main range of the hills, and at four locations tunnels were found necessary. Though short in length, the problems in supporting the ground in boring these tunnels were complicated by the treacherous and jointed nature of the ground through which they were driven. The soft and flaky shale, and layered sandstone badly cut up by criss-cross planes of jointing necessitated a well-timbered pilot heading being driven in the first instance and then enlarged to full sections, support being afforded by heavy rolled steel sections. New techniques were devised and employed in drilling, blasting and supporting the ground. Safety of workers in the tunnels being of paramount importance, a multi-purpose travelling protective shield, fabricated of plates and mild steel sections was designed and used, and this acted not only as a protection for labour, but also as a staging or "jumbo" for drilling, scaling and erecting the steel supports. But for this mobile canopy, tunnelling through the flaky Vindhyan shales would have indeed been hazardous.

Tunnel lining has always been looked upon as a slow process and a drudgery, but the modern method of placing concrete by means of compressed air with a concrete placer has made this otherwise tedious task a simple one. In this process, concrete in the lining is placed in three different operations, the floor, the side wall and the arch. A mobile steel form, thirty-two feet in length, designed to be capable of being collapsed so as to pass through the finished section, was used in lining the tunnels. Concrete was wet mixed outside the tunnel and transported inside in buckets on flat cars. These buckets were elevated from the cars by an electric hoist and the contents dumped into the places. The placer itself was a stream-lined stomach-shaped pressure vessel provided with flaps and valves inside. After charging the placer, the door was cleaned and locked and compressed air opened into the chamber. Powerful jets of air were passed inside the placer, and the well-mixed concrete was carried away through the discharge pipe right to its end. The dynamic action in conveying the concrete and the speed of the process can be gauged from the fact that a full charge of 21 cubic feet of concrete was shot up in less than twenty seconds.

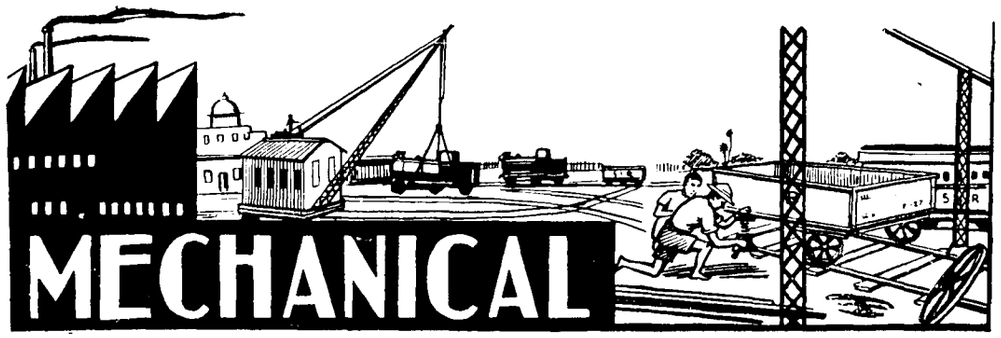
On an average, from start to finish of the work with the placer, progress was not less than 1,300 cubic feet of concrete shot in place in a shift of eight hours, and over-all progress in lining Choka, Bhimkoti and Midghat

tunnels was over 100 cubic feet of completed tunnel lining in a week.

The entire tunnel lining equipment consisting of the placer, the steel forms, etc., were designed by the Central Railway and manufactured in the Central Railway Workshops. It is believed that this is the first time that equipment of this type has been designed and manufactured in India and lining of railway tunnels carried out by this mechanised method.

All the tunnelling work and construction of the major bridges and a good portion of earthwork in making up of embankments, and excavation of the difficult rock cuttings were carried out departmentally, and in fact over Rs. 100 lakhs of work was carried out by the Project Division directly. A strong fleet of plant was procured at the very commencement of the Project, and a well-equipped, self-contained Workshop was installed at Barkhera with a fair complement of machine tools to ensure correct maintenance and periodic overhaul of the machines. Every piece of work carried out departmentally was planned carefully and mechanised to the optimum extent.






# PRODUCTION CONTROL IN RAILWAY WORKSHOPS

K. G. BELLIAPPA
*Carriage Works Manager*

THE purpose of this short article is to bring to the notice of our readers the main role of Production Control in Railway Workshops.

Railway Workshops require spare parts to replace worn out components on all rolling stock that come in for repairs. These spare parts require to be manufactured by the cheapest method possible. This cheap manufacture of spare parts enables the total cost of repair of each vehicle to be minimised while still enabling it to go out of the workshops almost as good as new. Thus Production Control embraces all activities required to achieve this objective.

Production Control may concisely be described as the machinery required to produce a sufficient quantity of components as cheaply as possible and make them available at the proper time.

This Organization has the responsibility of ensuring that a job is done quickly in the most convenient way, besides enforcing a proper quality of workmanship and providing for equally fast repetitions of identical jobs.

## Tooling

The first object is achieved by proper planning of operations with the aid of proper "tooling" which gives a maximum outturn of a large number of identical parts in any process.

Planning or initiating comprises laying down the correct quantity of raw material required and also accurate methods and timings for the processes undertaken.

Tooling is probably the least understood of all functions. Tooling may correctly be described as the design of devices, such as jigs and fixtures to facilitate manufacture of a large number of components of identical shape. It is in Jig & Tool Design mainly that practical experience is translated into sketches, drawings and blue prints. To illustrate, when making a rivet head one of two ways can be employed. A bar can be heated and the rivet head shaped by a blacksmith one at a time with a hammer. It can also be done by feeding a hot bar into a machine which grips the bar and punches the head in one operation. The latter operation is much faster and requires the preparation of a set of side gripping blocks or tools and a heading tool. It is the design of these tools that is referred to as "tooling." The cost of tooling in the Railway Industry is not even half the total cost of manufacture of a vehicle as compared to the aircraft industry which spends about ten times as much on tooling as it does on the cost of one plane,

The Organisation also controls the quality of workmanship of the finished article, maintaining it at a high level to ensure that it will efficiently do its allotted task. This is usually achieved by enforcing detailed stage to stage inspection of each batch of components.

The above would constitute the basic requirements of any Production Organisation.

## Time Factor

The time factor is very high in this control in that timely supply in sufficient numbers of any component is an imperative necessity. A sufficient quantity of spare parts would on first considerations appear to be easily attained. But however, the question is more complex. Each component has different operations and processes to undergo. What is aimed at is to see that a balanced output in each process is obtained so that there is no bottleneck at any stage.

For example, take the manufacture of a large connecting rod.

It has first to undergo a forging process under a large steam hammer ; then it has to go through various operations such as milling, drilling, slotting and boring in the Machine Shop ; after this it has to be heat-treated. At each stage the equipment for the process should have sufficient capacity to meet the output of the previous process. Failing this we are likely to have what is so often described as a "bottleneck" at one stage or other.

It is thus a fundamental requirement of production control to balance the work in each process to ensure that a certain optimum output of various components is obtained.

## Cost of Production

Cost of production is another salient factor. How is this to be obtained ? Into the cost of production goes the cost of raw material and cost of labour for producing a component besides other charges. But even in fixing the cheapest raw material and its quantity, convenience of manufacture cannot be overlooked.

A discussion I recently had with a friend will illustrate the case in point. My Engineering friend suggested that clusters of scrap rails be used to weight brake vans instead of casting weights in the Foundry for this purpose and the released capacity in the Foundry be utilised for other works. Although scrap rails are cheaper, the idea cannot simply be adopted because it is not as convenient to fasten rails to the under-frames of brake vans as it is to fasten cast iron weights.

Various incentive schemes enable the cost of labour to be minimized, but this is not a factor present in all Railway workshops. However, a close control on the man at the machine and the type of job, requires to be exercised to get the best results in this direction.

In the cheapest method a proper appreciation of the equipment available must necessarily be considered. Further it is in the best interests of any Production Control not only to plan a new job to suit the equipment available but also to arrange for new machinery to enable the introduction of cheaper methods of manufacture.

## Benefits of Liaison

A close liaison between the Stores Department and the Workshops is brought about most effectively by Production Control. The Stores Department keeps a check on the consumption of various manufactured and purchased items and where the variations of consumption are considerable the reasons are investigated.

For example, the consumption of brake blocks was reported to be heavy on the Districts recently ; this led to investigations which revealed that thefts of this particular fitting were the main cause. Heavy consumption of piston gland packing rings was found to be the result of poor quality of cast iron used in manufacture.



Thus this liaison also brings about a close control on design and its defects, whenever they occur, under actual working conditions.

## Independent Designing

There are however many controversial factors in Production Control which have been examined by Engineers from time to time to obtain the best results. Not the least among these is the degree of functional independence that should be afforded to designors of tools and jigs inside the Production Control Organisation.

The accepted principle in European countries today is to allow Jig and Tool Design to be completely independent of the Production and Planning groups and Quality Control Inspection again to be independent of Production Control.

Judged by conditions in India, this calls for an enormous amount of inter-departmental co-operation which can be achieved only by direct discussion rather than by voluminous routine or office orders.

Many truths established in other countries decades ago are now being experimented in Railway Workshops in India. The outcome must necessarily result in improvements in the decades to come.

# THE LURE OF THE NILGIRIS

P. S. SUBRAMANIAM
*Coonoor*

IT is a happy coincidence that the second issue of the *Southrailnews* appears at a time when a large number of the people of the Southern districts will be looking for a holiday on the hills. The selection of a suitable hill station is quite often a difficult problem and many anxious hours are spent in deciding whether one should go to Kodai or to the Nilgiri hills. If the choice falls on the latter, the question may arise whether one should go to Ootacamund, Coonoor or Kotagiri, and this again is not an easy problem. The writer, having spent 20 years on the Nilgiri hills, will try to record briefly the distinctive features of the different stations in respect to climate and the amenities available to visitors, and their suitability from other points of view.

Although situated within a few miles of one another, Ooty, Coonoor and Kotagiri differ in their climatic conditions, mainly because of their different altitudes. Also, the fact that Ootacamund is completely exposed to the south-west monsoon while the other two stations are fully protected from it contributes to many changes in their respective climates.

The choice of a hill station depends usually on such factors as cost, accessibility, the facilities available for rest, recreation and social life and the suitability of the climate to the individual concerned. From the point of view of cost alone, Ootacamund should be considered on the whole to be more expensive than the other stations. Accommodation and food usually cost more in Ooty, the more so during the season. Visitors whose means are strictly limited will perhaps do well to go to Coonoor or Kotagiri in preference to Ooty.

Ootacamund was 'discovered' and developed into a model hill station with all the amenities required of such a station. For many years it enjoyed a special and privileged position as the " Queen of the Hill Stations " and as the official summer headquarters of the Government of Madras. Although no longer the summer headquarters of Government, it still attracts an enormous number of visitors of all ranks from all over India, and its social life is today no less colourful than it was in those years. It has a fine bazaar, clubs, public libraries and pomological gardens to interest people of all tastes.

To a large number of people, however, climate is the main point for consideration. The elevation of Ooty is 7,400 feet above mean sea-level, that of Coonoor is 5,600 feet and that of Kotagiri 6,500 feet. The visitor should consider carefully which of these elevations would suit him best. A rough guide for the calculation of maximum day temperature in the hills during the hot months is that an elevation of 300 feet usually causes a reduction of 1 degree in the temperature. On this basis, assuming the temperature at sea-level to be 90 degrees on a certain day in May, the temperature in Ooty will be 66 degrees, that at Coonoor 71 degrees and that at Kotagiri 68 degrees. Maximum day temperature in Ooty in the hot months may be up to 77 degrees and the minimum night temperature about 50 degrees. Maximum temperature in Coonoor and Kotagiri is about 3 to 5 degrees higher and the minimum night temperature is also higher to a similar extent.

Ooty has an annual rainfall of about 60 inches. The climate throughout the year is extremely well-suited for a robust, disease-free constitution, but invalids should confine their visits to April and May, and part of September. To those spending most of the season in Ooty, Coonoor and Kotagiri afford a satisfactory and pleasant variation after the end of May.

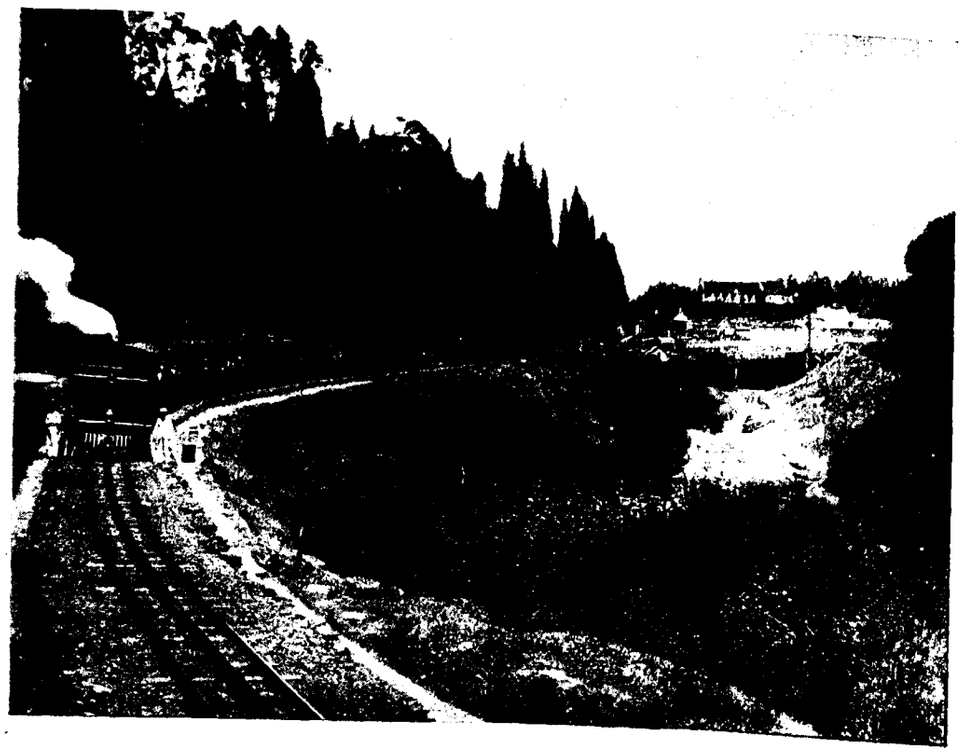
The climate of Coonoor is mild and rather more humid than that of Ooty and Kotagiri.

The town is well-sheltered from the blast of the south-west monsoon, and is, therefore, in contrast with Ooty, quite pleasant in June. After spending April and May in Ooty, the visitor would do well to shift to Coonoor in the following months. Its mild and agreeable climate is best suited to old people and to those who cannot stand the colder air of Ooty. Persons ailing from rheumatism and some types of asthma are known to have found the climate of Coonoor favourable in every way.

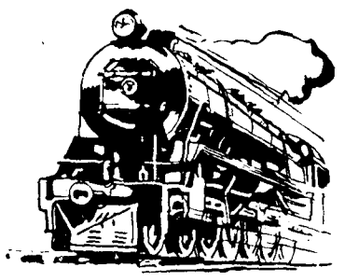
As with Coonoor, Kotagiri also has a climate in some ways distinct and different from that of Ooty. The town is protected from the south-west monsoon and the weather is uniformly good during April–June. The place looks rather quiet and detached in comparison to Ooty or Coonoor. The climate is generally drier than Ooty and cooler than Coonoor. It is particularly well-suited to those who have lived many years in the oppressive heat of the plains and who need a steady, bracing climate for recouping their health. Although not served by the railway, Kotagiri is linked with Mettupalayam by a good ghat road, 21 miles in length, and can be quite easily approached from Coonoor and Ooty also.

[Readers of this article might naturally require some information on the question of accommodation on the Nilgiris. Their attention is invited to an advertisement appearing on page 30 on the Modern Hindu Hotel "*Dasaprakash*," Ooty, a luxurious Vegetarian Hindu Hotel. In Coonoor and Kotagiri also, there are hotels to suit different pockets and tastes.—*Ed.*]

APPROACH TO COONOOR



# THE STEAM ENGINE—IN RETROSPECT AND PROSPECT



V. KRISHNASWAMI
*Assistant Traffic Supdt.*

THE steam engine was and still is, the main prime-mover in Railway traction. During the past two decades, considerable progress was made and several forms of prime-movers were perfected in several countries practically ousting the steam engine. U.S.A. changed over to diesel-electric and electric locomotives and practically steam traction is coming to an end. In France, the change-over to electric is going on at a very rapid rate and in Switzerland practically all the locomotives are electric. The coal-burning steam locomotive continues to be still an inefficient tractor mechanism with its thermal efficiency never above 8%, despite the fact that it has been developed to perfection. Nevertheless, the steam engine as a prime-mover reigned supreme in Railways all over the world for over a century, as no better substitute could be found. The quest for an efficient and economic tractor was very seriously pursued in all countries and several types of locomotives of various combinations, diesel-electric and electric locomotives, were developed and experimented with, the latest being Gas-turbine. The latter has been the dream of the Engineer, and is finding its way into every type of industry, air and sea, land and rail, but it has not proved to be a serious competitor to the steam engine. Gas-turbine, so far, has been designed to burn only oil, thus limiting its usage to countries rich in oil reserve. Coal-burning gas-turbine machine was manufactured in America, but it failed to come up to expectations being less efficient than a steam plant. Gas-turbine locomotives manufactured in Switzerland and in England have been tested, but it is reported that their thermal efficiency, etc., is not so appreciable as compared with steam engine.

The burning problem of the day is how far and how best coal can be utilised as motive power in Railways, especially, in countries like India with *Coal* as the *only natural resource.* The answer to this problem is by no means simple and straight. The choice is governed by many other factors like traffic density, running expenses, capital outlay, availability of hydro or thermal electric power, conditions of the terrain, etc. The most important point to be taken note of in the selection of motive power depending on foreign imports is the judicious use of the same so as not to cripple the vital National Transport System for want of locomotive fuel, apart from other strategic considerations, in the absence of imports. Therefore, the consideration of oil-worked prime-movers is not taken up as it is unsuitable for our country.

In the following pages an attempt is made to present the salient facts, pro and contra, pertaining to the

steam engine and electric locomotive. I can only touch the fringe of the subject in this brief article not going too far and wide, beyond the scope of the understanding of the common reader, and avoiding entering into controversial arguments.

The thermal efficiency of steam engine is stated as, " not above 8%," which is a very optimistic value; actually in practice, the average efficiency is between 5 to 7% only. What is this thermal efficiency? It is better explained by taking an example. In the case of the coal-burning steam locomotive, out of every 100 lbs. of coal burnt in its grates, only about 8 lbs. are utilised in hauling the train, the rest 92 lbs. going waste —a national loss rather serious to be ignored for long. However rich our resources of coal may be, it must find its depletion sooner or later and to wake up at the fag end may be too late. Besides, the coal that is required to be burnt, is of a high grade variety better used in metallurgical operations, which our country very badly requires.

Coal is becoming increasingly costly; priced about Rs. 18 per ton at pit's mouth, it is costing Rs. 75 per ton when it is delivered at the engine tender in South India. Apart from this prohibitive cost, the problem of finding wagons to transport over long distances, is no easy one. At this juncture, when wagon shortage is keenly felt and transport of essential commodities is held up, these wagons could be profitably utilised for cash-revenue-earning traffic.

On the technical side, it is pointed out that the 'side-to-side' thrust (reciprocating action) of steam engine calls for heavier and expensive track equipment as compared with the smooth running of the electric stock. The impact stresses caused by the rotating masses in the driving mechanism of the steam engine, are another undesirable feature which is totally absent in electric locomotive. (*International Railway Congress Association Bulletin.*)

There are other operational disadvantages in the steam engine, viz., its non-availability in case of emergency, as it takes 4 to 5 hours to get up steam from cold before being put into operation. The weight of steam engine for a given horse-power is more than the weight of electric locomotive for the same power or in other words, power weight ratio of steam is low. Roughly, the weight of steam stock per H.P. is about 200 lbs. and electric stock about 120 lbs. per H.P.

The steam engine has very limited capacity to take overloads unlike the electric which can take considerable overload for short durations.

Provision of big coal yards and sheds, fuel-handling machinery, water storage tanks, fire-cleaning, boiler-tube washouts, etc., characteristic of steam stock, involving considerable capital outlay and recurring expenditure, could be done away with in case of electric stock. In the case of a steam engine, a minimum crew of three are required, who are called upon to devote sustained attention to firing, and maintaining steam, etc., which prevents the driver in keeping a sharp look-out of the track ahead and signals. In the case of electric loco, the driver is not involved in any such operations and his attention is fully focussed on



the track ahead and he has perfect visibility. The provision of " Dead-man's-handle " (a safety expedient in electric locomotives) brings the train to a dead stop very quickly and efficiently, in the event of the driver relaxing his grip on the handle inadvertently. Such a provision is not available in the steam engine, where the manual application of vacuum brakes by the driver, is solely depended upon. There are many other automatic devices provided in an electric stock which renders it a 'foolproof' prime-mover always tending towards safety and elimination of accidents. In this respect, it scores a very great advantage over its steam counterpart.

Another important factor is the supply of water to generate steam in the steam locomotive. Especially in South India there are very many places where water scarcity is acute and there have been numerous instances when trains had to be delayed or cancelled for want of water. If a reliable transport system is to be provided for the public without making costly arrangements to supply water for steam locomotives, electric loco is considered the ideal one. The 'economic' and 'operative' advantages gained by electric locomotive over the steam engine, are too many to be lost sight of.

It is considered that coal burnt in a power station is much better utilised than in a steam engine and a wastage of about 22% is saved. The thermal efficiency of a power station with coal-burning boilers is about 28 to 30%, which is 3½ times more than the steam engine. With the present-day knowledge and technical progress, no other plant has been developed which could consume coal more efficiently. The logical deduction would be, to increase the number of thermal stations generating electricity and thus utilise the electric energy in Railways. The location of thermal stations, calls for no such costly sites. It can be situated at a place where land and water are available in abundance and economical.

An analysis of the working of a power plant and steam engine, as applied to a section of a Railway (abroad), will be very interesting and illustrative. It is estimated that the traffic transported over a section of a Railway abroad, consumed 20·4 million tons of coal (metric) in a year. Had this been converted into electric operation, it would have consumed about 12 thousand million units (K.W.H.) of electric energy. On the other hand, if 20·4 million tons (metric) of coal had been utilised in power plant boilers, it would have generated 40·8 thousand million units. It will be noticed that besides supplying energy to Railway, a surplus electric energy of 28·8 thousand million units would be available for public release, which is lost due to inefficient burning in steam engine. This does not mean that all the Railways should, therefore, be electrified at once. (*International Railway Congress Association Bulletin.*)

The electrically driven locomotive is considered far superior in performance, technically and economically, as compared to the steam engine. A conversion of steam to electric entails considerable capital expenditure for track equipment, sub-stations, rolling-stock, etc. Against this increased capital outlay, must be set off saving in recurring expenses, saving in

personnel, fuel, etc., besides providing the travelling public a speedy and comfortable transport system. A close study of both the systems of working should be made and a balance-sheet prepared to arrive at the proper conclusion. This will vary considerably, from place to place, depending upon proximity of coal and its cost. There is no definite yard-stick, or rule laid down to judge this. However, in the opinion of expert Railway Engineers abroad, it is considered that "*in countries rich in coal on main lines, coal consumption of more than 350 tons (metric) i.e., a current consumption of more than 200 thousand units per kilometre of line per year is now considered to justify the change-over.*—(*International Railway Congress Association Bulletin.*) Even this is not a final one to be applied blindly. Nevertheless, it can be said that sections around important metropolis, where traffic density is very high, where speed and clearance of passengers in peak hours is of utmost importance—which are now causing a major headache to Railway authorities as they are not able to clear traffic with steam stock—are the points for such change-over. Though this has been accepted in principle, yet the change-over is held up. It is presumed that the lack of electric power—hydro-electric power—in South India around Madras and Bombay—fantastic cost of electric rolling-stock quoted by foreign concerns and the huge capital outlay involved, are the chief factors remaining unsolved. It will be apparent to every one that hydro-electric power, as at present, has proved a miserable failure. Not to take notice of this will mean crippling our nascent industries and technical progress of our country. Therefore, it is important in the interests of our country's economical and agricultural progress, that thermal stations are suitably installed, interlinking them with hydro-stations, to form a grid and balance our requirements.

For example, a sufficiently big thermal station around Neyveli, where huge and rich lignite deposits are available, can be installed and the cheap motive power profitably used for production of electricity. This would mean electric power made available for Railway purposes from Chingleput to Trichinopoly, besides meeting other public demands for industries and agriculture. Incidentally, this would release considerable strain on hydro-power stations. The present 'cuts' in electrical energy, if continued long, probably may mean 'cut-off' from the mains.

As to the high capital cost involved in this change-over to electric, probably this cannot be avoided and naturally must be so, considering the very many advantages and economy in operation consequent to the change-over. The most important factor that cannot be ignored in this connection is the conservation of our 'National Fuel Resources' which cannot be frittered away in wasteful operations.

Incidentally, I would also point out that the high capital costs may be cut down to a considerable extent if electrical rolling-stock is manufactured in our Country, only importing such of those items which cannot be produced here. Judicious use of other materials available here without resorting to import of several manufactured items is a point to be given very serious consideration.


# SOUTHERN RAILWAY AND SPORTS

N. SESHACHALAM

*Honorary Secretary, Southern Railway Athletic Association*

THE Southern Railway which has various achievements to its credit has made no less a mark in the field of sports. The story of placing sports on an organised footing in this area of Indian Railways dates back from the early twenties.

In 1923, an Athletic Association was formed on the ex-South Indian Railway with the object of promoting sports contests between the various Railway Institutes over the entire South Indian Railway system. To commence with, Inter-Institute tournaments were held every year for Foot-ball, Hockey, Tennis and Billiards. Gradually the events were increased to include Badminton, Volley Ball, Boxing, Table Tennis and Carroms. The first Railway Athletic Meet was held in February, 1924 and thereafter every year regularly, except during the war years. In 1928 the S. I. Railway Athletic Association constructed at Trichy a Sports Ground for all games including Tennis. This ground named after Sir Ernest Bell, Chairman and Managing Director of the ex-S. I. Railway Co. Ltd., is still being used for the Regional Sports activities. A few of the important events won by the ex-S. I. Railway team are, the Madras Presidency Olympic Games in 1938 and Inter-Railway Hockey in 1948.

To co-ordinate the sports activities on the ex-M.S.M. Railway which were conducted by Departments, a Central Organising Committee was formed in 1929. Its principal functions were to stimulate interest and develop sports generally. Sports generally on the Railway gradually became organised and many new activities controlled or organised by the Sports Managing Committee were introduced. Tournaments were conducted for Railway employees in the different branches of sports and Railway teams entered for various open and all India Tournaments. For the purpose of Railway tournaments, the Railway was divided into Zones and tournaments were held in the Zones. Selected teams from the Zones participated in the Railway tournaments. Some of the important tournaments won by the ex-M. S. M. Railway teams are the Maharajah of Travancore Cup, M.U.C. Gold Cup and Thomas Cup, all for Hockey and the Inter-Railway Athletic Cup from 1949 to 1951.

Except during the war years, the Athletic Associations of the ex-S. I. and ex-M. S. M. Railways conducted sports activities of the Railway regularly in order to foster the spirit of sportsmanship and assisted in providing all employees with organised games for their entertainment in leisure hours. The results of the labours of the

Athletic Associations brought to the forefront on many occasions a good name for the Railway teams not only in Trichinopoly and Madras but also in wider spheres.

Consequent upon the integration of the ex-M. S. M., ex-S. I. and ex-M. S. Railways, the Southern Railway Athletic Association was formed in 1952 for conducting sports activities over the entire Southern Railway. The object of the Association is the promotion and development of sport on the Southern Railway by the organisation, control and encouragement of sporting activities of employees by means of tournaments and Athletic competitions of all kinds. Membership of the Association is open to all staff of the Southern Railway as INDIVIDUAL members and to all Railway Institutes, Reading Rooms and Sports Clubs as CORPORATE members.

The affairs of the Association are conducted by a governing body called the Central Committee and by Regional Committees, one for each of the three Regions on the Southern Railway. The Regional Committees are responsible for the conduct of all the activities of the Association within the Region as entrusted to them by the Central Committee. The Association is affiliated to most of the State Associations.

Tournaments are conducted in each Region on an Inter-Institute basis. On the results of these tournaments, the Regional team is selected and Inter-Regional tournaments conducted. The Association has been entering Railway teams for the various important tournaments conducted in Madras and outside and for many Inter-Railway tournaments. The first Southern Railway team took part in the Inter-Railway Athletic Meet held in Delhi in March, 1952 and won the championship. It again won the championship in 1953 but lost to the Northern Railway in 1954. The best athlete for the two years 1952 and 1953 belonged to the Southern Railway. The Southern Railway Foot-ball team during 1952 won a number of important tournaments. The Hockey team won the M.U.C. Gold Cup and the Thomas Cup in 1953. The first Inter-Railway Table Tennis tournament conducted this year was won by the Southern Railway.

The future sporting activities of this Railway promise well, as a larger number of employees are now taking a keener interest in sporting activities. To the extent the resources of the Athletic Association have permitted, every endeavour has been made during the years to maintain the enthusiasm and keenness of the employees to develop their sporting abilities and to take a keener interest in sports. We look forward to our Railwaymen doing even better in the future in the field of sports.

## INTER-RAILWAY ATHLETIC MEET, 1954

The following 8 events were won by the Southern Railway Athletic Association :

| | |
|---|---|
| 100 Metres .. .. | Vincent Martin. |
| 200 Metres .. .. | |
| 800 Metres .. .. | Premkumar. |
| 110 Metres Hurdles .. .. | C. D. Cleur. |
| Hop, Step and Jump .. .. | |
| Javelin Throw .. .. | K. Bosen. |
| High Jump .. .. | Ian Trover. |
| Pole Vault .. .. | Krishnakutti Nair. |



The Southern Railway Athletes obtained second and third places in the following items :

*Second place :*

| | |
|---|---|
| 400 Metres .. .. | Vincent Martin. |
| 1,500 Metres .. .. | Premkumar. |
| Hammer Throw .. .. | D'Sena. |
| 4×400 Metres Relay .. .. | Vincent Martin, Lakshmanan, Krishnamurthy & Premkumar. |

*Third place :*

| | |
|---|---|
| 3,000 Metres .. .. | Adimoolam. |
| 10,000 Metres .. .. | Kothandapani. |
| Shot Put .. .. | Shetty. |
| Hammer Throw .. .. | J. S. Clarke. |
| 4×100 Metres Relay .. .. | Vincent Martin, Bhaskaran, Mascerine & J. S. Clarke. |


Vincent Martin created a new record by finishing the 200 Metres race in 22 seconds. The previous record of 22.2 seconds was held by P. E. Rodrigues of the Ex. S. I. Railway from 1939.


"Why did you strike this man?" asked the Magistrate of a man accused of assault.

"He called me a liar, Your Worship."

"And it's true, I can prove it," said the complainant from the well of the Court.

"What have you to say to that?" asked the Magistrate of the accused.

"It's nothing to do with the case," he replied, "Even if I am a liar, I'm entitled to be sensitive about it."

* * *

*Young husband:* "Darling, you should have cooked twelve plates of this soup instead of two."

*Bridge:* "So you like it so much dear?"

*Young husband:* "No, but it would have been more suitable to the amount of salt you have put in."

* * *

A millionaire alighting from a taxi tipped the driver six pence.

The driver scowled at the tip, and told the millionaire "I drove your daughter yesterday. She tipped me a pound."

"Very likely," came the reply: "but she has got a rich father and I haven't."

* * *

*Smith:* "I understand Brown's wife has a very colourful personality."

*Jones:* "Yes, she's either white with rage, black with despair, green with envy, or rosy with happiness."

* * *

"What do you mean by being away ten days after being granted only seven days leave?" asked the O.C.

"It said on my leave paper seven clear days, and three of them were foggy," replied the recruit.

* * *

A certain Senior Officer doing a "line" tour arrived at the office of one of his Junior Officers before the latter arrived.

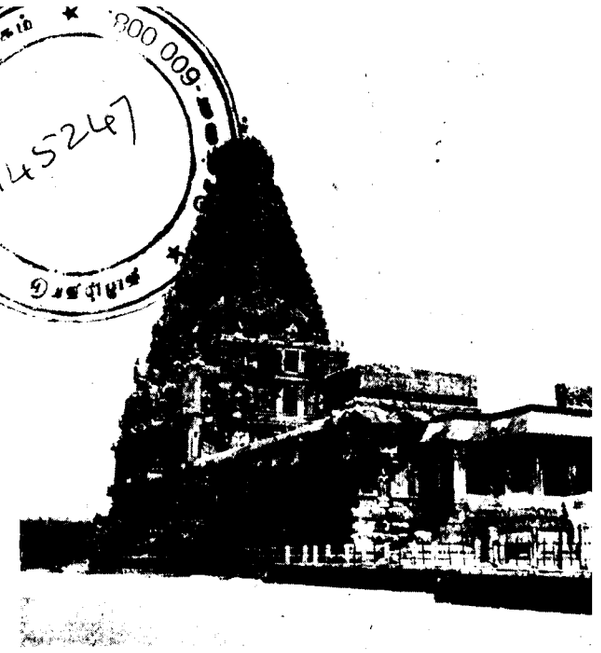
When the young man arrived he was greeted by "You should have been here at nine-thirty."

"Why," enquired the late one, "What happened?"

* * *

# TANJORE— "THE ROYAL CITY"

P. S. VEDHACHALAM



SOUTH India is aptly known as the Land of Temples. The civilisation and cultural tradition of South India are best revealed in her temples and shrines which possess some of the highest achievements of man in the fields of architecture and sculpture. To appreciate them adequately, some knowledge of their history is necessary.

## Historical Background

Tanjore, which is the subject of this article, has a history of her own, from Puranic times. The town of Tanjore or *Tanjavur* derives its name from Tanjan, a powerful giant, who lived in the neighbourhood and troubled the people living thereabout, is stated to have been slain by God Vishnu who, however, granted the dying request of the *ASURA* that the place should be called after him. The temple built to install Vishnu, known in this place as Neelamegia Perumal, is about two miles north of Tanjore. In the historical perod, Tanjore was the capital of the Muttaraiyars. In the second century A.D. it was probably the seat of the early Chola kings. From the death of Parantaka I who ruled for about 45 years from 907 A.D. and until the accession of Rajaraja the Great in 985 A.D., the history of the Chola dynasty is a mass of somewhat confused details. Rajaraja was a dauntless warrior, great statesman, lover of arts and learning and an ardent worshipper of Siva. He it was that constructed the greattemple of Tanjore which "stands to this day the finest monument of a splendid period of South Indian History and the most beautiful specimen of Tamil architecture at its best. The temple is remarkable alike for its stupendous proportions and the simplicity of its design" (*Prof. K. A. N. Sastri*).

The Chola power gradually declined. From about 1534, when the Vijayanagar sway was established over Tanjore, the city was the successive capital of the Nayak and Mahratta kings.

The palace of the Mahratta Rajas of Tanjore is in the heart of the town within the Fort. The Saraswati Mahal or the Hall of the Goddess of Learning contains 20,000 Sanskrit manuscripts of which a large number is written on palm leaves. This unique collection, probably the most valuable in India, was made by Raja Sarfoji who had held a distinct place among the Mahratta rulers of the country.

Raja Sarfoji kept for himself the fort of Tanjore and an extent outside it, and ceded the dependent territory

to the British by a treaty in 1799. His son Sivaji died in 1855 without a male heir, and the capital lapsed to the British Government.

Tanjore is an ancient town known as the Garden City of South India. It is a junction on the Main Line Metre Gauge route of the Southern Railway, 218 miles south-west of Madras and 30 miles east of Trichinopoly. Being situated at the head of the Cauvery delta, which is well known for its rich alluvial soil, Tanjore has been termed the granary of the East. It is also noted for its pith and lace works. Its flower market is famous. The Art Gallery, established recently at the Tanjore Palace, is well worth a visit.

## The Great Temple at Tanjore

The great attraction at Tanjore is the Brihadiswara Temple which is considered to be an admirable specimen of Hindu architecture. It was constructed during the reign of the Chola Emperor Rajaraja, the Great, who ruled for a period of 29 years from the year 985 A.D. The temple was meant to dominate Tanjore, as Tanjore dominated the rest of South India : it was indeed the masterpiece of Rajaraja's rule. No traveller in South India has ever missed the celebrated temple dedicated to Brihadiswara at Tanjore or failed to be impressed by the well proportioned tower over the principal shrine. Viceroys, Commanders-in-chief, Governors, Statesmen, Politicians and Tourists have paid their tribute to this magnificent temple and its tower. Mahatma Gandhi was also amongst the distinguished visitors. The *Sivalinga* is known as Sri Brihadiswara and the Goddess, as Sri Brihannayaki. The Great Linga is probably the grandest in existence in South India. The huge tower of the temple is 216 feet high and the structure which supports the tower is 96 feet square. The *Sikhara* crowning the *Vimana* is octagonal in shape. The *Kalasa* over the dome is $12\frac{1}{2}$ feet high. The dome rests on a single block of granite $25\frac{1}{2}$ feet square estimated to weigh about 80 tons and tradition says that an inclined plane was built from Sarapallam (scaffold hollow) four miles north-east of the City and this huge stone was rolled up to the top of the tower by forced labour. The *Sikhara* and the *stupi*, it is said, throw no shadow on the ground, the base being so broad.

The famous bull (*Nandi*) of black granite in front of the main tower is a monolith, measuring $19\frac{1}{2}$ feet in length, $8\frac{1}{4}$ feet in breadth and over 12 feet in height. This monolythic bull is stated to be the second largest, the first being the one at Lepakshi in Anantapur District. It was believed that this bull was growing in size and as it was feared that it might become too large for the mantapam erected over it, a nail was driven into the back of it and its size has since remained stationary.

A peculiarity of the temple is that the sculptures relating to many of the *Motifs* on the *Gopuras* are dedicated to Vishnu, while a large number in the courtyard belong to Siva (Saivite legends).

Another peculiarity is that, on the northern side of the main *Vimana* is a figure said to represent an Englishman. Tradition has it that Soma Varma, the mason who was in charge of the construction, was able to prophesy the prospective line of rulers of the land and accordingly carved the figures of a Chola, a Nayak, a Mahratta and an European. A more probable version is that the builders of the tower were aided by a Dutch architect, during the time the later Nayaks were the rulers of the land. It is also not unlikely that the sculptures belonging to Vaishnavite legends were erected by the Nayaks. As for the European figure appearing on the tower, the services of a Dutch architect were in part rewarded by thus perpetuating his memory. At any rate, the figure more resembles a Dutchman than an Englishman, as Tranquebar was in the possession of the Dutch in 1620 A.D.

## Mural Paintings

The mural paintings of the *Chola* and *Nayak* periods that were recently discovered on the walls of the corridor around the shrine of the great *Sivalinga* in Tanjore have aroused a great deal of interest in the realm of South Indian painting. Photographs of some of these paintings, it is understood, were exhibited at a recent exhibition in Delhi as well as at one in Tanjore. The work of discovery and restoration of these remarkable old fresco paintings has been taken on hand by the Archæological Department of the Government of India. It may take some time before the entire gallery is photographically reproduced.

There are two layers of paintings from floor to ceiling in the passage of the corridor around the *sanctum sanctorum*. The Chola fresco paintings lie underneath and those of the Nayak period form the upper layer. The upper layer was crumbling down in certain places and thereby the Chola paintings were revealed, which display a higher degree of workmanship. The upper layer of the Nayak period is noticeable from its lables in Telugu characters, mentioning the names of Sevvappa, Achyutappa and others. The Cholas were devout worshippers of God Siva and their ardent faith in Saivism is revealed in the Chola frescoes. Some of the themes expressed in the paintings relate to "Siva in his abode of Kailasa," "Saint Sundara and Cheraman," "Saint Sundara and Siva," "A domestic scene", "Nataraja and his devotees," "Siva as Tripurantaka," etc. It is hoped that the paintings of the Chola period that have now come to light will compare favourably with the Ajanta frescoes.

Rajaraja, the Great, who constructed the grand temple at Tanjore did a remarkable service for the Saiva

devotional literature which deserves special mention. The *Tevaram* hymns of Saints Sundarar, Tirunavukkarasar and Jnanasambandhar which are a priceless treasure to Saivism, once appeared to have been totally lost to the world. It was this great Chola King who sought the help of the celebrated Adi-Saiva, Nambiandar-Nambi of *Tirunaraiyur*, and discovered the palm leaves which contained the divine garland of hymns—the *Tevaram*—in a room at the back of Sri Nataraja's *Sanctum* at the Chidambaram Temple. At the request of the king, Nambiandar-Nambi compiled the hymns, whatever was salvaged from the ruin wrought by the white ants, as the first seven of the twelve *Tirumurais* or sacred books of Saivism. Then, these began to be sung, under the orders of the King in the Siva temples.

There are a good many carvings of figures around the *Vimana* of the shrine of Sri Brihadiswara which rank amongst the great masterpieces of Dravidian architecture.

The shrine of Sri Subrahmanya in the north-west corner, inside the temple court, is "as exquisite a piece of decorative architecture as any to be found in South India" and a perfect gem of carved stone work, the tooling of the stone in the most exquisitely delicate and elaborate patterns remaining as clear and sharp as on the day it left the sculptor's hands" (*Fergusson*). This shrine is a later construction and its correct date is said to be not earlier than 1600 A.D. The popular belief is that this shrine belongs to the Nayak period. Saint Arunagirinatha has sung three verses in praise of Sri Subrahmanya in this shrine, in his *Thiruppugazh*.

The shrine of Ganapathi in the south-west corner of the court and of Nataraja in the north-east corner are also of a later date. A shrine dedicated to a great *Siddha Karuvur Devar*, behind the main temple is worthy of mention, as it was this saint that helped Rajaraja Chola in the installation of the great Brihadiswara Sivalinga in the temple at Tanjore. He is the author of the famous lyrics in Tamil, *Tiru Isaippa*. A place was assigned to this saint in the temple court and the building is stated to have been raised recently by devotees.

Though the main temple was completed by Rajaraja, the Great, in his own time (1003–10 A.D.) it has been enriched and beautified to a considerable extent by successive Hindu rulers who in turn wanted to get merit by making the necessary changes, renovations and repairs.


# WRINKLES

V. S. SHANTALAKSHMI

IT is a thoroughly wrong notion to imagine that a face that is devoid of lines and wrinkles is the most beautiful one. The contrary is often the case. A smooth, ironed-out face is branded as expressionless and insipid, and is looked upon as an outward sign of a mind that, if it is not vacant, is dull and sluggish.

There is always a charm about a face that is full of expression. I have seen young girls trying to suppress many a smile or cut a laugh just because they have got into their heads, somehow, that unwelcome laughter lines round the mouth and fine wrinkles round the eyes will be the result. Far from marring, these enhance the beauty of the face—add a sort of lustre to the eyes. These laughter wrinkles, they spread an air of contentment about you. They paint sweetness on your face.

Of course wrinkles also tell tales on you as nothing else does. They are foot-prints of time over your face, proclaiming to the world whether you have faced life with a smile, a laugh, a pout, a snigger, or a grumble. Look into your mirror. If you see laughter wrinkles about your mouth and eyes you know that all is well. But if frowning and sneering lines creep on your face there is something alarming. These bitter and tragic wrinkles there, take stock of your life. They disfigure the crisp and the clear-cut contours of the face and make the muscles sag and hang in loose pockets. But in the first place it would be as well to keep in mind the reasons why face loses its contours with the appearance of wrinkles. Beneath the epidermis there are the muscles, arteries, veins, and nerves. The muscles are closely interwoven bands of cell-tissue capable of great elasticity. They follow certain definite lines beneath the epidermis which they hold in position. If these muscles become flaccid, it naturally follows that the skin begins to sag and by dropping out of place results in loss of contour.

"Cares and worries are the root cause of wrinkles. Avoid these destructive elements and you can maintain the youth of your face." This is the simplest remedy, Old Auntie suggests from her 'Women's Corner.' Little does that Auntie know that it is humanly impossible for any woman to lead a placid and uninteresting life free from all cares. But it is well within the power of all to spend five minutes each day upon a treatment that will at any rate retard the appearance of wrinkles and materially assist nature to preserve that firmness and roundness of a face so typical of radiant youth.

The following are some simple facial exercises recommended for stimulating circulation and the toning up of the muscles.



Just blow out the cheeks as if you are blowing up a balloon, then purse the lips as for whistling. After this, inflate the cheeks without pursing the lips. Repeat several times. Breathe through the nose and keep the mouth closed when you are not speaking or eating, but make a habit of smiling a lot. It is a charming habit and makes you feel more cheerful, gives pleasure to others, and incidentally improves the shape of the mouth.

The eyes tend to grow smaller as people get older. And this is partly because they are not exercised properly. Few people keep their eyes open enough. The muscles of the eyes are stretched a little when you do this, so that it would not be comfortable to keep the eyes very wide open all the time. Practise opening your eyes to their fullest extent. Look upwards and look downwards, look either side. Open and shut the eyes several times. Roll your eyes round and round. A few minutes of eye exercising and a short rest afterwards keep the eyes strong and healthy. These exercises are also good for the lids and the skin round the eyes.

The neck and the chin should be exercised also if you want a smooth, slender neck and wish to avoid a double chin. The chin and the neck exercises go together and are very simple. They just consist of bending the neck downwards, not too quickly, until the chin almost touches the base of the throat. Then bend the head and the neck backwards, again not too quickly. Now bend the neck slowly to either side. Finish these exercises with a small circular movement of the chin, first one way and then the other.

These exercises are a sort of home-treatment to iron out wrinkles. They are within the reach of all (cost us absolutely next to nothing) and can be practised by every girl, as this treatment needs no massaging oil, or cream, or any other special beauty aids. This can be said to be based more on Naturopathy.

But of course for those who have sufficient means and ample leisure, facial massage is obtained at its best in the saloons of a specialist, for, truth to tell, a masseuse is born and not made. The soft supple fingers of the expert have a touch that almost "feels" the requirements of each patient's face. However this may be termed as an ideal form of treatment only for the aristocratic few.

Modern surgical science—Plastic Surgery—is also said to have evolved another method of eliminating wrinkles and this is known as 'face-lifting'—practised quite a lot in the West. The operation is alleged to take a few years off a woman's apparent age, but this varies with the type of the skin. Those ladies who have skins that stretch rapidly and easily lose the effect of 'face-lifting' more quickly. The surgeon removes a piece of skin in the proximity of the wrinkles, stretches it, and then sews it up again. The risk is always taken by the lady undergoing the operation and the results are more often problematical. It will be quite obvious that this cannot be a permanent cure as we have already shown that wrinkles are due to flaccidity of the muscles, and to lift the faces is to try and remove the effect rather than the cause. The fees for this operation are also high and it often results in loss of mobility and expression of the face.

'Prevention is better than cure' runs the old adage. So instead of indulging in all these costly affairs to remove wrinkles, it is highly advisable to practise the above mentioned simple facial exercises for a few minutes daily, and also to develop a healthy, cheerful outlook on life so that you can, if not prevent them completely, at least retard the appearance of these ravages of time on your countenance for an appreciable length of time.

# PARENTS' DAY AT GOLDEN ROCK

## S. RLY. ANGLO-INDIAN MIDDLE SCHOOL PRIZE DISTRIBUTION

THE annual Parents' Day and Prize Distribution of the Southern Railway Anglo-Indian Middle School, Golden Rock, was held at Golden Rock on Saturday, the 27th March, 1954, under the presidentship of Sri (Lt.-Col.) T. Swami Desikachari. Mrs. P. A. Menon, wife of Dr. P. A. Menon, F.R.C.S., District Medical Officer, Southern Railway, Golden Rock, distributed the prizes to the winning children. There was a big gathering of about a thousand, including several prominent officials and non-officials of Tiruchirapalli.

2. The annual school sports were held on the 26th March, 1954 and the following were the results of the various events :

| Events. | Name of the pupil. | Distinction. |
|---|---|---|
| *Obstacle Race* .. .. | Stanely Rodrigues .. .. .. | I |
| | Joseph Rebeiro .. .. .. | II |
| | Basil Gilles .. .. .. .. | III |
| *Advertisement Race* .. | Deanna D'Monte .. .. .. | I |
| | Charlotte Rigley .. .. .. | II |
| | Lynette Francis .. .. .. | III |
| *Guess* .. .. .. | George Comerford .. .. .. | I |
| | Walwin Noranho .. .. .. | II |
| | Russel Pereira .. .. .. | III |
| *Arithmetic Race* .. .. | Ferdinand Neeff .. .. .. | I |
| | Conrad Walker .. .. .. | II |
| | M. Doraiseely .. .. .. .. | III |
| *Sack Race* .. .. | Valentine Ward .. .. .. | I |
| | Anthony Vanhaltren .. .. .. | II |
| | Tyrone Gressieux .. .. .. | III |
| *Lime and Spoon Race* .. | Jude Murray .. .. .. .. | I |
| | Peter Jonas .. .. .. .. | II |
| | Denzil Rodrigues .. .. .. | III |
| *Cinderella Race* .. .. | Elster Williams .. .. .. | I |
| | Alura Harne .. .. .. .. | II |
| | Mary Garrett .. .. .. .. | III |
| *Bunny Hop* .. .. | Andray Fernandez .. .. .. | I |
| | Geoffrey Boxter .. .. .. | II |
| | Richard Davey .. .. .. | III |
| *Flat Race* .. .. | Basil Ignatius .. .. .. | I |
| | Adrian D'Cruz .. .. .. | II |
| | Jean Winter .. .. .. .. | III |



3. Sri C. V. B. Menon (Personnel Officer), Correspondent, Railway Schools, Golden Rock, welcoming the gathering, gave an account of the Railways' welfare schemes and the various modern amenities existing in the Golden Rock Railway Colony, including adequate facilities for the sound education of the children at a reasonable cost. He added that the Railways had always been keen on the well-being of their workers.

4. Miss Beale, the Headmistress of the School, presented the Annual Report of the school.

5. Sri T. Swami Desikachari, in his address, laid particular stress on the importance of discipline amongst students and on the necessity for parental co-operation in that regard. He complimented the Railway Administration on the very efficient way in which they were managing the Railway Schools in Golden Rock and also on the various amenities they had provided in the Railway Colony for the workmen and their children.

6. There was a Fancy Dress competition on the programme, which attracted as many as 28 children of the school. The following three were adjudged the best and awarded prizes :

| Name of the character. | Name of the pupil. | Distinction. |
|---|---|---|
| 1. *Shepherd Boy* .. .. | S. Ramkumari .. .. .. | I |
| 2. *Scare Crow* .. .. | Margaret Anne Garroll .. .. | II |
| 3. *Red Indian* .. .. | Vivian Shedden .. .. .. | III |
| 3. *Fairy Queen* .. .. | Moyna Turnbull .. .. .. | III |

Mrs. T. Swami Desikachari, Mrs. Atmaram, Mrs. S. N. Ravindran, and Mrs. Abraham acted as judges.

7. A very enjoyable concert programme of nearly 16 items was also gone through on the occasion on a specially erected and well decorated open air stage. The item "*Dolly at the Window*," featuring Raeburn and Arita DeMonte, received several ovations from the audience and was very much appreciated.

8. A unique and novel feature of the day's function was a "*Quiz Contest*" for all invitees. Three prizes were awarded for the maximum number of correct answers to the following gentlemen :—

(1) Sri S. N. Ravindran .. .. .. .. 1st Prize.
(2) Sri T. E. Samuel .. .. .. .. .. 2nd Prize.
(3) Major W. M. C. Hensman .. .. .. .. 3rd Prize.

9. The Correspondent of the school also awarded this year a prize for the best-behaved pupil of the school, as adjudged by the teachers. This prize was won by Master Dennis White of the IV standard.

10. With a vote of thanks proposed by Sri Narayanaswami Iyer, Tamil Pandit, A.I. Middle School, the function came to a close at 9-30 p.m.

The Watch and Ward Band was in attendance on the occasion.



# THE VANISHING TRICK

R. S. AMRITHARAJ
*Assistant Traffic Supdt.*

DEAR Reader, do not be alarmed if I ask you "Have you ever seen a woman in half?" Can you? Of course, you can, provided you have a sharp enough knife, a few strong men to hold her down, and if you don't mind a few screams and some blood, and provided of course, you have the guts. Even when you have all these accessories, you should also be willing to be hanged for murder! But this is not what I mean. I mean the magic way, so that she still lives and laughs and enjoys it and perhaps, screams a little, merely for the pleasure of it. Again I ask you, can you cut a woman into two? Well, I am not boasting. I can't, either. But my friend here can. He is a wizard at magic. I am content to sit at his feet and do as I am told. Mine's not to make reply, mine's not to reason why, mine's but to do and—well, that is it. I enjoy obeying him, I enjoy serving him and in the meanwhile learn what little I can. I am just a dummy to distract the attention of the audience while he does his dirty work.

Incidentally, have you noticed how magicians always have an eye for pretty girls? For that matter, all men have. But that is not what I mean. Have you seen that magicians almost always pick up a pretty girl to come on the stage with them?—that is of course, when their wives are not there. When they are there,—well, a different technique has got to be employed. Magicians also have to face wives at homes just like other beings. Magic melts away once you reach home. But believe me, there really is method in their madness. It is something more than just holding a pretty girl's hand. This technique is to distract the attention of the audience. You can be quite sure that the eyes of all the men in the room will be rivetted on her; and of the women, too—though for an entirely different reason. They will be picking her to pieces and telling themselves how very much more effective *they* would be in her place. Only this girl was lucky to be sitting in the front row. She really isn't that pretty as she is on the stage. It is the bright light that has made her face brighter, her figure fuller—Well, that is a digression.

I will now tell you how my friend does his 'vanishing trick' as I saw it:

As the curtain rises, there is a large box on the stage, four feet square and as many feet high. It is heavy. Members of the audience come on the stage. They examine it. It is securely nailed down, top and bottom and sides. They rope it up themselves and seal it, and then for good measure, carry it into the auditorium. Yes, they carry it! That saves cooly charges! You see, in magic, every step is carefully thought out, including the state of the magicians's pocket.

Right up on the ceiling, straight above the heads of the audience, is a pulley. A rope passes through this with a hook at the end. This hook is fastened to the box and the box is hauled up into the air until it is about 8 feet from the roof and about 12 feet above the heads of the audience. Yes, that is also done by the audience. Why should we do any of the hard work when there is so much free

labour around ? And, believe me, they enjoy doing it. It makes them important and they firmly believe that they are part of the show. After this, their taking a personal interest in the show and its success is but natural. You see, the magician has got to be a psychologist as well !

The box remains suspended in the air till the rest of the show is finished. And that is about 3 hours. At the end, the stage is empty except for a table in the centre. My friend enters and I follow him. We make our bows. Then my friend's wife walks in. Her name is Irene. I don't know whether that is her real name. Anyway, that is how she is called. I am annoyed at her intrusion and order her to stand on the table. She protests and says it is too high. Steps are brought in and she mounts them and stands on the table facing the audience. She is covered with a sheet so that only her outline shows. A wire cage is next erected around her and it is covered with petrol-soaked rags. We set fire to the rags. The flames leap around her. Bang ! My friend has fired a pistol at the sheet. The sheet collapses and falls on the table. The girl is no longer there !

We turn now to the box suspended for the last 3 hours in the air. Willing hands from the audience once again come to our assistance. They lower it, carry it on to the stage and place it right in front of the footlights. They examine it. They have done it before. The nails are there as also the seals and knots intact. It is still very heavy. After this, my friend and I do a spot of work. We cut the ropes, break the seals and open the lid. Some job that, because it is well driven in by nails.

Inside there is another box also roped and nailed. We lift it out and place it beside the first. The ropes are cut and the lid opened, and lo, there is yet another box inside, also roped and nailed. We are sweating mad. It is hard and heavy work. After four boxes are removed, from the fifth one emerges a sack with something heavy in it. By that time we are exhausted, and appeal to the audience for more help. Once more willing hands come to our assistance, and carry the sack down into the auditorium. The audience examine it and find it is securely fastened and sealed. The audience open it up with a knife and lo ! Irene emerges from it, shall we say, cool as a cucumber and fresh as paint, and, of course, as lovely as ever—not a hair out of place. The sack is then thoroughly examined Not a flaw in it. The container is as flawless as the contents.

What happened ? Ask me another ! It is my friend's trick ! How I wish I were in his place !


## Earnings

The approximate earnings on originating traffic for March, 1954 compare as under with those for the corresponding period of the previous year :—

(Figures in thousands of Rupees)

| March. | |
|---|---|
| 1953. | 1954. |
| 3,32,02 | 3,52,77 |

With the close of the financial year by 31st March, 1954, it will be be relevant to record the total earnings on originating traffic for the year 1953-54 compared with 1952 53. The figures are :—

(Figures in thousands of Rupees)

| March. | |
|---|---|
| 1952–53. | 1953–54. |
| 39,38,09 | 39,92,93 |

## Ticketless Travelling

The number of passengers who were detected travelling without proper pass or ticket during the month of February, 1954 over the Southern Railway was 98,710. An amount of Rs. 1,48,515 was collected from them by way of excess fare. There was a slight reduction in the number of passengers who were prosecuted during February, the number being 4,308 as against 5,438 during the previous month. 295 passengers were fined and 1,080 passengers were imprisoned for travelling without tickets. During the month of February special drive against ticketless travel was conducted by the Headquarters Flying Squad on the Villupuram–Katpadi, Madras–Bitragunta, Bitragunta–Bezwada and Guntur–Repalle Sections. Ticketless travelling was found to be rampant on the Madras–Bitragunta and Bitragunta–Bezwada Sections where the amounts of Rs. 1,924 and Rs. 2,278 respectively were realised from ticketless passengers.

## Concessional Return Tickets to Hill Stations

Kotagiri has been added to the list of Hill Stations to which Concessional Return Tickets are being issued with effect from 1st April, 1954 for Second, Inter and Third Classes at 1½ times the single journey fare. Return Tickets to Kotagiri Out-Agency *via* Mettupalayam will be issued from stations which are more than 150 miles from Kotagiri.

## Return Tickets to Madura for Chitra Festival

To enable the public to attend the Chitra Festival at Madura on the important days, Concessional Return Tickets for III Class were issued to Madura from all stations on the following sections :—

| | |
|---|---|
| Dindigul | –Trichinopoly Junction (both inclusive). |
| Kovilpatti | –Tuticorin (both inclusive). |
| Srivilliputtur | –Tenkasi (both inclusive). |
| Maniyachi | –Tinnevelly Junction (both inclusive). |
| Tanjore | –Karaikudi (both inclusive) |
| Paramakudi | –Rameswaram Dhanushkodi (both inclusive). |
| Dindigul | –Pollachi (both inclusive). |
| Tinnevelly Jn. | –Tenkasi (both inclusive). |
| Tinnevelly Jn. | –Tiruchendur (both inclusive). |

The tickets were issued on the 15th, 16th and 17th April, 1954 and were valid for completion of return journey by midnight of 19th April, 1954. The tickets proved very popular with pilgrims to Madura for the Chitra Festival.

# CHEAP FARES

Cheap single journey tickets are being issued between Madras and Conjeevaram and Madras and Walajabad from 1st February, 1954 with good results, as the following figures will bear out :

| | Daily Average. | | | |
|---|---|---|---|---|
| | Between Madras and Conjeevaram. | | Between Madras and Walajabad. | |
| Traffic and earnings : | No. | Rs. | No. | Rs. |
| (i) For the period July 1953 to January 1954 *i.e.*, prior to the introduction of cheap fares .. .. .. | 233 | 350 | 40 | 50 |
| (ii) After the introduction of cheap fares : | | | | |
| February, 1954 .. .. .. .. .. | 351 | 439 | 99 | 99 |
| March, 1954 .. .. .. .. .. | 352 | 462 | 99 | 99 |

A question that is continually being asked by members of the public, as also by some of the Railway Staff is, why our Passenger fares cannot be reduced generally as, in this instance, it costs no more to run full trains than empty, and equipment could be used to the full, and revenue increased.

Unfortunately the problem is not as simple as it looks.

There are two essential considerations for introducing cheap fares.

The first is that there must be a good chance of the cheap fare getting *adequate additional* traffic ; otherwise it will merely give the regular traveller at ordinary fares a chance to get a reduced rate. The second is that there must be unused capacity in rolling stock and train paths—which can be profitably filled up.

To apply the reductions at the right time and in the right place is the real problem.

It needs a lot of commercial experience.

The Commercial Officer must be able to estimate the answers to such questions as these : Will the cheap fare contemplated get enough extra traffic to make a real increase in *net* revenue ? In other words, will the fare be attractive enough to induce people to change their previous travelling habits in sufficient numbers ? Will it attract new customers who would not otherwise have travelled at all ? Or will it merely give the regular traveller at ordinary fares a chance to get a cut rate ? This, of course, is bound to happen to a certain extent ; but will the loss in revenue, which it involves, be more than balanced by an increase in the number of people travelling ?

It is only on the occasions when, and between the points between which favourable results are expected, that cheap fares are introduced.

(*Contributed*)


## HALT BETWEEN TAMBARAM AND VANDALUR


Photo taken on the occasion of the opening of the PERUNGALATHUR Train Halt between Tambaram and Vandalur stations, about 18 miles from Madras.

The works of the Standard Motor Products of India Ltd., are situated close to this Train Halt. This firm is engaged in assembling 'STANDARD' Motor Cars under an arrangement with the Standard Motors of the United Kingdom. The firm also assembles FERGUSON TRACTORS. The manufacture of motor car parts is also proposed to be taken on hand in due course.

The Halt was opened on 1st April 1954 in the presence of a large and distinguished gathering consisting of representatives of the villages nearby, the inhabitants of the Colony near the Halt and officials of the Standard Motor Products of India Ltd., and this Railway.

## RADIO FOR RAYAPURAM INSTITUTE

The Staff Benefit Fund Committee of our Railway granted a sum of Rs. 400 towards the purchase of a Radio for the benefit of the members of the Southern Railway Institute Rayapuram. At a simple but impressive ceremony, Mr. M. O. Chacko, Regional Engineer, Rayapuram, switched on the Radio. The above is a photograph taken on the occasion.

## THIRU VI. KA. FUND

A purse of Rs. 417–12–0 towards Thiru Vi. Ka. Fund was presented to Dr. M. Varadarajanar on behalf of The Tamil Kalai Manram (Southern Railway, N.G.O. Buildings) at a function specially arranged for the purpose on the evening of 30th March, 1954 at Gokhale Hall. The meeting was largely attended by staff, officers of the Railway and the public, Mr. Anbuganapathy presided over the function.

Mr. R. P. Sethu Pillai eulogised the services of Thiru Vi. Ka. to the Tamil language and culture and also to labour and praised the staff of Southern Railway for rising to the occasion and contributing liberally towards the fund.

Mr. N. Kandaswamy, President of the Manram, presented the purse on behalf of the staff of the New General Offices, Southern Railway, to Dr. M. Varadarajanar.

Dr. Varadarajanar in his address explained the basis of the movement for collection of a Fund in memory of Thiru Vi. Ka. He referred to the qualities of Thiru Vi. Ka. which had endeared him to all Tamilians.

## SRI RAMA NAVAMI IN M.T.S. COLONY, HUBLI

The Sri Rama Navami festival was celebrated in a grand style on the 9th, 10th and 11th of April, 1954, by the residents of the M. T S. Colony, Hubli. (The M.T.S. Colony is a housing colony consisting of nearly 400 units, originally built by the Government of Bombay and later on purchased by the Southern Railway for housing its staff.)

A Committee formed by the residents of the Colony was in charge of the arrangements and with the hearty co-operation of the railway staff in Hubli, music performances, *Bhajan* and *Kirtan* were arranged on all the three days. The music performances of Sri E. D. Ramachandran, Commercial Clerk and the *Kirtan* performance of Sri U. V. Vaidya, a railway employee of Hubli, were among the important items of the programme.

The celebrations took place in a beautifully decorated pandal erected in the heart of the Colony and were well attended by railway employees and the public of Hubli.

## RE-OPENING OF SHORANUR–NILAMBUR RLY. LINE

The Angadipuram–Nilambur Section of the Shoranur Nilambur line was declared open to traffic on 15th April, 1954. There was a large gathering of railway officials and members of the public. The first train from Shoranur to Nilambur which had arrived at Angadipuram then steamed out of the railway station and was given a rousing reception throughout its run to Nilambur by large crowds of people who had gathered at the wayside stations.

It will be remembered that this branch from Shoranur was originally constructed in 1925–26 and was opened for traffic in February, 1927. During the last war, the Government of India, in consultation with the Government of Madras, ordered the closure of the entire section and the line was dismantled in December, 1940. The track was transported for use in an overseas theatre of war. The Railway Board in 1951 sanctioned the restoration of this line and the work was commenced in June, 1952. The first stage compising the Shoranur–Angadipuram Section was opened for traffic in April last year.

The re-opening of the branch line is of considerable importance, as timber and other forest produce from the rich reserve forests of Nilambur can now find an easy outlet to Cochin Harbour *via* Shoranur.

# STAFF NEWS

## Signal Engineering and Tele-Communications Department

1. Shri V. Verghese, C.S.I. (Class III), has been promoted to officiate as A.S.T.E. TPJ in Class II service, with effect from 5-4-1954 afternoon.

2. Shri K. Angamuthu, Officiating A.S.T.E. TPJ, has been posted as officiating A.S.T.E./MAS, with effect from 6-4-1954.

## Transportation (Traffic) and Commercial Department

1. Shri R. Krishnamurthy, A.T.S./C/MS, has been posted as A.C.S. Goods I/MAS with effect from 4-4-1954.

2. Shri P. A. Chidambara Iyer, Officiating A.C.S./Goods/I/MAS, proceeded on L.A.P. for 34 days with effect from 4-4-1954 subject to certification by the R.A.O./MAS.

3. Shri Harry Ghosh, S.S./MS (Class III), has been promoted to officiate as A.T.S./MS in Class II service, with effect from 4-4-1954.

4. The undermentioned officers are confirmed in Senior Scale as indicated against them.

| Serial No. | Name. | Substantive designation. | How confirmed in the senior scale. | Date of effect. |
|---|---|---|---|---|
| 1 | Sri R. Gopalakrishna Iyer | District Traffic Superintendent (Benefits of confirmation). | (i) Secretary to General Manager (Permanent).<br>(ii) District Traffic Superintendent (Permanent). | 2nd October, 1953.<br>20th March, 1954. |
| 2 | „ W. Bywater | „ | Superintendent (Watch & Ward), (Permanent). | 2nd October, 1953. |
| 3 | „ K. C. Chandy .. | „ | Statistical Officer (Permanent).. | 2nd October, 1953. |
| 4 | „ K. J. Chandy .. | Assistant Traffic Superintendent. | (i) District Traffic Superintendent (Provisional).<br>(ii) Secretary to General Manager (Permanent). | 2nd October, 1953.<br>20th March, 1954. |
| 5 | „ P. K. Madhava Menon. | Assistant Traffic Superintendent. | District Traffic Superintendent (Provisional). | 2nd October, 1953. |

## Electrical Department

1. Shri S. K. Gopinath, D.E.E./PER, returned to duty from leave on 1-4-1954.

2. Shri B. V. Suryanarayana Rao, Officiating D.E.E. (S.S.)/PER, reverted as A.E.E. (J.S.)/MAS, with effect from 1-4-1954.

3. Shri R. K. R. Naidu, A.E.E./MYS (Class II) returned to duty from leave on 5-4-1954 after availing an extension of L.A.P. for 18 days from 18-3-1954 to 4-4-1954.

## Accounts Department

GAZETTED

*Madras Region*

1. Mr. JAL J. BATLIWALA, R.A.O., who has been provisionally confirmed as Dy. C.A.O. with effect from 8-8-1949, has since been confirmed as Dy. C.A.O. with effect from 14-4-1952.

2. Sri M. V. SESHADRI, Dy. F.A., has since been provisionally confirmed as Dy. C.A.O. with effect from 14-4-1952 and finally confirmed as Dy. C.A.O. with effect from 21-7-1953.

3. Sri B. MADHAVAN, Junior Accounts Officer, who was on 10 days L.A.P. from 25-3-1954 to 3-4-1954, resumed duty on 5-4-1954 (4-4-1954 being Sunday).

4. Sri A. S. VISWANATHAN, Assistant Accounts Officer (Offg.), reverted as Senior Accountant (Offg.), with effect from 3-4-1954 afternoon.

NON-GAZETTED

*Madras Region*

5. Sri P. V. SUBRAMANIAM, Junior Accountant (Offg.), has been placed on sick list from 15-3-1954 in continuation of 4½ days casual leave from 9-3-1954.

6. Sri V. S. SUBRAMANIAM, Junior Accountant, has been granted 73 days L.A.P. from 18-3-1954.

7. Sri K. SIVASUBRAMANIA IYER, Subhead, R.A.O's Office, TPJ, on promotion as Junior Accountant (Offg.), joined duty at MAS on 5-4-1954.

8. Sri A. V. VISWANATHAN, Pro T.I.A., has been promoted as Junior T.I.A. (Offg.), with effect from 8-4-1954.

9. Sri C. R. SAMBANDAM, Clerk, Class I, has been promoted as Junior T.I.A. (Offg.), with effect from 8-4-1954.

*Trichinopoly Region*

10. Sri K. P. ANANTHANARAYANA IYER, Senior Accountant, has been granted 14 days L.A.P. from 3-4-1954.

### THE LATE Mr. T. J. RYAN

We deeply regret to record the passing away, on 25th March, of Mr. T. J. Ryan, Deputy Chief Commercial Superintendent (Rates) near Port Said on board the Steamer "Nordhval." Little did his colleagues and others expect, when he sailed from Madras for a holiday and rest in Europe, that this popular officer was not destined to come back to their midst with improved health.

Born on 12th December, 1907, Mr. Ryan entered service on the Ex. East Indian Railway at the early age of seventeen. By dint of merit and hard work, he rose to the position of a gazetted officer by 1937. He had a flair for organisation and made a mark on his parent Railway by introducing successfully the "Quota" system of development of traffic.

He was transferred to the Ex. M. S. M. Railway as Assistant Commercial Superintendent (Development) in August, 1937 and soon after, published two valuable reports called the "Guntur and Ongole Memoranda" on development of goods traffic in the Circars. He later served in various capacities, as Secretary to General Manager, Harbour Traffic Superintendent, Mormugao and as District Traffic Superintendent, at Guntakal and Hubli. He was posted as Regional Traffic Superintendent, Mysore, in April, 1952 and joined the Commercial Department in July last.

Mr. Ryan was an officer with amiable manners and was very popular among his colleagues and staff on this Railway. He used to take a special interest in the welfare of staff and, while at Hubli and Mysore, started "Sick Aid Funds" for giving relief to ailing railwaymen.

# EXHIBITION TRAIN TOURS HUBLI DISTRICT

The Metre Gauge Centenary Exhibition Train was taken over by this Railway at Dronachellam on 3-4-54 and was first taken to Hubli, where it was exhibited for four days from 13th April to 16th April 1954. On the morning of the 13th there was a preview of the train to press men and other special invitees. The Special was thrown open to the public from 3 p. m. on 13-4-54. Elaborate arrangements had been made at Hubli station to enable the very large number of visitors to get their tickets without delay and go through the exhibition train in an orderly manner. Special arrangements had been made for ladies to obtain their tickets from a separate booking window. In the evenings there was a free cinema show when films showing the various developments under the Five Year Plan were shown to the public. The following figures will give an idea of the popularity of the Exhibition Train with the public :—

## HUBLI—

| DATE | | NO. OF VISITORS |
|---|---|---|
| 13-4-54 | .. | 2,889 |
| 14-4-54 | .. | 4,934 |
| 15-4-54 | .. | 5,209 |
| 16-4-54 | .. | 3,711 |
| Total | .. | 16,743 |

After Hubli, the train was exhibited at Belgaum for a period of four days from 17-4-54. There was great enthusiasm among the public of Belgaum in visiting the train and the Exhibition Special was visited by larger numbers than at Hubli. The following are details of visitors who were shown round the train at Belgaum :

## BELGAUM—

| DATE | | NO. OF VISITORS |
|---|---|---|
| 17-4-54 | .. | 2,916 |
| 18-4-54 | .. | 4,257 |
| 19-4-54 | .. | 5,772 |
| 20-4-54 | .. | 3,863 |
| Total | .. | 16,808 |

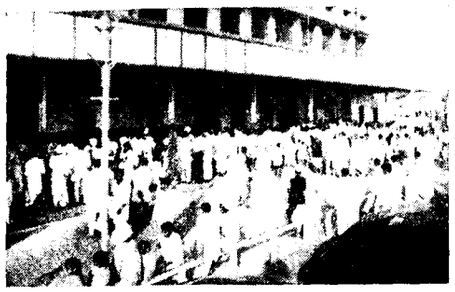
The Special was next taken to Miraj and exhibited there on the 21st and 22nd April 1954. The following number of persons visited the train at Miraj :—

## MIRAJ—

| DATE | | NO. OF VISITORS |
|---|---|---|
| 21-4-54 | .. | 3,579 |
| 22-4-54 | .. | 5,686 |
| Total | .. | 9,265 |

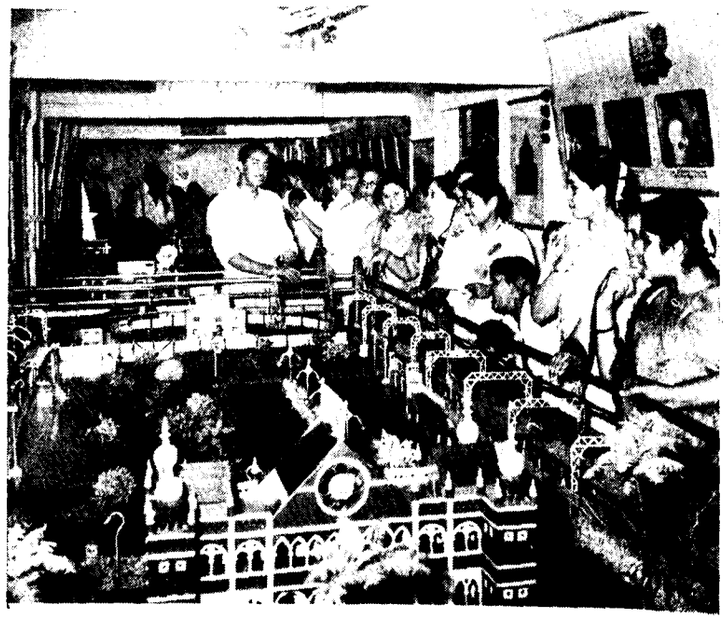
Model of Service Steamer at Garden Reach.

Queues waiting outside Hubli Station



Visitors entering Exhibition Train.

Lady visitors inspect an interesting model





# DO YOU KNOW WHAT "EXCEPTED" ARTICLES ARE?

Gold and silver, pearls, precious stones and jewellery, watches and clocks, silks and shawls, musical instruments and radio sets these and many others you will find listed as "Excepted" articles in this Railway's Time Tables and Guide and in the Indian Railway Conference Association Coaching Tariff No. 16 and Goods Tariff No. 28.

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

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

## A VISIT TO THE SOUTH

G. I. B. COLACO

Do you wish to visit the South ?
You will hear from every mouth :
"Travel by Southern Railway line,
To places that are really fine."

Are you in need of change and rest ?
A trip to the hills will be the best :
Ooty and Kodai have a name,
As nice health resorts with a fame.

For real holiday and grand fun,
Endless sea-bathing in the sun,
Cannanore, on the West Coach beach,
Is paradise within easy reach.

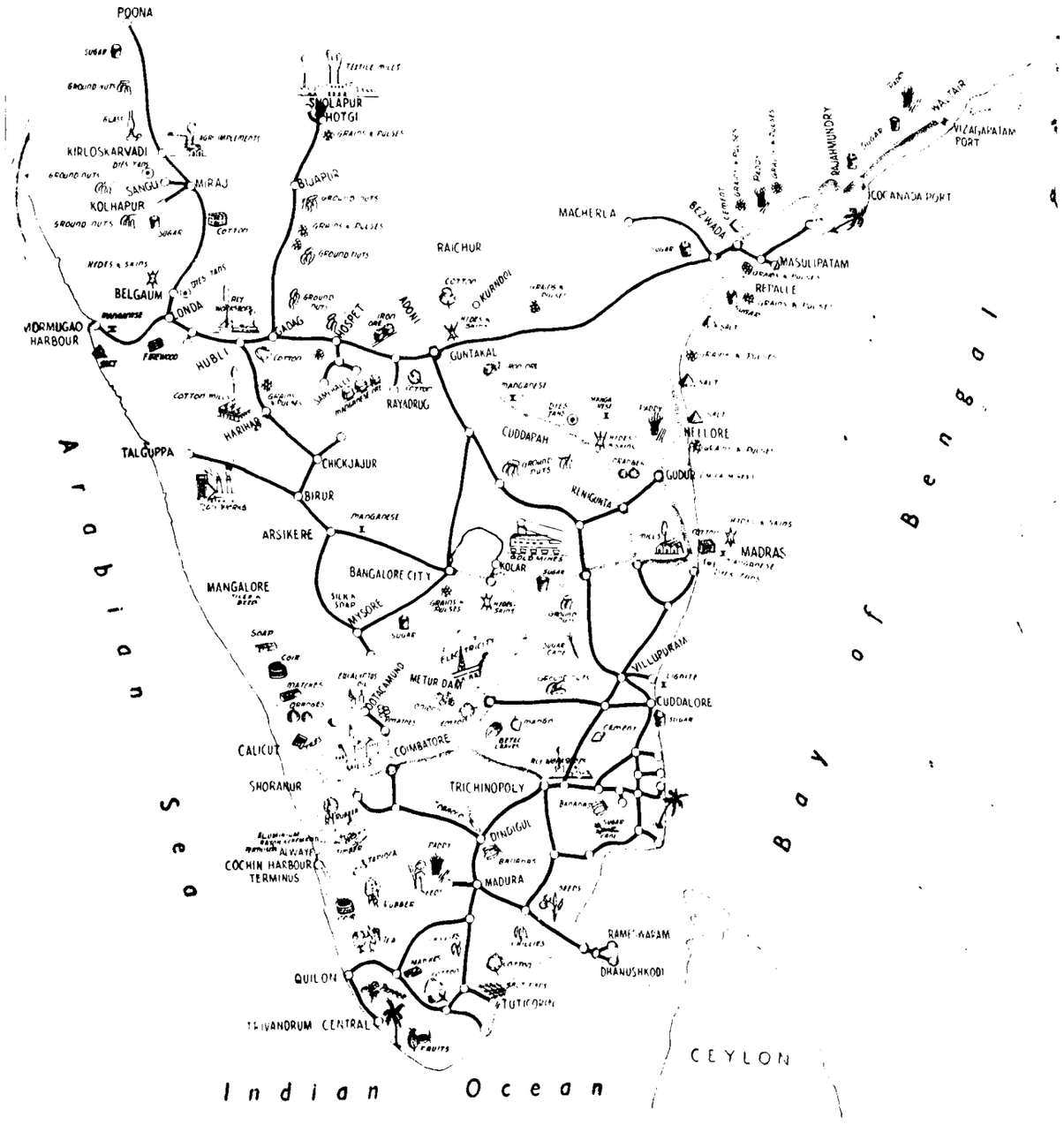
People with a religious mind,
On the Southern will do find
Sacred shrines everywhere,
To fulfil all their vows there.

On ruins and temples are you keen ?
In Hampi and Madura can be seen
Art and sculpture, the work of men
Defying description with a pen.

In Bangalore and Mysore the best you get,
Showing that man and nature have met :
Beautiful parks, lovely flowers, feast the eye.
Visitors will find this no lie !

# SOUTHERN RAILWAY

## MAP ILLUSTRATING COMMERCIAL & INDUSTRIAL CENTRES

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