Rail Coach

~~NO2~~

Vol. V 1961 NO. 8 April 196

NO 2 May 196

RAILCOACH

VOL. V. NO. 8 APRIL 1961

Shri Rangarajan, an young ICF worker, had the proud privilege of presenting a bouquet on behalf of ICF workers to her Majesty Queen Elizabeth during her visit to the Factory in February 1961

RAILCOACH

Published by the Integral Coach Factory

ISSUED ON THE 15th OF EVERY MONTH

Devoted to all Railway problems, Technical Matters and other problems of General Interest

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CIRCULATION

The "Railcoach" circulates among officers and staff of the Integral Coach Factory, General Managers and other important Officers of all Railways in the country, the Union Minister for Railways, the Union Deputy Ministers for Railways, the Chairman and Members of the Railway Board, etc.

TERMS

1. Blocks or lay-outs are to be supplied by the Advertiser or will be charged for extra.
2. Advertisement materials to reach the Editor before the 1st of every month for the month's issue.
3. Cheques should be drawn in favour of the Editor, "Railcoach", Integral Coach Factory, Perambur, Madras 23.
4. Texts of advertisements are subject to approval by the management.
5. A 5% rebate is allowed for 12 consecutive insertions.

Further particulars from

The Editor

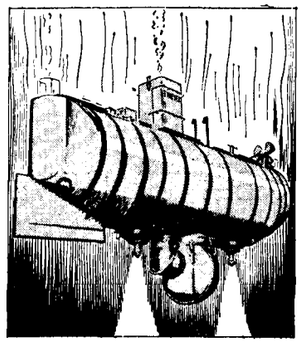
RAILCOACH

Integral Coach Factory, Perambur, Madras 23

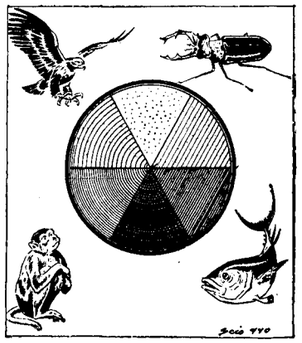
DID YOU KNOW

By Scio

Experts say that of all the substances found in the earth, few are more essential than common salt. Without this natural compound the human race and much animal life would die. Centuries ago it was recognized that to deprive a man of salt was a sure way to cause his lingering death. Few people could survive more than a month without it.



The U.S. Navy's scientific research craft the bathy-scaphe Trieste, recently submerged for the third time in three months to a record-breaking depth in its continuing exploration of the ocean floor. The Trieste submerged to a depth of 37,800 feet (11,530 meters) in the Marianas trench near Guam. This dive broke a previous world record when the craft descended 24,000 feet in the same area.



Experts say that almost all animals, with the notable exceptions of apes and monkeys, do not see colours. They live in a world of blacks and whites and a fair range of grays. Birds generally see yellows, reds, greens and oranges. Fish and highly developed insects recognize a fairly wide range of colours.

RAILCOACH

(INTEGRAL COACH FACTORY MAGAZINE)

EDITORIAL NOTICE

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

Manuscripts and photographs, not accepted for publication, will not be returned unless the sender so requires. Intending contributors from outside our Factory, if they intend to get back unaccepted articles and photos, should send a suitably stamped and self-addressed envelope along with the material sent by them.

Contributions should be addressed to the Editor, not by name, and reach him not later than the 25th of every month for consideration for publication in the next month's issue.

The Editor does not assume any responsibility for the accuracy of the news supplied by correspondents or for opinions expressed by contributors. Opinions expressed in the "RAILCOACH" whether editorially or by contributors should be regarded as having no official authority.

		Rs. nP.
Annual Subscription	...	**3 00**

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APRIL 1961

editorial

RAILWAY WEEK

The Railway Week every year provides an occasion for get-together among railwaymen and to imbibe in them a spirit of service and devotion to duty. This occasion also provides an opportunity for the railwaymen not only to meet in a happy gathering but also to take stock of the progress made so far and to think about the stupendous responsibility that lies ahead. While they may take pride over the past achievements, they should also make a heart searching over the shortcomings and re-dedicate themselves to the country's service.

As we here in I.C.F. celebrate the Sixth Railway Week, we cannot but be aware of the fact that the country has only recently launched its Third Five-Year Plan and I.C.F., during this plan, is entrusted with the supply of 3,723 different types of coaching stock required for the Plan. This indicates that our task is becoming bigger and bigger, calling for more and more efforts on our part to fulfil the work entrusted. All through these years, we in I.C.F. have worked hard and faithfully towards the objective set and let us now again re-dedicate ourselves to the task of providing better and comfortable travel to the people of this country.

. . . . . and now one word of apology both to our subscribers and advertisers please !.....Due to some organisational difficulties " Railcoach " was being issued very late and it has not been possible either to bring out any issue from November '60 to March '61. This lapse is very much regretted.

We are now glad to announce that ' Railcoach ' is being published again from this issue and we are sure that there would not be any interruption in publication hereafter. More interesting features like, Short Story competition, Photo competition and Essay competition, etc. will be introduced hereafter in ' Railcoach '. It is also under consideration to pay honorarium to contributors.

Do You Know?

That the Railway Board have raised the existing pay limit of Rs. 350 in the prescribed scale to Rs. 425 for the purpose of grant of scholarships to children of employees for technical education as a result of the revised pay structure with effect from 1st January, 1961.

That temporary service counts in full instead of half for the purpose of reckoning pensionary benefits.

That Pension and Death-cum-Retirement Gratuity are calculated on the basis of completed six monthly period of service instead of completed year of service.

That the rate of Death-cum-Retirement Gratuity has been increased from 9/20th to half-a-month's pay per year.

That the amount of Death-cum-Retirement Gratuity and Special Contribution to Provident Fund is almost the same for an equal length of service rendered by the employee.

That the Railway Board have decided to add to the existing per capita grant to the Staff Benefit Fund, *viz.*, Rs. 4, a special per capita annual grant of 50 nP. from the 1st April, 1960, and that this special grant should be specifically allotted for Sports activities.

That the Railway Board have decided that the Railways should apportion the expenditure on the different objectives, as far as possible, in the proportions indicated below out of the total allotments to the Staff Benefit Fund :

	Objective	*Percentage*
(i)	Education of staff and their children	27
(ii)	Recreation and amusement	31
(iii)	Relief of distress amongst families of employees and schemes for sickness	36
(iv)	Miscellaneous	6
		100

THE

VOL. V. No. 8 RAILCOACH APRIL 1961

BETTER RAIL TRAVEL

BY

SHRI K. SWARUP,
(*Chief Administrative Officer, I.C.F.*)

One of the results of World War II was an incsease in traffic making abnormal demands on transport capacity. Faced with the problem of coping with the unprecedented increase in passenger traffic, accentuated by the depleted and overaged stock and the inadequacy of capacity in railway workshops for manufacture of coaching stock, the Government of India decided that a separate railway coach building factory should be established to enable the Indian Railways to become self-sufficient in the matter of passenger coaches. The Integral Coach Factory at Perambur was accordingly set up as a commitment under the First Five-Year Plan, with the technical collaboration of the Swiss Car and Elevator Manufacturing Corporation. Ltd., Switzerland. The initial capital outlay for the Shell Factory was Rs. 7.35 crores and a further sum of Rs. 3.69 crores was sanctioned during the Second Five-Year Plan for putting up a Furnishing Annexe. The factory including its furnishing annexe and the township covers an area of about 500 acres and at present, employs over 7,000 workers.

Design of the Coach

In the earlier years, the design of railway stock was inspired by the road vehicles of that period. It was soon found, however, that the railways could cope with heavier loads, and the evolution of railway rolling stock tended towards increased capacity together with the provision of comfort—a factor which was ignored till then. The constantly increasing speeds also made greater strength of coaches imperative. The growing competition from road and air transport forced the railway to revise its passenger service policy, which has resulted in the appearance of passenger coaches of light construction.

The Integral coaches produced in this factory are of the modern light-weight all-welded steel construction, designed to give the maximum comfort and safety to the railway passengers. Being 7 tons lighter than the conventional coaches of 42 tons, considerable economy is effected in operational costs, as more number of Integral coaches can be hauled per train, thus reducing overcrowding in trains. Another important feature of this coach is its anti-telescopic

end construction. The ends being plastic, i.e., designed to carry less stresses and strains, get buckled in the event of an accident, thus absorbing most of the collision energy and reducing the possibility of the carriages telescoping and causing risk to passengers. This special feature has been subjected to trials and the photograph below and the photograph on page 14 will illustrate what happens in the event of collision or telescoping. The carriage is also designed for improved riding by provision of shock absorbers, spherical roller bearings, special design of springs, etc. The inside of the coach is sprayed with limpet asbestos to provide insulation against heat and sound.

The interior design is so planned as to afford maximum comfort to passengers. Unlike the previous third classes, the integral coach has been split up into 8 compartments, each compartment providing seating capacity for 10 passengers. The upper luggage rack provides enough room for carrying luggage that our passengers are accustomed to carry. On the top is again a light luggage rack, where small articles could be kept. Similarly, luggage racks have been provided on the corridor side. The provision of these extensive luggage racks would ensure that the floor and the seats will be free for occupation and moving about, thereby giving more comfort to the passengers.

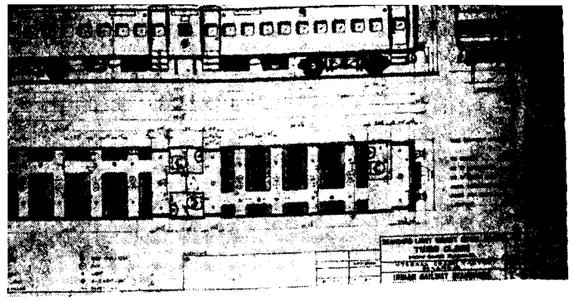
Each compartment has been provided with two fans to give sufficient air to all the passengers. The compartments are well-lit to enable passengers to read at night time if so desired.

The seats and back rests were originally well-curved to provide comfort to long distance passengers, but have now been made flat increasing the width from 19" to 22" to enable passengers to spread their bedding and make themselves more comfortable.

Lavatories are also well equipped and have all the modern amenities like wash-hand-basins, mirrors, squatting pans, lotah holders, towel racks, etc.

Performance during the Second Plan period

(*i*) *Increased Output* : According to the Technical Aid Agreement with the Swiss collaborators, this Factory was to achieve its maximum production of 350 coach shells a year, in progressive stages, in the 5th year from the start of production. Production was inaugurated by the Prime Minister on the 2nd October, 1955 and since then, year after year, the performance improved and in each year, the record of the previous year was broken. The 1000th coach was turned out early in 1960—far ahead of schedule. The comparison of the targets and the actual output during the five years of production is indicated in a chart given below.



Design of a Third class light weight steel coach produced by the I.C.F.

Sketch—1

(*ii*) *Improved Efficiency* : The efficiency of the Shops has been increasing from year to year as the men have been gaining experience and skill. The man-hours spent on each coach shell have come down steadily from about 19,600 at the start of production to about 8,600 in the latest batch. The present man-hours compare very favourably to those taken for similar coach production in Europe. Efficiency is expected to further increase as a result of the Incentive System of payment which has been introduced in I.C.F. from January, 1960.

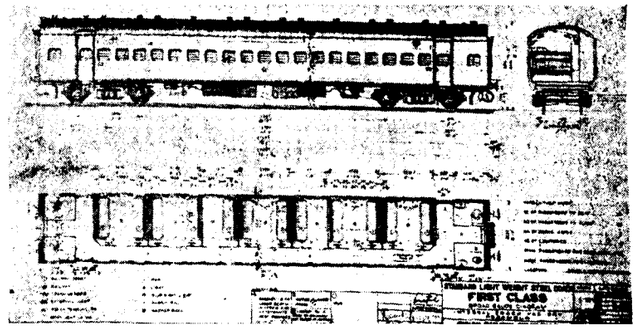
(*iii*) *Reduced Cost* : The unit production costs in the I.C.F. have been coming down steadily from the initial Rs 186 thousands to the present about Rs. 80 thousands inclusive of overheads and depreciation.

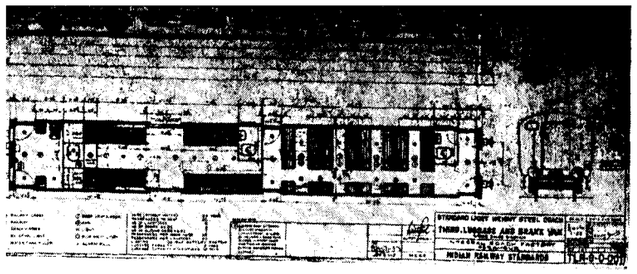
(*iv*) *Self-sufficiency* : Before the I.C.F. went into production, most of our coaches and underframes were imported from abroad and considerable amount of foreign exchange was required to meet the demands of the Indian Railways. In the 13 years since our Independence, the Indian Railways have become self-sufficient in their railway coach requirements and not a single coach is now imported.

(*v*) *Diversified production* : The original idea was that the I.C.F. would produce only a standard shell, which could be furnished to any class of coach required. With the rapid industrialisation of the country and resulting higher standard of living of the masses, the demand for better amenities and comforts also increased. While laying stress on the improvement of amenities and comforts to Third Class passengers

Sketch—2

Design of a First class coach of light weight construction by I.C.F.





Third, luggage-cum-brake van of light weight construction by I.C.F.
Sketch—3

who constitute the bulk of the traffic on the Indian Railways, this Factory has also now geared up for meeting the varied requirements and standards of the travelling public by designing different types of coaches. The types of coaches produced till the end of the Second Five-Year Plan are indicated below:

Type of coach	Number
'T' (Integral)	1047
'TLR' (Integral)	121
'TCN' (Integral)	150
'T' (Conventional)	115
'TLR' (Conventional)	150
'F' (Integral)	155

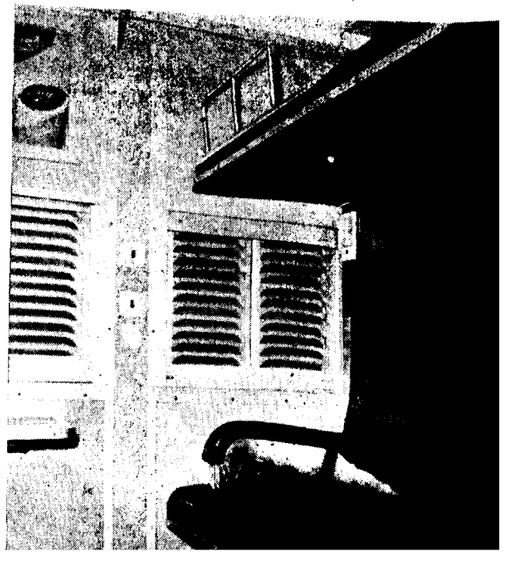
To give an idea of the amenities and comforts provided in these coaches, the interior layout of the various classes of coaches is shown in the sketches 1 to 4.

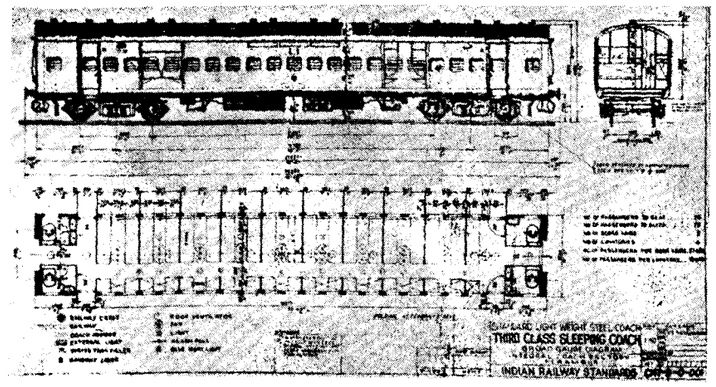
(vi) *Export Market* : Having achieved self-sufficiency for the Indian Railways, this Factory is now tapping the export markets. The I.C.F. has already quoted against Pakistan and Argentine Tenders for coaches. In Pakistan, we were the lowest out of the 7 countries that competed in the global tenders and in the case of Argentina, quotation for I.C.F. coaches was the second lowest out of 28 tenders received from 15 different countries. The results of these tenders are not yet known, but the very fact that the cost of I.C.F. coaches is competitive in the world-market proves that th Government undertakings can run efficiently and earn the badly needed foreign exchange for the country.

Proposals for the Third Five-Year Plan

(i) Encouraged by the excellent performance during the Second Plan period and the good team spirit existing amongst all grades of staff at I.C.F., this Factory has embarked on the ambitious plan to produce 3735 coaches during the Third Five-Year Plan commencing from April, 1961. This programme

Comfort and luxury mark the interior of First class coaches produced by the I.C.F.





A new product of I.C.F. is the Third class Sleeping coach of light weight construction.
Sketch—4

includes coaches even for the Metre Gauge, Electric Multiple Unit Stock and also Diesel Railcars required for the Indian Railways. The proposed programme is as follows :

Type	B.G.	M.G.	N.G.	Total
Ts. ...	23	1198	...	1221
TLRs. ...	235	...	...	235
Fs. ...	462	...	...	462
FTs. ...	592	...	...	592
Motor and Parcel Vans ...	...	343	...	343
Motor Vans ...	...	73	...	73
EMU (12 ft. wide trailers).	612	...	...	612
Railcars ...	67	120	10	197
Total ...	1991	1734	10	3735

(ii) The construction of the Permanent Furnishing Factory is now in full swing. Rs. 1.5 crores out of Rs. 3.69 crores has already been spent in the Second Plan and the balance of Rs. 2.19 crores will be spent during Third Plan to complete the Permanent Furnishing Unit. By providing a furnishing unit, all the shells that would be turned out from the Shell Unit will be furnished and made available to the Railways without any loss of time. It will also enable standardisation and providing better comforts to the passengers.

(iii) For full working of the Second Shift which will enable obtaining further increases in production, extension of certain workshops and additions in machinery and plant at a total cost of Rs. 45 lakhs is envisaged during the Third Plan.

(iv) The Factory has built a Staff Colony provided with about 841 units of quarters. Another 257 units are programmed to be built in the Second Shift scheme. Further, in view of the acute shortage of accommodation in this part of the Madras City, it is proposed to build 500 more staff quarters during the Third Plan at the rate of 100 per year at a total cost of Rs. 52.5 lakhs. Thus, the number of quarters provided in the Staff Colony would

be nearly doubled at the end of the Third Plan.

(v) Since October 1955, when this Integral Coach Factory first stirred into productive life, its story has been one of continuous development and growing productivity. The object with which this factory was set up has been more than fulfilled. Having achieved self-sufficiency in matters of passenger coaches for the Indian Railways, this factory is now looking forward to building coaches for the export market. Our cost as well as quality in production, is very competitive and we have full hope that very soon, we will be able to get orders from some foreign countries for their coach requirements and thus become one among the foreign exchange earners for India.

Public Encouragement and Co-operation

It is not for me to indulge in self praise, but it can perhaps be said with a measure of truth that this factory has already come to be looked upon as a shining symbol of India's industrial development in post-Independence period. Thousands of visitors from this country and from abroad went their way through this factory in appreciation of our efforts. We are continually striving to improve the layouts and provide more and more comforts and amenities to the passengers, and hope that our efforts in this direction will also be appreciated by the public and they will co-operate with the Railways in maintaining these integral coaches well. Our experience of today when costly fittings and improved finishes are removed or spoiled by vandalism, discourages us from further improving our finish. I, therefore, beseech the public to treat these coaches as their own property and look after them well.

(Ref : Page 10.)

Queen Elizabeth visited the I.C.F. on the 20th February 1961. Picture shows Shri K. Swarup, C.A.O. (R), I.C.F. explaining the salient features of an Integral Coach with the help of a model. To Her Majesty's right is Shri Jagjivan Ram, Minister for Railways.

Visitors to the Factory

H. M. QUEEN ELIZABETH'S VISIT TO I.C.F.

FACTORY MAKES A GREAT IMPRESSION ON THE QUEEN

Her Majesty Queen Elizabeth II visited the Integral Coach Factory accompanied by her entourage on the 20th February 1961. On arrival at the factory Her Majesty was received by Shri Jagjivan Ram, Union Railway Minister, who then introduced to Her Majesty Shri K. Swarup, Chief Administrative Officer, Shri A. C. Mukerji, General Manager, Southern Railway and other principal officers of Southern Railway and this factory. Her Majesty and party were then driven round the shops of the Shell Factory where she inspected two fully furnished integral coaches turned out of the factory. Her Majesty was then taken to the Staff Colony where she saw the housing facilities provided for the workers. Her Majesty inspected two workers' houses where she made kind enquiries of the family members of the workers about their living conditions. Her Majesty was given a reception by children of the colony and the members of the Ladies' Wing of the Factory Institute. Shrimati Swarup presented a bouquet and a Banaras stole embroidered in gold to Her Majesty on behalf of the Ladies' Wing of which she is the President. Her Majesty returned to the Administrative Office where she was presented with a silver casket by the Railway Minister on behalf of the factory. Her Majesty and entourage left amidst great ovation raised by a large

Her Majesty receiving a jewel case from the Hon'ble Railway Minister.

number of workers who were assembled on the lawns of the Administrative Office to have a glimpse of the Queen.

His Excellency Mr. Kosygin, First Deputy Chairman of the Council of Ministers of the U.S.S.R., accompanied by Mr. Pushkin, Deputy Minister for Foreign Affairs, Mr. I. A Benedicktov, Ambassador of U. S. S. R. in India, Mr. R. Venkatraman, Minister for Labour and Industries, Government of Madras and a party of about twenty Government officials, visited the Integral Coach Factory on the 27th February, 1961. The distinguished visitors were received on arrival by Shri K. Swarup, Chief Administrative Officer, who explained to them the salient features of the factory with the aid of models and pictured to them the progress made by this State-owned enterprise during the last five years. H.E. Mr. Kosygin and party were taken round the workshops in the Shell Factory and inspected two fully furnished coaches—First Class and Third Class sleeper coaches—ready for passenger traffic. The party was thereafter shown round the Permanent Furnishing Factory under construction as well as the Staff Colony. At the conclusion of the visit, His Excellency was presented with a model of the Integral Coach as a memento of the visit. While accepting the model coach His Excellency spoke as follows :—

"The friendship between our people and your people, I am sure, will grow from strength to strength. I should wish you major success in your efforts to improve your economy. We have been admiring your works and your workers in various shops. Only great people can show such quick results. I am very impressed with your production techniques, cleanliness and methods. It shows your engineers and your supervisors have been well trained to have the technical discipline as a result of which the shops are maintained so tidily."

His Excellency Mr. Kosygin, First Deputy Chairman of the Council of Ministers of the U.S.S.R., visited the I.C.F. on 27th February 1961. Picture shows Shri K. Swarup, C.A.O. (R), I.C.F. presenting His Excellency a coach model, as a memento.

A party of nine journalists representing top-ranking newspapers in the United States of America like the "Washington Post", "The Time Magazine" and the "Christian Science Monitor" visited the factory on the 22nd December 1960. After going round the factory they recorded in the Visitors' Book as follows :—

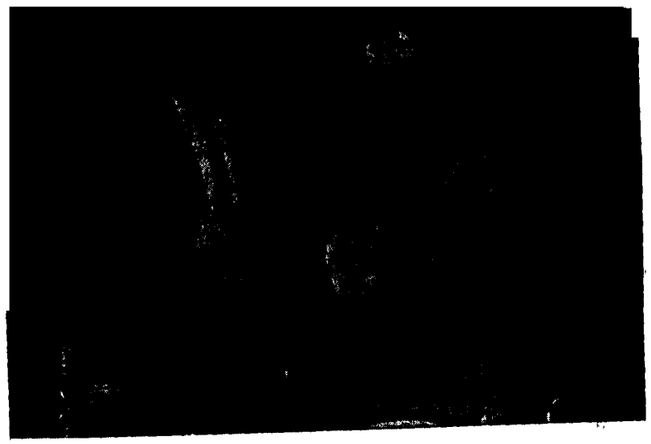
Mr. Jenkins Lloyd Jones of Tulsa Tribune, Tulsa, Oklahoma.	"Very much impressive."
Mr. Richard Armstrong of "Time Magazine".	"Good work".
Mr. Frank R. Ford of Scripps-Howard Newspapers.	"Efficient looking operation."
Mr. David Morgenbesser of "Journal of Commerce."	"Very impressive."

His Highness the Maharaja of Bhutan visited the Integral Coach Factory on the 17th February, 1961, accompanied by some Ministers of the Government of Bhutan and officials of the Bhutan Government. On arrival, His Highness was received and garlanded by the Chief Administrative Officer, Shri K. Swarup, who then explained to the Maharaja the salient features of the factory. Shri Swarup thereafter conducted the Maharaja round the shops of the Shell Factory, showed him a fully furnished coach

Her Majesty at a reception held by the I.C.F. Ladies' Club at the I.C.F. Colony. To Her Majesty's left is Mrs. K. Swarup, President, I.C.F. Ladies' Club.

(More photographs of the Queen's visit on inside last wrapper).

Picture shows Shri K. Swarup explaining the salient details of the Factory to His Excellency Mr. Kosygin, with the help of a model.



His Highness The Maharaja of Bhutan, visited the I.C.F. on the 17th February 1961. Picture shows the distinguished visitor being presented with a coach model by the Chief Administrative Officer, I.C.F., as a memento.

Members of the Public Accounts Committee of the Lok Sabha inspected the Factory on the 12th January 1961. Picture shows Shri K. Swarup, C.A.O.(R), speaking to the Members.

and also the Staff Colony. The Maharaja was highly impressed with the visit. At the conclusion His Highness was presented with a model of an integral coach as a memento of his visit.

Ten prominent journalists from the United Kingdom and West Germany representing newspapers like the "Guardian", "Daily Telegraph", "Daily Mail", "Economist", and "The Times" visited the factory on the 13th December 1960. They were shown round the factory and, at the conclusion of the visit, they recorded their impressions as follows :

Mr. Roland Bird, Deputy Editor, "Economist", London.	"A tremendous advance since last visit in 1956."
Dr. F. Reuter, Editor of "Der Volkswirt".	"Very modern and clean."
Mr. Paul Bareau of the "Daily Mail".	"This shows that Industrial India is on the move."
Herr Siegfried Maruhn, Deputy Chief Editor of "Westdeutsche Algemeine" Zeitung, Essen.	"I am most impressed."
Mr. M. H. Fisher, Diplomatic correspondent of the "Financial Times".	"A most impressive plant, one of the best I have seen in India."
Mr. R. A. D. Egerton, Deputy City Editor of "The Times", London.	"Most impressive."

His Highness the Maharaja of Travancore accompanied by his mother Her Highness Sethu Parvathi Bai, visited the factory on the 3rd March, 1961. On arrival at the Administrative Office of the factory, the visitors were received by Shri C. G. Devaya, Deputy Chief Mechanical Engineer, and after explanation of the salient features of the factory with the help of models displayed in the lobby, the Royal visitors were taken round the Shell Factory, the Furnishing Factory and the Staff Colony. Thereafter the party returned to the Meeting Room where Shri K. Swarup, Chief Administrative Officer, met His Highness and Her Highness and presented to them a tray inlaid with a picture of the Integral Coach, as a memento of their visit. At the conclusion of the visit, His Highness recorded his impressions of the factory as follows in the Visitors' Book :—

"We enjoyed our visit to this factory very much. The organisation and layout is excellent. Our best wishes."

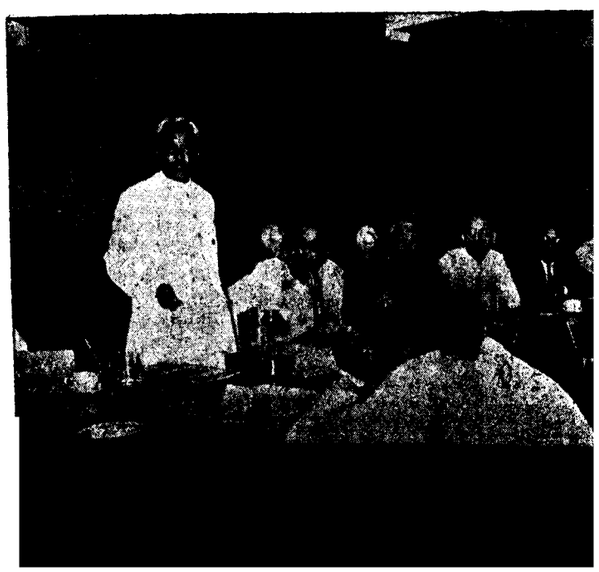
The Deputy Mayor of Madras accompanied by Honourable Members of the Corporation Council, visited the factory on the 10th March, 1961.

Mr. E. P. Haslam and Mr. C. A. Barker of the Bank of England, visited the factory on the 13th March, 1961. They were shown round the factory and, at the conclusion of their visit, said that the factory was "most impressive".

Mr. Karel Hoffman, Director-General of Czech Radio, and Mr. Reif, Head of the Foreign Relations Department of Czech Radio, visited the factory on the 18th March, 1961. After going round the factory, Mr. Hoffman recorded in the Visitors' Book as follows :—

"Your factory is really an outstanding sample of what can be achieved in your country."

A party of journalists from U.S.A. having discussions with the Chief Administrative Officer, I.C.F., when they visited the Factory during December, 1960.



Shri Upendranath Barman, Leader of the P.A.C. of the Lok Sabha addressing the officers of the Factory. He paid high tributes to the officers and workers of the Factory for their achievements.

SOUTHERN RAILWAY—ITS ROLE IN THE ECONOMY OF THE SOUTH

BY

H. D. SINGH

(*General Manager, Southern Railway*)

The author refers, in this article to the significant role the Southern Railway plays in the economy of the five Southern States—Madras, Andhra Pradesh, Kerala, Mysore and portion of Maharashtra and enumerates the various steps taken by the Railway including the increase in line capacity to tackle ever growing traffic generated by the planned development of the country.

He claims that despite special emphasis laid on the transportation of goods for industrial purposes, the Southern Railway has fared well in providing more amenities to the rail travellers. The Railway has taken a number of measures for the welfare of its 1.63 *lakhs employees and their families.*

The main problem of the Southern Railway, as on other Railways, has been to cope with the enormous increase in traffic generated since 1950. The Railway's plans had to be tailored to suit the requirements of anticipated expansion in the country and carry on increased traffic generated by the two Five-Year plans.

To meet these commitments and achieve alround progress the outlay provided for the Second Five-Year Plan was Rs. 134.5 crores as against Rs. 67.6 crores in the First Plan.

Apart from the general increase in traffic, there are certain aspects in the pattern of movements which are rather peculiar to the Southern Railway. With a total route mileage of 6,161 miles and sprawling across the Southern Peninsula, this Railway serves the Southern States of Madras, Andhra, Mysore, Kerala and Maharashtra. Covering the two coast lines, the Railway serves also the two major ports of Madras and Cochin besides many minor ports.

Southern Railway Serves Agricultural Region

The region served is predominantly agricultural. The food group is mainly cultivated in the delta areas irrigated by the Godavari, the Krishna and the Cauvery river systems.

Large parts of the Southern States are, however, deficit in foodgrains and these are therefore to be moved from the surplus areas by the Railway to the deficit areas.

In broad profile, the deficit areas are the States of Kerala, Mysore and Maharashtra and the western parts of Madras. It has been one of the major concerns of the Railway to move wagons to carry food from surplus to deficit areas.

The main cash crops grown in the area covered by the Southern Railway are tobacco in the coastal districts of Andhra Pradesh, groundnuts almost everywhere except Kerala and coastal Mysore, cotton in the southern and western parts of Madras and sugarcane in select areas in all the States.

Tobacco is cured and exported to countries overseas though substantial quantities are consumed in the cigarette factories in Bombay, Calcutta, Chandisthan Saharanpur, Hyderabad and Bangalore. Curing is done with coal obtained from the collieries in Bengal and Bihar and Central India.

Groundnut is generally crushed in mills near the growing centres and the oil is moved to Madras for shipment or to the Vanaspati factories. The cake is moved to the southern parts of Madras for use as cattle feed or manure.

Cotton is ginned locally and the seeds are moved to south Madras or Kerala as cattle fodder. Availability of cotton has largely influenced the growth of the textile industry in many places on the Southern Railway and similar considerations apply to the sugar industry also. There are textile mills located at 18 stations on the Railway and sugar factories at 19 stations.

Sugarcane is grown near about these factories and moved by Railway mainly to the factories. Jaggery is loaded from stations like Kolhapur and Anakapalle to stations in the north.

Feeding the Industries

The non-availability of coal has to some extent handicapped the progress of industries in the south. South India has unfortunately no collieries and all the coal required for the industries and for the thermal plants have to be got from the collieries in Bengal and Bihar or from the Singareni collieries. The coal movement by the northeast line from Bengal and Bihar collieries and from Central India collieries via Vijayawada forms one of the important items of the goods traffic movements. However, where labour has been cheap and other raw materials easily available, some major industries have sprung up. Cement factories are located at Madukarai, Talayutha, Dalmiapuram, Kottayam, Bhadravati, Bagalkot, Bugganappalle, Vijayawada and Macherla. Raw materials to the cement factories and cement produced from these factories form an important item of traffic. During 1959-60, 1,186,500 tons, of cement was loaded on the Railway.

The other industries include glass factories, paper mills and engineering industries. The Bhadravati Iron and Steel Works depend on coal to be brought from North India. Raw materials are received from nearby areas where they are available and finished products are despatched from these centres.

The Lignite Project in Neyveli on the Railway is a big project and at present, large quantities of heavy machinery and iron and steel structural parts are moving to the factory site. This project will bring in its wake a number of allied industries besides station for generating electricity.

Ceramic and fertiliser factories are being established near Neyveli.

Salt is manufactured in certain pockets on the coast line. It is required to be carried to the consuming centres in the interior and some salt even moves up to certain stations in Northern India.

When Lignite mining goes into full swing, large quantities of traffic are expected to and from this area which will have to be carried by this Railway.

Railway's busy Sections

The busiest arterial sections are from Waltair to Madras, Madras to Jalarpet, Jalarpet to Erode and Raichur to Arkonam. Of these, line from Waltair to Madras is the main artery for the movement of traffic from north to south.

The demand for intake of wagons at Waltair has steadily been on the increase and coupled with it the demand for loading in the Krishna and Godavari deltas has also been increasing. The intake from the Central Railway at Vijayawada has also increased.

The Second Five-Year Plan on the Southern Railway was, therefore, designed primarily to increase the movement capacity to carry the increased traffic from contiguous railways *via* Waltair, *via* Vijayawada and *via* Raichur, and also the traffic generated on account of the increased industrial and agricultural activity in the areas served by the Railway itself.

Line Capacity Works

Large scale measures for increasing the line capacity have been undertaken. Doublings and regradings were necessary on the line from Waltair to Gudur. Other line capacity works like the extension of loops, provision of additional loops, new crossing stations and additional yard facilities were taken up during the Plan period. Loops were also extended to hold 70 vehicles.

The Gudur-Renigunta metre-gauge line was converted to broad gauge early in the Second Plan to a length of 52 miles in 1957.

As a result of this, some of the loads from Gudur to Arkonam are being diverted *via* Renigunta. This in turn together with the increased intake from Raichur threw a heavy burden on the section from Renigunta to Arkonam for which purpose doubling to the extent of 23 miles between Renigunta and Arkonam was planned in the Second Plan. Doublings and regradings have been undertaken between Arkonam and Jalarpet and between Jalarpet and Erode.

A total of 244 miles had been programmed for doubling during the Second Plan and of this, while 144 miles will be opened for traffic by March 31, this year another 55 miles will be opened by the middle of 1961. The works on the remaining sections are also on hand and in good progress.

Bridge Building Works

In connection with these doublings, a total of about 1,000 new bridges have to be built, some of which are very major ones and difficult ones with deep well-foundations going up to 50 and 60 feet below bed level.

In view of the scarcity for steel in the early part of the Second Plan, particularly in respect of wide plates required for girders, pre-stressed concrete girder construction was adopted on a fairly large scale in the construction and 40, 60 and 64 feet spans have been adopted in pre-stressed concrete. They are all getting completed and the last one is expected to be opened by June 1961.

On this Railway, it has been necessary to run locomotives of heavier axle-loads and to increase the permissible speed over sections. This has necessitated the strengthening of a number of bridges on several sections and this has also received special attention during the Second Plan.

In the Third Five-Year Plan, strengthening of Krishna Bridge No. 3, near Vijayawada and strengthening of other major bridges are contemplated.

Conversion Programme

Apart from the conversion of the Renigunta-Gudur section, other important conversions which are in progress are those of Vijayawada-Masulipatam and Gudivada-Bhimavaram sections. Those sections serve the rich rice growing areas in the Krishna delta.

It will also provide an alternative route for a portion on the North-East line between Nidadavolu and Vijayawada. Simultaneously with this conversion, an additional broad gauge line is also being laid between Guntur and Tadepalli so that the heavy passenger traffic between Guntur and Masulipatam can be catered by the broad gauge trains.

It is also expected that Gudivada-Bhimavaram conversion will be completed by the middle of 1961 and the Vijayawada Masulipatam conversion by the middle of 1962.

The laying of the broad gauge line from Guntur to Tadepalli together with a chord line between Tsunduru and Vejendla is also in progress and will be completed early in the Third Plan. It will provide alternative routes for the existing North-East line between Nidadavolu and Tenali and therefore considerably ease the movement of traffic on these sections.

Yard Remodelling Works

Owing to the increased intake at Waltair and from the Central Railway, the work in the Vijayawada Yard had increased considerably. The work relating to remodelling of the Vijayawada yard was completed during Second Plan. It includes a Hump yard for marshalling towards Madras side and a by-pass line connecting Waltair-Vijayawada and Vijayawada-Delhi lines. While in 1956-57 Vijayawada station had been dealing with 29,000 wagons a month on an average, in 1959-60, this yard dealt with 37,858 wagons per month.

The present M.G. platforms in Vijayawada will be converted into broad gauge platforms to provide increased reception and despatch facilities for passenger trains in the yard.

It was necessary to remodel some of the other yards also to augment transport capacity. The work to remodel Jalarpet and Chingleput yards is in good progress and a major portion is expected to be completed during the Second Plan Period.

Other Works

Certain lengths on the line between Waltair and Rajahmundry have been regraded to remove the steep gradients thereby enabling longer and heavier trains to be worked. This work was completed in December, 1960.

On the Jalarpet-Podanur section, the loops at 15 stations were proposed to be extended and the entire work is expected to be completed during the Second Plan period.

Owing to these special steps taken to improve the transportation capacity, the intake of loads *via* Waltair, *via* Vijayawada and *via* Raichur has been increasing steadily from year to year. An important project completed during the early years of the Second Plan was the 96½ mile long Quilon-Ernakulam M. G. length.

Track Renewals

The track renewal programme has also received attention during the Plan period and over 340 miles of broad gauge and over 490 miles of metre gauge tracks are expected to be completed during the Plan period.

Remodelling of Madras Central

To improve the facilities for dealing with passenger traffic at Madras Central Station, its remodelling is provided for in the Plan.

Power signalling and route relay interlocking is also provided for in the remodelling. The work is being taken up in phases. Most of these items are nearing completion.

Ore Traffic

A fillip has been given to the mining of Iron and Manganese Ores because of demand for export overseas. In fact, almost all the ports on the Bay of Bengal and on the Arabian Sea are availed of to ship the ore traffic.

The mines of South India lie around Hospet, Chitradurg, Banasandra, and Dandeli in the Mysore State and Jaggayyapet near Vijayawada in Andhra Pradesh. The ore is exported mainly from Madras Port, Vizagapatam, Cocanada, Masulipatam, Karwar and Cuddalore.

To enable the movement of increasing quantities of ore from Hospet-Guntakal section to Madras and other various ports, line capacity works at 44 stations in the Guntakal division have been undertaken. These are in very good progress and most of the

works are expected to be completed during the Second Plan period.

The following figures of originating traffic in iron ore will show the increase in this traffic :

Iron Ore

		Tons	*Index*
1951–52	...	116,700	100
1955–56	...	571,200	489
1959–60	...	1,245,800	1,068

Signalling and Tele-communications

During the Second Plan, 72 non-interlocked stations have been interlocked and the standards of signalling have been raised at 32 stations on this Railway. Eleven non-control sections have been provided with section control.

Seven new teleprinter circuits have been brought into use to facilitate quick clearance of Railway messages. A major signalling and tele-communication workshop has been set up at Podanur with an annual outturn of equipment worth Rs. 25 lakhs, making the Railways self-sufficient in regard to its repair and overhaul programme of signalling and tele-communication apparatus. A training school has also been opened as an annexe to the workshop and its further expansion is proposed during the Third Plan. It is expected that the workshop will be able to manufacture certain essential components of powers signalling.

Improvements are thus being made to the mechanical workshops at Perambur and Hubli, the engineering workshops at Arkonam, the car shed at Tambaram, the new diesel car shed at Tiruchirapalli and the local sheds at Jalarpet, Sheranur, Gooty, Guntakal, Yesvantpur, Arkonam, Mysore and Nandalur.

Transport Facilities

The Railway has the problem of break of gauge transhipment. The existing facilities have been enlarged at the important transhipment sheds of Arkonam, Guntakal, Bangalore and Tadepalli. A 22 per cent increase in the transhipment out-put in 1959-60 over 1955-56 has been achieved at these points.

Provision of better Rail Services

The system of guaranteed Quick Transit Service was introduced on this Railway on 1-4-1956. The Railway is now operating 111 such services.

To reduce the incidence of handling damages and chances of misdespatch of 'smalls' consignments, a Container Service has been introduced for parcels traffic as an experimental measure.

During 1960, two refrigerator vans have been put on a weekly service between Calicut and Madras for carrying fish traffic from West Coast to Madras and these are well patronised.

Collection and delivery services which give a door-to-door service to the public have also been extended to a number of stations.

Enormous Spurt in Traffic

The various works carried out during the Five-Year Plan have enabled the Railway to carry over increasing traffic from year to year. Given below are particulars of goods traffic carried during 1955-56, the last year of the First Five-Year Plan and 1959-60, the fourth year of the Second Five-Year Plan :

	Tons		Ton miles	
	Millions	Index	Millions	Index
1955–56 ...	15.84	100	3,942	100
1959–60 ...	20.91	132	5,081	130

The Railways carried in 1959-60, 32 per cent more of goods traffic than that carried at the end of the First Five-Year Plan.

Third Plan

During the Third Five-Year Plan, the Railways will have to carry even more

(*Continued on page* 34)

INDIAN RAILWAYS—LIFELINE OF THE NATION

BY

KARNAIL SINGH
(*Chairman, Railway Board*)

Those of us who were born in the first decade of this century are lucky to have lived through the most exciting period of history. The two world wars, the struggle for independence and its achievements ; the horror and chaos that followed partition ; and finally the triumphant progress during the first two Plan period are some of the major incidents during this period.

The Indian Railways as the nation's largest industry, have been a mirror of its fortunes through these years. The Railways in India were born 108 years ago and I am proud to have worked for them for nearly one-third of this—not an inconsiderable length of time. I joined the railways in 1927 during the shortlived boom after the First World War. In those days, the term 'Indian Railways' covered a sub-continent, part of which is now Pakistan, Burma besides India proper. The railway network itself was divided in a number of units, small and big, some belonging to the Indian Government, some to the Princely States, some privately owned and others managed by British Companies.

Joining as I did at the tail end of the boom period, it was not long before the depression swept across us from overseas and "retrenchment" and "make-do" were the watchwords. Luckily I was not retrenched but hung on somehow. Then it was not a question of replacing rolling stock, but how to maintain it on next to nothing. More tracks could not be laid, when we did not have the wherewithal even to pay for packing the existing tracks. Far from putting up new buildings, it was difficult to find funds to whitewash them. Several new constructions were stopped half-done.

Slowly, however, things improved and by 1937, the tide had turned sufficiently to think of replenishing our depleted stock and relaying some tracks. Estimates were made and orders placed. There was of course practically nothing made within the country. Young people today will find it hard to believe that even such minor carriage fittings as bulbs, bolts and brackets had to be imported from abroad.

Railway Resources for War Efforts

Before, however, any of this rolling stock and equipment could arrive in the country, war broke out and put a full stop to our getting anything.

Instead of maintaining the worn out locomotives and other stock, the Railway workshops were called upon to produce ammunition and equipment for the army. Other available resources were put to military use.

At first the requirements were for the Western theatres of war, involving the extension of lines across Baluchistan into Zahidan (Iran) and supply of locomotives, coaches and wagons as also railway track to Middle East to strengthen and sustain the supply lines to Russia and North Africa.

Then almost overnight we had to reverse gear and switch over towards the East, doubling railway lines and developing the

transport system to fight the enemy, who was at our doorstep.

Partition and After

The end of the war was followed closely by Independence and the partition of the country when large numbers of experienced railwaymen both British and Muslims left us. It was a time of great patriotic fervour and we railwaymen, like every Indian, were determined to prove ourselves. Many of us spent sleepless nights wondering whether we will be equal to our task.

I have recounted elsewhere how the great Sardar Patel called me on June 27, 1947, to enquire whether we would be able to carry on if every British Officer (and there were large numbers) left all at once. I am glad Sardarji lived long enough to see that we were as good as our word. Not only did we take over without any interruption in services and efficiency, but coped with the unprecedented and unforeseen confusion of partition. I wish he was here today to see how we have grown and expanded.

Railways—A Public Utility Service

It should be remembered here that the Indian Railways which we inherited were by no means built up as a public utility service, but primarily to meet strategic requirements and for commercial exploitation of the hinterlands around the ports. Some of the problems in regard to lack of amenities to passengers and staff that we encounter today are a direct outcome of this inheritance. With the dawn of Independence, therefore, the Railways had to be integrated as a national system and reorientated to meet the public demand for comfortable and convenient passenger travel as well as the movement of the goods required by a rapidly expanding industry.

The Railways could not and did not wait for the start of the Five-Year Plans. Before national planning began and during the difficult post-war and post-partition period, that is in the years 1948 to 1950 we carried out three of our major schemes.

The Assam Rail Link was built to join the virtually isolated and truncated Assam Railway to the rest of the national system. In the words of Sardar Patel, it "formed a very vital link in the consolidation of our country". Chittaranjan Locomotive Works were set up and the first locomotive was turned out by November 1950. For passenger coaches, plans were finalised to lay out the Integral Coach Factory as a large-scale production unit.

First Five-Year Plan

The main objective of the Railways' First Five-Year Plan was to replenish the decrepit rolling stock and other assets. Within an expenditure of some 432 crores, no less than 1,589 locomotives, 4,837 coaches and 61,713 wagons were acquired, nearly 430 miles of dismantled lines were restored and 380 miles of new lines constructed.

This enabled the Railways to carry 36,000 million ton miles of originating traffic at the end of the First Plan period against 27,000 million ton miles in 1950-51. Passengers carried were 1,275 million per annum.

Second Plan Achievements

The Railways' Second Five-Year Plan can be regarded as one of consolidation and modernisation. Thus, the Second Plan had to make provision for overtaking the arrears of replacement as also to plan for an increase in traffic. Against an allocation of 1,121 crores, more than 2,000 locomotives, about 8,500 coaches and nearly 100,000 wagons have been added to the fleet of rolling stock.

Some 800 miles of new construction have been completed. Important among these may be mentioned; the Chandrapura-Muri-Ranchi, Bondamunda-Dumare, Noamundi-Banspani, Bhilai-Dhalli-Rajhara and others, aggregating to some 275 miles to serve the industrial and mining areas. An important achievement has been the construction of 187 miles

of M.G. line, connecting Khandwa and Hingoli, to link the separate northern and southern M.G. systems. The Broad Gauge line to Siliguri *via* Tildanga and Farakka is expected to be opened soon.

Doubling of track over 800 miles long has been completed and substantial progress made on another 500 miles. This has enabled the railways to carry 54,000 million ton miles of freight traffic at the end of the Second Plan, an increase of 50 per cent. The passenger traffic rose to 1,624 million.

Railway Bridges

The Second Plan has also seen the completion of the Rajendra Pul over the river Ganga, well ahead of schedule. Completion of the Jagjivan Pul over the river Gantak is yet another notable contribution towards better and speedier transport across major rivers. The work on the turbulent and yet unbridged Brahmaputra is proceeding satisfactorily. The special features in the design and construction of this bridge have aroused international interest.

Extensive dieselisation and electrification on sections which have reached the saturation point on steam traction, has been undertaken. During the Second Plan, the railways have acquired 100 B.G. main line diesels which are proving extremely useful on the steel and coal belt areas on the Eastern and South Eastern Railways. Electric traction on 25 K.V. Single Phase A.C. System has already been introduced on a few hundred miles on the Eastern and South-Eastern Railways in the coal and steel areas.

Self-sufficiency Drive

By far the most notable achievement during the Second Plan period has been in the sphere of indigenous production of rolling stock and railway equipment.

This has been made possible due not only to the production of more than 1,150 locomotives from Chittaranjan since it commenced production and more than 1,500 coaches from the Integral Coach Factory, but due to a substantial contribution from a continuously developing industry in the Private Sector which manufactured vast quantities of railway equipment from wagons to pins.

Third Plan Targets

The draft outline of the Third Plan published some time ago has placed the tentative allocation for the railways as Rs. 1,255 crores, including inventories. According to this Plan, the railways will have to carry 33,000 million ton miles of originating traffic and a 15 per cent increase in passenger traffic.

If the experience of the Second Plan is any guide, the actual increase in passenger traffic will perhaps be much higher. To attempt the planned increase of 72 per cent in ton miles of freight with an allocation of only 12 per cent in excess of the provision in the Second Plan is a formidable task indeed.

Provision has been made for the constructions of 1,100 miles of new lines out of which about 200 miles may be required in connection with the development of coal industry.

Spurt in Traffic

A significant feature of the railway operations in recent years has been the spurt in long distance traffic. While the volume of traffic has gone up, the lead has increased from some 317 miles in 1955-56 to 348 miles in 1959-60.

Combined with the growth of originating traffic, therefore, the increase in hauls has resulted in a phenomenal rise in freight ton miles carried by the railways.

Before closing this article, I feel it would be interesting to look up statistics to indicate performance on Indian Railways, since the time I joined them. In 1926-27, Indian Railways, were a vast system with a route mileage of nearly 40,000 and carried 604

million passengers in that year, along with 20,000 million ton miles of freight.

Twenty years later, in 1947—48 just after Independence, the route mileage was reduced to 34,000 on which we carried 1,044 million passengers and the freight moved was 20,000 million ton miles. In the year 1960-61, just ended, the route mileage increased to 35,437, which carried 1,650 million passengers and 54,700 million ton miles of freight traffic. Much of this tremendous expansion and achievements made by Indian Railways are the result of unstinted devotion to duty, which is a tradition very clearly preserved by the eleven-and a half lakh strong family of India's railwaymen.

Assistance from Abroad

In recent years, the rapid expansion and modernisation has come about to a large degree as a result of the generous financial assistance from friendly foreign countries and, notably, the World Bank. Comparatively we have employed very few foreign technicians to assist but the funds available through loans have been utilised to the fullest advantage.

Railways Deliver Nation's Goods

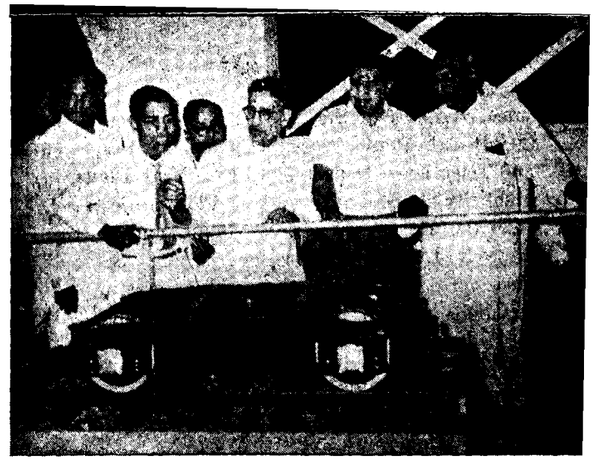
In India, there is an alround advancement, expansion of agriculture and development of industries; many units are already working full steam, some have just started and others are in the making. Railways provide all transport requirements during the construction, reaching all raw materials and distributing finished products.

It is a matter of great satisfaction that the Indian Railways have delivered the goods and are a flourishing, rapidly expanding and, incidentally, an earning concern. In the developing economy of any country, transport

(*Continued on page* 34)

I.C.F. PARTICIPATES IN ALL-INDIA INDUSTRIAL AND COMMERCIAL EXHIBITION AT MADRAS

BY C. R. SWAMINATHAN



Chief Minister of Madras, Shri K. Kamaraj, at the Railway Pavilion. Explaining the details of the I.C.F. Bogie model is Shri C. R. Swaminathan of I.C.F. Also seen in the picture is Shri K. Srinivasan, PRO., S. Railway and Shri K. T. Jethmalani, Secretary to C.A.O.(R), I.C.F.

The Southern India Chamber of Commerce, Madras, organized an All India Industrial and Commerical Exhibition in the spacious Island Grounds at Madras as part of their Golden Jubilee Celebrations, which was declared open by the State Chief Minister on the 9th January, 1961. This Fair was claimed as one of the largest Exhibitions ever held in the City of Madras and was visited by more than a million people during the two months of its duration. Practically, every visitor to the Fair spared time to visit the Railway Pavilion in which the ICF exhibits were prominently displayed. Unlike in the previous Exhibitions, the ICF, 1/8th Scale Integral Coach Model was displayed in this Fair in a spectacular manner. Fixed on an octagon table, the model was electrically connected to a motor and was revolving round on a table in a grand fashion, in the very main entrance of the Railway Pavilion. This was easily the best Exhibit in the Pavilion which caught the eye of the visitors. The protective bars provided on the windows in the Ladies' compartment was of particular interest for the ladies. Besides the Coach model, the Factory layout model, the Integral Bogie model, the cross section showing the tubular construction and the end-wall showing the anti-telescopic device were also displayed. There were two other huge photo boards, one showing the main stages of construction of Integral Coaches and the other showing the workers' colony, workers' canteen and other sidelights of the factory and a look at all these exhibits appeared to be an on-the spot understanding of the progress the ICF is making for the visitors.

Among the very many important dignitaries who visited the pavilion were: Sri K. Kamaraj, Chief Minister of Madras, and Sri S. V. Ramaswami, Union Deputy Minister for Railways.

The Railway Pavilion itself was designed and built to appear as the frontage of Madras Central Station with working clocks fitted on three sides of the centre tower. The Southern Railway had displayed models of the Nilgiri Rack Railway, the hump yard, electric signal reverser manufactured at the S. & T. Workshops, Podanur, the Hubli Locomotive, Carriage and Wagon Shops (remodelled) and the W.P. Locomotive, etc.

As for the Fair, there were some other

huge pavilions of the Madras State Electricity Board, Public Works Department, Posts and Telegraphs Department, Five-Year Plan Publicity, besides a few major Plan projects like the Heavy Electricals Plant and the Neyveli Lignite Corporation. There were also very many attractive and interesting pavilions put up by Commercial Establishments. The Fair proved that by way of effective participation in various exhibitions of this type, the multi-millions of the country can be made to understand well the industrial and technological developments taking place in the country and the fruits of the Five-Year Plans.

NEWS FROM SWITZERLAND

A Swiss Steel-Works exports its products throughout the World

It would be interesting to know how many people are aware of the fact that a great many manufacturers of hydraulic turbines, throughout the world, have recourse to a Swiss steel-works for the casting of turbine wheels, as well as other castings and articles made of cast steel, of every dimension and weighing up to 40 metric tons? The Fischer Steel Works of Schaffhausen (Switzerland), which were established nearly 160 years ago, are able to cast parts of machines which possess complicated shapes, having at one and the same time great thicknesses and very fine mouldings, achieving this within very narrow limits and with every guarantee. The carrying out of very fine castings is done by specialists. A battery of four big electric furnaces performs the casting of steel in various alloys, which are very carefully proportioned in each particular case in order to achieve the exact quality desired by the customer and corresponding to the requirements of the use to which it will be put, from the point of view of its machanical resistance, its resistance to erosion and to corrosion and its weldability. The composition of the steel is controlled both before and after the casting, within the space of a few minutes, in a magnificently equipped laboratory. After being cast and taken from the mould, these castings are once more subjected to a most careful examination, with the help of ultra-sonic technique and of radiography. This is a characteristic trait of Swiss industry, that it is thus able to deliver articles of a minutely controlled quality, even then when their dimensions are specially large, to countries which possess a more highly developed metallurgical industry than that in Switzerland.

A remarkable Swiss Invention in the manufacture of cotton-wool

In order to meet the difficulties of production caused by the shortage of labour, a firm in Schaffhausen (Switzerland), which manufactures all the articles required for dressings and bandaging, has now perfected and built in its own workshops a number of machines which are quite remarkable for the economy in labour which they represent. The most noteworthy of these is a machine which works up carded cotton until it can be put, ready for use, as cotton-wool, in a zigzag shape, into a package. As a result of this invention, it is possible to eliminate several processes of fabrication and to achieve an economy of up to 60% in the manpower required, as compared with the usual methods. Moreover, this machine makes it possible to reduce the waste of material by 80% while, at the same time, doing the work in a more hygienic fashion than can be attained when it is done by hand. This process, which has been patented in all the civilised countries, most certainly constitutes the greatest technical progress achieved in this respect, since the invention of absorbent cotton-wool. It was nearly a century ago that the firm in question was the first to produce absorbent cotton-wool on an industrial basis.

Swiss Packaging Catalogue

Packing technique has advanced tremendously during these last few years, more especially as the result of the developments which have taken place in the manufacture and the working of plastic substances, as well as of the pressure of very sharp international competition exercised on all the markets. Swiss industry has not remained behind hand in this domain, but, on the contrary, has been able to achieve considerable

progress in the presentation of certain traditional Swiss products, as also in the creation of new machines for the packaging of all sorts of materials and products in a better manner, more rapidly, more hygienically, more safely with a view to transport and in a more attractive fashion with a view to sales. In order to realise the extent of this evolution, and the ingenuity and the efficacy shown by Swiss manufacturers of packages and of packaging machinery, one need noly peruse the new "Swiss catalogue of packaging and of the manipulation of goods", which appeared at the beginning of the year.

The Centenary of a great Watchmaking Scientist

Celebrations have just taken place in Switzerland, of the centenary of the birth of a great scientist, to whom we owe capital discoveries in the domain of watchmaking. Charles-Edouard Guillaume first studied in his native Canton of Neuchâtel, from where he went to the Federal Polytechnical School in Zurich, and then, in 1883, entered the International Bureau of Weights and Measures at Sèvres, where he made a brilliant career. The son and the grandson of watchmakers, he had been interested, right from his earliest childhood, in the variations, due to external conditions, to be found in apparatuses for measuring time. He directed all his career to the search for a solution to this problem and if, today, the wrist-watch has achieved its present development, this is due, to a great extent, to the discoveries made by Charles-Edouard Guillaume. It was he who invented the metals known under the name of "Invar" and "Elinvar", which are alloys of nickel steel with the addition of chromium, used for the making of pendulums for watches, which are insensible to the variations in temperatures, and replace the rare and costly metals which had been used previously for this purpose. Decorated for his work by an impressive number of countries belonging to the two hemispheres, Charles-Edouard Guillaume, who was the Director of the International Bureau for Weights and Measures, also received the Nobel Prize for Physics, this being the crowning of a particularly fruitful career, dedicated entirely to science. It was only proper to recall to mind the memory of this great scientist, who died in 1938, at a time when scientific research was advancing to the forefront of the preoccupations, not only in the watchmaking domain, but in that of the entire Swiss industry.

A Seedy-looking circuit rider visiting his country church on a superbly groomed horse one Sunday morning found several of the members waiting in the yard. After greeting him cordially, one of the elders asked "No offence meant, Parson, but why does your horse's coat always look so much better than yours ?"

The circuit rider looked his congregation over carefully before replying : "Well, it's like this—I take care of my horse ; my congregation takes care of me."

"U. S. EDITOR DESCRIBES MADRAS TO AMERICAN READERS"

New York, December.—"Visible progress" in India's efforts to industrialise is described in an article by Frank R. Ford, Chief editorial writer for the Scripps–Howard newspapers.

Ford's article was written from Madras for use in Scripps–Howard newspapers throughout the United States including *World Telegram and Sun.* He is one of nine leading American newspapermen who recently visited India as guests of the Indian Government.

Under the headline "India Lifting Loads of Centuries from Its People's Backs", Ford wrote :

"This ancient land is beginning to show visible progress in lifting the heavy loads carried for centuries on the thin shoulders of its people. The machine age has reached India.

"Farmers still plough with crooked sticks, squatting to weed or reap, for lack of long-handled scythe or hoe. Almost under the wheels of tangled bullock-cart traffic, frail-looking men and women scrape up road-repair dirt with their hands, filling wooden bowls which are carried off on their heads.

"But the road may lead to a factory so modern it rivals anything in the world for equipment and labour-saving systems."

Ford cites as an example the railway coach factory near Madras visited by the U. S. newsmen, noting the large investment needed to build it and similar factories.

He observes, "This coach factory probably is the nation's most favourable exhibit."

The U.S. newsman notes that "at the start it took 19,600 man hours to make a coach", at the Madras establishment. It has been cut to, 8,700 "a respectable figure by any comparison" bringing costs below the price formerly paid for the imported railway coaches.

"India's industrial plans look far to the future", Ford continues, "to induce enterprise and acquaint Indians with machinery in established 'industrial estates' such as the one at Guindy, also near Madras."

Indian Railways

(*Continued from page* 28)

must precede production and further progress will only be possible if the railways are first developed to meet the overgrowing needs.

The Railways are not only a link between the industrial producer and common consumer, but they are also the physical means of the cultural integration of the country.

Easy and inexpensive travel links all corners of the country into a network; the railways are the life line of the country in which both the people and its wealth flow as blood flows through arteries of a human body.

Much as we would wish to improve amenities for the travelling public even more rapidly than we are doing at present, it is to be remembered that movement of freight traffic was a priority because of its inherent potential towards the Country's progress. We have, therefore, to take a long range view and be content with some measures of austerity and put up with overcrowding to some extent, older type coaches and slower travel for some time longer till we are affluent and able to afford some luxury.

Checking Crime on Railways

The task of railwaymen is very difficult indeed at the present time when ticketless travel is still rampam in certain areas, indiscipline to pull alarm chains is prevalent and vandalism in the form of petty thefts and tearing off furnishings, etc., is not uncommon. For a missing bulb, an ill-fitting bolt or a leaking tap, the Railways are deservedly blamed but a Ticket Collector attacked by ticketless travellers or a hooligan damaging a railway carriage is seldom challenged. We look up to all our countrymen to help us carry out our task through this critical decade of our development.

Railwaymen welcome constructive criticism to be able to improve. However, in spite of all the brickbats and a few bouquets in between, the Indian Railways have done a grand job. I am happy and proud to be a railwayman. I have been rambling in my reminiscences over the past 34 years, a very long time.

Many a time, some "economists" have predicted that the railways have outlived their usefulness and other "prophets" foresaw that they will soon be obsolete. On the contrary, railways have thrived continuously and have proved their unrivalled utility.

They have grown beyond expectations in size as well as importance. Far from becoming outmoded and in spite of the rival attractions of jet planes and streamlined cars, toy railways still have a fascination for children and railway transport and train travel remain the most practical and convenient form of movement.

Living through the periods of upheaval, ups and downs in peacetime, the era of expansion has been a wonderful experience.

Southern Railway

(*Continued from page* 24)

traffic and this would also mean taking over even large number of wagons at the interchange points at Waltair, Vijayawada and Raichur.

The target proposed for the Third Plan period is 600 wagons per day intake at Waltair and 500 wagons per day at Vijayawada. For this purpose, the remaining patches between Tenali and Gudur are being doubled as well as the patches between Arkonam and Jalarpet.

On the West Coast line too, certain difficult portions are being doubled in order to eliminate bottlenecks. The conversion of the Bhimavaram-Gudivada section into broad gauge, laying of the broad gauge line from Tadepalli to Guntur together with a chord line between Tsunduru and Vejendla and increasing the capacity of the Krishna and Godavari Bridges are some of the more important items which will be completed in the Third Five-Year Plan.

Suburban Traffic

The suburban traffic in the Madras area is ever on the increase. The number of passengers carried on the electrified suburban section increased from 29.2 millions in 1955-56 to 44.6 millions in 1959-60. The Plan provided for increasing the facilities to deal with the suburban traffic also. Six 4-coach electric multiple units have been added to the fleet of suburban coaches during the Second Plan period. Proposals have been made to procure 19 additional four-coach electric multiple units to meet the suburban traffic on electrified section during the Third Plan.

It is also proposed to extend electrification from Tambaram to Villupuram on 25 K.V. A.C. Single phase 50 cycles system of traction. This work is expected to be completed during the Third Plan period.

Amenities to Passengers

During the Second Plan, daily Janata train services were introduced between Delhi and Madras and the frequency of the Janata Express between Madras and Bombay has been increased to three times a week. Tri-weekly air-conditioned Express trains were also introduced between Madras and Delhi.

Sleeping accommodation now offered without any extra surcharge is provided on two pairs of trains and this facility will further be extended. It is proposed to reduce substantially the overall running time of the Grand Trunk Express between Madras and Delhi and other trains like the Calcutta Mail, Bombay Express, the Cochin Express, Malabar Express, *etc.*

Staff Amenities

The Southern Railway has on its pay rolls nearly 1.63 lakh employees. Several works have been carried out for providing amenities to the staff. 4,386 quarters are expected to be completed during the Second Plan period. Major hospitals have been constructed or are in good progress at Divisional headquarters at Hubli, Mysore, Olavakkot, and Guntakal. Besides, the hospital at Perambur has also been provided with additional 118 beds. Several dispensaries and Health Units have been opened at various stations. Chest Clinics, Maternity and Child Welfare Centres and Dental Clinics were opened at all Divisional Headquarters. Provision has also been made for reserving 207 beds for Railway employees and their families at various Tuberculosis Sanatoria in addition to 67 beds in Railway Hospitals.

Three Holiday Homes have been established at Courtalam, Mysore and Yercaud and a Convalescent Home at Coonoor. Handicraft centres have been opened at 17 stations. During the year 1959-60, 359 scholarships for technical education of children of the staff inclusive of renewals amounting to over Rs. 1.2 lakhs were awarded.

Railway transport has a vital role to play in the economic development of the Southern States and the necessary planning is being done so that the Southern Railway may play its part worthily.

"AMERICAN LABOUR UNION SERVICE EXPANDING"

American trade unions are finding new ways to serve their members beyond the narrow confines of collective bargaining. Some unions are setting up co-operative food stores. Others are making it possible for their members to buy prescription drugs, furniture, and household appliances at reduced prices. Unions also are giving members legal advice and help in filling out income tax returns and in applying for pensions and unemployment compensation. *There are union banks and union loan offices.*

The biggest emphasis today is focused on union medical programmes. Forerunner of this trend is the medical plan of the United Mine Workers, under which miners and their dependents receive free treatment in 10 union-owned hospitals. Last year these hospitals cared for more than 20,000 patients, plus about 1,000 outpatients a day.

Other unions are getting into the hospital field or planning to do so. The United Automobile Workers (UAW) is backing a medical programme known as the Community Health Association of Detroit. UAW members and other residents will be able to obtain complete medical services through a group health organisation. The union is financing a Rs. 11 crore expansion of a local hospital to service the plan, and it is planned later to open branch clinics in the Detroit area.

In northern California, seven unions are represented in a joint health programme which provides hospital and medical services for more than 3,60,000 workers. At Santa Rosa, California, a labour health centre is being organised by eight labour groups. Plans call for building a 150-bed hospital.

The United Steel Workers (USW), now covered by commercial health insurance plans, is considering establishing its own medical centres. USW President, David McDonald says, "employers may be asked to invest part of the steel industry's huge pension funds in group-practice medical care centres and hospitals."

A recent survey by the American Medical Association lists 53 union health centres, covering about 9,50,000 workers and their families, throughout the country. Eighteen of the centres are run by the International Ladies Garment Workers Union.

"Management is the DEVELOPING OF PEOPLE and not the direction of things. Management and personnel administration are one and the same. They should never be separated. Management is personnel administration."

LAWRENCE APPLEY
Ex-President
American Management Association.

SPORTS NEWS

"F" SHED ANNEXES

SUNDER RAJ TROPHY IN THE INTER-DEPARTMENTAL HOCKEY TOURNAMENT, 1960

BY

A. R. VENKAT

The Second Annual Inter-Departmental Hockey Tournament for the 'Sunder Raj' trophy was well conducted this year and 14 teams took part. 'F' Shed annexed the trophy by beating Civil Engineering—last year's holders. I am giving below a brief report of the matches.

Civil Engineering and 'C' Shed moved to the semi-finals in the top half and 'B' and 'F' Sheds in the bottom half.

I SEMI-FINALS

In the first semi-finals between Civil Engineering and 'C' Shed, the former won by 2 : 0.

The Engineering Team drew the first blood through Doraiswamy off a pass from Padmanabhan, in the first half. There was no proper understanding between the forwards of 'C' Shed and the skipper of 'C' Shed had to fight all alone.

Before the start of the second half, the players and the umpires were introduced to the Guest of the evening, Shri Sambamoorthy, Dy. C.E. by Mr. Sharma, A. E. E. and Member-in-Charge Hockey.

In the 2nd minute after the lemon time, Nicolson secured a goal from a pass off Padmanabhan, the second one for Engineering. For Paint Shop, the names of Lokanathan and Dakshinamoorthy at defence and Ranganathan in the forward line are worth mentioning.

II SEMI-FINALS

'B' Shed-'F' Shed match—a goalless draw

The second semi-finals between 'B' and 'F' Sheds played on 9th December, 1960, ended in a goalless draw, but it was a keen contest.

In the first half, 'F' Shed dominated the play. Rajaram tried a shot from the 'D', but the ball rebounded which Jaganathan tried to connect, but it missed very narrowly. 'F' Shed who were having in their ranks four regular players of I.C.F. raided the rival area constantly. Really it was a treat to see Tulasingam's masterly dribbling and stick work and no doubt the crowd enjoyed the game although it ended in a draw. I can say that this was the best of the Inter-Departmental matches. Venkat was really a tower of 'F' Shed's defence. Peppin of 'B' Shed also made some good moves. Extra time didn't help either side to turn the balance in their favour.

'F' Shed wins Replay

The 'F' Shed beat the 'B' Shed in the replay, played on 29th December 1960, by 2 : 0 and thus qualified to meet Civil Engineering in the finals.

In the 25th minute, Tulasingam enabled his side to score by converting a penalty bully.

Soon after lemon time, Ganapathy, the custodian of 'B' Shop, brought a fine save

of a ball from Tulasingam. For some time in the second half, 'F' Shed hod some anxious moments. During the 27th minute, Jaganathan of 'F' Shed converted a pass from Stokoe and enabled the scale up by 2 goals. 'B' Shed tried their best to score, but in vain, since their forwards didn't function properly and the match ended in favour of 'F' Shed. Special mention should be made of Srinivasulu Reddy, who did spade work for the winners.

Finals

The 'F' Shed annexed the 'Sunder Raj' trophy by beating Civil Engineering the holders by 1 : 0 in the finals played on 24th December, 1960.

In the first half, Civil Engineering missed two narrow chances. 'F' Shed dominated the play in the first half, particularly Tulasingam in the forward line.

Before the start of the second half, the players and the officials of the tournament were introduced to Shri K. Swarup, Chief Administrative Officer, by Shri D.R.R. Sastri, Sports Secretary.

On resumption, 'F' Shed missed a chance very narrowly, Stokoe shooting wide. Albert Dorai Raj scored the only goal for 'F' Shed. Civil Engineering tried their best to equalise, but the final whistle saw the 'F' Shed as winners.

Shri Swarup distributed the prizes to winners and runners-up. Shri Taylor, Manager, ICF Hockey Team proposed a vote of thanks.

I.C.F. HOCKEY TEAM MAKES A GOOD START IN 1961

I.C.F. Hockey Team, the veteran Champions during last year, stuck to their form this year by winning the 'YENNARKAY RAJARATNAM CUP' at Sivakasi, in its first appearance and in the very year of the inception of the Cup.

The I.C.F. Hockey Team left on 27th December, 1960, by Trivandrum Express.

They played their quarter-finals round against A.C. College, Karaikudi, and had an easy victory of 2 : 0; both the goals being scored by Jabbar in the first half.

In the semi-finals, I.C.F. had to meet the M.R.C. Wellington, who gave a stiff opposition, but I.C F. emerged as winners by a solitary goal, which was scored by Jabbar in the first half off a beautiful centre from Pandurangam. It was rather a keen fight. They clinched to the only goal and thus qualified to move to the finals to meet the T.I. Cycles, Madras.

The finals was played on 3rd January 1961 and the I.C.F. won the match by 3 : 2.

In the first half, the score board showed 1 : 1, the goal being scored for I.C.F. by Jabbar.

In the second half, Murugesh and Jabbar enabled I.C.F. to increase the lead to 3 : 1 by scoring one goal each. But the T.I. Cycles reduced the margin in the last minute and the match ended 3 : 2 in favour of I.C.F.

There was record crowd of hockey enthusiasts at Sivakasi for the finals and they gave a good ovation, when Baskaran, captain of the I.C.F. Team, received the 'YENNARKAY RAJARATNAM MEMORIAL CUP'.

It is hoped that with this good start in 1961, I.C.F. Hockey Team will keep up the record created last year or still do better for times to come.

ATHLETES IN THE CITY MEET

GOOD PERFORMANCE OF I.C.F.

Louis Jayasekaran gets two first places

In the Athletic Meet held in the City on the 6th and 7th January 1961 under the auspices of Madras State Amateur Athletic Association, I.C.F. athletes did a splendid job.

Louis Jayasekaran of I.C.F. snatched the first place in 400 Metres as well as 800 Metres, which he finished in a most thrilling manner. Again in 4 × 400 Relay, Louis Jayasekaran gave a good account of himself by a splendid finish and enabled I.C.F. Team to secure the first place. In 4 × 100 Relay, the I.C.F. Team came second next to Police.

Asir Jagadeesan, the champion athlete of last year's Inter-Departmental Meet, got the first place in the Hop Step and Jump, by leaping 46' ½".

C. Sankaran came second in the running broad jump. Rudy Peterson, who represented I.C.F., came second in 800 Metres in his first appearance.

Only seven athletes from I.C.F. took part and six of them secured certificates of distinction either on individual merit or of a team as a whole, which is creditable indeed and they secured an overall point of 37 next to Southern Railway, who secured 42 and City Police—this year's champions— 68 points.

Our Athletic Team, although limited in number, must be congratulated for their good performance in this Meet and they will surely gain the Championship if they are given more training and the strength of the team augmented as well on par with Southern Railway and City Police.

Shri Louis Jayasekaran, taking the oath before the beginning of the Republic Day Sports at I.C.F.

Republic Day Sports—Asir Jagadisan retains Championship

In January this year, the Sixth Inter-Departmental Athletic Meet was conducted on the Republic Day as a part of the Republic Day celebrations and was referred to as 'Republic Day Sports'.

Fourteen Teams participated and the Team Championship was won by 'E' Shed, beating last year's holders 'A' Shed, by a very narrow margin.

Asir Jagadisan of 'A' Shed, last year's champion, retained the championship this year as well by scoring 28 points and Louis

Shri K. Swarup, C.A.O. (R), I.C.F. took the Salute at the March past by athletes participating in the Republic Day Sports.

Jayasekaran came second by securing 22 points.

The best turn out cup went to 'A' Shed. The colourful opening ceremony was held in true Olympic style, on 25th January 1961. On arrival at the new I.C.F. ground, Shri D.R.R. Sastri, Organising Secretary, received Shri Swarup, Chief Administrative Officer and requested him to declare the Meet open. Shri Swarup took the salute at the march past and then declared the Meet open, when the various team flags were hoisted, trumpets sounded, pigeons released and a 13 round volley was fired. Shri Louis Jayasekaran (who represented the Indian Railways at the Dual Meet at Lucknow), took the oath on behalf of the I.C.F. athletes. The band of the Southern Railway R.P.F. was in attendance on both the days. The function concluded with a colourful display.

Volleyball

The I.C.F. Volleyball Team, although formed recently, participated in the Madras League. It had the distinction of securing the second place in the League table standing second to Southern Railway.

The I.C.F. Volleyball Team annexed the 'MANIKKA NADAR CUP' by winning the tournament conducted by the Friends' Union Club, Vellore.

Shri Adhikannu represented the Indian Railways and Asir Jagadisan the Madras State, respectively, in the Nationals.

The I.C.F. Volleyball Team also took part in the K.G. Menon Memorial Gold Trophy—All-India Volleyball Tournament at Trivandrum, but were unlucky to be defeated by Kerala Transport.

Shri Asir Jagadisan received the individual championship cup from Shrimati Swarup, wife of the Chief Administrative Officer, who distributed the prizes.

INTER-RAILWAY CRICKET TOURNAMENT 1961

Fortune fluctuates

SPLENDID BOWLING BY JAMES VELU AND V. M. SWAMY

The first round match between I.C.F. and Chittaranjan Locomotive Works in the Inter-Railway Cricket Tournament was played on 2nd, 3rd and 4th February 1961 for the first time at the new I.C.F. ground, which ended in favour of the I.C.F.

The feature of the match was the all-round display by V.M. Swamy who captured 9 wickets and when his turn came to bat he secured 61 valuable runs for I.C.F.

Chittaranjan won the toss and elected to bat first, but their wickets tumbled due to the deadly bowling by James Velu and V.M. Swamy, who bagged 6 wickets for 21 runs in 8.2 overs and 4 wickets for 9 runs in 8 overs respectively. Chittaranjan's first innings came to an end with 53 runs on the board, the top scorer being S. Mukerjee, who scored 19 runs.

Then I.C.F. went in to bat and piled up 194 runs (all out)—Swamy 61; T. Doriappan 20; T. Dakshinamurthy 30; and M. Gopal 26 runs. A special feature of Chittaranjan's bowling was the hat-trick performed by Sen Choudhry—opening bowler—who took 7 wickets for 48 runs in 17.5 overs.

In the second Innings too, Chittaranjan Team was able to reach only the First Innings total, again due to the havoc played by James Velu and V. M. Swamy, who shared the wickets. The former claimed 4 for 16 in 11.5 overs and the latter took 5 for 30 in 11 overs.

Soon after 10 minutes of the start of play on the third day, the Chittaranjan's Innings came to an end and thus I.C.F. won the match by an Innings and 88 runs.

On its emerging as winners, the I.C.F. Team proceeded to Calcutta immediately to play their next engagement against Eastern Railway (last year's holders), at Eden Gardens on 8th, 9th and 10th February 1961, but I.C.F. had to face defeat at their hands. The play started at 3.30 p.m. on the first day due to the wet state of the ground. On winning the toss, Eastern Railway put I.C.F. into bat, but I.C.F.'s first Innings came to an end with 87 runs—M. Gopal 30; and Padmanabhan 20.

No praise will be too great for Dattu Phadkar the Indian Test player who did the damage by capturing 7 wickets for 27 runs and who scored 50 runs for Eastern Railway.

Eastern Railway were all out for 229 runs. They had a disastrous start and at one stage, they were 5 down for 49 runs. Bangara took 4 wickets for 55 runs in 22 overs and Makkiappan 3 wickets for 41 runs in 16 overs.

Again in the second Innings, the batting strength of I.C.F. collapsed with 91 runs (all out), which enabled the Eastern Railway to win by an Innings and 51 runs.

The I.C.F.'s defeat at Eden Gardens is mainly due to our team's inexperience in playing on a wet turf wicket.

Football :—The I.C.F. Football Team brought home the Salem Gold Cup this year. At Ooty, in the Blue Hills Football Tournament, the I.C.F. Team came up to the semi-finals, but were unlucky to get defeated by Indian Telephone Industries, Bangalore, by an odd goal.

Skipper Janakiraman was selected to represent the Indian Railways in the National Football Tournament at Calicut. This was the first time when the Indian Railway's Team fielded a separate team.

heard this one . . . . . ??

A businessman, touring in another country, decided to take a hike by himself one day. During his stroll, he came upon a square-cut stone partially embedded in the ground. On its top were chiselled the words : " Turn me over." With great effort and exertion, the tourist succeeded in following the instructions—whereupon he found another message on the opposite side. It said, " Now turn me back again so I can catch some other stupid tourist."

* * *

Returning from church one Sunday, a little boy looked thoughtfully at his mother. " Mommy," he said, " when I grow up, I'm going to be a minister."

" That's very nice, dear," she replied, " but whatever made you decide to do that? "

" Well, I'll have to go to church on Sunday anyway," answered the boy, " and I think it would be lots more fun to stand up and yell than it is to sit still and listen."

* * *

The thrifty old woman went into a local department store and picked out a new brief case.

" Shall I wrap it up? " asked the counter-boy.

" No, thanks," said the lady, " just put the paper and string inside."

* * *

Woman to customs official who was closing her bags after rummaging through them :

" Does that mean you give up? "

* * *

A returning vacationer, when asked by a friend about his trip, reported this incident : " The first day out I noticed a woman at the side of the road, looking helplessly at a flat tyre, so I stopped to help her. After I had the tyre changed the woman said, ' Please let the jack down easy, my husband is sleeping in the back seat.' "

* * *

A newly wed couple received a fantastic number of valuable gifts, and then a few days later there arrived in the mail two theatre tickets. The tickets were mailed anonymously, bearing only the line : " Guess who sent them? "

They tried to guess, but couldn't. They went to the show a few nights later, still not knowing the identity of the donor. When they arrived home, they found everything of value in the house had been stolen. The only clue was a piece of paper bearing a simple but eloquent message :

" Now," it read, " you know ! "

* * *

Two men were discussing the romance of a young neighbourhood couple. " What do you think of their getting married? " one asked.

" It's all right, I guess," the other said, " but it's too bad they aren't good enough for each other."

" What makes you say that? "

" Well," was the reply, " I've been talking to both families."

* * *

An undergraduate left this notice on his door : " Call me at seven o'clock ; it is absolutely necessary that I get up at seven. Make no mistake. Keep knocking until I answer. Try again at ten."

* * *

My wife and I rode a cab from the station to our hotel which was located on a one-way street. Since cars lined both sides of the street, there was no place for our driver to stop except in the centre, or moving lane. Traffic quickly backed up, but it didn't seem to bother him or cause him to hurry as he deliberately made change and placed our bags on the sidewalk.

Finally, an impatient motorist began blowing his horn. Our imperturbable cabbie at first seemed to pay no attention, but when the honking continued, he turned a baleful look upon the noisemaker and said : " O.K. ! Your horn seems to work all right. Now try your lights ! "

INDUSTRIAL NEWS

New Screw Production Machine

A new cold-forming screw thread hammering machine, to be shown at the Engineering, Marine, Welding and Nuclear Energy Exhibition, London (April 20 to May 4), is described as a " far-reaching technological advance in the manufacture of carpentry screws ". The machine hammers a rotating screw blank at up to 6,000 blows a minute, delivered through rotating dies, which operate radially and are encircled by a hollow cam.

The machine, known as the Crossley-Trurnit unit, was developed over a period of 20 years by Mr. Walter Trurnit, and his son Mr. Klaus Trurnit, and an agreement has been signed whereby the U.K. engineering firm of Crossley Brothers Ltd., Openshaw, Manchester-11, have the world manufacturing and sales rights.

The process is different from thread rolling, where blanks of reduced diameter are used and the material swells, without change of length, during rolling. In thread hammering, the blank is of the same diameter as the finished screw. There is no cutting action, and the resultant saving in material is estimated at between 15 and 20 per cent, this being the amount by which the blank elongates. Since there is no swarf, there is also a saving in cutting oil. Screws produced by this method are claimed as being 20 per cent stronger (being work-hardened during hammering) with a " favourable grain flow undulating up and down the threads ".

Taper Turning Lathe

A lathe to produce identical tapers in the bore of a valve body and on the valve plug, separately or simultaneously, will be shown, at the Engineering, Marine, Welding and Nuclear Energy Exhibition to be held at Olympia, London, April 20 to May 4 by Crossley Brothers Ltd., Openshaw, Manchester-11. The machine, which is known as the Crossley-Beer double-ended taper-turning lathe, comprises a head stock with two independent co-axial spindles. The head-stock is mounted centrally on the bed ; two carriages, with cross slides and tool posts, are mounted on either side. One carriage is fitted with outside turning tools and the other with boring tools. Automatic electric sequence control is provided.

Versatile Power Transmission Belting

A power transmission belting, combining the flexibility and simplicity of the flat belt with the high speed ratios, shorter centre distances and freedom from slip of the V-belt drives, has been produced by Turner Bros. Asbestos Co. Ltd., Spotland, Rochdale, England.

The new belting, claimed to be the biggest advance in the transmission world since the V-belt was introduced more than 30 years ago, has been named the " Poly-V Drive ". The concept of the drive is extremely simple. It is in effect a flat belt with a series of parallel V-shaped grooves moulded on its inner side. These ribs form the driving surface of the belt which completely fill the mating grooves on the pulleys. The load-carrying member extends across the full face of the drive unlike the multiple V-belt drive where part of the total drive width available is wasted by the space between belts. The grooved inner face of the belt also has about twice the area in contact with the pulleys compared with multiple belt drives of the same width

These two principal features of the drive mean that it can transmit the same load in less space or a greater load in the same

space as the multiple belt drive. In fact, it has been found that the "Poly V" drive will increase drive capacity by about 50 per cent.

Fortable Boring Machine

A British firm who have been making portable boring machines for more than 30 years are adding a new model to their range. It is a coupling machine specifically designed for finish-boring holes in coupling flanges. It can do this job in restricted space. For instance, a 10-inch wide flange can be bored where a space of only 22 inches is available.

The standard model is designed to bore parallel holes only and is supplied with a plain cylindrical boring bar. A taper boring unit is available as an optional extra and can be fitted to the machine without any modification.

The machine is clamped to the periphery of the flange itself, and tapered diameters of the coupling shaft do not affect the mounting.

The new portable borer—known as Model FM—is being manufactured by Buma Engineering Co. Ltd., of Robson Street, Newcastle upon Tyne 6, England. The makers produced a model some years ago which has saved considerable time and money in ship-repairing by being able to bore parallel holes in the coupling flanges of ships without having to remove the propellor shafting. Machines for this and other purposes are now in use in many European countries, and also in Australia, Canada, South Africa, India, Pakistan, Curacao, Hong Kong, Japan, the U.S.A., Egypt and elsewhere.

New 100 B.H.P. Power Pack

A new power pack producing over 100 h.p. is announced by the U.K. firm Perkins Engines, Ltd., Queens St., Peterborough, Northants, and will be shown for the first time at the Engineering Marine, Welding and Nuclear Energy Exhibition, Olympia, London, April 20 to May 4. Incorporating the direct injection six-cylinder, 5.8 litre Perkins Six 354 industrial diesel engine, the new pack is rated at 104 b.h.p. at 2,400 r.p.m. for intermittent use and at 85 b.h.p. at 2,000 r.p.m. for continuous operation.

Designed to meet market requirements for a lightweight power pack capable of exceeding 100 b.h.p., the Six 354 unit is being made available in every stage from a basic industrial engine, and various pedestal mounted units, to a complete power pack with canopy. The power pack has been developed to meet a wide range of requirements for stationary and mobile plant, including drilling rigs, earth moving equipment, ditchers, stone crushers, cranes, excavators, pumps, graders and heavy contractors' plant of all kinds.

Its introduction means that their industrial power packs cover a range from 15 to more than 100 b.h.p.

New Tapping Device

A mechanism which, incorporated in a press tool, automatically threads a pre-pierced hole has been developed by Turner Brothers, Cliveland Street, Birmingham 19. It will be of particular interest to the electrical component industry and allied trades where components with pierced and plunged holes are produced in follow on tools and which have to be handled again for tapping. With the new tapping device, these could be produced at around 40 strokes a minute.

Tools fitted with the tapping device are suitable for use in most presses with a reasonable stroke and shut height, the only additional equipment required being a pump and tank for coolant which can be supplied. This system may also be used for tapping only using a hand press or an air cylinder as a source of power.

Safety Shut-down Valve

A new high-pressure shut-down valve which will automatically close off a system in the event of a broken coupling or a pipe rupture is to be shown at the Engineering, Marine, Welding and Nuclear Energy Exhibition to be held at Olympia, London, April 20 to May 4 by I.V. Pressure Controllers Ltd., 683, London Road, Isleworth, Middlesex. The sensitivity of this valve is varied by making adjustments within it. When a shut-down has taken place, a small by-pass valve within the main valve is opened to build up equal pressure on either side of the diaphragm before it is re-opened.

New Grease Gun

A leading British lubrication specialist, Ch. J. Neuman Ltd., 445, Brighton Road, South Croydon, Surrey, recently introduced what is claimed to be the world's smallest grease gun—overall length five inches; diameter 1½ inches.

Soundly constructed in steel and light alloy, it has no castings to crack and will fit into any tool kit. It is cartridge loaded—which precludes the use of contaminated grease—and has a capacity of 1 ounce of lubricant.

The grease gun is needle activated from a positive vacuum feed and will exert pressures of up to 4,000 lb. per square inch in a single-handed operation. It can be used in conjunction with snap-on (hydraulic), slide-on or push-on grease nipples and its slim nozzle makes its possible to service even the most awkward lubricating points.

New Welding Process

A recent development by a British Company, The British Oxygen Company Ltd, Bridgewater House, Cleveland Row, St. James's, London, S.W. 1, England. makes it possible, for the first time, to join magnesium alloy to stainless steel by welding. By the use of a new compound, known as "Tinflux", bushes made of "Magnox" (a magnesium alloy of aluminium, beryllium, iron and stainless steel), can be gas welded to bolt stems of stainless steel. The bolts are used by the United Kingdom Atomic Energy Authority to hold canisters containing radio-active material, operating within an atomic pile.

New Range of Fork Lift Truck

Coventry Climax Engines Ltd, of Widdrington Road Works, Coventry, have recently announced the first of a new "Universal Major" range of electric powered fork-lift trucks. The Model M.S.E. has a capacity of 6000 lb. (2722 kg.), a width of 42½ ins. (1.08 m.) and a turning radius of 82 ins. (2.08 m.).

The company has also added four new models to their Universal range. The I.G.E.V. and I.G.D.V. electric and diesel models with a lifting capacity of 5000 lb. (2268 kg.); the I.G.E.U. and I.G.E.T.A. models with a lifting capacity of 2000 lb. (907 kg.).

Pneumatic or cushion tyres are now available for most types of truck, and the mechanical models can be fitted with either the Coventry Climax gear-box and quick-change clutch or the Brockhouse torque-converter, offered by Brockhouse Engineering Limited, of London. These will be exhibited at the 1961 Engineering Marine, Welding and Nuclear Energy Exhibition to be held at Olympia, London, April 20 to May 4.

Heavy Duty Universal Grinder

An extra heavy duty grinder, having a 37-inch swing and a capacity between centres in the 24 to 120 inch range, has been developed by Keighley-Grinders (Machine Tools) Ltd., Aireworth Works, Keighley, Yorks, England.

In announcing this, the company describe main features as incorporated in the 24 inch

model, designed for grinding large die blocks weighing up to 1,500 lb. and exceeding 11 inches from the workhead face plate. Heavily proportioned, the machine base has x-section ribbing and extra wide table ways. The top table platen has a width of 11 inches. table power traverse is steplessly variable in the range provided and adjustable control is incorporated. To facilitate precise manual control of table movement, the handwheel mechanism is mounted in anti friction bearings; an interlock prevents power traverse when this is engaged.

The wheelhead is mounted on a circular base supported on an underslide to provide facilities for wheel feed to be applied at any angle. The lower table is equipped with a worm gear mechanism for ease and accuracy of indexing. The upper turntable is floated on an oil film during adjustment to the angular position; the upper surface of this slide is teeslotted in order to positively locate the wheelhead when steep angles are to be ground. A separate rapid power traverse is incorporated which can be advantageously used when positioning for grinding a new diameter, safety and prevention of *over-run is controlled automatically*. Wheelhead infeed, applied at every reversal of the table, is steplessly variable between 0.0002 and 0.002 inches.

The heavy duty live and dead centre workhead, equipped with a gear box to provide 12 work speeds in the range 5-100 r.p.m. is mounted on a large diameter turntable and can be swivelled to any desired angle. A 6-inch diameter flanged steel spindle runs in high precision taper roller bearings which are grease packed to minimise maintenance requirements.

"Did you know? You can buy a man's time, you can buy a man's physical presence at a given time, you can even buy a measured number of skilled mascular motions per hour or per day. But you cannot buy enthusiasm; you cannot buy initiative; you cannot buy loyalty; you cannot buy the devotion of hearts, mind and souls; you have to earn these things."

CLARENCE FRANCIS

"WELFARE NEWS"

I. C. F. Colony Aided High School

The Welfare Wing of this Administration is happy to announce that the Railway Board have communicated sanction to the opening of a High School for the benefit of children of employees of I.C.F. with effect from June, 1961. In accordance with the integrated educational set-up promulgated by the Madras State Government, Standard VIII, will be opened with effect from June, 1961, and Standards IX, X and XI will be built up in the course of the next few years, culminating in the year 1964. It is proposed to open the high School in the Old Administrative Office Building. This is indeed a substantial amenity for the school-going children of the I.C.F. Colony.

Staff Benefit Fund

Consequent on the expiry of one year's tenure, the undermentioned members of the Staff Benefit Fund Committee retired and instead, 4 new members were elected from amongst the members of the Staff Council to serve on the Staff Benefit Fund Committee with effect from January, 1961:

Members Retired

1. Shri M. Manikannu Pillai, Sanitary Inspector.
2. ,, M. B. Johnson, Sub-Head, Dy. COS Office.
3. ,, K. S. Parthasarathy, Serang, DSK Shell.
4. ,, K. T. Rajagopal, Basic Welder, Shop, 20.

Members Elected

1. Shri P. Mutyalu Reddy, Clerk, Grade I, Dy. FA & CAO's Office.
2. ,, P. Jayaraman, Skilled Welder, Shop, 20.
3. ,, S. Uttam Rao, Fitter, Shop, 26.
4. ,, A. Kannayiram, FLT Driver, Shop, 48.

Staff Council

A special meeting of the Staff Council was convened on the 16th December, 1960 to decide the Factory Holidays for the year 1961. The recommendation of the Staff Council to adopt the three Holidays for the Factory for the month of January, 1961, *viz.*, on the 13th, 14th and the 26th January, 1961, was agreed to by the Administration. The decision of the Staff Council in regard to the adoption of the holidays for the Factory for the rest of the year 1961, would be taken soon.

Sarvashri S. Uttam Rao, Fitter, Shop, 26 and V. A. Dorairaj, Rough Grinder, Shop 21, members of the Staff Council, have been elected to serve on the Committee of Management of the Vocational Training Centre for a period of one year, *i.e.*, up to 1st June, 1961.

I. C. F. Institute

A Social Picnic to Gingee was sponsored by the I.C.F. Institute on the 8th December, 1960. Members of the staff and their families numbering 350 in all participated in this picnic, which proved to be a delightful one.

Republic Day

As has been done during the previous years, the Republic Day was celebrated in the I.C.F. with *eclat*. Sweets were distributed on the 26th January, 1961, to about 857 children of the employees of this Administration in the I.C.F. Institute.

Inter-Departmental Athletic Meet

The Sixth Annual Inter-Departmental Athletic Meet was conducted in the grounds adjoining the Technical Training School on the 25th and 26th January, 1961, in the context of the celebration of the Republic Day. About 250 athletes took part in this meet. The meet was declared open and clos-

ed by Shri K.Swarup, Chief Administrative Officer. Mrs. Swarup gave away the prizes.

Staff Benefit Fund

The 21st meeting of the Staff Benefit Fund Committee meeting was held on the 10th January, 1961, to discuss the financial position of the Staff Benefit Fund and to disburse grants to employees seeking assistance from the fund.

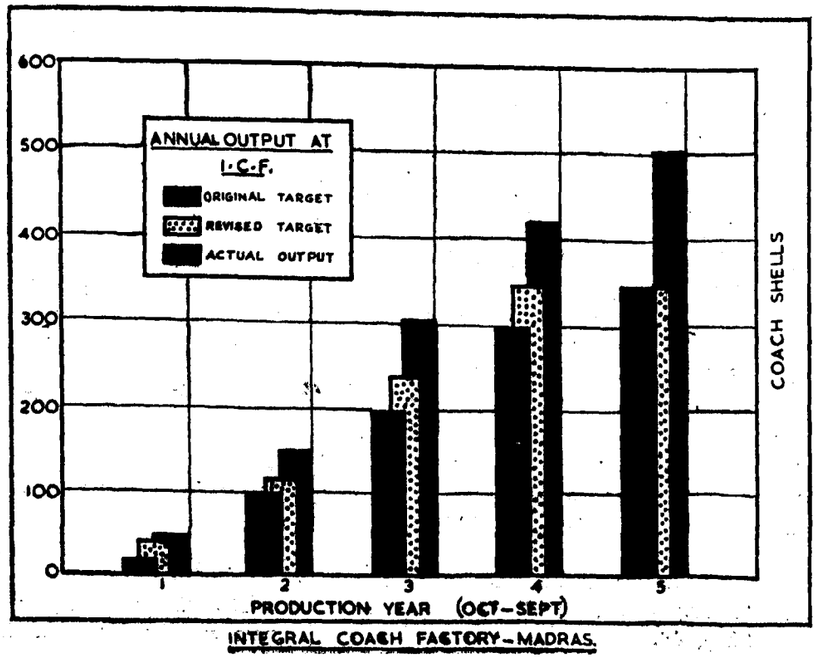
Staff Council

The Third Business Meeting of the Staff Council was held on the 31st January, 1961 and 1st February, 1961, to discuss 25 subjects which were brought up by the members of the Staff Council.

Visit to Railway Hospital

The Welfare Inspectors have visited the Southern Railway Hospital, Perambur on the 24th and 25th February, 1961, and contacted the employees of this Factory who were undergoing treatment as inpatients in the hospital and also chased up the applications submitted by some of our employees for grant from the Staff Benefit Fund, which are pending receipt of recommendation from the Medical Authorities.

Another visit was made to Southern Railway Hospital, Perambur, by Welfare Inspectors and they contacted the employees of this Factory who were undergoing treatment as inpatients in the hospital, on 6th January, 1961, and 20th January, 1961.



INTEGRAL COACH FACTORY—MADRAS.

QUEEN'S VISIT TO I. C. F.

—★—

Her Majesty alighting, after inspection, from a First class coach manufactured in I.C.F.

Her Majesty signing the Visitors' Book

Shri Swarup, CAO(R), I.C.F. explains the painting process to Her Majesty, while on the drive round the Factory.

ed and Published by K. T. Jethmalani, Secretary to the Chief Administrative Officer, Integral Coach Factory Madras-23 and Printed by M. G. Daniel at Thompson & Co. Private Ltd., Minerva Press, Madras-1.

RAILCOACH

VOL. V, NO. 2 MAY 1961

Declared open during the Railway week, the above is the new building to house the offices of the Integral Coach Factory Furnishing Annexe.

RAILCOACH

(INTEGRAL COACH FACTORY MAGAZINE)

EDITORIAL NOTICE

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

Manuscripts and photographs, not accepted for publication, will not be returned unless the sender so requires. Intending contributors from outside our Factory, if they intend to get back unaccepted articles and photos, should send a suitably stamped and self-addressed envelope along with the material sent by them.

Contributions should be addressed to the Editor, not by name, and reach him not later than the 25th of every month for consideration for publication in the next month's issue.

The Editor does not assume any responsibility for the accuracy of the news supplied by correspondents or for opinions expressed by contributors. Opinions expressed in the " RAILCOACH " whether editorially or by contributors should be regarded as having no official authority.

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CONTENTS

MAY 1961

editorial

SPORTS

Will the I.C.F. which is reigning supreme in the field of production of coaches, reign supreme in the arena of sports too? Well, this question was raised one year back at the time of the I.C.F. Cricket team's victory in the first Zone 'B' division and since then the I.C.F. Hockey, Football and Cricket teams have accredited themselves so well in the local and outside tournaments the above question gets a definite encouraging answer, that is, that I.C.F. has certainly come to the top of the Sports World in Madras and would stay there for a very long time to come. Our teams with their spectacular wins recently, specially, our football team which became this season the league champions by winning all the 11 Matches, have all the ingredients to prove the above statement. The credit for this goes to all players and of course also to the I.C.F. Sports Council which has been doing a wonderful job in selection and training of the teams. The I.C.F. Sports Council deserves full marks for a difficult job being very well done. To build still a better and top class team for every sports event it is hoped the sports council will conduct many more training camps to test and train potential players among I.C.F. family.

It has all been good going indeed in the I.C.F. both in the field of sports and in the field of production of coaches. With more work and more play, let us hope, still better results would be ours in both these spheres for the future.

NEWS AND VIEWS

Helping Railwaymen in distress—New Fund created

A new fund, called the Railway Minister's Welfare and Relief Fund has been created to provide relief to railwaymen and their families in distress such as arising from natural calamities, prolonged illness, sudden death, etc.

The other objectives of this newly constituted fund are to render monetary assistance in deserving cases and to provide relief to institutions run by railwaymen in the form of grants to tide over difficulties.

The collections for the fund will be made on purely voluntary basis covering donations by railwaymen and other individuals and institutions. Funds will also be raised by organising special charity shows including dramas, cinema shows, fetes, and games and on special occasions like the Railway Week.

The day-to-day management of the fund will be administered by a four-member committee with the Member Staff, Railway Board, as ex-officio chairman.

Increased goods traffic during Third Plan—Measures for stepping up of wagon loadings—Three-day meeting of railway G.Ms. concludes

Measures for handling an increase of nearly 90 million tons in goods traffic by end of the Third Plan period were among several subjects discussed at a three-day meeting of Railway General Managers with the Railway Board, which concluded in New Delhi on April 30.

In the Draft Outline of the Third Plan, the originating goods traffic has been estimated at 235 million tons as against 154 million tons actually carried by the Railways at the end of the Second Plan. According to latest assessment, however, Railways are likely to be called upon to move even a larger volume which may total up to 244 million tons.

The meeting decided to step up the loading of wagons by about ten per cent during the current year. This would entail an additional loading of nearly 2,000 wagons per day over all the zonal Railways.

Efforts would be made to persuade trade and industry to load an additional ton or two in each wagon—a step, which would enable Railways to lift nearly four million tons extra with the existing rolling stock.

It was revealed at the meeting, that during the past six months, loading on broad gauge had increased by 6.6 per cent and on the metre gauge by 2.7 per cent as compared with corresponding period of the previous year.

During general discussion, emphasis was laid on the need for improved turn-round of wagons, larger engine milage per day and frequent meetings between operating chiefs of adjacent Railways.

Stress was also laid on expeditious expansion of line capacity on various routes. Doubling of tracks, already undertaken or programmed, including Baoridand–Anuppur, Anuppur–Katni, Nergundi–Khurda Road, Dornakal–Vijayawada and Ratlam–Nagda sections should be done on highest priority basis.

Extension of loops, and strengthening of track, where necessary, should also be taken up for the purpose of running Box wagons trains.

Heavy trains of 3,600 tons would be worked by double headed steam locos until diesel locos were available.

General Managers were urged to take effective steps for prevention of damage to or loss of goods in transit. Speedy disposal of claims was also desired.

The meeting discussed at some length technical problems pertaining to better use of engines, larger workshop production through extension of the incentive scheme, fuel economy, intensive utilisation of goods stock, recommissioning of condemned wagons etc.

Earlier, Shri Jagjivan Ram, Minister for Railways, addressing the meeting, asked the General Managers to pay special attention to the question of safe running of trains. He advised them to exercise their summary powers for meting out drastic punishment to delinquent staff responsible for accidents. It was not enough to punish the low grade employees only ; the supervisory personnel involved must also be severely dealt with, he observed.

The Minister emphasised the need for ensuring drinking water supply at all stations. The catering service also required more vigilant supervision than at present.

Referring to complaints regarding defective fans, lights and other fittings in the trains the Minister felt that these could be avoided if only the supervisory staff at starting points did their job properly.

Shri Jagjivan Ram suggested that General Managers might occasionally travel incognito in third class with a view to gathering personal knowledge of the conditions of the coaches and the requirements of lower class passengers.

Other points touched by the Minister included better contact with M.Ps., industrialists and traders and prominent public men in the zones, prompt attention to complaints.

Mahatma Gandhi's statues at selected stations

The Deputy Minister of Railways, Shri Shah Nawaz Khan, said in the Lok Sabha on April 17, that there was a proposal to instal marble statue of Mahatma Gandhi at some selected railway stations.

Shri Shah Nawaz Khan said that no final decision regarding the stations where the statue was to be installed had yet been taken.

Production of sleeping coaches

The Deputy Minister of Railways, Shri Shah Nawaz Khan, said in the Lok Sabha on March 9 that the production of new type 3-tier sleeping coaches was being continued.

He said that 131 broad gauge 3-tier sleeping coaches had been constructed from April 1960 to meet the requirements of the rolling stock programme for that year. Seventy three metre gauge 3-tier sleeper coaches had been completed from April 1960 to February 1961 and 80 more metre gauge coaches were expected to be constructed before the end of March of which 35 were in the final stages of completion.

Shri Khan disclosed that the B.G. coaches had been built in the Integral Coach Factory, Perambur and the M.G. ones were being built in the Southern and Western Railway Work-shops.

Food handlers to be X-Rayed

It has been decided by the Railway Administration that all food handlers engaged in the Railway Catering as railway employees and those employed on commission basis in departmental establishments, are to be subjected to screening (doubtful cases to be X-Rayed) free of cost in the railway hospitals. As for establishments run by contractors, the latter have been urged to get their employees tuberculin-tested and BCG-vaccinated as also screened or X-Rayed. All new agreements of vending catering contract as also the old ones coming up for renewal will have a clause stipulating these conditions for the contractors.

Indian Railways in Second Plan—Review of progress by World Bank

In view of the great importance of the part played by the Railways in India's developing economy, with the agreement of the Government of India, the International Bank for Reconstruction and Development has secured the consulting services of a group of Canadian Railway experts who will review the progress made during the Second Five Year-Plan and

appraise the proposals made for the development of the Indian Railways in the Third Five-Year Plan, during which the Indian Railways will be seeking continued assistance from the Bank.

The Mission is jointly headed by Mr. Stanley F. Dingle and Mr. Laurence B. Unwin. Mr. Dingle is the System Vice-President of the Canadian National Railways (CNR) since September 1960; from February 1950 to that date he was Vice-President, Operations, of the CNR. Mr. Unwin was Vice-President, Finance, Canadian Pacific Railway Company, CPR, from 1935 to May 1960 when he retired.

The other members of the Mission comprise of Mr. James M. Bentham, Engineer of Track, CPR, since 1958 (fourteen years with railways), Mr. Kenneth D. Carmichael, General Freight Agent, CPR, since 1960, prior to which he was Assistant Traffic Manager (37 years with railway), Mr. Philip L. Mathewson, Assistance Chief of Motive Power and Car Equipment, CNR, since 1955, prior to which he served as Chief of Research 1952–55 and Transportation Engineer 1946–52 (thirty years with railway), Mr. William P. Moffat, Chief of Research, 1955 to date, CNR, prior to which he was Transportation Engineer (25 years with railway), and Mr. Howard C. Reid, Assistance Vice-President, Finance, CNR, since 1960, prior to which he was Assistant Comptroller (34 years with railway).

The Mission is accompanied by Mr. James F. Main, a member of the Bank staff and until recently head of the Transportation Division.

Three-Week Tour on Railways

The Mission which arrived in New Delhi on March 12, 1961, plans to be in India for six weeks and left for a three-week tour of the Indian Railways from March 17, 1961. The Mission is accompanied by senior officers of the Indian Railways. On its return to Washington, the Mission will report to the International Bank for Reconstruction and Development.

The Mission called on Shri Jagjivan Ram, Minister for Railways, on March 15 last. They also met the Chairman and Members of the Railway Board and had group discussions with technical directorates of the Board.

RAIL TRAFFIC AND PERFORMANCE —SOME RECENT TRENDS—

BY

S. K. GUHA

Director of Statistics and Economic Adviser, Ministry of Railways

Shri Guha says that the Indian Railways have, by and large, fulfilled the demands made on them as a result of industrial expansion and increase in agricultural production under the Five-Year Plans.

With the aid of statistical data he has shown that the rail traffic has more than kept pace with the rise in industrial production in the country. He also has indicated the various measures the Railways have taken to effect economy in expenditure and promote operational efficiency.

A railway system in India originally designed by the British mainly for their military and administrative needs and to serve a predominantly agricultural economy had, with the independence of the country, to be switched on to the meeting of the needs of a developing economy under the impact of the successive Five-Year Plans.

In the planned economy, the emphasis is on development on several fronts, more particularly on heavy industries, mining, agriculture and power as also progressive advance towards the goal of a welfare state.

The Indian Railways occupy a dominant position in the transportation system of the country and have, by and large, fulfilled so far the demands made on them consequent upon the expansion of output of the various industries and the increase in agricultural production. It may be of interest to see how the general pattern of traffic affecting earnings and the levels of wages and prices influencing the cost of operation of the railways have been changing during the last decade.

Rising traffic with increasing production

The traffic levels have been rising and the increases in freight traffic in the background of increases in industrial production may be seen from the figures quoted below :

	1950–51	1955–56	1959–60	* 1960–61 (Provisional)
Tons originating (millions) ..	91.4	114.0	144.2	154.0
Index	100	124.7	157.8	168.5
Ton miles (millions)	26,963	36,434	50,149	54,720
Index	100	135.1	186.0	202.9
Index of industrial production ..	100	122.4	151.9	167.5

* (For the first 10 months)

In the Third Five-Year Plan based on the targets of increased production in the basic industries like coal, steel, cement and in agriculture and other spheres, the probable volume of originating freight traffic is estimated at 243.5 million tons subject to such modifications as may be found necessary in the light of subsequent developments.

The increase in passenger traffic during the Second Plan period alone has been of the order of 26 per cent and during the Third Plan period, provision has been made for a further increase of 15 per cent in passenger traffic.

Spurt in freight traffic

In this context, it will be interesting to study the figures of rail traffic under selected commodities in relation to their production during the last decade. The comparative figures for the years 1950–51, 1955–56 and 1959–60 for the major commodities which account for more than 60 per cent of the goods traffic are set forth in the Table below :

	1950–51			1955–56			1959–60		
	Production (000) tons	Rail movement (000 tons)	Proportion of rail movement to production	Production (000 tons)	Rail movement (000 tons)	Proportion of rail movement to production	Production (000 tons)	Rail movement (000 tons)	Proportion of rail movement to production
Coal ..	32,307	30,423	94.2	38,226	35,337	92.4	17,028	44,616	94.9
Cement ..	2,613	2,432	93.1	4,487	3,956	88.2	6,828	6,058	88.7
Metallic ores other than manganese ore	3,655	3,007	82.3	5,464	4,373	80.0	8,677	8,558	98.6
Manganese ore	883	867	98.2	1,584	1,378	87.0	1,168	1,173	100.4
Iron and Steel	1,724*	2,707†	..	2,661*	3,655†	..	3,704*	6,602†	..
Foodgrains ..	50,235	7,682	15.3	66,494*	9,044	13.6	75,557*	12,287	16.3
Oilseeds ..	5,076	1,570	30.9	5,643	1,766	31.3	6,352	1,467	23.1
Sugarcane ..	56,150	2,774‡	4.94	59,587	3,408‡	5.72	75,038	3,141	4.19
Sugar ..	1,037	983	94.8	1,615	1,336	82.7	2,410	1,354	56.2
Cotton raw ..	714*	517	72.4	818*	739	90.3	782*	531	67.9
Cotton manufactured ..	498	465	93.4	715	548	76.6	738	394	53.4
Jute raw ..	586	463	79.0	712	512	71.9	804*	799	89.4
Jute manufactured ..	836	267	31.9	1,027	290	28.2	1,051	253	24.1
Salt ..	2,620	1,551	59.2	2,979	1,858	62.4	3,128	1,952	62.4
Tea ..	271	261	96.3	284	258	90.8	316	260	82.3
Paper and paper boards ..	215*	189	88.1	324*	256	79.0	366*	411	112.3

* Includes imports.

‡ Includes machinery, etc.; hence proportion not worked out.

† Estimated.

Even without going into the special characteristics of individual commodities, it will be readily observed that the bulk of the output of coal, cement, iron and steel, manganese ore, iron and other ores, paper, tea, jute raw has been transported by rail and further that the proportion of tonnage transported by rail under some of the commodities like cotton raw, cotton manufactured, sugar, etc., have shown a declining trend indicating some shift in the pattern of distribution of the traffic between the different modes of transport under these commodities.

Changing pattern of traffic

One significant feature is that the pattern of freight traffic moving by rail now contains a larger proportion of industrial raw materials such as coal, ores and limestone as will be apparent from the following data :—

Percentage of tons originating of public coal, ores, marble and stone including limestone and dolomite to total tonnage originating of all revenue earning commodities—

1950–51	37.3
1955–56	37.4
1956–57	37.5
1957–58	39.6
1958–59	41.6
1959–60	42.3
1960–61 (estimated) ..	45.0

The broad tentative breakdown of the 243.5 million tons of originating traffic anticipated at the end of the Third Five-Year Plan indicates that this proportion is likely to go up to 54 per cent in 1965-66. It will thus be seen that under the impact of planned development, there is already a marked tendency towards preponderance in rail traffic of low rated commodities.

This factor, coupled with the diversion, to some extent, of the high-rated commodities to other modes of transport, will necessarily entail a lesser rate of increase in the earnings compared to the increase in the volume of freight traffic. The traffic in coal, ores and stones including limestone and dolomite during 1959–60, in fact, accounted for 37.3 per cent of the revenue earning ton miles but contributed only 25 per cent to he total goods earnings.

Carrying low-rated goods

It is well-known that low freight rates are charged on coal and industrial raw materials to accord with the broad national policy of balanced industrial and economic development of the various regions of the country.

Separate ton mile statistics under 22 broad commodity heads which account for more than 75 per cent of the revenue earning traffic are available from 1959–60 and thus a broad idea of the financial effect of the low freight rates charged on industrial raw materials, etc., can be had from the table below which summarises the average rates charged per ton mile for these 22 heads of commodities over the broad and the metre gauge railways.

Average charge per ton mile in 1959–60

	(nP)	
	B.G.	M.G.
Coal for public ..	3.33	3.33
Grains	4.68	4.96
Oilseeds	6.93	7.79
Cotton, raw pressed or unpressed	14.75	15.09
Cotton, manufactured ..	16.02	17.63
Marble and stone ..	5.80	6.03
Salt	5.05	5.19
Metallic ores :		
(*a*) Manganese ore ..	7.19	6.79
(*b*) Iron ore	7.46	5.70
(*c*) Other ores ..	6.37	7.63

In other words, the increase in expenditure has been higher than the effective increase brought about in the freight rates per ton mile or fares per passenger mile. This is unmistakably a reflection of the shift in the pattern of traffic moving by rail consequent upon the preponderance of low-rated traffic coming to rail without any corresponding increase in the high-rated commodities. There have also been unavoidable increases in costs arising from increasing wage, prices and users' amenities on one hand and the absence of increase in passenger fares and freight rates to correspond fully to such increases in the costs on the other.

Stress on economy and efficiency

In the larger interests of the general economy of the country, the railways are continuously striving to effect economy in expenditure by various means including intensive utilisation of railway assets, such as tracks, locomotives and wagons.

The table below summarises the achievements of the three pronged operational drive launched by the Railways during the past decade. This table gives the number of wagons and engines on line for moving one million net ton-miles of goods per day during the four crucial years—1938-39 (pre-war), 1950-51 (pre-plan), 1955-56 (eve of Second Plan) and 1959-60 (penultimate year of the Second Plan).

Number of units required for moving one million net ton miles of goods per day

Year	Number of goods locos (all traction) on line, B.G.	Number of wagons (in tons of 4-wheelers) on line.
1938-39 ...	66	2,849
1950-51 ...	56	2,304
1955-56 ...	47	1,848
1959-60 ...	39	1,686

Similar improvements have been made in more intensive utilisation of the track facilities also, as will be seen from the following table showing million ton miles moved per annum per thousand running track miles during the same 4 years :

Year	Broad gauge
1938-39 ..	749
1950-51 ..	1,212
1955-56 ..	1,572
1959-60 ..	2,056

It is apparent that in the years to come, the Indian Railways will be required to play an even more important role in the planned economic development of the country and there is little doubt that they will not be found wanting.

Every man's life lies within the present, for the past is spent and done with, and the future is uncertain.

—MARCUS AURELIUS.

"A DECADE OF PROGRESS AT CHITTARANJAN"

(Achievements in Locomotive Manufacture)

BY

G. P. SHAHANI

(General Manager, C.L.W.)

The top executive of the Chittaranjan Works refers in this article to the solid contribution this State-owned enterprise has made in making India self-sufficient in steam locos and the confidence with which it is planning to produce electric locos to meet the increased transport needs of the country.

The author tells us that the spectacular results obtained by the Works are due to the active co-operation the management has been receiving from its contented workers.

The Chittaranjan project is barely 12 years old ; the production of broad gauge steam locomotives commenced only in 1950. The impact of the works is however visible over all the broad gauge sections of the Indian Railways, where its locomotives are hauling freight traffic to meet the industrial requirements of the country.

With a number of achievements in the manufacture of locomotives and boilers during the Second Plan, this state-owned enterprise now proposes to break new grounds by making electric locos.

A locomotive every 48 hours

During 1950-51, when the first Five-Year Plan was launched the Chittaranjan produced only seven steam locomotives and not a single boiler. It now produces a locomotive every 48 hours. It has manufactured more than 1,000 boilers so far.

The following table indicates the extent of progress achieved by Chittaranjan during the Second Plan period in the production of locomotives and boilers :—

	Locos.	Boilers	Loco-motives	Boilers
5 years of the First Plan.			331	280
5 years of the Second Plan—				
1956-57	156	120		
1957-58	164	142		
1958-59	165	162		
1959-60	173	178		
1960-61	173	184		
			831	786
Grand Total ..			1,169	1,066

In the early years of production the output of boilers was less than the production of locomotives and boilers had to be imported. But now every locomotive going out of the Chittaranjan Locomotive Works is fitted with a Chittaranjan boiler ! The boiler production was progressively stepped up along with that

of locomotives. During 1958-59 the boiler production was short by 3, but during 1959-60 this was in excess of the locomotives manufactured by 5 and in 1960-61 by 11.

Incentive Bonus Scheme

The spectacular results in speeding up the manufacture of locomotives has been obtained by the active co-operation of the workers. Incentive Bonus Scheme to encourage them to produce more locos, was introduced on a limited scale in 1954-55. It has since been expanded to cover all the production shops covering about 4,000 workmen, leaving only about 1,000 workers on basic wages. The resulting benefits accruing from the Incentive Bonus Scheme, namely, the better productivity, have been shared by the workers, the management and the buyers, that is, the Indian Railways.

The scheme has helped the workers to increase the contents of their pay-pockets.

The beneficial results of the Incentive Bonus Scheme are clear from the fact that total man-hours spent per locomotive and the cost of manufacture of a locomotive have come down considerably.

With the increase in the production and on the introduction of Incentive Bonus Scheme, the total man-hours spent per locomotive have come down from 1,21,000 during 1953-54 to only 55,000 during 1959-60. Similarly, the cost of production has been slashed from Rs. 6,05,000 during 1953-54 to Rs. 4,10,000 during 1959-60.

Inspite of the increase in the cost of labour and material, it has been possible to keep the cost of production at about Rs. 4,09,000 per locomotive. Spare capacity is being utilized to manufacture spare parts and assemblies to assist the Indian Railways in their maintenance work.

Self-sufficiency

Chittaranjan was the Indian Railways' first attempt at attaining self-sufficiency. As already stated, the project was started soon after Independence and during the decade the imported content of a locomotive has been progressively reduced. During 1951-52, the imported content of a 'WG' locomotive was Rs. 2,46,000 which during 1959-60 came down to Rs. 70,000.

It is assessed that the imported content during 1960-61 would not be more than Rs. 40,000 per WG locomotive. This will further decrease as soon as the Steel Plants achieve their full planned production.

During the past decade, the Indian Railways and Chittaranjan Locomotive Works have developed indigenous resources by making available the technical 'know-how', even by placing educational orders with firms new in the field and by supplying the wooden patterns where necessary, to cut out to the utmost the imported components of locomotives and thus save the precious foreign currency.

Steam locos during Third Plan

At the end of the Second Plan and the commencement of the Third, the outstanding orders on Chittaranjan Locomotive Works are for 351 steam locomotives of various types. The total production of steam locomotives during the Third Plan is estimated to be 820, at the rate of 164 locomotives per annum. It is proposed to keep up this rate of production for the steam locomotives throughout the Third Plan period.

Electric locomotives

During 1960-61, the last year of the Second Plan, a start has been made on the production of 1,500 volts D.C. electric locomotives for the Central Railway. Work on the mechanical portion of the first locomotive has well advanced. The electrical equipment in the initial stages has to be imported till the Heavy Electricals develop capacity to meet our requirements.

Part consignment of the electric equipment for the first D.C. electric locomotive has just been received. As soon as complete equipment comes, the first locomotive will be completed and sent out for traffic on the Central Railway. It is expected that in another 2 or 3 months the first electric locomotive will roll out of Chittaranjan with many more to follow in quick succession.

During the Third Plan it is proposed to develop a manufacturing capacity for six electric locomotives per month or 72 per annum. Steps are being taken to develop the requisite capacity early during the Third Plan. This additional capacity for the electric locomotives is being developed without in any way affecting the production of steam locomotives.

Steel Foundry and Plants

The C.L.W. is shortly setting up a Steel Foundry with a capacity of 7,000 to 10,000 tons of finished castings per annum. This foundry will not only produce the steel castings required for the locomotives and other rolling stock, but will also manufacture the austentic manganese steel crossings and other intricate castings to meet the requirements of the railways expansion programmes.

Chittaranjan Locomotive Works has not confined its activities merely to the building of locomotives. To assist the Railways in electrification of the priority sections on the Eastern and South-Eastern Railways, it has set up a Galvanizing Plant, the largest of its kind in India. In this Plant, masts, towers and various other components required for the overhead transmission of power at high voltage are galvanized to increase their life in service and to reduce the maintenance costs and shut-downs.

Over 9,000 tons of mild steel sections have already been galvanized and despatched to site for erection at nearly one-third the cost of imported ones resulting in saving of over Rs. 35 lakhs of foreign currency. This has also resulted in considerable saving in the capital cost of the Project.

Chittaranjan Township

Most of the railwaymen at Chittaranjan are housed in a railway-built and railway-maintained township, with all the civic amenities provided at railway cost, close to the shops. Even the lowest paid worker is accommodated in a two-roomed quarter with electricity, running water, sanitary privy, courtyard for privacy, etc. The roads in the township are wide and well lit. Each of its sectors is provided with schools, community hall, dispensary, besides the central 70-bed hospital named as Kasturba Gandhi Hospital.

There are two central institutes for the staff, with a membership of over 2,700. The auditoria attached to the institutes are used for exhibiting cinema films.

Through the Mahila Samiti, the railway families are provided with facilities to supplement their income in their spare hours, by knitting, sewing garments given free by the railways to school children. Arrangements have been made to further increase this social activity among the railway families. About 5,000 railway children attend 28 schools in the township.

In short, Chittaranjan is not merely an industrial production unit, but is a well knit family of railwaymen, who live together under healthy surroundings where all their normal social and civic requirements are looked after.

With this background and traditions that have developed at Chittaranjan, where the Indian workman has learnt and perfected the art of manufacture of steam locomotives (wherein he is second to none in this craftmanship) he looks forward to the future and the task assigned for the Third Plan with confidence and courage.

Shri K. Sadagopan, formerly Chief Administrative Officer of the Integral Coach Factory, during whose tenure the civil engineering construction of the factory was finished and great progress was achieved in production, paid a visit to the factory on the 18th March, 1961 and addressed the officers of the factory.

RAILWAYMEN SERVE THE NATION

BY

D. C. BAIJAL,

(Member, Staff, Railway Board)

Shri D. C. Baijal in his article outlines the various measures taken by the Indian Railways for the welfare of a large "family" of railwaymen and their children. These include provision of houses for the staff, medical facilities, opening of railway schools and holiday homes and other recreational centres. During the Second Plan the expenditure on staff welfare would be of the order of Rs. 50 crores.

The author says that the railwaymen on their part are quite alive to their responsibilities to the nation and are ready for greater and more difficult tasks ahead of them in the Third Plan.

We will once again be celebrating "Railway Week" from 10th to 16th April. The observance of "Railway Week" has dual object—firstly, development of a feeling of kinship, camaraderie and pride in their work amongst railwaymen of all ranks and secondly, stimulation of friendly interest and co-operation of the general public in the day-to-day working of the Railways.

April 16 has a special significance for Railwaymen in this country, for it was on this day in the year 1853 that the first passenger train ran from Bori-Bundar (Bombay) to Thana, a distance of 20 miles. This was widely acclaimed at the time as the first event of its kind not only in India but in Asia.

Vast Network

From this small beginning, the Railways in the country have grown into a vast network, comprising over 35,200 route miles and over 51,700 track miles. Extending from Dwarka in the west (Longitude 69° 0′ E.) to Lakhapani (Longitude 95° 50′ E.) in the east, and from Madhopur (Latitude 32° 20′ N.) in the north to Trivandrum (Latitude 8° 40′ N.) in the south, Indian Railway system is the largest in Asia and the fourth largest in the world. It is the country's largest nationalised undertaking, and the world's second largest State-owned railway system.

To run this great undertaking and keep the wheels of transport moving night and day on this vast network of railways, over a million devoted men and women serve the nation. The total number of staff on Government Railways, permanent and temporary, open line and construction on March 31, 1960, was 1,154,013.

The cost of staff, including allowances, provident fund contribution, gratuity, value of grainshop concessions, etc., amounted to Rs. 189.26 crores.

Out of 1,154,013 employees in 1959-60, the number of gazetted officers was 4,408 only, which represents 0.38 per cent of the total. Amongst the non-gazetted staff, 144, 319 or 12.51 per cent were in Class III in the category of workshop and artisan staff, 314,314 or 27.24 per cent in the Class III other categories, 181,319 or 15.71 per cent in the category of Class IV workshop and artisan staff and 509,653 or 44.16 per cent others.

Jobs that Railwaymen do

The general public and the patrons of the Railways come in contact with only a small percentage of the staff, such as booking clerks, ticket collectors, travelling ticket examiners, guards, conductor guards, drivers, goods clerks, station masters and the like.

There are, however, a large number of staff who work behind the scenes to enable this big organisation to function efficiently and smoothly. There are the gangmen, keymen and mates, who work hard in sun and rain to maintain the tracks in a safe condition. There are the fitters and khalasis in the Loco Sheds to keep the engines in good fettle and the train examiners, fitters and khalasis in sick lines to maintain and repair the goods wagons and coaching vehicles.

There are the artisans and other staff in workshops to attend to periodical overhaul and heavy repairs of rolling stock. There are the signal staff to keep the complicated signalling gear in good order to make travel safe. There are the cabinmen for manning points and signals to ensure safe reception and despatch of trains, and the gatemen often living in wilderness, who man the level-crossing gates

Then there are the clerks in offices, who have their own role to play and the doctors, who keep the railwaymen and their families in good health. There are a host of others, in fact too numerous to mention, but each category having been entrusted with a well defined task.

There are an indefinite number of jobs that have to be done on the railways, and it is the co-ordinated effort of the staff of various categories, irrsepective of the position they are placed in, that enable the railways to function satisfactorily.

Ours is indeed a very large family of railwaymen scattered all over this vast sub-continent, along railway lines running criss-cross over the entire country through hills and dales, and across mighty rivers, the railwaymen are tied together by common bonds of service to the nation. They have the proud privilege of serving the nation and playing a significant role in the planned development of the country in its march forward to improve the living standards of the masses.

Staff Welfare

The Railways, the largest employers of labour in this country, have been pursuing the policy of progressively improving both the living and working conditions of staff and providing them basic amenities to the maximum extent possible. Not only have the wages been increasing progressively, the expenditure on welfare measures has also been steadily mounting up.

In 1950-51, the expenditure on welfare was Rs. 3.10 crores. During the First Five-Year Plan, the expenditure was Rs. 20.01 crores, an average of Rs. 4 crores per annum. During the Second Five-Year Plan, the expenditure would be of the order of Rs. 50 crores, giving an average of Rs. 10 crores per annum.

Medical Facilities

There has been a progressive expansion of medical facilities. The number of railway hospitals on March 31, 1950, was 56 and of dispensaries and health units 341. The number had increased to 74 hospitals and 478 dispensaries and health units by the end of 1959-60. The total number of beds during the same period had increased from 2,351 to 6,848. The number of T.B. beds taken separately has gone up from 77 to 1,033.

Honorary consultants and specialists have been attached to well equipped principal railway hospitals, where the most complicated cases can now be tackled. Mobile dispensarie[s] ... [w]heels have been introduced for cat[ering] ... the staff at wayside stations. [The e]xpenditure on medical and health [unit]s has risen from Rs. 2.70 crores [in 19]50-51 to Rs. 6.13 crores in 1959[-60].

Sta[ff Quart]ers

[Residenti]al accommodation was in the pa[st provi]ded to a limited extent, but in rec[ent yea]rs, there has been a very substantial increase. During the First Five-Year Plan, 41,000 quarters of an improved standard were provided for the staff.

In the Second Five-Year Plan, about 57,000 quarters would have been added. Improvements are also being progressively made to old type of quarters with provision of better ventilation, water borne sanitation and electrification.

Besides the canteens statutorily required to be provided under the Factories Act, 1948, the railways have provided, as a measure of staff welfare, canteens at places where there is concentration of staff. This number has been steadily increasing. There were only 69 canteens before the commencement of the First Five-Year Plan. Their number had risen to 225 in 1959-60.

Railway Schools

Although education is primarily a State subject, Railways have been providing facilities for education of the children of their employees in large railway colonies, where such provision does not exist, and no alternative means are available.

On March 31, 1950, there were 135 such schools. This number had increased to 163 in 1959-60. In addition, 481 single teacher primary schools have recently been started. It would be interesting to note that besides these, there are 194 schools opened by and run by railwaymen themselves in large colonies in various parts of the country.

A recent innovation is the opening of 12 subsidised hostels in different linguistic areas to meet the needs of wards and children of railwaymen posted outside their own linguistic area.

In 1950-51, the annual expenditure on education was of the order of Rs. 32 lakhs, but by 1959-60, it had risen to Rs. 245 lakhs.

In 1956, a scheme of awarding 1,000 scholarships each year to children of railway employees for the prosecution of education in science and technical subjects was started. The total number of scholarships including those carried over from previous years is about 2,500 at present, involving an expenditure of Rs. 8 lakhs per annum.

Staff Benefit Fund

There are a number of items of minor welfare for which no special allotment is made directly from railway revenues. These are financed from Staff Benefit Fund, which in itself is financed by *ad hoc* grants from revenues.

For a number of years, the grant was Re. 1 per head. In 1955, it was raised to Rs. 2 per head and in 1959-60, it was raised to Rs. 4 per head. Recently it has been further raised to Rs. 4.50 per head.

From this fund is met expenditure on items like grants to employees on account of loss suffered by them in floods, etc., relief of distress in any other form, grants to schools run by railway employees and private schools, scholarships to children of railway employees, recreation and amusement of staff and their children.

Recreation for Railway Employees

For recreational and cultural activities, a large number of institutes and clubs have been provided, their number at the end of 1959-60 being 373 and 237, respectively.

Some of these institutes have libraries with a large collection of useful books.

For the benefit of the staff posted at wayside stations, the system of mobile libraries on wheels has been started. There were 9 such libraries at the end of 1959-60.

Handicraft centres have also recently been set up in Railway colonies, where women members of railwaymen's families are taught handicrafts, such as weaving, spinning, knitting, cutting, tailoring, etc., during their spare time. There are 154 such centres functioning.

Holiday Homes

Provision of Holiday Homes for the staff at hill stations, health resorts and other places of interest, where railwaymen with their families could spend their holidays in comfort, was started in 1956. By the end of 1959-60, fifteen Holiday Homes had been and these are proving to be very popular.

For the children of railwaymen, children's camps are also being organised. During 1959-60, twenty-two such camps were held.

Railway Co-operatives

The Co-operative movement on the Railways has also continued to make steady progress. At the end of 1959-60, there were 25 Railwaymen's Co-operative Credit Societies with a membership of 6.18 lakhs and paid-up share capital of Rs. 4.31 crores. The working capital was Rs 26.38 crores.

The number of Co-operative Consumer Societies in 1959-60 was 159, with a membership of 74,494, paid-up share capital of Rs. 13.65 lakhs, working capital of Rs. 24.68 lakhs and a turn-over of Rs. 160 lakhs.

Awards for Efficiency

For enlisting the co-operation of the staff and to inspire in them a sense of common endeavour, a large number of Joint Committees have been set up at various levels through which the railwaymen can make suggestions for improving efficiency, effecting economies, ensuring safety of travelling public, etc., suitable awards are given for valuable suggestions and inventions. Individual or collective awards are also given for displaying exceptional merit in the performance of duties.

During the Railway Week, outstanding railwaymen from Zonal Railways come up to Delhi to receive awards from the Railway Minister.

Phenomenal increase in Rail Traffic

With the ever increasing tempo of industrial activity and planned development in the country after attainment of Independence, there has been a phenomenal growth of traffic the railwaymen are required to handle.

In 1950-51, the originating tonnage of freight traffic was 91.4 million tons only. In 1955-56, the end of the First Five-Year Plan, this had risen to 114 million tons, an increase of 24.7 per cent. In 1960-61, the end of the Second Five-Year Plan, the originating tonnage expected to be lifted is 154 million tons, an increase of 35.2 per cent during the period.

During the two Five-Year Plans, the ton miles would have more than doubled, from 26,963 miles in 1950-51, to an expected figure of 54,720 miles in 1960-61. During the same period passenger traffic would have increased from 41.159 million in 1950-51 to an expected 44,600 million in 1960-61.

In order to be able to handle the increasing volume of traffic it has been found necessary to go in for substantial increase in the capital at charge for the rehabilitation of and the addition and improvement to the railway assets for augmenting the transport capacity. In 1950-51, the capital at charge stood at Rs. 827 million. It is expected to go up to Rs. 1,559 million at the end of 1960-61.

Development Works

The development works include construction of new railway lines, doubling of tracks, remodelling of marshalling yards, provision of additional crossing stations, improvements in signalling and tele-communications, expansion of workshops capacity, dieselisation, electrification and substantial addition to rolling stock.

During the Second Five-Year Plan, the fleet would have increased by some 2,100 locomotives, about 8,500 coaches and about one lakh wagons. All this would mean additional burden on our railwaymen.

Cost on Staff

The number of staff on Railways in 1950-51 was 913,553 and the cost of staff amounted to Rs. 113.82 crores. As against an increase in the strength of staff of 26.3 per cent, there has been an increase of 66.4 per cent in the cost of staff in the same period.

The average wage per employee has been increasing steadily and has risen from Rs. 1,263 in 1950-51 to Rs. 1,660 in 1959-60. It is expected to rise further to Rs. 1,880 in 1960-61.

The main reasons for the increase are the implementation of recommendations of First Pay Commission, Adjudicators Award, upgradation and redistribution of posts, increases in the rates of dearness allowance, compensatory allowance, etc., treatment of dearness allowance as pay for certain purposes and the net effect of annual increments.

The acceptance of the Second Pay Commission's major recommendations regarding pay and allowances will increase the per capita annual wage bill by Rs. 34 on the average. The retirement benefits will also substantially increase.

Increased Work Load

The increase in the number of staff has been comparatively smaller. It has been necessitated due to higher work load in maintaining larger assets, the carriage of increased traffic, progressive expansion of health and welfare measures for the staff, increasing public utility service functions assumed by railways, such as departmental catering. This is also due to projects of various development works on Railways during the period including the two Production Units, Chittaranjan Locomotive Works and the Integral Coach Factory, Perambur.

While the increase in staff between 1950-51 and 1959-60 for all the reasons taken together has been 26.3 per cent, the total train miles, an index of traffic handled, has increased during this period by 32 per cent.

Third Plan Tasks

We are now completing the Second Five-Year Plan and are on the threshold of the Third Plan, which require a tremendous effort on the part of every one of us to fulfil the task assigned to the Railways.

According to the tentative targets, the originating traffic at the end of the Third Plan is expected to increase from 154 to 235 million tons and a provision has to be made for a 15 per cent increase in passenger traffic.

The work-load for the Railways in ton miles is, however, expected to increase from 54,000 million ton miles to 93,000 million ton miles more annually, which is more than double the increase achieved in the Second Plan.

The task is tremendous, but railwaymen are alive to their responsibilities to the nation and will launch upon the Third Plan with faith and determination.

While replying recently to the debate on the Railway Budget for 1961-62 in the Rajya Sabha, the Minister for Railways paid tributes to railwaymen as follows :—

"Quite a large number of Hon'ble Members have taken part in the general discussion of the Railway Budget and there has been all-round appreciation of the achievements and performance of the Railways. That goes generally to the credit of the patriotism and sense of duty of more than a million of the railwaymen on the Indian Railways and I have no doubt that the words of encouragement that have been spoken in this House will put heart into the Indian Railwaymen and they will prepare themselves for the greater and more difficult task ahead of them in the Third Five-Year Plan."

He expressed similar sentiments in the Lok Sabha.

We railwaymen greatly value these words of encouragement. Let everyone of us take a pledge during the Railway Week to strive our very best to prove ourselves worthy of the trust reposed in us and fulfil the targets assigned to us.

THE CARE AND TRAINING OF GENIUS

A recent study, published by the Smithsonian Institution traces the childhood pattern of 20 great men, known to have been of high intelligence, aud finds behaviour patterns common to all.

As children they were in constant association with adults, and received a high degree of attention and love from thcir parents.

They were isolated from other children and formed close associations with only a few of their brothers and sisters :

Remarkable educational programmes were laid out for them by their parents.

Among those studied were : John Stuart Mill, Philosopher ; Gottfried Wilhelm von Leibniz, Mathematician ; Hugo Grotius, Jurist ; Blaise Pascal, Philosopher; Samuel Taylor Coleridge, Poet ; Voltaire (Francis Marie Arouet) Philosopher ; John Quincy Adams, Statesman ; Alexander Pope, Poet ; William Pitt the Younger, Statesman ; and Alfred de Musset, Poet.

"RAILWAY WEEK 1961" I.C.F. CELEBRATIONS

Shri M. Ganapati, Ex-Engineer-in-chief I.C.F. taking the salute at a March past by R.P.F. staff. Standing beside him is Shri K. M. Aiana, Dy. CME/Furnishing.

Opening ceremony of Works Office and Handicrafts Exhibition

On the 10th April 1961, the Railway Week commenced with the opening ceremony of the Works Offices of the Furnishing Annexe. On this same opening day a Handicrafts exhibition was inaugurated in the Auditorium of the Technical Training School, by Shri K. M. Aiana, Deputy Chief Mechanical Engineer, Furnishing. Nearly one hundred exhibits of various categories like knitting, hand embroidery, machine embroidery, crochet, fancy handy work, metal work and paintings received from the I.C.F. workers and their families were displayed. At the Central Arts and Handicrafts Exhibition at Delhi, Mrs. T. S. Jayaraman, wife of Shri T. S. Jayaraman, District Controller of Stores, Depot, I.C.F., won the first prize in hand embroidery for her carpet. Two other prizes were also won on the exhibits sent from I.C.F.

Film Show for children

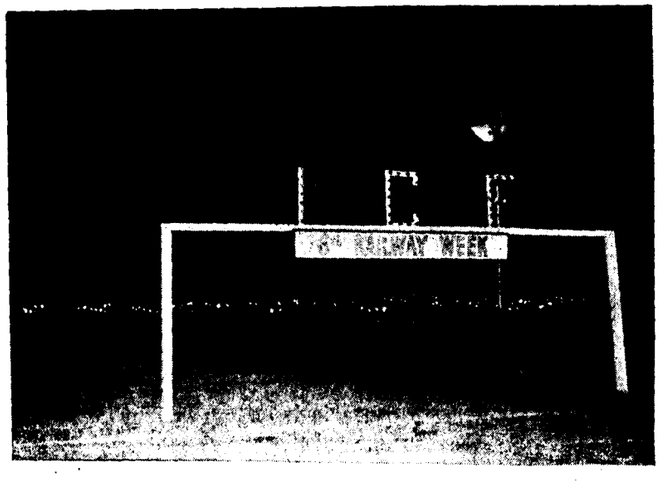
On 11th April 1961 a free Film Show for children was arranged in the new Auditorium of the Stadium Building and not only children of factory employees but also other members of their families thronged in great numbers to see the picture.

Broadcast talk on the progress during the Second Five-Year Plan

Shri K. Swarup, Chief Administrative Officer, broadcast a talk in English over All-India Radio, Madras, on the 11th April 1961 on the progress made by the factory during the Second Five-Year Plan period. He traced the history of the rapid strides made by this public sector industry and dwelt on the contribution it had made towards making India self-sufficient in the matter of Railway coaches. He compared the figures of production between the last year of the first Five-Year Plan and the last year

Shri K. M. Aiana, Dy. CME/Furnishing, welcoming Shri M. Ganapati, Ex-Engineer-in-chief, I.C.F. at the presentation of awards function on the 15th April, 1961 during Railway week.

A view of the illumination at the I.C.F. stadium grounds on the 15th April, 1961 with a view of torches at the tattoo the same day.



Shri Kannan of the Stores (Depot) Department receiving the first prize in the Symposium (English) held during Railway week.

of the Second Five-Year Plan and stated that it was a phenomenal increase from 12 coaches to 583 coaches. He said that the total number of coaches produced in the factory up to the end of the Second Plan period was 1,733. Stating that the unit production cost of I.C.F. coaches had been steadily coming down, Shri Swarup said that the present cost was even less than half the cost of similar imported coaches for which we were paying as much towards freight and other incidental charges as the present manufacturing cost in I.C.F. Having achieved self-sufficiency, the factory was now in a position to tap export markets. Ahead of the factory, during the Third Five-Year Plan, there was an ambitious programme to produce 3,735 coaches.

Get-Together Tea

To encourage a feeling of oneness between all employees of the factory of all ranks, a Get-Together Tea was organised on the evening of the 12th April 1961 over the lawns of the Apprentices' Hostel. This get-together function was attended by about a thousand members of the I.C.F. family and the Chief Guest on the occasion was Shri K. Sadagopan, former Chief Administrative Officer, under whose able guidance the factory successfully came over its teething troubles. After a formal welcome by Shri K. M. Aiana, Deputy Chief Mechanical Engineer, Furnishing, Shri K. Sadagopan gave an inspiring speech touching on the memories of his association with the factory and remarked that the factory always occupied a primary position in his heart. He exhorted the workers to show more enthusiasm and devotion in the days to come and keep themselves always fit to shoulder the increasing responsibilities being thrown on their shoulders. The Get-Together Tea was then followed by a Tamil drama under title " Unnaiye Nee Ennippar " (Think about yourself) in the Open Air Theatre.

On the 13th April 1961, Shri B. Madhavan, Deputy Financial Adviser and Chief Accounts Officer of the Southern Railway, gave a musical discourse on " Krishna Karnamrita ", a classical piece on the activities of Lord Krishna. A large number of employees and their family members attended the discourse.

Mrs. Lilamurthy, wife of Shri M. N. Krishnamurthy, Ward keeper, Depot Stores, receiving the first prize from Shri Ganapathi for her handicraft exhibited at "The Handicrafts Exhibition" at I.C.F. during Railway week.

Visit of Leading Industrialists

On the 14th April 1961, a group of leading industrialists representing a variety of industrial interests in the city visited the factory on invitation. The industrialists were then taken round the shops of the Shell Factory, the Furnishing Annexe and the Staff Colony. Recording their impressions in the Visitors' Book, the leading industrialists uniformly praised the contribution of this factory as "a most impressive achievement" and the factory as "a fine factory of which every Indian should be proud."

Symposium

A symposium was held in the new auditorium of the Institute Stadium on the same day, the subjects being "The Role of Fellowship in Industry and how to build it" and "Place of religion in everyday life". Eighteen employees took part, eleven in English and seven in Tamil. The participants exhibited a keen awareness of the subjects they dealt with and a commendable oratorical skill and the symposium was of a high order. Two prizes each were awarded to winners in English and Tamil.

Presentation of awards

The main function of presentation of awards, was held on the evening of the 15th April 1961 at the I.C.F. Stadium Grounds with Shri M. Ganapati, Ex-Engineer-in-Chief, I.C.F. (and retired General Manager, Indian Railways) as the chief guest. A large gathering of I.C.F. employees together with their family members and friends were present on this occasion.

The programme started with a welcome speech by Shri K. M. Aiana, Deputy Chief Mechanical Engineer, Furnishing. Shri Ganapati then distributed the rolling cups and shields to the winning shops and sections of I.C.F. The medals were then presented to 38 outstanding employees of I.C.F. for their meritorious service. Prizes were also given during this function to the winners of the various competitions held during the Railway Week, *i.e.*, best maintained houses, best exhibits in handicrafts and literary competition.

Shri Ganapati then addressed the gathering. Recalling his happy association in the initial stages of the Project as the Engineer-in-Chief, Shri Ganapati paid tributes to Shri Gopalaswami Iyengar, the then Minister for Railways, for his farsightedness in initiating the setting up of this coach building factory. He also paid glowing tributes to the I.C.F. workers for their outstanding achievements and said that the I.C.F. could claim to be one among the best in the country, as her proud achievements have been recognised not only in this country but also abroad.

Shri C. G. Devaya, Deputy Chief Mechanical Engineer, Shell, then proposed a vote of thanks.

A colourful tattoo and fire works followed thereafter. The tattoo by the R.P.F. staff consisted of various interesting items like Mass P.T., Hoola Hoop, Acrobatics, Stilt Display, Torch-light tattoo, etc.

On the 16th April 1961 children of I.C.F. employees were taken on an excursion to Mahabalipuram and Thirukkazhukkunram. More than 250 children of the I.C.F. employees joined in this excursion which was entertaining as well as educative.

The same evening a variety entertainment consisting of a musical discourse and of classical and oriental dances was performed in the Open Air Theatre.

The two-fold object of focussing the attention of the public on the activities of railwaymen and promoting a spirit of camaraderie amongst the staff was well achieved by the celebrations and a festive atmosphere prevailed throughout the week.

Shri C. R. Devarajan of the Stores-Dept. got the first prize in the symposium (Tamil) held during the Railway week.

Mrs. Skanda Mani, wife of Sri Skanda Mani of Shop 40, receiving a prize for her handicraft, from Shri Ganapathi.

An award for meritorious service being given to Shri Syed Zaffar Sahib, Turner, Shop 41. He was one of the 38 I.C.F. employees who received such an award.

VISITORS TO THE FACTORY

World Bank Technical Mission's visit to I.C.F.

The members of the World Bank Technical Mission under the leadership of Mr. Stanley F. Dingle and consisting of Mr. Kenneth D. Carmichael, Mr. Philip L. Mathewson, Mr. Moffat William Purves and Mr. Howard C. Reid visited the Integral Coach Factory on the 1st April 1961. The members of the Mission were received on their arrival by Shri K. Swarup, Chief Administrative Officer, who briefly explained to them the layout and the significant achievements of the factory in the last five years. Thereafter they were taken round the Shell Factory, the Technical Training School and the Permanent Furnishing Factory under construction. At the conclusion of their visit Mr. Dingle in a brief speech, said that they had been greatly impressed with the achievements of the factory in such a short duration and expressed his appreciation of the keenness and intelligence of the supervisors and young officers whom they met on the shop floor. The remarks entered in the Visitors' Book are reproduced below :

Mr. Stanley F. Dingle ..	An excellent achievement.
Mr. P. L. Mathewson ..	An achievement to be proud of.
Mr. Howard C. Reid ..	A very fine plant.
Mr. Kenneth D. Carmichael ..	Very impressive plant.
Mr. William Purves ..	Very impressive.

NEWS FROM SWITZERLAND

New methods for the electrical machining of metals

During the last few years, the electrical machining of metals has taken on considerable dimensions. The machining by means of electro-erosion, *i.e.*, the wearing away of matter through the action of electric sparks, without any contact, was already well-known. Electro-erosion is used more particularly in the manufacture of parts of tools made of hard or extra hard alloys. The Ateliers des Charmilles, in Geneva, have participated to a great extent in the development of this method by putting on to the market their " Eleroda " machines, of which there now exists a model possessing a great capacity. This same firm has also perfected, subsequently, a process of electro-lytical machining, which can be applied to various planning, rectifying and sharpening machines. This process calls for a completely new technique, based on a localised and controlled dissolution of the metals by electro-lytical means ; the operation of this process is closely allied to the various classical sharpening and rectifying techniques performed by means of grindstones.

A Swiss novelty useful for electro-technical work about the house

At the recent Radio and Television Exhibition in Zurich, an interesting Swiss novelty was on show, which will doubtless prove very useful to both amateur and professional electricians for the installation of electricity indoors. The gadget in question is a self-sticking cable with two conductors, which can be applied instantly and in a lasting manner to all non-porous surfaces, such as painted wall-paper, wainscotting, ceramic tiles, etc. The surface of the cable which has got to be applied to a wall is flat and is coated with a self-sticking substance, which does not dry, as it is protected by a thin sheet of paper. When applying the cable, all one has to do is to pull off the protective piece of paper, and the cable is ready to be affixed. We would like to add that these cables for which both Swiss and foreign patents have been applied for, are to be had in various colours, so that they do not clash with the prevailing colour of the rooms in which they are used. This useful invention, which has been subjected successfully to various tests, will no doubt find an extensive field of application.

Europe's most modern electro-magnet is in Lausanne

A new type of electro-magnet, intended for research work, has just been installed at the School of Physics, at the Lausanne University. This apparatus is the biggest of its kind in Switzerland and the most highly perfected in Europe. Its setting up required work of the greatest precision, which was rendered all the more difficult by the fact that it weighed nine tons. This apparatus was built by an important machine works at Oerlikon, near Zurich.

The first 100% Swiss book-keeping machine

The " Hermes C-3 ", which is the first book-keeping machine of an entirely Swiss conception and manufacture, was exhibited recently, as a prototype, at the Exhibition of Office Equipment, in Zurich. The standardised production of this machine, the fruit of work and efforts pursued over a long period of time, is expected to take place in 1962. This automatic machine is the synthesis of an improved typewriter, the " Hermes Ambassador Electric " and of a calculating unit, possessing computing headings, the number of which can be varied. The Hermes C-3 caused a sensation by the simple, rapid and silent way in which it operates, by the small amount of space which it takes up, and by the great flexibility attached to its utilisation. It combines the keyboard supplied with twelve keys of an adding machine, placed

in front of the complete keyboard of a typewriting machine. The operator has at his disposal inter-changeable control units, which control electric contacts and relays, without being subject to any mechanical effort. Each unit makes it possible to execute four programmes, and one can pass from one of them to another, simply by pressing a button. Furthermore, the machine is endowed with eight programmes of automatic tabulation, which are independent of the control units.

Remotely controlled surveillance *radars* for Switzerland

Two new air traffic control radar systems will serve and be operated from control centres at the Geneva–Cointrin and Zurich–Kloten airports. Once the installation is completed, it will mark the first use of microwave relay links for remote control of all operating functions on Switzerland's major air routes.

Radar transmitter–receivers for Geneva–Cointrin will be located 16 miles away, atop 5,500 ft. Mt. La Dole. During construction, all equipment, including the radar pedestal weighing several thousand pounds and the giant 40 ft. wide antenna will be taken up the last 1,500 ft. of the mountain by cable car. For the Zurich–Kloten installation, a concrete structure 60 ft. high will be erected on a hill seven miles away.

These long range radars are similar to those used in nationwide networks in Canada and U.S.A. They provide a number of features suited to meet Switzerland's requirements: moving target indication will overcome the problem of ground clutter encountered in mountainous terrain.

Other features available to the operator include circular polarization to reduce the signal return from rain, and a video integrator which strengthens weak signals while suppressing interference from other radars operating on similar frequencies. Additional means available for reducing ground return and other types of interference are FTC (fast time constant), STC (sensitivity time control) and IAGC (instantaneous automatic gain control).

Data gathered by the radars will be relayed to scopes located in control centres at both airports. Of particular interest is the fact that the relays will permit remote control of the radars from the airports. At each of the control centres, seven and sixteen miles from their respective radar sites, operators will remotely monitor and control more than 70 radar functions with a time lag of less than a tenth of a second.

The radars and relay systems are of duel-channel design, to provide relief operation during routine maintenance or instantaneous changeover in the event of a breakdown on one channel. The use of microwave relays will eliminate the cost of tearing up runways to install cable as well as cable maintenance expenses.

Our grand business is not to see what lies dimly in the distance, but to do what lies clearly at hand.

—THOMAS CARLYLE.

KATTABOMMAN SCOUT GROUP GOES TO YERCAUD

BY

T. S. GOVINDARAJAN

Flag hoisting at the camp site at Yercaud.

Thirteen Rovers of the Kattabomman Scout Group conducted a camp at Yercaud about Nineteen miles from Salem on the Shevaroy Hills.

The Shevaroy Hills is a pretty uphill station which has several picturesque spots, a perennial attraction for visitors.

We arrived at Salem Junction by the Madras–Mettupalayam Express on Sunday, the 19th March 1961 and proceeded to Yercaud by bus. The Ghat Road is a gradual ascent, with about 6 miles in the straight, up the face of the hill with a series of 20 hairpin bends, zigzagging the entire road across captivating scenery and jungle.

We arrived at Yercaud at about 7 a.m. and settled under improvised tents. The Scout flag was hoisted ceremonially. Christians in the group were permitted to attend Sunday service and Muslims to attend the Ramzan prayer. After breakfast, we proceeded to Lady's Seat.

Lady's Seat is a cluster of rocks where there was just enough room for us to squeeze in. There is a natural seat with a back-rest with room for two or three persons to sit on with nothing between them and a stone facing the sitter, which acts as a kind of wall, and there is a drop of hundreds of feet just in front. The view from there was wonderful. On one side was the face of the hill showing almost the entire P.W.D. Ghat road winding snake-like through the green woods and coffee plantations. On the other was a view of the Salem plains with the Magnesite Mines in the foreground.

After meals, we proceeded to Kiliyur Waterfalls. It was a most beautiful and picturesque site. After a bath in the falls, we prepared tea. We cooked our night meals on return to the camp site.

The rovers had their own cooks from among them.

Shri T. S. Govindarajan of the Hawk-eye patrol of the Scout group being awarded the Flag of Honour for the best camping standard.

Next day (Monday) morning after breakfast, we proceeded to Bear's Caves. There, we climbed up the Saddle Rock, popularly known as the Shervaroyan Hill, from which these hill ranges take their name. The summit, bare and almost flat-topped, has a small grove in the midst of which is the temple of the presiding deity, Swami Shervaroyan. The view from the top of the hills is superb. Yercaud is visible from the Shervaroy hills at a distance and presents a panoramic view to the onlooker. We saw the sample survey of Bauxite being conducted by Bauxite Company Private Ltd., and went to Shervaroyan Temple. We prepared tea and had it at the temple premises.

The next day (Tuesday) the Rovers were asked to collect particulars regarding the social and economic life of the people. Kit inspection was then conducted and the Scout Flag was hoisted. Then we proceeded to Pagoda point by route-march.

The Pagoda Point, which takes the name from the Pagoda shaped temple of the Malayali village, is about 3 miles from Yercaud. It is a point where one gets a lovely and different view of the near and distant hills of another section of the Shevaroys. This was an ideal spot to explore.

On return, we cooked our meals. After lunch we assembled round the flag at about 4 p.m. The Flag of Honour was awarded to the Hawk-eye Patrol for the best camping efficiency. The Scout Flag was then lowered ceremonially marking the close of the camp.

The visit to Yercaud was quite a rewarding experience and the Scouts had an inspiring camp amidst verdurous scenery and a cool climate which injected a healthy potion both into the body and into the mind of the Rovers. The striking panorama of the landscape all round, charged with the nude glory of nature, still stays in the memory of all of us Rover and will linger as a permanent vision ornamenting our dreams.

Rovers emerging out of Bear's cave in Yercaud after exploration.

TO RID THE WORLD OF MALARIA

World Health Day was celebrated in the Integral Coach Factory on April 17th, 1961. Photograph shows display in one of the shops of safety equipment and clothing as provided for I.C.F. Workmen.

For the first time in history, in 1955, the nations formed a coalition to fight a single disease. The resolve was taken at the World Health Organisation's Eighth Annual Assembly, held that year in Mexico City, and went far beyond the mere co-ordination of disease-control measures : nothing short of the world-wide eradication of malaria from the face of the globe was the aim adopted.

Malaria is the first disease to call forth a concerted world attack. Why malaria? There are two main reasons. First, malaria is the world's most catastrophic, most expensive disease. Second, the technical feasibility of malaria eradication has been demonstrated in the field.

The disease is far from being a minor tropical malaise. A catastrophic outbreak occurred, for example, in Ethiopia in 1958. Malaria started spreading in June of that year, more than three months ahead of the usual season. It reached mountainous regions up to 6,500 feet usually free of malaria because the malaria-trasnmitting mosquitoes do not easily survive at high altitude. The mountain people, unaccustomed to malaria, were particularly hard hit. Casualties—By conservative estimates, 3,000,000 of whom 100,000 died.

There are such explosions of malaria, and there is also the steady drain on health, wealth, and happiness caused by perennial endemic malaria. The annual economic loss caused by malaria is estimated for Thailand at Rs. 7 crores, for Mexico at Rs. 82 crores, for India at Rs. 235 crores. Set against such figures, the cost of eradication measures seems paltry.

"ARMCHAIR PERSPECTIVE"

EARLY AMERICAN TRADE WITH INDIA

JOHN T. REID

(*Cultural Attache, American Embassy*)

When the brig *Caravan* of Salem, Massachusetts, set sail for Calcutta early in 1812, its captain not only had two thousand silver dollars to invest in goods from India but a batch of requests for purchases for family and friends. Some wanted red cornelian necklaces for their wives, others pieces of the cherished cobweb muslin or pots of preserved ginger. One Henry Pickering wanted a "Sanskrit Bible". One can only wonder whether this worthy gentleman of a new nation got his Hindu scriptures and what he did with them.

The voyage proved to be perilous. The *Caravan* approached Sands Head at the mouth of the Hoogly River in a terrific hurricane and just managed to scrape across the treacherous bar. On the return voyage, according to one account, the *Caravan* was captured by the English (America was at war with England in 1812) and then recaptured and brought home to Salem by an intrepid captain.

This ship was only one of the hundreds of American ships which plied a regular trade between Salem and Indian ports, principally Calcutta, between 1787 and 1845. One ship, George, made twenty-one round-trip voyages from Salem and Calcutta between 1815 and 1837 and was called by Calcuttans "The Salem Frigate". At least two Americans, Samuel Shaw and Benjamin Joy, took up residence in Calcutta for commercial purposes, and Thomas Lechman of Salem became alderman of Bombay.

The east-bound cargoes were varied and consisted mainly of bullion or products, such as Madeira wine, picked up by the American ship during the voyage. From India the exports were sugar, ginger, indigo, gunny bags, saltpetre, a great variety of silk and cotton goods, and pepper. It is interesting to note that Salem for a time was the world emporium for pepper, and through that port over seven and a half million pounds of pepper cleared in 1805. Incidentally, in contemporary times, the United States is the largest buyer of Indian pepper, taking in 1959 over 5,000 tons, or a third of India's exports of the commodity.

Salem, the main American terminus of this prosperous trade, is one of the oldest cities in the United States and one of great historic interest. In its Peabody Museum, in the old East India Marine Hall, one can see rich collections of objects showing early American life, including the influence of the trade with India. Nathaniel Hawthorne, the novelist, was born in Salem and for several years he was Customs Inspector at that port.

About 1840, Salem's importance in the India trade declined, and Boston, fifteen miles south, became the leader. Beginning in 1833, ships from Boston usually carried the astonishing cargo of ice to Calcutta. In that year the ship *Tuscany* unloaded one hundred and eighty tons of ice, cut from New England lakes and ponds, in the tropical port. How it was carried nearly 15,000 miles through hot climates without melting is a tribute to New England ingenuity ; the

ice was packed in fragrant pine saw dust, the vessels double-sheathed and the cargo hatches always kept closed.

Unused to this chilly luxury, it is said, Calcuttans asked how the ice grew, but the trade apparently was profitable for it lasted for years. Those familiar with Henry Thoreau's *Walden* will remember a passage in which he reflects on the fact that ice from his Walden Pond is being used by men in India: "Thus it appears that the sweltering inhabitants of Madras and Bombay and Calcutta drink at my well." He muses that while he bathes his intellect "in the stupendous and cosmogonal philosophy of the Bhagavat-Geeta," "the pure Walden water is mingled with the sacred water of the Ganges."

Boston's India merchants grew wealthy and full of prestige. To have an office in those days on "India Wharf" was a sign of distinction. An American historian says, "Among sailors, the man who had made an East-India voyage took no back-wind from anyone; and on Cape Cod (Massachusetts), it used to be said of a pretty, well-bred girl, 'She's good enough to marry an East-Indian Captain'."

In Calcutta, these same East-Indian Captains were frequent visitors to the offices of a most remarkable Bengali merchant, Ramdoolal Dey. He was a man they could understand. A self-made man, the son of a poor school-teacher, raised as an orphan by a beggar grandfather, Ramdoolal had become respected and very rich. And yet he cultivated and maintained the moral virtues of honesty, integrity, piety, and generosity—traits which his American counterparts recognised and valued.

In many ways, he can justly be called the pioneer of American commerce with India. He generously advanced credit to the American captains and helped them to select their Indian cargoes with the greatest of care.

The Americans were not tardy in acknowledging their gratitude, and thirty-five merchants in Boston, New York, Salem, Marblehead and Philadelphia collected a sizeable fund to purchase a painting of George Washington by the well-known Gilbert Sturat. They presented this life-size portrait of their first President to Ramdoolal in 1801 as a unique testimony of their admiration for the Hindu merchant and in recognition of the close ties between two far-distant lands.

Although Ramdoolal's descendants sold the portrait sometime during the last century, it is still in Calcutta in the possession of Mr. H. C. Mallick. It is in good condition, somewhat mellowed and darkened by age, but still hanging in its original gilt frame.

INDUSTRIAL NEWS

Automatic Solutioning Machine

A fully automatic solutioning machine for preparing metal components for bonding with rubber has been designed and built in the U.K. The machine will process medium to large batches of small components at fast rates and may be used to give one or two coats of adhesive. It can handle flat, cylindrical or irregular shaped articles up to 5 inches diameter, 6 inches high at the rate of eight per minute, or articles 2½ inches, 6 inches high at sixteen per minute.

Both the internal and external surfaces can be coated and work-holders may be used to mask areas to be left uncoated.

Components are loaded on to work-carriers located on trays, immersed in a degreasing tank, and while still warm are fed on to the solutioning machine conveyor, passing through a pre-heat oven usually controlled at approximately 80° C.

The trays dwell at the first spray station while the work carriers are raised and rotated as automatic spray guns are traversed to coat the required areas. The work carriers were then returned to the trays which pass through a drying oven on to a return conveyor. This carries them to the second spray station and through the drying oven to the unloading point.

To conserve floor space and labour the machine has been compactly designed to allow one operator both to load and unload as well as cope with the degreasing if the tank is conveniently situated. Control panels are provided at each spraying station, while all movements are controlled from a centrally positioned camshaft provided with simple adjustments.

New device for Braking efficiency

A new device to increase braking efficiency for cars, has been introduced by Dunlop. It is a mechanical booster which supplements the normal foot pedal pressure in applying the brakes.

Assistance is applied directly to the brake pedal by a vacuum-operated bellows unit. Vacuum is supplied from the engine through a reserve tank which maintains the supply and provides a reserve for braking even when the engine is not running. A special safety non-return valve is incorporated to ensure this reserve.

An official of the firm says that in the event of having to remove the mechanical booster for any reason, it is not necessary to dismantle the hydraulic system, as the booster does not contain any hydraulic parts.

A safety feature is that the booster can be fitted to twin master cylinders providing two completely independent systems, one operating the front brakes and one operating the rear brakes. The 'E' type Jaguar, the new 150 m.p.h. two-seater, is fitted with the mechanical booster.

New speed governors for automobiles

A new type of speed governor for motor vehicles has been developed by the British car firm of Rover Ltd., of Birmingham. The governor, said to be the first of its kind, is connected to the speedometer cable so that drivers can reach top speeds in low gears.

In many countries there are maximum speed limits and many customers have requested a governor to be fitted. This governor, which costs £21 in the U.K., can be used on most makes of cars.

The system is arranged to be conscious only of vehicle road speed, and the road speed limit it dictates is, therefore, independent of the vehicle transmission gearbox ratio in use at any given time. It is not intended to control engine speed, doing so only by reason of the

relationship existing between engine speed and road speed. The limiting speed provided by the system may easily and quickly be varied by the use of interchangeable colour-coded control springs, a range of which is available to meet requirements.

When the vehicle is stationary, or is being driven at any speed below the desired limit, the centrifugal switch contacts are open and the throttle control unit permits the carburettor butterfly to be positioned in the normal manner by the accelerator pedal. Whenever a speed of about two m.p.h. above the desired limiting speed is reached the switch contacts close positively to operate the relay, and by energising a solenoid in the throttle control unit, to shut the butterfly down to idling. The vehicle then decelerates until, at about three m.p.h. below the desired limit, the switch breaks contact, and the solenoid releases the butterfly to an opening corresponding with the accelerator pedal position.

Trimming Saw

A new gantry type panel trimming saw, developed by a U.K. firm of machine tool manufacturers, is capable of cutting up three-inch deep (75 mm.) stacks of wood sheets measuring as much as 9 ft. × 4 ft. in size (2,750 × 1,200 mm.)

The machine (model WRG) is one of a number of new models in a range of 12 woodworking and light industrial units produced by the firm. The sheets are stacked on a stationary table and are ripped and cross cut by saws carried on a gantry which travels above them on roller ways.

At the start of the working circle three rip saws are lowered pneumatically and traversed on the gantry through the sheets to trim both sides and split. At the end of the cutting stroke the gantry stops automatically and the rip saws retract clear of the sheets.

The gantry is then automatically positioned and a cross cut saw sliding along the beam is lowered into the first cut for the first cross cutting operation. Any number of cross cuts can be made, positioning of the gantry being controlled by pre-positioned stops and stop bar on one side of the machine. During cross cutting pneumatically operated clamps hold the sheets on either side of the saw line.

When all the necessary cross cut strokes have been made the gantry returns to its original rest position at the end of the table, the sawn panels are removed, and the table reloaded with sheets.

Stain resistant clothes !

Clothes that can suffer a severe stain, and yet be wiped clean ! This is the latest announcement to come from a U.K. manufacturer. A chemical preparation is impregnated into the finished cloth and the result will be suits, dresses and coats that are stain resistant to a certain number of fluids including tea, coffee, beer, fruit juices, ink, ice cream and jam.

Firstly the chemicals and their mixture remains a secret. But in the U.K. manufacturers of most fabrics—satin, cotton, rayon as well as wool mixtures—can now have their clothes impregnated. This will be done under a house-to-house agreement, and then, when a push-button machine unit to carry out the process has been fully developed and tested—it will take about a year—the firm will cope with the sale of machines and the process.

This chemical process will hardly add any cost to a garment as far as the manufacturer is concerned. While it is effective against " waterborne " stains, it is not fully resistant against oil stains, but the finish makes it easy to remove them with an ordinary household solvent.

Strip steel

Strip steel to suit any subsequent manufacturing process is now being produced by a Sheffield steel making group in a new £ 2 million cold-rolling mill. The strip, in widths up to Eighteen inches is available in a wide range of tempers—from mirror finish, " hard bright ", for high quality plated articles, to " dead soft " for the more utilitarian articles.

A feature of the mill is its simplicity with push button and automatic controls operated by 50 men. Although the cold mill is only in the running-in stage, the output potential is 2,500 tons of strip a week.

Raw material for cold rolling is supplied from the adjoining hot strip mill, and after pickling, the strip is delivered to the cold mill in coil form via a tunnel which connects the pickling plant with the cold rolling department.

An Anti-Corrosive Preparation

A material which has increased the scope and effectiveness of anti-corrosive preparations used in lightweight concrete construction and other fields, is now being produced for the first time in commercial quantities by a U.K. firm of industrial chemists.

The material is known as tetrahydroxyadipic acid and, since the firm started commercial production recently, more than 90 per cent. of its output has been exported—chiefly to the U.S.A. and Sweden.

A spokesman for the firm says that its main application is in the field of lightweight concrete construction. " It is essential in this type of construction, that the metal used in reinforcing be permanently protected against corrosion," he said. " A drawback is, however, that cold-setting anti-corrosive dips frequently set solid in as little as 30 minutes. The addition of tetrahydroxyadipic acid in the correct quantities results in the preparation remaining fluid for an infinitely longer period—and consequently removes the time factor problem when coating these metals."

The firm claim that tetrahydroxyadipic acid has other potential uses in the textile industry and in plastics, pharmaceuticals and cosmetics.

Sincerity and truth are the basis of every virtue.

—CONFUCIUS.

Believe, really believe, you can succeed and you will.

—DR. DAVID J. SCHWARTZ.

The one prudence in life is concentration, the one evil is dissipation.

—R. W. EMERSON.

When you find yourself inclined to use a negative, melodramatic word to express your problems, stop.

—DORA ALBERT.

Foot ball

I.C.F.—NEW LEAGUE CHAMPIONS

Rajamani shines in all matches

The I.C.F. Football Team won the First Division League Championship this year, by winning all the ten matches played so far and securing 20 points, which is a cent per cent record. They should have won this last year itself in their very first appearance, but missed it very narrowly.

Rajamani, the I.C.F. centre-forward, was the top most scorer in the series, with a tally of 17 goals.

I am giving below a short report on the matches.

In the opening match on 18th March 1961, I.C.F. beat Netaji Sports Club by 3 : 0 (Janakiraman 2 and A. D. Sreenivasulu 1).

On 20-3-61, I.C.F. swamped Pachaiyappas Club by 6 goals, where Peer distinguished himself by securing a hat trick with 4 goals to his credit ; Rajamani and Janakiraman by scoring one each.

On 26-3-61, against Sporting Youngsters, I.C.F. had a facile victory by 5 goals (Rajamani 2, A. D. Sreenivasulu 1, Siva 1 and Peer 1).

In the encounter on 2-4-61 with East Asiatic I.C.F. scored 4 goals, but it was the only match in which a goal was scored against I.C.F. (Rajamani 2, Peer 1 and Rajaram 1).

Against Royapettah United Club, I.C.F. had a comfortable victory by 6 goals (Rajamani 3, Siva 1 and Rajaram 2).

On 15-4-61, I.C.F. beat Minerva by 2 goals (Rajamani 1 and A. D. Sreenivasulu 1).

On 19-4-61, I.C.F. scored a 5 : 0 resounding victory over the Port Trust and the noteworthy feature of the match was a hat trick by Rajamani; Siva and Thomas added one goal each.

I.C.F. beat the Railway Institute, Perambur by 2 : 0 on 20-4-61, both the goals being scored by Rajamani.

On 30-4-61, I.C.F. showed their superiority again by beating the WIMCO Sports Club by 2 goals (the scores being Rajamani 1 and A. D. Sreenivasulu 1).

The I.C.F. playing their last but one match in the League on 6th May, scored a mammoth seven goal win over the B. & C. Mills (Peer 2, Rajamani 2, Siva 2 and Janakiraman 1).

I quote below the report of the 'Hindu' in this connection.

> "Recording their tenth straight win, I.C.F. have collected 20 points. They have one more match left against Southern Railway Athletic Association, the holders for the last two years—but the outcome of the match would not affect their position. For their closest rivals, the holders themselves who have aggregated 13 points out of eight matches can add only 6 points at best.
>
> It was the fulfilment of a dear wish for the champions for they had bagged all the major trophies in State soccer excepting the senior division league title. They could not help the delay for it was only last year that they worked their way up to the first division. They came with the ambition last year to win the first division title in their first appearance as they had done in the other three divisions in the previous years and set up a unique record. In this they were thwarted by Southern Railway A.D., who beat them narrowly to the runners-up position. But I.C.F. have turned the tables on their rivals this time. So they have to look elsewhere than the State for more prizes."

Thus I.C.F. Football Team became the proud and happy winners of the Senior Division Football League Championship this year and in the Final math they beat the Southern Railway also. Let us congratulate each member of the Foot-ball Team for their individual as well as collective efforts towards the attainment of the coveted place in the League.

A. R. VENKAT

Shri B. N. Bhattacharjee, Sr. Foreman, shop 13, receiving the award from Shri C. G. Devaya, Dy. CME/S.

Shri R. Jayaraman, Machinist, shop 10, receiving the award from Shri Devaya. Looking on is Mr. Stotz, Supdt/Designs—I.C.F.

Shri S. Balakrishnan, Turner, shop 16, receiving the award from Shri Devaya, Dy. CME/S.

AWARDS FOR SUGGESTIONS

Shri S. Balakrishnan, Turner, Shop 16, suggested that ½" bar may be used in manufacturing lock-pin to Drg. No. T. 21 007 01 instead of 5/8" bar.

The committee accepted this suggestion for implementation which will result in a saving of Rs. 53-36 per 100 coaches. Shri Balakrishnan was awarded a sum of Rs. 15 for this suggestion.

Shri R. Jayaraman, Machinist, T. No. 10/1111, Shop 10 suggested that 4½" off-cuts resulting from TLR 44 030 protect sheet may be used in manufacturing of component TLR 42 152 01.

The committee accepted this suggestion for implementation which will result in a saving of Rs. 26-03 per 100 coaches. Shri Jayaraman was awarded a sum of Rs. 10 for this suggestion.

Shri B. N. Bhattacharjee, Sr. Foreman, Shop 13, suggested that off-cuts resulting from Hanger to Drg. No. T. 05 017 01 may be used in manufacturing of the suspension strap to Drg. F 03 011 01.

The committee accepted this suggestion for implementation which will result in a saving of Rs. 3,626-50 per 100 coaches. Shri Bhattacharjee was awarded a sum of Rs. 100 for this suggestion.

heard this one . . . . . ??

Two wives were airing their troubles. Said the first : " My husband and I just don't get along."

" Why don't you sue him for incompatibility? " asked her friend, sympathetically.

" I would," replied the first, " if I could catch him at it."

* * *

A Group of scouts were on a visit to the zoo. The boys were discussing the different habits of animals and birds as they observed them.

While studying the crane, the scoutmaster asked, " Do any of you know why the crane so often stands on one leg? "

After much deep thought one venturesome lad replied, " I guess he knows if he picks the other one up, too, he'll fall down."

* * *

A young bride-and-groom-to-be had just selected the wedding ring. As the girl admired the plain platinum and diamond band, she suddenly looked concerned. " Tell me," she asked the elderly salesman, " is there anything special I'll have to do to take care of this ring? "

With a fatherly smile, the salesman told her, " One of the best ways to protect a wedding ring is to dip it in dishwater three times a day."

* * *

Before a wealthy American art collector bought Picasso's " Mother and child ", he asked the artist to authenticate it. Picasso enquired how much it was being sold for.

" One hundred and eighty-five thousand dollars," was the answer.

" In that case," Picasso replied, " it can't be anyone else's ; it must be mine."

* * *

The over-long sermon had been going on for nearly two hours. Finally, the minister paused. " My friends," he asked, " what more can I say? "

From the rear of the church came a weary reply, " Amen."

* * *

A Planetarium recently had a programme called " A Trip to the Moon ". One afternoon a family of five weary sightseers approached the box office. The father asked for tickets. " Two adults and three children," he said. " Singles for the children."

* * *

The two middleweights had been sparing tenderly for four rounds without striking a serious blow, and the crowd was becoming restive. While the boxers continued to circle cautiously, a voice was heard above the general clamour. " What's the matter? " came the cry. " ' Avin ' a summit talk. ? "

* * *

The bus was already crowded when an enormously fat woman got on. She stood for a moment glaring at the seated passengers. Then she asked, " Isn't some gentleman going to offer me his seat? "

At this a little wisp of a man rose. " Well," he said timidly, " I'm ready to make a small contribution."

* * *

During basic training the tall, thin college boy passed with ease all the written examinations and lecture courses, but marksmanship and physical training proved somewhat beyond his capabilities. However, eventually word came, that the trainee had passed his officers' selection board examination.

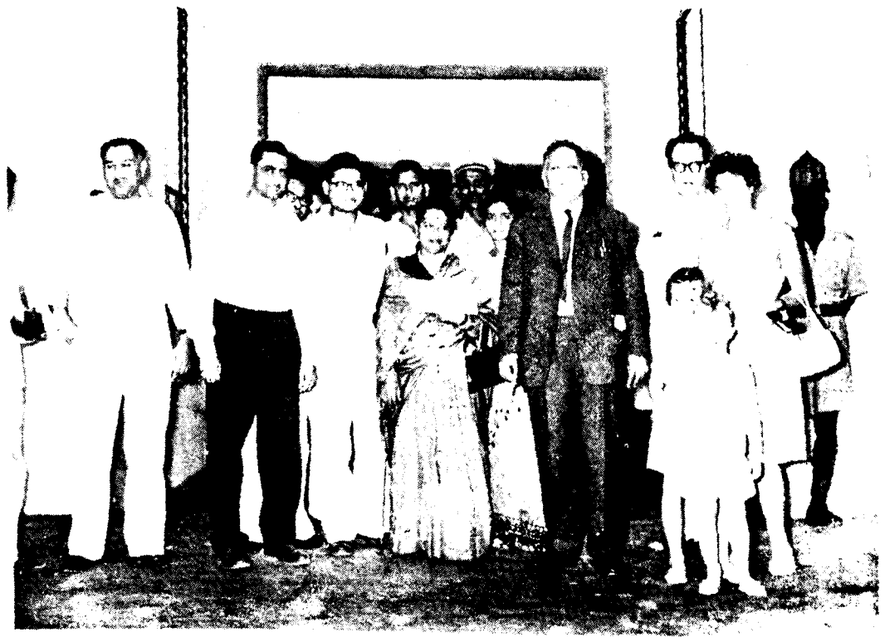
'I hear you're going in for a commission." said the big, much-decorated sergeant. " I'm sure you'll make a fine officer. And that's the way it should be, son, because you'll never make a soldier."

A view of the gathering at the time of the presentation of awards ceremony on the 15th April, 1961 during Railway week.

A children's excursion was arranged to Mahabalipuram and Tirukhazhukunram during the Railway week. Above photograph shows the children at a temple in Tirukhazhukunram.

RAILCOACH
VOL. V, NO. 3 JUNE 1961

CHIEF RETURNS FROM ABROAD



Shri K. Swarup, Chief Administrative Officer of the Integral Coach Factory who visited Switzerland to negotiate the extension of the collaboration agreement with M s. Schlieren returned on the 8th May, 1961. The above photograph was taken on his arrival at the Meenambakkam aerodrome, Madras. To his right is Mrs. Swarup.

H. E. Dr. Ricardo Mosquera Eastman, the Argentine Ambassador in India receiving a miniature model coach presented by Shri K. Swarup, C.A.O.(R), I.C.F. The Argentine Ambassador visited I.C.F. on May 17.

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CIRCULATION

The "Railcoach" circulates among officers and staff of the Integral Coach Factory, General Managers and other important Officers of all Railways in the country, the Union Minister for Railways, the Union Deputy Ministers for Railways, the Chairman and Members of the Railway Board, etc.

TERMS

1. Blocks or lay-outs are to be supplied by the Advertiser or will be charged for extra.
2. Advertisement materials to reach the Editor before the 1st of every month for the month's issue.
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Further particulars from

The Editor

RAILCOACH

Integral Coach Factory, Perambur, Madras 23

RAILCOACH

(INTEGRAL COACH FACTORY MAGAZINE)

EDITORIAL NOTICE

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

Manuscripts and photographs, not accepted for publication, will not be returned unless the sender so requires. Intending contributors from outside our Factory, if they intend to get back unaccepted articles and photos, should send a suitably stamped and self-addressed envelope along with the material sent by them.

Contributions should be addressed to the Editor, not by name, and reach him not later than the 25th of every month for consideration for publication in the next mouth's issue.

The Editor does not assume any responsibility for the accuracy of the news supplied by correspondents or for opinions expressed by contributors. Opinions expressed in the " RAILCOACH " whether editorially or by contributors should be regarded as having no official authority.

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JUNE 1961

editorial

SUGGESTIONS AND INVENTIONS

A Suggestions and Inventions Scheme has been in existence in our Factory to tap the talent amongst I.C.F. workers. Over the last few years the Administration has paid thousands of rupees to the I.C.F. employees as cash awards for valuable suggestions made by them. The faces of most of the authors of such accepted suggestions must be familiar to the readers of ' Railcoach ' as photographs of these talented employees have appeared from time to time in our Magazine.

There is plenty of talent and initiative amongst our workers. There is ample scope in a production unit like I.C.F. for offering suggestions and in fact many of us will be having first class ideas which can be put to real use. The I.C.F. Administration is also very keen that everyone in this factory is encouraged to think and make suggestions. Suggestion boxes are scattered all over the factory. Each suggestion is promptly acknowledged and very carefully considered. A reward in cash for valuable suggestion or invention can be as high as Rs. 1,000. For suggestions which are found to be very valuable, grant of advance increments to the concerned staff is also considered. Each author of an acceptable suggestion is also given due consideration for higher appointment at the time of selection.

With all these attractive rewards for suggestions, with enormous scope for thinking and making suggestions in a production unit like I.C.F. and with the great talent of our I.C.F. workmen, we hope that every one amongst the eight thousand persons working in this factory will come forward to cash his ideas under the Suggestion Scheme and thus have a direct hand in further improving our efficiency, effecting economy and ensuring safety, etc.

Do You Know

INDIA is now one of the world's leading countries in respect of total track mileage of welded rails. The country had just over 300 miles of welded rails in 1955 but five years later these increased to about 1,500 miles. The length of a welded rail varies from 210 feet to 420 feet.

* * * *

THE number of consumer co-operative societies touched the record figure of 155 with a total membership of nearly 73,000 during the half-year ending December 31, 1959. During the previous half-year, railways had 146 consumer co-operative societies, with a total membership of 66,000.

* * * *

DURING the Second Plan period, up to March 31, 1960, 1,783 steam locomotives, 100 diesel locomotives, 6,091 passenger and other coaching cars, including electrical multiple unit and railcar and 85,529 wagons (4-wheelers) were delivered to the Indian railways.

* * * *

OUT of 8,000 miles of rail renewals and 8,000 miles of sleeper renewals provided for during the Second Plan period, rail renewals have been carried over 5,002 miles and sleeper renewals over 5,650 miles.

* * * *

BETWEEN April 1, 1956 and March 31, 1960, a total mileage of 588.30 has been doubled. 51.75 miles have been converted from metre gauge to broad gauge and 567.80 miles of new rail lines added.

* * * *

AMONGST the 700,000 class IV employees on the Indian railways, 133,000 are gangmen, 18,000 gatemen, 4,000 chowkidars, 167,000 khalasis, 18,000 engine cleaners, 15,000 porters, 9,000 hamals and 36,000 sweepers.

THE

VOL. V, No. 3 RAILCOACH JUNE 1961

PROGRESS MADE BY THE INTEGRAL COACH FACTORY DURING SECOND FIVE-YEAR PLAN

(Broadcast talk on A.I.R., Madras by Shri K. Swarup, Chief Administrative Officer, Integral Coach Factory, during Railway Week 1961).

Sixth Railway Week is being celebrated from the 10th to 16th April 1961 and according to our usual tradition I will now endeavour to acquaint the public of the achievements of I.C.F. a production unit of the Ministry of Railways so that they may appreciate the part this unit is playing in the economic development of the country.

A couple of years ago India was importing railway coaches from abroad. After Independence it was decided to set up this new coach building factory with a view to attain self-sufficiency in matter of Railway coaches for our needs. Thus this factory was built in the First 5 Year Plan, within a record period of 3 years starting from middle of 1952. It is equipped on the most modern lines and is one of the biggest coach building units in the world. The production was inaugurated at this factory on an auspicious Gandhiji's Birthday, *i.e.*, 2nd October in the year 1955.

During the 5 years of the Second Plan, I.C.F. has made phenomenal progress. It has not only contributed towards making India self-sufficient in matter of Railway coaches but is also trying to become one among the foreign exchange earners. The rate of production initially was, *a coach every one month* and this was assembled from components imported from Switzerland. The goal set for this factory was to turn out, *one coach every day*, *i.e.*, 25 times more. As against this I am proud to say that I.C.F. is actually producing now, 2 *coaches per day, i.e.,* 50 times more than what we produced 5 years ago, and with almost all components manufactured in the factory itself—thanks on one hand to the successful Swiss-Indian technical collaboration and on the other to the skill, the high sense of duty and teamspirit of all I.C.F. workers.

From an outturn of 12 coaches in the first six months of the last year of the First Plan, we have produced 583 coaches during the last year of the Second Plan, the total number of coaches produced at this factory up to end of Second Plan being 1,733.

Together with increased production, the efficiency of the shops has been increasing from year to year as the men have been gaining skill and experience. As a result of the Incentive System of Payment which has been introduced in I.C.F. from last year, it is expected that the efficiency will further improve, to be equal, if not better than that obtainable for similar coach production in more advanced countries of Europe.

The unit production cost of I.C.F. coaches has similarly been coming down steadily, the present cost being even less than half the cost of similar imported coaches for which we were paying as much in the freight and other incidental charges as our present manufacturing cost. During the Second Five-Year Plan such savings, *i.e.*, the difference between the cost of imported coach and the manufacturing cost at I.C.F. would work out to more than twice the investment in this factory.

No railway coaches are now being imported to India. The cost of coaches built at I.C.F. are very competitive and their quality is of a very high standard. Having achieved self-sufficiency, this factory is now tapping the export markets. The first attempt in export of our coaches was made against the tender for supply of coaches required by Pakistan and it is a matter of great satisfaction to say that the quotation from India for the 60 M.G. coaches was the lowest among 7 countries that participated in this global tender. We also participated in the tenders for supply of coaches to Argentina and our quotation for this was the second lowest out of the 28 tenders received from 15 different countries. The final results of these tenders are not yet known but the very fact that the cost of I.C.F. Coaches is competitive in the world market proves that given the requisite facilities, our public sector industries in India can come up to the high standards expected of them to bring India in competition with the highly developed countries and thus be able to earn much valuable foreign exchange for the country.

Encouraged by the excellent performance during the Second Plan period this factory has embarked on an ambitious plan to produce 3,735 coaches during the Third Five-Year Plan. This programme is more than double the production during Second Plan period and is also aimed at producing more comfortable coaches for First Class passengers, Electric Multiple Unit Stock and Diesel Railcars for shorter but faster travel, etc. Even the Deluxe coaches for tourist traffic are expected to be produced at this factory. I.C.F. is now fully equipped to manufacture any types of coaches required to any specification either for Broad Gauge or Standard Gauge or Metre Gauge.

The permanent furnishing annexe of this factory, the construction of which is now in full swing and the pre-fabricated reinforced concrete workshops of it are coming up rapidly, is expected to be ready for production early in the III Plan. By providing this furnishing unit, all the shells that would be turned out from the shell unit will be furnished and made available to the railways in the shortest possible time and with maximum efficiency and economy. It will also enable standardisation and providing better comforts to the passengers.

Interest taken by I.C.F. in the welfare and measures of betterment of its workers is well-known. I.C.F. Staff Colony which is provided with all modern amenities for the recreational and cultural activities of the residents, has about 800 units of quarters till II Five-Year Plan. During the III Plan it is proposed to nearly double this number of staff quarters.

The story of this State-owned Integral Coach Factory has been one of continuous development and growing productivity. It was mainly the constructional stage for I.C.F. during the I Five-Year Plan. The II Five-Year Plan was an intensive production phase directed towards achieving self-sufficiency. In the III Plan period, I.C.F. is looking forward with full hopes to build comfortable and faster running coaches for the more exacting requirements of the travelling public and at the same time to develop an export market.

All the 7,800 workers of I.C.F. from the ighest rank to the lowest in the ladder are edicated to do their best towards industriali-ıtion of the country and in raising the stand-rds of living in India. A feeling of oneness—eling that the workers are the owners of this ıctory—prevails at I.C.F. and it is this team-pirit that has been chiefly responsible for the nique progress of this factory. The factory .yout, the cleanliness all round in it, the produc-on flow, the modern light-weight coaches roduced at this factory and the skill of our 'orkmen are admired by all people of the ɔuntry and from abroad, while visiting I.C.F.

I, on behalf of the administration would like ɔ express our thanks to the press, the public and the All India Radio who have taken a particular interest in our progress and will be failing in my duty if I don't express how thankful we are to the Madras State Government for their guidance and assistance.

We, the I.C.F. workers are very proud that, out of all the industrial undertakings, I.C.F. was selected for the Queen's visit during this year. Her Majesty was very appreciative of what was being done here and expressed how modern this factory was. We will try to keep up to the confidence and trust reposed in us and would do our best to do even better than what we have been able to achieve so far. So help us God.

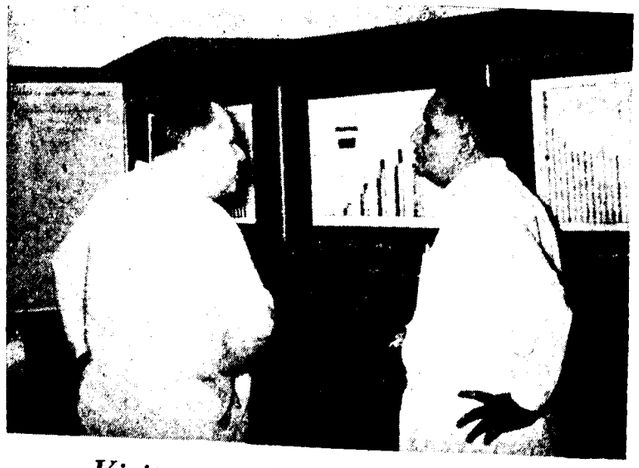
Democracy disciplined and enlightened is the finest thing in the world. A democracy prejudiced, ignorant and superstitious will land itself in trouble and may be self-destroyed.

—MAHATMA GANDHI

* * * *

A nation which endures factious domestic division, is exposed to disrespect abroad.

—ABRAHAM LINCOLN



H. E. Dr. Ricardo Mosquera Eastman, the Argentine Ambassador in India, visited I.C.F. on May 17. Picture shows Shri K. Swarup, C.A.O.(R)/I.C.F. explaining to the distinguished visitor the salient features of the Factory with the help of charts.

Visitors to the Factory

ARGENTINE AMBASSADOR'S PRAISE FOR THE FACTORY

His Excellency Dr. Ricardo Mosquera Eastman, the Argentine Ambassador in India visited the Integral Coach Factory on 17-5-61. On arrival the distinguished visitor was received by Shri K. Swarup, Chief Administrative Officer. After explanation of the salient details about the factory, His Excellency was taken round the Shell Factory, the Permanent Furnishing Annexe under construction and the Staff Colony. In the course of his visit, the distinguished visitor also inspected a fully furnished coach ready for despatch. His Excellency was greatly impressed with what he saw in the factory. At the conclusion of the visit His Excellency recorded his impressions in the Visitors' Book as follows :—

> "This Factory is a true hymn to the future of India and shows how the old wisdom of the country is able to achieve new and wonderful enterprises."

On the same day a group of members of Parliament, who are going round a number of National Projects in the country, visited the factory. After a visit to the Shell Factory, the distinguished visitors had discussions with the Chief Administrative Officer and the Heads of Departments of the factory. At the conclusion of the visit, the members recorded their impressions in the Visitors' Book as follows :—

> "The layout and design of the Factory is excellent—one of the best we yet saw in the country. We are glad that the Factory will double its production in the Third Five-Year Plan. With the Furnishing division completed, the factory will have more balanced capacity. The officers of the factory, whom we met, are capable, hard working, and very courteous. We are proud to see our young men in charge of big sections of production. We wish them still further success. We found that the workers are also well looked after. We visited their quarters and saw the many amenities provided to them."

A group of Members of Parliament who visited the Factory on May 17.

Mr. Francois Chatelain, Consul-General of Switzerland in Bombay, having discussions with senior officers of the Factory when he visited I.C.F. on May 24.

Mr. Francois Chatelain, Consul-General of Switzerland in Bombay, visited the Integral Coach Factory on the morning of the 24th May, 1961. The Consul-General was shown round the shops of the Shell Factory and the Furnishing Annexe. At the conclusion of the visit, Mr. Chatelain was presented with a miniature model of the coach being manufactured in the factory as a memento of his visit. Recording his impression in the Visitors' Book, Mr. Chatelain said that he was much impressed with his visit to the factory "which is a wonderful testimony of Indo-Swiss collaboration."

His Excellency Senor Manuel Marene Sanchez, President of the Senate of Mexico, accompanied by other members of the Extraordinary Diplomatic Mission from Mexico visited the Integral Coach Factory on the 9th May, 1961. On arrival His Excellency was received by the Chief Administrative Officer. After explanation of the salient features of the factory and the progress made in the course of a few years since the inauguration of production in October 1955, His Excellency was shown round the Shops of the Shell Factory, the Furnishing Annexe and the Staff Colony. His Excellency was much pleased to see the progress made in the factory in the course of a few years. At the conclusion of the visit a coach model was also presented to His Excellency as a memento of his visit.

On the same day earlier in the afternoon, Dr. Lee G. Rigler, visiting Professor of Radiology, California University and Mrs. Rigler visited the factory.

H.E. the President of the Senate of Mexico examining the model coach presented by Shri K. Swarup, C.A.O. (R) I.C.F., on the occasion of his visit to the I.C.F. on May 9.

NEWS & VIEWS

New Rail Line for Konkan Region — Central Railway to carry out Construction

The Railway Board has sanctioned the construction of the Diva-Panvel-Uran broad gauge railway line on the Central Railway, covering a distance of 33.69 miles.

The construction work will be carried out by the Central Railway Administration.

The new line when completed will help the economic growth of this part of the underdeveloped Konkan region on the Central Railway and will relieve congestion around Bombay arising from industrial development.

HILL STATION RAIL CONCESSIONS

As in previous years concessional hill station return tickets for I, II and III classes at one and a half single journey fares have been introduced this year too from April 1 to October 31.

These concessional tickets are available for completion of the return journey within a period of three months from the date of the commencement of the outward journey as endorsed on the tickets. Booking in advance is permitted as usual so as to facilitate reservation of seats or berths.

Details

Tickets are issued from all stations from which the distance is 240 kilometres or more in conjunction with the other Railways concerned, to Simla, Solan, Dharampore (Punjab), Pathankot, Dehra Dun, Kathgodam, Pipariya, Ootacamund, Kodaikanal Out-Agency (served by Kodaikanal Road), Abu Road, Coonoor, Darjeeling, Kurseong, Shillong (*via* Pandu), Kotagiri Out-Agency (served by Mettupalaiyam), Mussorie Out-Agency (served by Dehra Dun) and Nainital Out-Agency (served by Kathgodam). The fares due are calculated at one and a half single journey fares for the rail portion and two single journey fares for the respective classes over the road portion.

Break of Journey

Holders of concessional Hill Station Return Tickets for Dehra Dun and Mussorie Out-Agency are permitted to break journey at Hardwar either on the outward or the return journey (but not both ways).

No refund is granted on the unused portion of these tickets.

Concessional Travel to Kashmir

Concessional rail-cum-road and rail-cum-air return journey tickets for I, II and III classes have been introduced from Waltair, Tatanagar, Raipur and Cuttack stations over the South Eastern Railway (including City Booking Offices and Agencies where existing) to Srinagar *via* Pathankot from April 1 to October 31 this year.

In the case of I and II classes, the concessional return tickets are issued at one and one-third and for III class at one and a half single journey fares over the rail portion plus Rs. 27 return fare per seat over the road portion or Rs. 90 per seat for the air portion.

Period of Validity

The concessional tickets remain valid for a period of three months from the date of issue or the date endorsed for the commencement of journey.

THE GREAT ARTERY OF THE GANGES VALLEY

BY

M. M. KHAN

General Manager, Eastern Railway

The Second Plan period will go down in the history of the Eastern Railway which is the great artery of the Ganges Valley as a period of significant changes.

It is during this period that a third class passenger secured his right to sleep during night journey without payment of an extra charge, people could receive parcels addressed to them at their doorsteps through S.C.D., and an Industrialist could send goods to their destination within a prescribed period through Q.T.S. and express goods services.

The period also saw the birth of electrification of certain sections in the Howrah division, besides completion of new rail links and yards of vital importance to the country.

It has quite often been said that the Railways have shortened distances. But at no time in the history of the Railways was it more correct than on that trying summer afternoon in 1959 when, standing near Jim Corbett's Mokameh, our Prime Minister opened the Rajendra Pul over the river Ganga, which in her 300-mile course through the Bihar Valley had so far remained unbridged and had divided the State into North and South Bihar.

If the Rajendra Pul had helped the integration of the agricultural North with the mineral-rich South, the not-much-publicized ferry service between Farakka and Khejuriaghat has also brought the two halves of the truncated West Bengal closer. Then again, the rich Ranchi plateau, so far inadequately served by a narrow gauge track, has been conspicuously placed in the broad gauge railway map of India.

They are some of the important achievements of the Eastern Railway, the great artery of the Ganges Valley during the Second Plan. These can well be regarded as landmarks in the history of Indian Railways.

The Second Plan period also saw the introduction of two distinct forms of railway traction—electric and diesel—after a century of monopoly enjoyed by the steam locomotives of George Stephenson.

Improving Common Man's Lot

It was during this short span of five years that the common man, undertaking a long journey, has come to enjoy the amenity of spending his first night on a third class sleeping berth without paying any extra charge. It was also for the first time since the war that he could send a chit to the Railway's contractors and ask them to collect his parcel from his doorsteps in Calcutta or in Patna.

Handling Increased Traffic

Transportation today is a highly complex industry and no accurate analysis of the performance of a transport undertaking is possible without inevitable reference to such

technical terms as "wagon loading", "net ton miles", "passenger miles", "engine miles per day per engine in use," etc.

During the last year of the first Five-Year Plan, *i.e.*, 1955–56, the Eastern Railway had loaded on an average 4,272 wagons every day, consisting of 2,427 wagons of coal and 1,845 of other commodities.

The total loading of goods had amounted to 29.86 million tons. In 1959–60, the originating goods traffic rose to 37.44 million tons. The traffic for the last year has been estimated at approximately 39.82 million tons.

Coal movement

Coal constitutes about 64 per cent of the entire goods traffic carried by the Eastern Railway. Coal loading during the first ten months of 1960–61 recorded an increase of 113,647 wagons as compared to the corresponding period of the previous year.

In December 1960, 115,898 wagons were loaded with coal and coke, as against 90,843 in December 1959. In January this year, 6,170 wagons were loaded daily with coal and other goods as against 5,342 in January 1960. Despite the emphasis on coal loading, the Railway, however, has not only maintained but substantially improved its performance in goods loading.

Of the total target production of 95 million tons of coal at the end of the Third Plan, the Bengal and Bihar coalfields will be called upon to produce 70 million tons. The bulk of the increase in the coalfields will have to be carried by the Eastern Railway.

Eastern Railway's expansion programme under the Second Plan was integrated with the rapid industrial growth taking place in the region served by the Railway, particularly the steel, coal, cement, jute industries and with increased movement of foodgrains.

With the steel plants at Durgapur, Rourkela and Bokaro going into various stages of production, the execution of the expansion schemes of the steel industries at Burnpur and Kulti, establishment or expansion of other industries, like cement, paper, jute, chemical fertilizers etc., increase in agricultural output and rapid development of collieries, goods traffic on this Railway is expected to soar new heights during the Third Plan period.

Passenger traffic

In spite of the vital but strenuous role played by the Eastern Railway in the movement of goods to help the planned economic development of the country, the problems of the passenger have not been lost sight of. In 1959–60 out of every 100 miles covered by Eastern Railway trains, 54.1 miles were done by passenger trains and 45.9 by goods trains.

Against the target increase of 15 per cent in passenger train miles set for the Second Plan, the Eastern Railway has already provided an increase of 15 per cent on non-suburban and 26.9 per cent on suburban services, thereby achieving an overall increase of 18.8 per cent. The target for the Third Plan is only an increase of 15 per cent in seat miles and there should be no difficulty in achieving this target.

About 229 million passengers—more than half the population of India had boarded Eastern Railway trains in 1959–60. During the year just ended 248 million used this Railway.

Electrification

Thanks to the electrification of Howrah–Burdwan and Sheoraphuli–Tarakeswar sections, more people are now living in the outer suburbs of Calcutta than previously. Ten years ago (1951–52), the Howrah division of the Eastern Railway was carrying daily on an average 72,680 suburban passengers. It is now carrying 1.75 lakh suburban passengers every day.

The number of trains on the electrified sections has been nearly doubled. There are now 126 electric trains against 66 steam trains before the introduction of electrification. The time taken for the journey has also been considerably reduced.

The carrying capacity of the EMU trains is also much higher than the older trains. During the peak hours, a three-unit EMU train provides seating and standing accommodation to 1,680 passengers, as against 650 in a conventional steam train. This has gone a long way in reducing overcrowding on these sections.

Despite the unprecedented increase in its passenger traffic the Howrah division is still far behind the performance of the Sealdah division, which had carried 107 million suburban passengers in 1959–60. The Sealdah division still handles 64 per cent of the total suburban traffic on the Eastern Railway. The problems of this division are being tackled vigorously. The electrification work of this division on 25 KV single phase AC system is going on. In the meantime, the Rs. 89-lakh Sealdah station and yard remodelling plan has made satisfactory progress.

The existing system of signalling in Sealdah division is not adequate to deal with the increasing number of trains that would be run after the completion of electrification. The two cabins at Sealdah will be replaced by an electrically operated automatic cabin working on the route-relay system of interlocking.

New Railway lines

Out of the total anticipated cost of Rs. 79.97 crores on Second Plan works, the construction department's share was Rs. 28.55 crores plus Rs. 7.46 crores which this department was called upon to spend on provision of rail facilities required by the new steel industries.

Of the new lines, the 133-Km. Chandrapura–Muri–Ranchi section has already been opened to both passenger and goods traffic. Nearly 9 Km. of the line from Ranchi to the extreme end of Hatia yard has also been completed. The construction of Hatia–Bondamunda section has been included in the works programme of the Third Five-Year Plan. When complete, the new line will be used for the movement of coal from the Bokaro and Jharia coalfields to the Bhilai and Rourkela steel plants.

The 53-Km. Baraset–Basirhat–Hasnabad broad gauge line in West Bengal is being laid through the area which was once served by the now-defunct Baraset–Hasnabad Light Railway. The estimated cost of the project is Rs. 25.6 crores. Passing through the outer suburban area of the city of Calcutta, the line will provide an outlet for the agricultural and forest resources of the Sunderbans. Formation and bridgework of the line are nearly complete and linking of the track has been started. The line is expected to be opened towards the end of 1961.

In South Bihar the Eastern Railway is spending Rs. 25 million to lay a 53 Km. railway line, which will connect Bukhtiarpur with the ancient city of Rajgir, sanctified by Gautam Buddha. The line will thus link up Patna with the Rajgir and the ruin-studded international university of Nalanda. This line is also expected to be opened towards the end of 1961.

A stretch of 13 Kms. of railway line between Damodar and Kalipahari has already been opened to goods traffic. This is helping the heavy ore traffic for Durgapur to bypass the busy yard at Asansol. The remaining 2 Km. stretch of the line, with a 150-fly over across the main line, is expected to be opened to traffic shortly.

Of the seven lines in the Karanpura and allied coalfields each with a big yard at the colliery site, five have been completed and opened to traffic. The work at Sayal Siding has also advanced substantially and loading has started on this line. The Tildanga–Faraka line with a broad gauge wagon ferry between Faraka and Khejuriaghat has also been opened to goods traffic.

New Railway Yards

Of the new yards, the exchange yard at Hirapur, the coke oven plant yard and the yard for the steel plant at Durgapur have been completed and commissioned. The yard to serve Dugda washery is also ready except for some minor works which will be carried out when the washery goes into production.

The construction of the yard at Patratu has also been progressing satisfactorily.

With the satisfactory progress of the Second Plan works some of the works earmarked for the Third Five-Year Plan have also been taken up in advance. The aggregate cost of these works is roughly Rs. 20 crores which includes the construction of the 161 Km. Hatia–Bondamunda section, with a branch to Purnapani, doubling of the 93 Km. Barkakana Loop between Patratu and Tori and between Humandih and Barwadih, and the Patratu–Damodar Branch.

The second phase of the remodelling of the Andal Yard and the exchange yard to serve the Indian Iron & Steel Company at Hirapur will also start in the current year. Necessary survey for the construction of a line to serve the Patratu thermal power station has recently been carried out and the work will be taken up shortly.

Improved signalling

In the coalfield area improved standard of interlocking and token-working have been introduced with a view to increasing line capacity. As coal traffic during the Third Plan will be much greater in volume than that of the Second Plan, the sectional capacity of the Railway will be increased by providing Standard III interlocking, tokenless working and also by doubling the single line Patratu–Tori and Kumandih–Barwadih sections.

On the main line, additional safety measures have been provided by introducing lock and block working between Mathrupoore Block Hut and Mughalsarai. All non-interlocked stations on the Sahibganj loop have been interlocked. Similar measures are being taken on the Bandol–Barharwa loop and the southern section of Sealdah division.

Track circuits are being provided on the platform lines at Sealdah, Patna, Asansol, Naihati, Kiul and Sitarampur stations. This will reduce the chances of accidents within the station areas.

The important marshalling yards at Mughalsarai and Andal are being mechanised. The electrified Howrah–Burdwan section has been provided with colour light signals. Similar work is in progress on the Asansol–Dhanbad section.

The public address system at Howrah and Sealdah stations has proved a success. During the Third Plan more stations will be provided with loud-speakers.

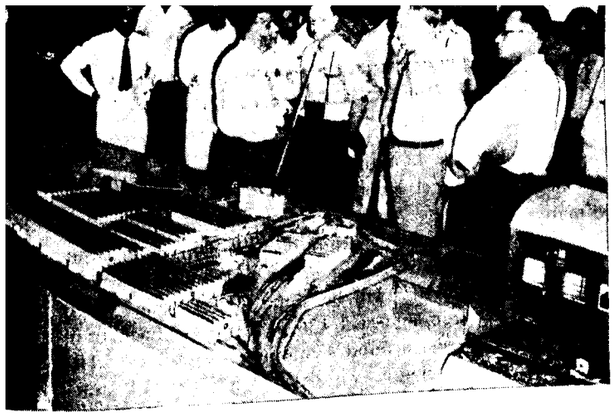
Diesel traction

The introduction of diesel locomotives on the Eastern Railway was another significant march in the Railway's bid for modernisation during the Second Plan. These 1,950 H.P. locomotives have set a new pattern in the movement of goods traffic on certain busy routes of this Railway. In the beginning, the diesels were made to work 2,300-ton goods trains between Gaya and Gomoh-Dhanbad—This section has a stretch of 14 miles in a gradient of 1 : 80. Later, with the arrival of more diesels, working of goods trains hauled by diesel locomotives was extended to Mughalsarai and to Barkakana *via* Sone Nagar and Barwadih. Each of the two diesel locomotives has been earning an average mileage of about 7,500 miles a month. The engine miles per day per engine in use have been of the order of 250.

Diesel traction will be expanded during the Third Plan period. A new shed is being set up at Patratu in the heart of the Karanpura coalfields which are being developed by the National Coal Development Corporation.

The diesel locomotives to be based at Patratu will not only meet the increasing transport requirements of the Karanpura coalfields, but will also move heavy coal trains of 3,600 tons over the new link between Garhwa Road and Chunar, now under construction. This will reduce the pressure of movement to up-country direction over the Sone Nagar–Mughalsarai section.

(*Continued on page 22*)



Members of the World Bank Technical Mission led by Mr. Stanley F. Dingle visited the Integral Coach Factory during April 1961. Photo shows the Chief Administrative Officer of I.C.F. explaining to the distinguished visitors the features of the Factory with the help of models.

WORLD BANK TEAM IN I. C. F.

(Above) Shri K. Swarup, presents a wooden tray to Mr. Stanley F. Dingle as a memento of the World Bank Team's visit to the I.C.F.

(Left) On the same day a party was arranged in honour of the visiting team by officers of the I.C.F. at the I.C.F. Guest House. Photograph shows Mrs. Swarup, wife of Shri K. Swarup CAO(R)/I.C.F. being introduced to one of the members of the World Bank Team.

NEWS FROM SWITZERLAND

Big success of a little apparatus

In spite of the progress achieved in the mass production of goods, there are still a good many people who like to make articles of daily use last as long as possible, this either for reasons of personal convenience, or else because of difficulties of supply. This is the case, for instance, in regard to razor blades which a great many men like to use, or have to do so, more than just for one morning. This is easily possible if one owns a simple and efficient apparatus for sharpening the blades. A Swiss manufacturer solved this problem already some forty years ago ; today, the " Allegro " sharpener, which is very strongly built makes it possible for millions of men, all over the world, to go on using the same razor blade for several months—in fact for a whole year. The number of these gadgets already sold, now exceeds three millions.

A Swiss inventor awarded the 1961 " Inventors' Oscar "

At the Inventors' Exhibition, at Brussels, the 1961 " Oscar " for the most outstanding invention has been awarded to a Swiss inventor, Mr. Guignard, for his apparatus for tying up plants. This Guignard " tyer-up ", which uses a special fibre for binding, which is more advantageous than the usual fibres employed for this purpose, is made in the shape of a pistol ; it attaches the plants, branches of trees, vines, etc., automatically and more firmly and more rapidly, to the props, poles or trellises.

Electric TEE trains through the Swiss Alps

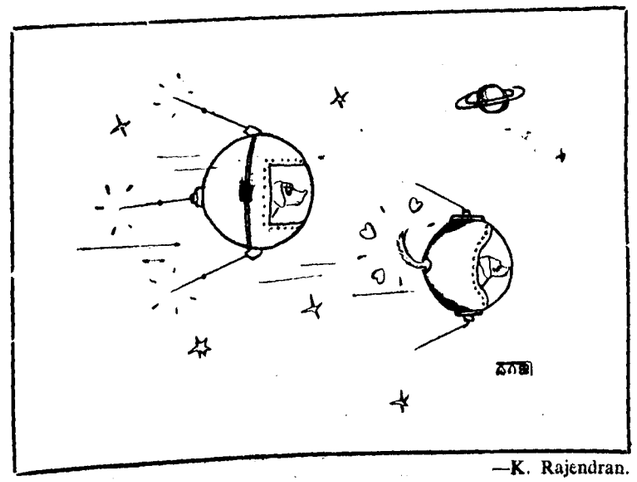
Two of the world's most scenic railway trips—via the Alpine routes of the Simplon and the St. Gotthard—can soon be made in all-electric Trans Europe Express (TEE) trains, it was announced by the Swiss Federal Railways. Two new TEE connections will start to operate on July 1st, namely, Zurich-St. Gotthard-Milan and Milan-Simplon-Lausanne-Paris. For the first time, electric engines, instead of the diesel locomotives in operation on other TEE lines, will be used. According to the Swiss Federal Railways announcement four five-unit trains are at present under construction. They will be some 400 ft. long, weigh 244 tons and seat 126 passengers. Each train is to cost around 4 million Swiss francs. The electric engines will develop a 3,400 H.P. traction power and a maximum speed of 100 miles per hour. An added attraction will be the new type of restaurant cars, each accommodating 54 passengers in the dining and cocktail-lounge compartments. Introducing these up-to-date luxury trains for rapid trans-Alpine travel is another pioneering " first " of the Swiss Federal Railways.

A dining car built in Prague in 1914, last survivor of its kind, the famous " Voiture de Compiegne " in which the Armistice of 1918 was signed, has retired from active duty on the St. Gotthard run of the Swiss Federal Railways and is now assuming the double part of a historical exhibit and a restaurant at the Swiss Institute of Transport and Communications in Lucerne.

Switzerland at the International Labour Exhibition in Turin

Together with 21 other nations and international organisations, Switzerland will participate officially in the International Exhibition of Labour, which will be held in Turin, from the 1st of May to the 31st of October, 1961. This exhibition is to take place within the framework of the celebrations arranged to commemorate the centenary of the Unity and Independence of Italy. It is the Swiss Office for Development of Trade which has been charged with the task of arranging the Swiss participation, in collaboration with the Division for Commerce of the Federal Department of Public Economy, the Federal Office for Industry, Arts and Crafts and Labour, and various other institutions. The organisers of the Swiss section have chosen " the natural sphere of activity of the worker " for their theme. The Swiss Section will comprise four principal groups ; the first group will show how important it is for the well-being of the worker and for his output, that the plant should be situated in pleasant natural surroundings. The second group will show, by means of small models and photographs, some examples of construction sites, laid out in accordance with modern conceptions. The third group will deal with the material and moral components of the immediate vital sphere of action of the worker. Finally, in the fourth group, it will be shown that the free worker, whose activities take place under favourable conditions, is an active member of the national community, that he strives to contribute to the well-being of all and to destroy the narrow frame of his immediate interests.

Love in Space.....!!



—K. Rajendran.

GANGES VALLEY

(*Continued from page* 18)

Railway Workshop

The major workshops of the Railway at Kancharapara, Jamalpur and Lillooah are playing an important part in the repair and maintenance of rolling stocks. A system of payment by results has recently been introduced on a limited scale in the Jamalpur Workshops. This system will be gradually extended to all the railway workshops.

The Jamalpur Workshops have started production of 40-ton steam cranes. The manufacture of the Box type wagons has been taken up in the Kancharapara Workshops.

Quick Transit Service

The Express Goods Service is available between Howrah on the one hand and Patna, Gaya, Dhanbad, Vhagalpur and Ramporehaut on the other. A similar service is available, every alternate day, between Patna and Howrah. Quick Transit Services with guaranteed time of delivery have been introduced between a large number of stations.

It was during this period that the Eastern Railway diversified its activity by participating in the Bihar State Road Transport Corporation.

In its desire to serve those areas which are away from the railhead the Eastern Railway opened five out-agencies during the Second Plan period. Proposals for opening out-agencies at several other points in West Bengal, Bihar and U.P. are being examined.

Staff welfare

The performance of any organised industry is, in the ultimate analysis, a reflection of the sincerity and efficiency of the men who run it. With an army of 1.73 lakh men the Eastern Railway is ready to attack the problems of the Third Plan so that the Rail transport capacity may keep pace with the demand.

The health and welfare of the staff and their family is one of the major concerns of the administration. The Railway is at present running 8 hospitals, 75 health units, 10 chest clinics, 10 dental clinics. Two hundred and forty beds in sanatoria have been kept reserved for T.B. patients. Another 76 patients are receiving treatment in other sanatoria at the expense of the Railway.

The Railway is running 119 schools of different types. A subsidized hostel has also been opened at Patna for the sons of employees. Three technical and vocational training centres impart training to staff, their children and dependants.

As a measure of economic assistance to the railwaymen's families, the Mahila Samities on this Railway are being encouraged to fabricate hospital and other staff uniforms and thus supplement their family income.

About 55,000 quarters have already been made available to the staff and more will be built during the Third Plan. Seven mobile libraries are now running on this Railway to supply books to the railwaymen at wayside stations. Cheap Holiday Homes at healthy places situated in congenial environs provide opportunity to the railway staff to get away periodically from the stress and strain of their daily lives.

The elderly gentleman decided he'd better interfere in the street fight. Laying a restraining hand on one urchin's shoulder, he said, "You shouldn't hit that other lad when he's down."

"My goodness!" exclaimed the boy. "What do you think I've got him down for?"

MAKING RAIL TRAVEL MORE COMFORTABLE

BY

D. R. KHANNA

General Manager, Central Railway

In spite of special emphasis having been laid on the development of goods traffic for the Five-Year Plans and rapid rise both in goods and passenger traffic, the Central Railway has made a determined bid to make rail travel more comfortable.

In the article, the Central Railway Chief details the various measures taken by his Railway to ease the problem of overcrowding and provide a number of facilities to millions of its patrons.

In this era of planned economy, the role of the Indian Railways has been obvious. As a major transport undertaking, the Railways have been called upon to provide in an ever-increasing measure the sinews of efficient transportation to cope with the spiral of increasing traffic—goods and passenger.

In view of rapid industrialisation contemplated in the Second Plan, the requirements of goods traffic had naturally to be given an overriding priority over passenger traffic. The main emphasis in railways' planning was therefore on movement of goods.

A large number of Civil engineering works were therefore, undertaken during the Second Plan period on those sections of the Railway where the line capacity had been strained to its saturation point and where additional capacity had to be provided for coping with the increasing goods traffic.

Our ability to introduce additional trains was therefore determined to a very large extent by the pressure of goods traffic.

Passenger traffic

It would, however, be wrong to give the impression that with the preponderant emphasis in the Second Five-Year Plan on the requirements of goods traffic, the problems affecting passenger traffic have either been ignored or forgotten. The Railways have, indeed, given a good deal of attention to the problems of passenger traffic and have endeavoured to provide reasonable facilities for travel and to add to the comforts, however modestly, of the millions of passengers.

During the Second Plan, additional trains could be introduced only on the sections where some spare capacity was available. Some orientation in this policy would perhaps be possible in the Third Plan period when heavier (and longer) goods trains—with the special bogie type of wagons—would be run. The idea is to exploit the available line capacity to the utmost by running heavier trains instead of more trains. This policy would, to some extent, release some capacity for additional passenger trains where they are necessary and justified.

Steady spurt in passenger traffic

One aspect of our passenger service for which the Railways have been subjected to constant criticism is overcrowding. This criticism, however, does not take due notice of the fact that although quite a few measures have been adopted to mitigate overcrowding, the Railways have not been completely successful catching

up with the ever-increasing spiral of passenger traffic. The authors of the Second Plan provided for a 15 per cent increase in passenger traffic during the Second Plan period over the 1955–56 level.

A striking picture of the trends of passenger traffic on the Central Railway is easily provided by following figures. In the year 1938–39 the Central Railway carried 66 million passengers, and this figure rose to 264 millions in the year 1955–56. The approximate number of passengers carried by the Central Railway in the year 1960–61 is 336 millions—nearly 550 per cent of what it was in 1938–39 and 136 per cent of what it was at the end of the First Five-Year Plan period ! Likewise, passenger miles, which stood at 3.320 millions in 1938–39, rose to 7,186 millions in 1955–56, 8,515 millions in 1959–60, and would approximately be 8,846 millions in the year 1960–61. The passenger miles have increased nearly 320 per cent over the 1938–39 level and nearly 23 per cent more over the 1955–56 level.

Additional trains on Central Railway

It is obvious, therefore, that the rapidly increasing passenger traffic is more than what we have been able to cope with, in spite of the measures taken during the Second Five-Year Plan period.

The Central Railway had programmed for the introduction during the Second Plan period of 16 additional passenger trains. In July 1956, the Delhi–Madras Janata Express was converted from a bi-weekly service into a daily service. In February 1957, a Deluxe Express was introduced between Madras and Delhi, with air-conditioned First class and air-conditioned Third class accommodation. The Hyderabad–Howrah Express, which was introduced in October 1957, provides a direct fast service between Hyderabad, the capital of Andhra Pradesh, and the northern coastal districts of this State. In November 1957, after Bhopal became the capital of Madhya Pradesh, the Bhopal–Bilaspur Express was introduced in order to provide a convenient service linking up important far-flung cities in Madhya Pradesh. On 1st October 1959 the bi-weekly Bombay–Madras Janata Express was converted into a tri-weekly service and a year after a bi-weekly Janata Express between Bombay and Howrah via Allahabad and the Bombay–Nagpur Express also introduced.

Additional passenger trains were also introduced during the Second Plan period on the Wadi–Secunderabad, Kazipet–Hyderabad, Kazipet – Balharshah, Bhusawal – Khandwa, Jhansi–Kanpur, Secunderabad–Mahbubnagar and Bina–Katni sections.

With the completion of the last stage of construction in December 1960, the entire Khandwa–Hingoli Metre Gauge Rail link was declared open to passenger traffic on January 2, 1961. We now have passenger services between Akola and Khandwa, and Akola and Purna on this Metre Gauge Rail link.

Changes in traffic pattern

With the re-organisation of the States in 1957 and the location of the capital of Madhya Pradesh at Bhopal and of Andhra Pradesh at Hyderabad, the pattern of passenger services serving these capitals had to be re-orientated in order to fit in the changed demands of traffic.

In the case of Andhra Pradesh, convenient services had to be provided between Hyderabad and the coastal areas of Andhra Pradesh north and south of Vijayawada. Likewise, in the case of Bhopal, the capital of Madhya Pradesh, such distant points as Bilaspur and Indore had to be linked up by a test passenger service serving the capital also. In the case of Maharashtra, an Express train was introduced between Bombay and Nagpur, particularly to meet the requirements of the Vidarbha areas, and also in view of the State Legislature holding its winter session in Nagpur.

Shortage of electric goods

One of the major difficulties the Central Railway has had to contend with in respect of passenger and goods operation, was the shortage

of electric locomotives on the Bombay division. Consequently proposals for the introduction of additional long distance trains in the division could not be progressed with. A number of steps were however taken in recent months to overcome this shortage. The first was the transfer of five 3,000 Volts D.C. locomotives from the Eastern Railway for modification and use on 1,500 Volts D.C. The five locomotives, received from the Eastern Railway, have already been converted and brought into use on the Bombay Division.

Of the seven locomotives on order from Japan, two will be on replacement account and five will be the additional power that will be placed at the disposal of the Bombay division. Of these seven, four locomotives have already been received and the balance would be available in April 1961. Ten locomotives are under manufacture at Chittaranjan and are expected to be available in the course of the year.

Steps to ease overcrowding

One of the measures which the Central Railway took during the Second Plan period and which helped to some extent in easing overcrowding had been to increase the loads of Mail and Express trains from 12 to 18 coaches. This provided substantial relief on some of the most popular trains between Bombay and Calcutta, Delhi and Madras.

A large number of sectional coaches were introduced during the period, between important cities so that a convenient direct service was provided between such cities and the pressure on the through coaches correspondingly reduced. In 1960–61, four such sectional coaches with upper class accommodation and three third class coaches were introduced.

More trains in Third Plan

The Third Plan of the Central Railway envisages the introduction of a daily Express between Bombay and Secunderabad, between Hyderabad and Madras, between Bombay and Lucknow, a bi-weekly Janata Express between Bombay and Delhi, conversion of the present tri-weekly Bombay–Madras Janata Express into a daily service, a bi-weekly Janata Express between Bombay and Vijayawada, and an additional passenger train between Bombay and Poona, Bombay and Nagpur, Khandwa and Kacheguda (Metre Gauge), Manmad and Dhond, Manmad and Janna, Poona and Nagpur *via* Dhond–Manmad, Bombay and Manmad, Poona and Sholapur, Itarsi and Bhopal, Itarsi and Allahabad, Amraoti and Nagpur, Bhopal and Agra Cantonment and between Dhond and Baramati. This is, of course, only a tentative scheme and the actual implementation would depend on the availability of line capacity, locomotives and coaching stock.

Bombay suburban traffic

The statistics in respect of the passenger traffic in the electrified Bombay suburban area are interesting :

	1955–56	1958–59	1959–60	1960–61 (approximate)
Number of passengers carried (in millions).	162	185	205	220
Vehicle Miles (in millions)	23.95	24.04	25.62	25.62

The figure of passengers carried (as anticipated) in 1960–61 would account for a nearly 25 per cent increase over the 1958–59 level.

With the steep increase in the traffic on the Harbour Branch, there has been a persistent demand for running all the trains on the Harbour Branch in the peak periods with double units. This has not been possible so far because of paucity of stock. Six units of Electrical Multiple Unit are expected to be made available in April 1961, and as many double units as possible will be provided then on the Harbour Branch service during the peak period.

9-Car units

The Central Railway is going ahead with the scheme to introduce 9-car units as against the existing 8-car units in the Bombay suburban main line sections. An order has already been placed for the manufacture of 28 third class trailer coaches so that the 9-car units could be formed. The first lot of eight of these coaches is expected to be delivered sometime in July this year and the balance by December 1961. This would provide some relief to overcrowding in the Bombay suburban trains. Proposals for lengthening of platforms, shifting of signals and overhead equipment structures are being progressed.

Passenger amenities

The Central Railway has adopted recently a number of measures to improve conditions of travel. Additional booking windows are now being provided on Sundays and holidays at Ghatkoper and Mulund to cope with the pressure of holiday traffic. A proposal to set up an automatic printing machine at Dombivli with a view to quick issue of tickets is also under consideration. The position at other stations is also being constantly observed.

The Bombay–Poona Janata Express train is now being operated with vestibuled rakes and the present policy is to provide all Janata Express services, as far as possible, with vestibuled rakes, except for the sectional coaches.

One of the most significant measures taken by the Central Railway (along with the other Railways) was the introduction of the new type Third Class Sleeper coaches—with accommodation for 75 passengers—on most of the important Mail and Express trains operating on the Railway.

Considerable attention has been given to the matter of providing at Victoria Terminus and other important stations adequate facilities for the reservation of accommodation for the air-conditioned, First, Second and Third class passengers.

Departmental catering

Departmental catering, first introduced in 1956, has been further extended to selected stations and Dining Cars.

A non-official Catering Advisory Committee meets periodically and their advice is taken on various aspects of management of departmental catering.

Safe deposit lockers

Under a recently introduced scheme at Bombay V.T. and Poona, passengers can deposit their valuables in lockers provided by the Railway on a nominal charge.

Rail concessions

The Central Railway follows a liberal policy in the matter of concessions in fares for railway journeys for several purposes to (i) students including foreign students, (ii) the Bharat Scouts and Guides, (iii) sportsmen, (iv) Kisans and industrial workers for visits to national projects, (v) persons taking part in voluntary service in Community Projects, (vi) bona fide professional entertaining companies or parties, (vii) persons attending the annual sessions of several all-India bodies of educational, cultural and social importance.

Concessional return tickets are also being made available during the Dusserah, Diwali and Christmas holidays and during the period from July to September to hill stations in India. Under certain conditions, concessions are also made available to blind persons, cancer and tuberculosis patients.

The Central Railway has been participating in the scheme of week-end excursions to Ajanta and Ellora caves sponsored by the Government of Maharashtra for the benefit of the Low Income Groups. The parties proceed from Bombay to Ajanta by rail via Aurangabad–Manmad. A broad gauge coach is placed at the disposal of the party and the entire "60-hour" trip costs the excursionist Rs. 60 per head.

A lot of planning and careful execution has gone into the tackling of the problem of summer exodus from Bombay and other spurts in seasonal passenger traffic. As against 471 special trains during the year 1958–59, 524 such trains were run in 1959–60. During the period from April 1960 to December 1960, 378 special trains were organised. As many as 50 Kisan specials were sponsored.

Despite several inherent difficulties such as interchange of stations, long distance run on single line, the Central Railway has shown improvement in punctuality performance. In January 1961 for instance, the punctuality figure for Mail and Express trains in B.G. stood at 79.3 as against 62.3 in the previous year. On metre gauge, it was 98.6 as against 93.6 in 1959–60. Passenger trains on B.G. and M.G. marked an improvement of 7.5 and 2.2% over the performance of the previous year.

It is indeed realised that much remains to be done, but it must also be said that what has been achieved so far in the sphere of passenger traffic is by no means unimpressive.

The "Promised Land" may yet be far off, but we are confident we are on the right road and that the ideal comfort in travel would soon be within our grasp.

DID YOU KNOW . . .

By Scio.

There is a mountain in the U.S. that is turning itself inside out. From the depths of Terrace Mountain in Wyoming, hot springs bring lime to the surface and deposit it in ledges. It becomes a light porous rock which is building up at the geologically swift rate of six inches to a foot a year.

Physicians say excess fat usually is no help to a person in cold weather. Excess fat is likely to cause poor circulation, they say, and fat people may actually suffer from the cold more than those moderately padded.

The world-wide campaign to eradicate malaria is making impressive strides, the World Health Organisation (W.H.O.) reported recently. Eleven nations have completely eradicated the disease, and many others have almost conquered it. The United States has strongly supported the efforts of W.H.O. and other organizations to eradicate malaria with U.S. contributions to the world anti-malaria campaign totalling $ 19.5 million.

Act of kindness

Little deeds of kindness,
Little words of love,
Make this earth an Eden,
Like the Heaven above.

Little acts of kindness,
Richest gems on earth,
Though they seem like trifles,
Priceless is their worth.

Opportunities come to each of us once in a way when we can do some kindness to others. Always do it. Never say to yourself—" What's the point in doing a kindness to one person ; there are thousands and thousands of people that need help. Helping one person will just be a drop in the ocean ; it won't help many, so why bother ". This is how many of us think. But this way of thinking is hardly correct. An ocean is made up of many drops of water. If you can do any kindness at all to someone DO it. It doesn't matter how humble that person may be. It doesn't matter if there are 100,000 people in your organisation—but do that kindness to that ONE person. An actual deed is worth any amount of talk. And it's amazing how it gets around. People soon get to know about it. Most of us imagine that what we might do is not going to help very much, but we are quite wrong there. Every act of kindness has a " chain " reaction. A good deed catches up with another like an electric current—more and more good deeds keep on getting done. It has a snow-balling effect.

American Building Specialist in Manipal

BY

VARKEY CHERIAN

Mr. Filip Markowitz (right) an American Construction Specialist, during a four-months' visit to Manipal helped devise septic tanks and drains at that fast developing academic centre.

Manipal (Mysore State)—A small-built, white-haired American is a familiar figure these days in this academic centre which is going through the biggest building boom of any similar centre in India.

He may be seen instructing a group of boys in brick-laying, or helping lay drainage pipes or dispersion tanks. Or he may be just wandering round the vast building sites, handing out lemon drops to the men and women who toil there. All these with a zest that will put a man half his age to shame.

Mr. Filip Markowitz of Miami, Florida, is a veteran architect who has been operating a highly successful one-man correspondence college in construction methods for over a dozen years. Prior to that he was a practising architect in New York for some 27 years.

Born of immigrant parents in New York (Russian father and Austrian mother), Filip was among seven children who struggled to make ends meet while garnering an education to better their prospects in life. He attended a night school in Colombia University to qualify for his chosen career.

At the close of this professional career, Mr. Markowitz jumped at the first opportunity to pursue the long-admired Indian philosophy at its source and to exercise his philanthropical disposition.

Dr. T. M. A. Pai, Registrar of the Academy of General Education, Manipal—who is the main force behind a string of colleges here (medical, engineering, law and arts)—during his visit to the United States last year invited Mr. Markowitz to the fast developing campus.

Mr. Markowitz arrived this January in Manipal, which was then humming with the construction of a three-storeyed hospital and other medical and engineering college buildings, housing colonies and a bank. The American architect promptly started a course in estimating, blueprint reading, and construction methods for the management personnel of the Academy who are all concerned with the building activity.

During the last four months, he has given weekly lectures on modern techniques in construction and illustrated the talks with colour slides he had himself prepared in the United States for this purpose. This collection

Filip Markowitz offered a course in brick-laying to a group of youngsters during his stay in Manipal.

of some 4,000 slides and a projector and screen have been donated for permanent use at the engineering college.

Considering the building boom in this country, Mr. Markowitz is emphatic about the great need for giving short-term training for prospective brick-layers, plasterers, carpenters, plumbers, and electricians. Towards this, he has made a start in Manipal by organising a six-week course in brick-laying.

The first batch of eight youngsters of high-school level were picked for training in scientific and systematic brick-laying. Reluctant at first to take to this manual occupation, the boys soon enough caught the enthusiasm of the instructor who spent his early morning hours in lecture and demonstration. The rest of the day, the boys were assigned practice work. Now at the close of their six-week term, they are ready to go to work on any building project.

Fresh batches of brick-layers will be trained by a staff member of the engineering college, K. Janardhan Pai, who has been an understudy to the American architect. On his return to U.S., Mr. Markowitz will procure for instruction purposes modern brick-layer's levels to make the work more efficient and easier.

According to him such courses in other building trades will not only ease the unemployment situation but also open up different gainful trades to young people, who otherwise are apt to crowd for white-collar jobs.

Mr. Markowitz has also spent considerable time devising drainage facilities for the buildings in the Manipal area. Substituting open drains for dispersion fields filled with granite stones to eliminate bad odour and health hazards was among his notable contributions, as also was devising a system of septic tanks and dispersion fields for hospital buildings.

Observing the building operations in the area closely, Mr. Markowitz came up with a number of suggestions for modernising and economising construction procedures. Here are some of them : (1) Soils must be subjected to a safe load test before building ; (2) Ensure a continuous pour when laying the foundation and handle concrete faster ; (3) Laterite stones used for building purposes must be graded according to strength ; (4) Contrary to popular belief, the lower the ceiling the better the circulation of air in a room ; hence, reduce the space between the ceiling and windows to about 6 to 12 inches ; (5) Devise light building materials through research such as foam concrete, aluminium dust, and plastics now in use in the United States ; (6) Use standardised windows and doors made of materials such as treated plywood, aluminium and concrete ; (7) Properly organise and estimate work in order to cut building time and costs ; (8) Pay men workers more to keep women away from construction work.

A philanthropist at large is bound to be an easy target and Mr. Markowitz was no exception. Requests by mail and in person ranged from seeking assistance to marry off daughters to asking for free trips to the United States. However, he was able to disentangle some of the community causes, such as financing a school building in a village closeby, paying a teacher's salary and equipping the school children with a new set of clothes, and donating a collection of some 1,000 volumes to the Academy's Library.

However, his substantial contribution appears to be the friendly peace corps-like service at this building centre.

THE NEW GANDAK BRIDGE

Originating from the mighty Himalayas in Nepal the river Gandak, also known as Narayani or Sapt Gandaki, in its upper reaches, enters the plains at Tribeni and continues its journey in a south-easterly direction through north Bihar for 184 miles before it joins the Ganga at a place opposite the ancient town of Patna.

With the coming of the railways in this part of the country the river had been bridged at two places, *i.e.*, between Hajipur and Sonepore by a bridge consisting of 8 spans of 250 feet girders and near Bagaha where 13 spans of 150 feet, one of 200 feet and one of 100 feet had been used. Serious damage was caused to the latter bridge by floods in 1924 and subsequently the river formed a new channel leaving the bridge dry. The river was thus left with only one bridge at Sonepore throughout its length from the gorge to its confluence with the Ganga.

Need for the New Bridge

Traffic from Eastern U.P. to North Bihar which used to be carried by the above two routes is now concentrated on the only route *via* Sonepore—Hajipur. On the west of Sonepore the line upto Chupra, a distance of 34 miles, has been doubled; on the east of Hajipur also there are two alternative routes—one *via* Muzaffarpur—Samastipur to Barauni Jn. and the other *via* Shahpur Patoree to Barauni Jn. The section Sonepore—Hajipur is, however, only a single line section and the bridge across the Gandak on this section is also for a single meter gauge track. Although the girders of this bridge, which was constructed in 1887, were sufficiently strong for the traffic handled in the past these do not permit the use of present-day heavier locomotives at unrestricted speeds. This has resulted in a further loss of capacity and the section Sonepore—Hajipur has become a bottle-neck for the ever increasing traffic generated by the successive Five-Year Plans. A new bridge therefore became essential to remove this bottle-neck.

The New Bridge

The question of replacing the existing single line bridge with a new one and at the same time doubling the track on Sonepore—Hajipur section to cater to the increased traffic, has been under consideration for a long time. The approach to the existing bridge cuts through the area of the Sonepore Mela, which is famous for the temple of Hariharnath and for being the ground of Asia's biggest cattle fair. A 3,000 feet long viaduct with 148 spans of 15 feet brick arches provided adequate space for the countless pilgrims visiting the mela. Any improvement to the existing bridge with its long masonry viaduct being not possible, it was decided in 1956 to construct a new double line bridge at a cost of Rs. 193 lakhs at a site 250 feet up-stream of the existing bridge and also to double the track on the section between Sonepore and Hajipur at a cost of Rs. 13.80 lakhs.

The new bridge consists of 8 main spans of 250 feet each and its piers are exactly opposite to the existing ones and are wide enough to take the double line girders. There are 3 shore spans of 60 feet each on Sonepore side and one shore span of 60 feet girder on Hajipur side. The shore spans on both sides are on R.C. pile foundations. The girders are all of main line standard.

The salient features of the projects are :—

Estimated cost of project including doubling of the section.	Rs.	206.8 lakhs.
Sub-structure of the main bridge ...	Rs.	50.00 „

Steel wotk in girders	Rs.	56.00 lakhs.
Cement concrete used	...	9.00 lakh c.ft.
Cement used	...	6,000 tons.
Weight of steel work in girders	...	3,065 ,,

CONSTRUCTION

The construction can be broadly divided into four sections :—

(1) Foundations and Piers;

(2) Superstructure-Assembly and Erection of girders ;

(3) Approaches and

(4) Remodelling of yards at Sonepore and Hajipur.

FOUNDATIONS AND PIERS

The piers supporting the main 250 ft. spans are founded on cement concrete wells of double D shape. The curbs are of reinforced concrete with rail cutting edges.

The wells have been sunk to a depth of 72 ft. to 95 ft. below low water level. The piers are also of cement concrete in the shape of a dumb-bell, about 42 ft. high.

The foundation and piers were constructed by Messrs. Hindustan Construction Company. The work was started in April 1957 and was completed by May, 1958. About 8 lakh cubic feet of concrete and 392 tons of steel were required for this work.

SUPERSTRUCTURE

The main girders are of mild steel Warren type, with verticals spaced at 29'-6" centres to accommodate two meter gauge tracks. The girders are 35 ft. deep, centre to centre of chords, with 26 ft. long panels.

The steel work of the girders was supplied by a Yugoslav firm and the first span arrived at the site in March, 1959.

The assembly and erection of the entire superstructure has been done departmentally and has provided an opportunity for young railway Engineers directly to handle such major works. It involved erection of 3,065 tons of permanent steel work apart from the large number of temporary structures used in the process of launching. The erection of the girders was started in April, 1959 and was completed in September, 1960 with a labour strength reaching 1,500 men during the peak periods.

The Sonepore approach of the new bridge passes through the Mela area dividing it into two sections. Additional openings for the Mela traffic have therefore been provided. These consist of two main passages bridged by $9 \times 60'$ and $3 \times 60'$ spans respectively, of prestressed concrete girders.

The approach banks for the double line near the new bridge are about 30 ft. high and required 2 crores c.ft. of earthwork. Borrowing earth from the Mela area being undesirable most of the earthwork was done by train.

Remodelling of Sonepore and Hajipur Yards

The yards at Sonepore and Hajipur needed extension and remodelling to deal with the increased traffic and for the double line working. The work was undertaken and completed by the construction organisation along with the construction of new staff quarters and accommodation for the large labour force engaged on the bridge.

Road Bridge

The necessity of a permanent road bridge across the Gandak had been keenly felt for a long time. It has been decided to hand over the existing railway bridge to the State of Bihar for conversion into a road bridge.

SCOPE AND IMPLEMENTATION OF WELDING STANDARDS

BY

[Shri S. V. Nadkarni, Chief Welding Technician, J. B. Advani-Oerlikon Electrodes (P) Ltd.]

Outline

This article outlines the aims and objects of welding standards and stresses the necessity of their implementation. The need for special efforts to increase welding activity in proportion to steel production has been pointed out in context of production figures in advanced countries. Certain commendable and bad practices in welding in the country have been pointed out, as also the necessity for bringing out special publications to improve welding efficiency. A few basic principles of economical welding have been explained, which unfortunately are not covered by the usual standards. Deep penetration welding technique has been also explained. A plea has been made for a national welding and research organisation to keep welding standards dynamic and progressive.

1. Purpose of standard

1.1 The Indian Standards Institution deserves congratulations in bringing out a series of standards on welding in so short a time. In formulating them, the I S I has the following objectives in mind :

(*a*) to popularise welding among steel fabricators,

(*b*) to raise the standard of welding generally, and

(*c*) to ensure most economical use of steel in fabrication.

1.2 *Reason for Recent Welding Activity :* A sudden spurt in welding activity has been noticeable in the country in the last two to three years and this may give many of us an impression that the work done in the ISI on welding standards is bearing fruit. But, a deeper study will show that this activity has been more due to :

(*a*) heavy constructional programme under the Five-Year Plans,

(*b*) serious shortage of steel and adverse foreign exchange position, and

(*c*) foreign constructional firms and agencies which have been making high-quality welded products in the course of their work.

2. Welding related to steel production

2.1 By 1962, India will have 6 million tons of steel annually at their disposal, foreign exchange position may have eased and foreign technical firms will have withdrawn and then Indian fabricators may develop a false sense of prosperity. It is from now that we have to make sustained efforts to inculcate high design and execution standards (this includes efficient welding techniques) among users of steel. Steel production and welding activity have always gone hand-in-hand in every highly industrialised country as will be seen from Table I given below :

TABLE I—**Ingot steel and electrode production in advanced countries—Year 1955**

Country	Steel Million Tons	Electrodes Tons	Electrodes in tons per million ton steel
U.S.A. ...	105.5	255,000	2,450
U.K. ...	20.0	52 000	2,600
W. Germany	21.3	60,000	2,800
Japan ...	9.4	41,664	4,430
France ...	12.6	36,000	2,850

2.2 Against the above figures, India's figures are 6 million tons of steel by 1962 and approximately 7,000 tons of electrodes produced during 1956–57.

3. Implementation of Indian Standards

3.1 It is now over two years since many Indian standards on Welding have been in circulation and yet there is no visible sign of their implementation by industry. For instance,

(*a*) IS : 814–1957 and IS : 815–1956 deal with the classifications and specifications for metal-arc welding electrodes. No reference is made to these by any approving or indenting bodies who still refer to BS : 639–1952 and BS : 1719–1951.

(*b*) IS : 816–1956 on " Use of Metal Arc Welding for General Construction in Mild Steel " is meant to ensure that weld joints are designed and welded constructions made very efficiently. How many designers and fabricators have studied the clauses of this standard carefully and practised them diligently?

3.2 *Specialised Welding Firms* — Systematically high standard of welding has been seen in a few specialised firms among which may be mentioned :

(*a*) Integral Coach Factory, Perambur.

(*b*) Tata Locomotive & Engineering Co., Jamshedpur.

(*c*) Chittaranjan Locomotive Works Chittaranjan,

(*d*) Electric Coaches to "Metro-Cammell" design made by Jessop & Co., Calcutta.

These firms have ensured the following steps necessary for correct welding procedures :

(*a*) joint preparations and fit-up are maintained to close limits,

(*b*) jigs and positioners have been set up to ensure perfect alignment and freedom from distortion,

(*c*) correct choice of electrodes,

(*d*) inspection of welding at all stages, and

(*e*) use of only trained and quality-conscious welders.

3.3 *Bad Practices*— Leaving aside these specialised firms, the common run of fabricators have done very little to raise their standard. Some of the common bad practices are :

(*a*) careless joint preparation and poor fit-up,

(*b*) using least expensive electrodes irrespective of the size and purpose of the joint,

(*c*) using abnormally high currents and throwing away up to 20 per cent of the electrode length as stub,

(*d*) using welding equipment in which controlling and knowing the welding current is very difficult,

(*e*) using defective and tattered accessories like electrode holders, lenses, earth clamps, gloves etc.,

(*f*) patching up weld defects with extra metal,

(*g*) lack of root penetration made up with extra reinforcement of the weld,

(*h*) providing ill-ventilated and badly-lighted rooms for welders and providing very uncomfortable positions for welders, and

(*i*) using insufficiently trained welders.

3.4 *Necessity of Special Publications*— Pointing out such " don'ts ", unfortunately, is not within the scope of normal standards whose task is to lay down standard and correct practices. In Britain, this want was fulfilled by the British Welding Research Association by publishing a " Memorandum on Faults in Arc Welds in Mild and Low Alloy Steels ", while in the U.S.A., the American Welding Society published " Inspection Handbook for Manual Metal Arc Welding " in which all welding defects and bad practices are pointed out. Here one does feel the need of a similar welding institution in India which would be an effective liaison body between the standards institution and industry.

3.5 *Problem of Trained Welders*— Educated and trained welders are an urgent necessity and the I S I has laid the foundation by publishing the " Code of Practice for the Training and Testing of Metal-Arc Welders " and recommending the Welder's Certification Scheme. It is now up to all the industrial and training schools to include this code in their curricula and see that sufficient number of trained and certified welders are released to industry. The industry should also insist on using certified welders and pay them a better remuneration than paid hitherto to untrained welders.

3.6 *Welding Handbook*—This handbook will be published shortly by the Indian Standards Institution, which will be in English. Unfortunately, over 80 per cent of the welders engaged in industry do not know English. The author's firm has been publishing and distributing freely a monthly publication in English called " Welder's Bulletin " but so far the mailing list has reached only 400, though thousands of welders are employed in India today. No doubt, the Handbook should be translated into Hindi as early as possible. A start could be made by forming Hindi words for all the terms included in the " Glossary of Terms relating to Welding and Cutting of Metals."

4. Economics of welding

4.1 Unless most economical and efficient methods are used, full benefit of welding is not obtainable. Economics of welding is a subject which, unfortunately, cannot be fully covered by standards. A few examples of the economical aspects of welding are cited in the subsequent paragraphs.

4.2 *Designing of Grooves*—Designing of grooves in heavy butt joints has a bearing on the cost of the welded joint. B.S. 499 : 1952 on " Glossary of Terms Relating to Welding and Cutting of Metals " describes butt-welding procedures in the Appendix where it is stated, " A 30° Vee in conjunction with a copper backing strip should be used for economy wherever possible both in the shop and on site ". When copper backing is not used, one generally has to have an included angle of 70°. In this case, after filling this groove with several passes of welds, one has to turn the weld over, gouge out the root to clean it from slag and bad metal, and make a final sealing pass.

4.3 *Using Heavier Electrodes*—Use of heavier electrodes results in faster output and better interpass fusion. For example, to complete a 5/8 in. thick butt weld,

(*a*) one pass with 6 SWG electrode and three passes with 4 SWG electrodes are sufficient where 30° Vee in conjunction with copper backing is used.

(*b*) one pass with 6 SWG electrode and five passes with 4 SWG electrodes are necessary where the conventional 70° Vee and welding from both sides are used, and

(*c*) probably 10 passes or more are required where only 8 SWG and 6 SWG electrodes are used.

4.4 *Deep Penetration Technique*— Where downhand welding is being done, " Deep Penetration Electrodes " in conjunction with " Deep Penetration Technique " allow one to dispense with bevelling in m.s. plates up to 5/8 in. thickness. In higher thicknesses, only partial bevelling need be done. This technique is explained in Tabular form in Bulletin No. 4 of August 1953 which covers joint thicknesses from 5/16 in. to 1.3/16 in. A definite gap is maintained between the square faces, and this gap is a very important condition. The slag and defective metal left on the underneath of the first pass is washed and slagged away by the second pass made on the opposite side—and this is the important property of the deep penetration electrode.

4.5 Comet Red mentioned in the table is the commercial name of a deep penetration electrode made in India. Comet Blue has been specified in this Table for filling the Vee groove. This is an iron powder electrode which has 160 per cent deposition efficiency and is covered by classification No. 7 in IS : 815–1956 " Classification and Coding of Covered Electrodes for Metal Arc Welding ". The comparison is made of the total deposition time using conven-

tional technique and a common type of electrode called " Citorex " as against the deep penetration technique using deep penetration electrodes.

4.6 It has to be pointed out here that the deep penetration electrodes mentioned above have an extremely thick coating (the electrode is twice the diameter of the core wire) and incorporate iron powder. Moreover, they are quite different from " deep penetration electrodes " mentioned in clause 5, 8 of IS : 815–1956 and 7.1.2 of IS : 814–1957. This clause defines deep penetration electrodes (to be coded by a prefix P) as those which give complete penetration in a close butt weld (*i.e.*, no gap permitted) where the thickness of each plate is *twice* the diameter of the core wire of the electrode and in the case of electrodes less than 6 mm. (or 1/4 in.) or each of 12 mm. (or 1/2 in.) thickness when the core diameter is 6 mm. (or 1/4 in.) or larger. In the case of fillet welding a minimum penetration of 2.4 mm. (or 3/32 in.) beyond the root has been prescribed when the electrode is continuously deposited in a close square tee joint between two plates each of thickness equal to twice the core diameter of the electrode. This is an old British concept of deep-penetration welding and the electrode generally referred to is the cellulosic type (class I in IS : 815–1956) which has a very thin coating. There is no doubt that this will have to be revised in the light of the developments explained above.

4.7 *Use of Positioners or Rotators to Reduce All Welding to Downhand Welding*—It has been demonstrated that in making a 3/8 in. weld, the welding speed is 0.140 minute per in. of weld in fillet (downhand) position, 0.231 minute in horizontal, and 0.412 minute in the overhead position. It can be deduced from these values that if the costs are taken as 100 per cent in the flat position, they rise to 165 per cent in the horizontal and to 294 per cent in the overhead positions. Besides, one knows how much skill and fatigue are involved in vertical and overhead positions.

5. New Trends

5.1 There are thus many instances of new trends in electrode materials and techniques which cannot be included in standards. Iron powder electrodes are a new range in electrode design and this iron powder is being incorporated in cellulosic coatings, low-hydrogen type coatings, iron-oxide/silicate coatings and so on. The standards in various countries on electrodes have started including these developments, though the Indian Standards Institution has been one of the first by giving class No. 7 to iron powder electrodes in IS : 815–1956.

6. Maintaining the progress of standards

6.1 Needless to say, standards have to be dynamic, progressive and geared to the needs of industry. Indian Standards on welding have been based largely on foreign standards and reflect very little of the experiences and needs of the Industry. These standards will, therefore, have to be modified or revised from time to time commensurate with new techniques, practices and metallurgical development. During the Commonwealth Standards Conference held in Delhi in early 1957, a British delegate referred to welding standardisation in Britain as follows :

> " It is usual for standard to be devised by a committee representative of producers, users, professional institutions and Government departments. The series of British Standards concerned with welding were produced in accordance with procedure. An additional great advantage was that much of the preparatory work was undertaken by the Institute of Welding, through its expert committees based upon practical experience, and by the British Welding Research Association. The work of both the Institute and the BWRA is progressive, and is geared to the needs of industry. The progress of their work will be reflected from time to time in the revision of welding standards commensurate with new techniques and metallurgical development."

6.2 *Need of a National Welding Organisation*— In India, so long as we do not have national institutions like the Institute of Welding and the British Welding Research Association, we cannot hope that research and development work in welding suited to Indian conditions will be carried out and that there will be a healthy exchange of experience and a proper dissemination of specialised knowledge acquired.

" You worry too much about money," the jittery patient was told. " Don't do it. Just a few weeks ago I had a patient who couldn't sleep because he was so worried about his tailor's bills. I advised him just to forget about them, and now he feels fine."

" I know," nodded the patient, " I'm his tailor."

* * *

Son: " Fella told me today that I looked like you."

Father: " Isn't that nice ! And what'd you say?"

Son: " Nothin'. He was a lot bigger'n me."

* * *

The burglar walked stealthily over to the movie box-office. He stuck a gun through the bars of the cashier's window and said, " That picture was lousy—gimme everybody's money back ! "

* * *

A Scientist of great intellectual brilliance confided to a colleague that he had great hopes for his son, who had just won a scholarship to college. " It's amazing," the scientist said, " the way that boy progressed, once he got started. It's hard to believe, but it took him two years just to learn the alphabet."

The colleague looked stunned. " Why, I've never heard of such a thing," he said. " You must have been terribly depressed. How old was the poor lad when he finally did learn the alphabet?"

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heard this one . . . ??

This time the scientist looked surprised. " I told you it took him two years," he said. " Obviously, he was two."

* * *

Determined to rear the new puppy with kindness and understanding, the housewife wrote to a bookshop asking for a reference book on the English bulldog. In due time, back came this reply: " We do not have the book entitled *The English Bulldog*, but we do have *Churchill by His Contemporaries*."

* * *

" I won't give you more credit," the butcher told his customer. " Your bill is well over what it should be."

" You're telling me ! " replied the customer. " And if you'll make it out for what it should be, I'll pay it."

* * *

" I'm sure my husband is having an affair with another woman," said the wife to a private detective, "and I want you to follow him around and see who it is."

" What makes you think he is having an affair? Does he talk in his sleep?" asked the hired eye.

" Talk ! " she exclaimed. " He lies in bed, claps his hands, and laughs his head off."

" He's not running around with another woman," said the detective. " He's dreaming you're running away with another man."

* * *

The maiden coyly hung her head. " Would you like me to ask your mother first?" he said.

" No, no!" she gasped. " Mother is a widow. I want you myself!"

NOISE CONTROL IN FACTORIES

Industrial noises, often blamed for frayed nerves, labour unrest and disrupted communities, can be quieted, according to a well-known expert in the field of noise control.

The expert, Norman L. Meyerson, manager of Research and Development at Worthington Corporation's (U.S.A.) Harrison Division in New Jersey, says that there are two major causes of industrial noises. These are, according to Meyerson, improper installation of equipment and the environment in which the equipment operates.

Noise can be controlled if proper attention is paid to equipment installation and to designing the environment for maximum sound absorption.

Meyerson noted that many manufacturers and factory building designers are paying more attention to noise control because of the fact that too much noise can impair worker productivity and lead to poor morale. " Noise control, just like air conditioning, is being recognized more and more as a means of contributing to employee comfort and productivity," he said. He listed the following rules for the confinement of sound in industrial and other type buildings :

Rules for Sound Confinement

Eliminate continuous air path between rooms. Wall openings between rooms should be eliminated. Generally overlooked are opening around pipe runs, ventilator grills and ducts, and electrical conduits. These openings can be sealed with glass fibre blankets, sponge or rubber cork. Besides being an effective sound block, the blanket around the pipe also isolates the pipe from direct contact with the wall, preventing vibration transmission. While a similar arrangement may be used for ducts and electrical conduit, registers or grills require special attention.

If, after sealing the grill with a 1/2-inch plywood panel (and no effect is observed in the sound coming from the grill) leak paths are still apparent, fill the wall opening regions and grill neck with glass fibre, and place a soft rubber gasket between the grill flange and wall face. The slightest leak into a highly reverberant room causes proportionately high sound levels.

Gaps or openings around doors, windows, and walls are the greatest paths of sound transfer. Careful weatherstripping effectively reduces this problem.

Sound Energy Transfer

Minimize sound energy transfer through doors by installing those that have high mass per unit area, or greater " transmission loss."

Thin, lightweight doors easily permit sound transfer. " Transmission loss " is a measure of panel effectiveness, which decreases the sound passage. The higher the transmission loss figure, the better the isolating qualities. For simple panels, transmission loss (T.L.) can be expressed as follows :

T. L. in decibels $= 23 + 14.5 \log_{10} m$ where m is the door mass in pounds per square foot. This shows that doubling the door thickness increases T. L. by about 4.5 decibels. Tripling the door thickness increases T. L. by about 6.5 decibels. Obviously, heavier wood doors make better sound isolators. Flush solid doors also make excellent barriers if chosen according to material type and mass. As for the type of wood, some are of course, much more effective than others. For example, hickory and oak, which are the most desirable, offer 4.5 decibels more loss than redwood and 2.5 decibels more than tamarack.

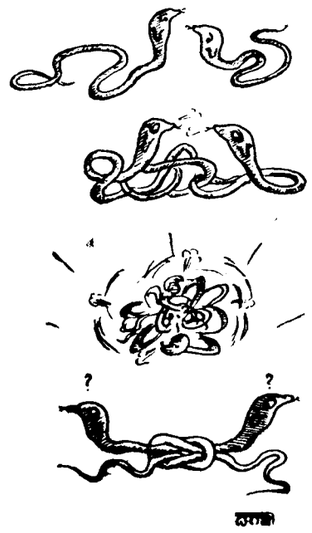
The given mass law relationship generally applies to one type of material, and is not suitable when two material types are compared. For example, glass doors cannot be compared with wood doors. A 1/2" glass door weighting 6-1/2 lbs. per square ft. offers 5 decibels more transmission loss than a 2-1/2" oak door weighting 11 lbs. per square ft. Doors with large glass panelled areas are better than solid wood doors. Similar considerations can be made with walls and partitions. 1/4 " glass partition areas are just as effective as 2-1/2 " thick (1 " overall) gypsum wallboard. Cinder block transmission loss can be increased 15 decibels by surfacing one side with plaster, and up to 20 decibels by surfacing both sides. Considerable information is available to help you make intelligent selection of suitable door and wall materials.

Effective Isolation

Interrupt structure-borne paths of sound. These are the building walls, ceiling, floors, and various piping connected with installed equipment and duct runs. Since isolation is impractical between metal-skeleton structure members, equipment isolation must be considered rather than trying to incorporate interrupted paths. Effective isolation is possible with almost any machine if commercially available devices are used. The most common methods use springs and resilient materials. Springs effectively block structure-borne transmission of low frequency vibrational waves, while middle and high frequency vibrational waves are stopped by resilient materials such as rubber, cork, and synthetics. Mounts are often designed to arrest both low and high frequency vibrations by using a combination of springs and resilient materials. To assure complete isolation, all pipes and conduits should be provided with an interruption in the metal path.

Metal electrical conduits that supply power to drivers and appliances are often anchored to walls or floors and act as transmission paths for vibrational waves. Misalignment permits isolation in longitudinal as well as transverse directions.

—Globe Press Service.



—K. Rajendran.

Did you ever stop to think that you—and everyone of our fellow employees—have a hand in determining the costs of the products we b. ild? How does what WE do affect the cost of the products? Let us explain. When we perform each and every job to the very best of our ability - whether it be running a machine, providing a shop service or typing a letter in the office—we help keep costs down. We do this by holding waste or scrap to a minimum by carefully using equipment and services, by using our time wisely.

We may well say that ONE person can't make such a big difference in costs in a Factory as large as ours. But just think. If every I.C.F. employee saves - or wastes—material or time equal to just one rupee every working day, that small, seemingly insignificant figure snowballs to almost Rs. 30 lakhs in a single year. If this amount was saved through improved cost control, we would all benefit from the additional money available in the way of improved equipment and facilities—and this in its turn adds up to better jobs in the future.

keep costs under control

Here is the question the answer to which will tell us whether or not we are doing our share to help hold costs down :

"IF IT WERE MY MONEY INVESTED IN THE FACILITIES, EQUIPMENT, MATERIALS AND TIME THAT I USE ON THIS PARTICULAR JOB, WOULD I BE SATISFIED WITH THE WAY I AM SPENDING IT?"

Our sincere reply to this question will obviously speak for itself. Keeping costs in line is definitely not the function of just a few Accounts and Management people in I.C.F.

ALL OF US, whatever our jobs may be, have a hand in it. And all of us stand to benefit by the savings we can effect.

INDUSTRIAL NEWS

ydraulic Device for Planning Machines

A hydraulic device for use on planning achines or heavy duty milling machines has :en introduced by a U.K. firm. It is for ›iking down flat plates when other means of amping are impracticable.

Called a planner hydrajaw, it consists of a ›lid mild steel body having slots located at ther end which are used for clamping the :vice to the bed of the planning machine.

The slots are of sufficient length to give ree inches of adjustment to the edge of the work piece. Having clamped the hydrajaw to the bed of the planning machine the only operation necessary is the turning of the actuating handles. This exerts a pressure on protruding plungers, transferring energy through the medium of hydraulic oil to the three spiking down plungers.

Since the invention a self-adjusting hydraulic vice-jaw three years ago this firm has made a whole range of multi-point compensated, closed-circuit, hydraulic calmping equipment for machine tools. The range includes indexing fixtures, centralising mandrels, special mandrels —for large diameter rolled tubes and for general purpose turning and facing.

* * *

Measuring Operation Temperatures

A simple method for measuring the operating temperatures of engine parts like valves and pistons has been developed by scientists of "Shell" Research Ltd., in Northern England.

The usual temperature measuring devices cannot easily be attached to these rapidly-moving parts inside the engine block, but the scientists have developed a technique whereby each component literally registers the maximum temperature to which it is exposed. When the engine is taken apart, this temperature is deciphered in the laboratory.

High temperatures can build up locally on pistons, rings, bearings, gears and valves, and if they become too high premature failure can result. As a result of this new technique engineers can now pin-point these hot spots and then take steps to overcome them.

The Shell Research technique, known as the "hardness relaxation" method, depends on the fact that when certain alloys are heated and then cooled, their original hardness is changed. The extent of the change depends on the maximum temperature reached. This fact in itself is not new, but the scientists have applied it to taking the temperature of moving parts in cars and in large engines used in ships and trains.

* * *

Thermal Ampere Demand Meter

A thermal ampere demand meter, which is a combination of a thermal ampere demand indicator and a FM kwh (kilowatt hour) meter has been produced by a U.K. firm mainly for oversea markets.

The design of this demand indicator, which has been incorporated in a single-phase meter, embodies novel features such as the use of light alloy gears reducing the weight of the unit, and viscous damping on the demand indicator pointer. Other features are long-scale length (5 in.) ; ease of calibration ; low consumption and high overload capacity.

The meter is mainly for small commercial organisations. The indicator comprises two bi-metallic strips, one of which is enclosed in a heated chamber, while the other remains at ambient temperature. The heating element itself consists of a tubular former moulded in two halves from a heat resistant plastic. In each half strips of a copper-manganese-aluminium alloy are embedded, through which the main current is passed. Series or parallel connection can be made depending upon the current rating.

—B.I.S.

WELFARE NEWS

Staff Council

A special meeting of the Staff Council was convened on the 13th March 1961 to decide the holidays for the year 1961 in respect of the Factory Staff.

Staff Benefit Fund

The 22nd meeting of the Staff Benefit Fund Committee was held on the 14th March 1961, when applications for grant from the Staff Benefit Fund received from the staff were carefully and sympathetically considered and grants sanctioned to deserving cases of employees.

I.C.F. Canteen

Consequent on the expiry of the two-year tenure of the Committee of Management of the I.C.F. Canteen, an Election was conducted on the 15th March 1961 to elect five representative of the Staff of the Factory to serve on the Committee of Management of the I.C.F. Canteen. A good number of Factory Staff had been to the polls.

Do You Know?

That in your own interest and in the interest of your family it is better to execute nominations for disbursement of Death-cum-Retirement Gratuity and Family Pension in the event of your premature death.

Railway Week

Under the auspices of the 'Welfare Wing' of this Administration, two notable functions were conducted during the 'Railway Week' in April 1961. A Children's Excursion to Mahabalipuram and Thirukazhukundram was sponsored on Sunday the 16th April 1961. About 266 children of employees, being the record number of children, compared to the strength of the Children's Excursion Party of the previous years, participated in this Excursion. The party lead by the Welfare Officer and 15 seasoned guides left the I.C.F. Institute at about 7.30 hours and returned at about 21.00 hours on 16th April 1961. This was indeed a pleasant and enjoyable trip to the children who felt extremely jubilant throughout the trip.

A 'Get together' Tea Party was also organised on the lawns of the Technical Training School Hostel on the 12th April 1961. About 686 members of the staff, officers and their families participated in this function. Shri K. Sadagopan, the former Chief Administrative Officer, I.C.F., was the Chief Guest of the evening. Shri K. M. Aiana, Dy. CME/Furnishing welcomed the Chief Guest on behalf of the I.C.F. family. The function was gone through in a pleasant and calm atmosphere typical of family or domestic function.

Furnishing Staff Canteen

A Staff Canteen was declared open by Shri K. M. Aiana, Dy. CME/Furnishing on the 14th April 1961 for the benefit of the Staff of the Furnishing Offices in the new building located on the southern end of the I.C.F. Colony.

Vocational Training Centre

The 8th meeting of the Committee of Management of the Vocational Training Centre was convened on the 24th April 1961, to screen the applications received from the children dependants of I.C.F. employees seeking admission to the second course of training in this centre.

Transport

An additional Bus Route (Route No. 40) was put through between Mount Road and Ayanavaram by the Madras State Transport Authorities with effect from 25th April 1961. This is indeed a solid amenity to the staff coming from places in the City such as Triplicane, Mount Road, etc.

I.C.F. Employees' Co-operative Stores

The Annual General Body Meeting of the I.C.F. Employees' Co-operative Stores was held on the 27th April 1961. It was decided at this meeting to extend the tenure of the existing Board of Directors for a period of two months from 1st May 1961. The elections for the new Board of Directors would be conducted some time in June 1961.

WEDDING BELLS

Our hearty felicitations to Shri K. Venkataraman of the Accounts Department and to Srimati Geetha who were married on June 7, 1961 at Madras.

MARK TWAIN ON BROADWAY—Hall Holbrook, 34-year old actor, has won critical acclaim on Broadway in New York City for his one-man presentation "Mark Twain Tonight," in which he does readings from the works of the famous 19th century American humorist. Here Holbrook is shown in the process of aging 36 years as he assumes the appearance of Mark Twain at 70. The resemblance has been described as "remarkable". Among Twain's most famous works are "Huckleberry Finn" and "Life on the Mississippi," stories based on recollections from his youth spent in Hannibal, Missouri, and on the Mississippi River.

A World Bank Technical Mission led by Mr. Stanley F. Dingle visited I.C.F. during April 1961. Photograph shows the members of the team along with Shri K. Swarup, CAO(R)/I.C.F., sitting in a First Class Coach produced by the I.C.F.

Shri K. M. Aiana, Dy. C.M.E./Fur. presents a coach model to Mr. Francois Chatelain, Consul-General of Switzerland in Bombay who visited I.C.F. on May 24.

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