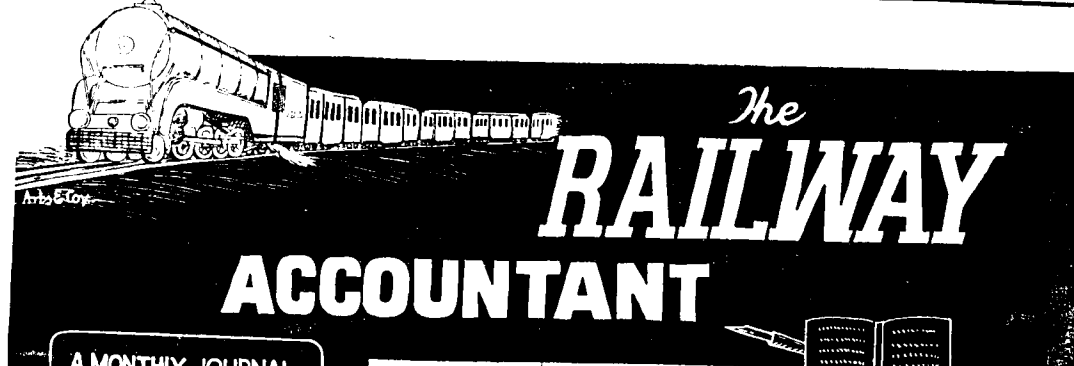




The RAILWAY ACCOUNTANT

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RAILWAY ACCOUNTS,
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WITH RAILWAY ELECTRIFICATION
SUPPLEMENT

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Southrailnews	Nov. '57	Careers & Courses	Dec. '57
Chittaranjan	Nov. '57	Educational Review	Nov. '57
Central Railway Newsletter	— '57	Australian Accountant	Oct. '57
Eastern Railway (Lifeline)	1-11-'57	Accountants' Journal, (New Zealand)	— '57
" Newsletter	7-11-'57	Wednesday Review upto	W. E. 4-12-'57
Southern Railway Newsletter	— '57	Railway Herald	upto P. E. 2-12-'57
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Pension Scheme for Railway Servants

In August 1957, an announcement was made in the Lok Sabha by the Deputy Minister for Railways that the proposals for introducing a pension-cum-gratuity system for the Railway staff had been finalised and would come into operation for all new entrants from 1st Apr. 1957. This was referred to at page 205 of the RAILWAY ACCOUNTANT for Sep., 1957. The Railway Board have since issued detailed orders on the subject—vide their letter F (E)/50/RT/6 dated the 16th November 1957—with directions to all the Railways to give as wide a publicity as possible to this system. All Railways have, accordingly, published the Board's letter with enclosure in Gazette Extraordinary.

The important points in reference to the liberalised pension rules as applicable to Railways have been published later in this Issue, (Pages 292 & 293); and these together with the Salient Features of the pension rules published by the Railways may be perused to follow the comments made hereafter.

[An employee who is a non-subscriber to the S.R.P.F. Institution is not eligible for this Pension Scheme.]

The first question is to what extent the scheme, which has been heralded for a very long time, would be beneficial to the employees in general. By an analysis of the various provisions, it would be found that the rules are not so liberal as to tempt any employee to opt for them immediately, without a careful survey of the pros and cons of his individual case. The progress of the salary drawn since his entry into service; his present position, the possibility of the length of life after retirement are all very important factors in coming to a decision. Generally speaking, however, it would appear that an employee, who normally retires after superannuation is not likely to be benefited by the new scheme except to the extent of making a provision for his family in case of his premature death at least for a short while to enable them to make other arrangements for their living.

A big snag in the published rules is the absence of a decision by the Ministry as to what will happen to an employee who opts for the above rules and whose services are terminated under rule 148-RI, against which there was a big hue and cry recently; especially when irrespective of the decision on that issue, the option once exercised by the employee is FINAL and IRREVOCABLE. Since this option has to be exercised before 31-3-1958, it is hoped that the Railway Ministry will issue its directive on the subject, well in advance.

In the Board's letter referred to above "the 1950 pension rules as amended from time to time" have been cited. But these should have been collected and published as on date for the benefit of the railway employees who have to consider them before coming to a decision, especially in view of the fact that the Board have definitely stated that these detailed rules are the only authoritative rules and not a summary given in the Annexure.

Another feature is whether an Officer who may retire from service, after completing thirty years of qualifying service, by giving three months' notice, can take all the leave standing to his credit at the time of his retirement on pension. Suitable provision should be inserted in this connection in the rules. This is specially necessary as there is also a provision in the rules for Government giving a similar notice for retiring the employee after completion of thirty years of qualifying service.

Broadly, the pension scheme resolves to this: that instead of the employee receiving the *bonus* addition with interest thereon and also his present Special Contribution to P.F. (Gratuity), he will receive a pension equivalent to three-eighths of his average emoluments at the time of his retirement, so long as he lives.

The emoluments for this purpose will be reckoned in accordance with Rule 2544-RII. But in the case of a person whose emoluments have been reduced otherwise than as a penalty, no specific provision has been made and this has to be provided for, if the staff are to be protected from any discrimination.

The family of an Officer has been defined in Clause 3 of the Salient Features, but no priority is mentioned. Obviously, this will limit the nominations made by the employee. At the same time, it is presumed that the employee cannot nominate any person other than those mentioned in this Clause. This may lead to complications, though rarely. Inclusion of adopted children may also lead to difficulties as the question of validity of adoption may also arise, though occasionally, and this is a point which has to be settled legally.

Provision for a family pension in the case of the premature death of an employee is one that will be a great benefit in dealing with hard cases. There are, however, restrictions as to the period and as to the maximum amount payable.

There is however, one point which requires clarification and that is the calculation of the amount of family pension, when a portion of the pension had been commuted by the employee during his life time. Further, the grant of family pension is dependent on the condition of production of reasonable proof that such person was dependent on the

deceased Officer for support. The application of this condition in practice may lead to hardships and may frustrate the purpose of the grant if proper discretion is not applied.

For reckoning qualifying service for pension, it has been stated that half the continuous service under the Government of India rendered after the Officer has attained the minimum qualifying age, if followed by confirmation in a pensionable post, will count. If therefore, confirmations are delayed considerably, as is now very common, employees will suffer in pensionary benefits. This aspect has also to be duly considered.

The Government reserve the right of withholding or withdrawing pension or any part thereof if the recipient of the pension is convicted for a crime or found to be guilty of grave misconduct and the *Government's decision in such matters is final*. The meaning of "crime" should be clearly defined for this purpose as also the term "grave misconduct". Thus a number of Officers who were in the past politically opposed to Government views or were engaged in activities disliked by Government, were treated as culpable of "grave misconduct". To what extent this view would be modified remains to be seen, under the present Constitution of India.

Provision has also been made in the rules for withholding of pension or gratuity when an employee is removed for misconduct, insolvency or inefficiency. These seem to be unnecessary restrictions; and particularly in the case of Railway employees, for whom this pension is only an alternative payment, such a restriction does not seem to be called for, except to the extent applicable to the old rules for payment of bonus and Special Contribution to P.F.

A very important feature of these pension rules is the special benefit conferred on Class IV staff who become eligible for an additional death-cum-retirement gratuity at the rate of Rs. 200/- per qualifying year of service beyond thirty years, subject to a maximum of Rs. 1000/-. This amounts to a clear discriminatory treatment and has to be very strongly justified.

The question whether the pension scheme is better than the P. F. scheme for Railways has always been a moot point and would continue to be so, so long as there are many other factors involved in these considerations.

In respect of the staff who are appointed after 1-4-1957, no question arises, as they are compulsorily to accept the new rules viz., P. F. plus pension. Since the new scheme provides definitely for the benefit of Class IV staff there should be no difficulty for any of them opting for the pension scheme without reserve. The real difficulty occurs only in the case of Clause III Staff and Gazetted Officers drawing Rs. 1800/- and below in whose cases detailed calculations have to be made individually and decision taken on merits.

It is hoped that in the drafting of detailed instructions for implementing the pension scheme, the Railways will consider the various aspects pointed out here and also others that may incidentally arise and solve them to the best of the information available.

Cost Accounting in Railways' Printing Presses

BY YASH PAL PURI, M.A., J.D., A.C.W.A., Grad. B.I.M.

(Continued From Page 258)

15. The chief objects of the job costing system in a Railway press may be summarised as follows:—

(a) To find the cost per Direct Job Hour,—i.e. a chargeable hour which is attributable to *one job only*,—for every operation and machine used in the factory.

(b) To ensure that every conceivable item of expense incurred in running the press is included in that cost per Direct Job Hour.

(c) To ascertain the cost on that basis of each job as it proceeds through the press.

(d) To provide data which may be used as an aid to management, and which can be reconciled with the financial accounts of the press.

(e) To enable all vital data used in the system to be automatically checked at regular intervals.

In order to achieve the foregoing objectives it is necessary to adopt steps briefly indicated in the following paragraphs:

16. *Budgeting the cost of the Press.* The cost of the press should be budgeted for the coming year broken down into the following three basic divisions:

(i) *Productive Wages* i.e. Wages paid for work that can be directly related to the production of jobs (e.g. composing and machine minding).

(ii) *Direct Material & Outwork* i.e. Materials used in the production of jobs (e.g. paper, board, ink and binding material) and work done outside the press (e.g. block making).

(iii) *General Expenses.* All other items comprising the cost of the press

such as 'dividend,' depreciation, taxes, power, lighting etc.; indirect or service wages, clerical and administration salaries, and indirect materials, i.e. materials not directly related to jobs (e.g. proofing paper and cylinder dressing.)

17. *Cost of the Productive Departments (Labour Cost)*

Based on the nature of work carried out, the press will be divided into certain well defined productive departments such as Hand Composing, Mono Keyboard, Mono Caster, Letter-press Machines, Binding, Ticket Printing etc. Next, the cost of operating each of the productive departments for the year should be found by distributing General Expenses to the various departments, on a Budget Statement of Expenses.

The full cost of the productive departments will comprise:

(i) *Productive Wages*—i.e. wages assessed for the year for all employees engaged in the productive department concerned; and

(ii) *General Expenses*, further distinguished as

(a) *Direct Departmental Expenses*:—i.e. expenses which can be directly distributed to the productive departments, such as, expenses relating to the occupation of premises, (Dividend to General Revenues on the value of the land and buildings, Depreciation of buildings (Rates and Taxes, Repairs of buildings etc.) according to the floor area of each department; 'Dividend' to General Revenues on the value of stock, plant and fittings etc., according to the distribution of these assets in each department; Depreciation of plant and machinery, according to the value of plant and machinery in each

department; expenses relating to light and power according to consumption in each department; departmental sundries direct to the consuming departments (e.g. page cord to the composing department and reclothing of roller to machine room) etc. etc., and

(b) *Overhead Expenses* i.e. expenses which although related to the productive departments, cannot be associated directly with any one department and should be borne indirectly by them, such as pay and allowances of gazetted and subordinate supervision, pay and allowances of office establishment, wages of watchmen etc. etc. These expenses should be collected separately and then distributed over the departments in the proportion of the sum of Productive Wages and Direct Departmental Expenses relating to each department.

18. The sum total of the estimate of the Productive Wages, Direct Departmental Expenses and Overhead Expenses will comprise the Budgeted Cost of the productive departments, and will be called the budgeted "labour cost." The term "labour cost" here differs from its usually accepted meaning as it embraces both Wages (direct) and General Expenses.

19. The cost of each department must be broken down still further in order that the cost of each operation and of working each machine may be known. Each item of Direct Expenses must be examined separately and distributed over the various machines and operations. This sum together with the Wages of the productive employees concerned plus a proportion of the Overhead Expenses will give the budgeted labour cost of the machine or operation.

20. *Hourly Cost Rates:* The full cost (budgeted labour cost) of each department must be recorded equitably against the jobs passing through the departments. To do this it is necessary to establish a unit of production. The most suitable

unit in a press is a direct hour (one that can be charged directly against a job,) and the cost of each direct hour i.e. all inclusive hourly rate for the machine or operation will be calculated. This will be done by dividing the budgeted labour cost of the operation or machine by average number of direct hours expected to be recorded against jobs during the year. This hourly rate will then be used to calculate job costs according to the number of direct hours recorded against each job for each operation and machine. The hourly cost rate will be based on the number of direct hours actually spent on a job and not the number of hours worked.

21. *Comparison of Budgeted and Recorded Labour Cost.* The value of "labour cost" recorded against the jobs by multiplying the direct hours by appropriate hourly cost rates, should be compared every month with the actual productive wages paid during the month plus the budgeted monthly amounts of direct and indirect expenses, viz. the budgeted labour cost. Over the period the variances will show whether the rates which have been calculated have recovered the budgeted costs.

22. *Direct Services Expenses.* In addition to the expenses which are incurred in a press because of the various productive operations like setting type, machining, binding etc. there are other expenses which arise because of services performed directly for jobs. These direct services are essential to enable jobs to be produced, and the jobs involved should bear the expense incurred. Such services include:

(i) *Material & Outwork expenses*—storing & handling materials, packing and despatching completed jobs, dealing with outwork orders etc.

(ii) *Standing Type Expenses*—handling & storing standing type.

The expenses relating to the direct services mentioned above will be budgeted for the year.

23. The use of hourly cost rates is unsuitable for recovering the cost of direct services because these services are not related to the time spent on the job. In order to recover these costs equitably over the job, the following procedure will be adopted.

(i) *Material & Outwork Expenses.* A percentage will be developed as follows :

$$\frac{\text{Budgeted expenses for the year relating to materials and outwork}}{\text{Budgeted cost of materials and outwork}} \times 100$$

This percentage will be added to the nett cost of paper, material and outwork relating to each job, in order to recover the expenses.

(ii) *Standing Type Expenses.* A rate will be computed as follows :

Budgeted expenses for the year in respect of standing type or, say, Rs. 3,500

Expected aggregate area of standing matter during the year 70,000 sq. inch = 5 nP. per sq. in. per annum.

A job containing 3,000 sq. inches of type matter kept standing for six months would incur

$$\frac{3000 \times 5 \text{ nP.}}{2} = \text{Rs. 75.}$$

24. *Checking the Direct Services Expenses Rates*—By analysing the amounts of the various direct services expenses which have been recorded against jobs during a period it should be seen whether the budgeted amounts have been satisfactorily recovered.

25. As costs rates are based on estimated figures and other variable factors it is very important that all aspects of cost recovery should be checked regularly.

26. The diagram below will illustrate graphically how under the proposed job costing system the budgeted cost of the press made up of three elements of costs will be recovered from jobs undertaken in the press.

(See next page for Diagram)

Correction Slip

P. 255. Col. 1. Line 13. Read "have" for "has."

P. 255. Col. 1. Last line. Read "formes" for "forms"

American Surveying Engineers' Recommendations

The American Team of Surveying Engineers which came out to India in the beginning of 1956 to undertake certain basic studies on the Indian Railways have made an interim report to the Railway Board. A statement containing the main recommendations made by the team was laid on the table of the Lok Sabha by the Railway Minister on July 25, 1957, in reply to a question. These recommendations are given below.

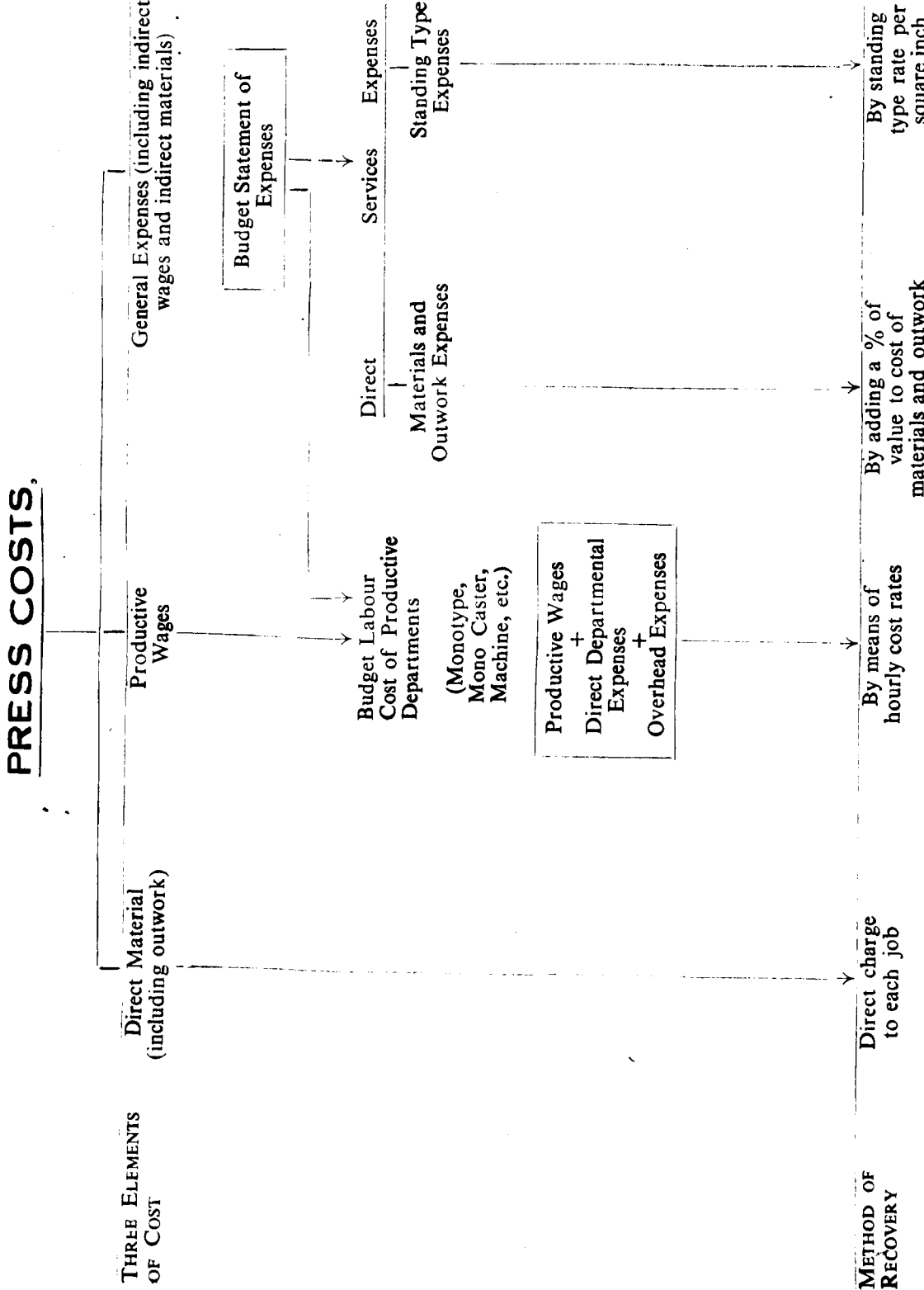
Recommendations.

(1) Motive Power.

A - In order to increase the efficiency and tractive effort of certain classes of locomotives to enable them to handle greater tonnage, it was recommended that :—

- (i) As each "WG" locomotive is shipped for major repairs or for overhaul, the following changes be made
- (a) Increase of boiler pressure, (b) Application of complete boiler insulation
- (c) Installation of sending device,

(Continued on page 284)



(B. F. from page 282)

controlled from the driver's side of the locomotive and rail washing equipment.

(ii) A group of "WG" locomotives be selected for the application of table grates and feed water heaters for test purposes.

(iii) Mechanical stokers be installed on a number of "WG" locomotives for test purposes.

(iv) Consideration be given to the installation of additional facilities for washing and creening coal.

(v) Additional water treatment facilities be provided in bad water areas.

B - In order to make available motive power of high efficiency and greater tractive effort, it was recommended that :—

(i) Steam locomotives should continue to be the main type of traction for the present.

(ii) A new standard steam locomotive should be designed for goods train service with a tractive effort of between seventy thousand and eighty thousand pounds.

(iii) Diesel motive power should be immediately tested by acquiring and placing in service appropriate shunting and road locomotives.

(2) Rolling Stock.

In order to permit the operation of longer heavier trains, it was recommended that :—

(i) All new open top wagons be of between 40 and 50 tons capacity.

(ii) All new wagons of any type be equipped with a transition type automatic coupler.

(iii) An appropriate transition type automatic coupler be installed on all the existing wagons with sufficient remaining life to justify the expenditure, such installation being made only when wagons are shopped for major repairs or overhauls.

(3) Signalling :

A-In absolute block territory, it was recommended that :—

(i) Warner signals be located on separate posts at full braking distance in the rear of the first stop (outer) signal.

(ii) Tokenless Manual Lock and Block Signalling be used for busy single line working.

(iii) Consideration be given to the adoption of the speed signalling system and upper quadrant multiple aspect signals.

B-In order to demonstrate the merits of Centralised Traffic Control, it was recommended that :—

(i) Two 'Pilot' sections be selected and equipped with Centralised Traffic Control, one on broad gauge and one on metre gauge.

(ii) On sections where additional lines are to be constructed, a study be made to determine whether signalling change would provide the required capacity on certain parts at reduced capital cost.

(4) Transportation of Coal.

It was recommended that a study be made to determine the advisability of changing the present coal allotment system from a daily to at least a weekly basis. This may help in block allotment of wagons to collieries for loading and running of block specials.

Further Study

After a perusal of the preliminary report, the team was asked to make a further study on the following subjects :—

(1) Motive Power

(a) More details to be given on the various items of modifications and improvements recommended to improve the hauling capacity and efficiency of W.G. locomotives.

(b) Broad outline to be given including type, wheel arrangement, adhesion

etc., of the locomotive of 70 to 80 thousand lbs. tractive effort taking into consideration the maximum axle load permitted over existing tracks on Indian Railways.

(2) *Rolling Stock.* With reference to fitting of Centre Buffer Couplers to permit of longer trains study should be undertaken on :

(a) Whether any modifications are required on underframes of existing Wagons before Centre Buffer Coupler can be applied.

(b) Design of Centre Buffer coupler and transition gear

(c) Financial implications in change over.

(d) Phasing of the change over.

(3) Signalling

Complete project report to be submitted on introduction of centralised traffic control on one Broad Gauge section and one Metre Gauge section of the Indian Railways.

(4) Coal Transportation.

The team should suggest specific scheme with complete details to ensure that despatches from Bengal and Bihar Coalfields may be doubled in the most economical manner by the end of the 2nd Five Year Plan on the assumption that requisite rolling stock would be available.

(5) Rail-cum-Sea Transportation.

Detailed study and recommendations are required regarding the possibility of rail-sea movement of bulk commodities particularly coal, with the object of relieving congestion on the Railway and releasing capacity for other traffic.

In addition to these, the team was also asked to undertake a study and to submit a report on Orissa Ore Project i.e., transport of Ore from Orissa Mines to Vishakapatnam port.

The Final reports on the various subjects are expected shortly since the investigations are nearly complete as indicated by progress reports.

[By Courtesy—Indian Railways].

Coal Consumption by Railways

(A Plea for setting up an Economy Committee.)

In the course of the debate on the Railways Appropriation Bill in the Lok Sabha in Sept. 1957 the Railway Minister, Mr. Jagjivan Ram, announced that he would shortly constitute a committee to suggest how best consumption of coal by the railways could be reduced. He admitted that he was not satisfied with the explanations he had to give on the increase in the fuel consumption of the railways. He considered it necessary to appoint a small committee to go into the details and estimate the actual requirements of the railways.

The problem of bringing about economy in consumption of coal is not a

new one. Those who have been closely watching the debates on Railway Budgets will recall that the mounting annual coal bill has been the subject of frequent criticism in the past. In deference to the plea of members of the former Central Legislature and Parliament for effecting economy on this account, the Ministry of Railways set up in October 1951, a committee, known as the Railway Fuel Economy Enquiry Committee, under the chairmanship of Mr. D. C. Driver, President of the Coal Consumers' Association, Calcutta, to examine the supply, consumption and reserve stock of coal on railways and

make recommendations for economy in the expenditure on coal used as fuel. After fifteen months of deliberations, the Driver Committee submitted its report in March 1953.

Committee's Recommendations.

The recommendations of the Committee covered a wide field, in that they dealt with issues bearing on production, preparation, grading and pricing, on coal, production and utilisation of lignite in the South, rationalisation of coal supplies, short and long-term plans for development of coal transport, electric and diesel traction on railways, fuel control organisations and training schemes, fuel accounts and statistics and power and fuel research. It was estimated by the Committee that, if its recommendations so far as the railways were concerned, were implemented, it would result in a cut of 20 per cent in coal consumption and a saving of about Rs. 6 crores annually in the course of five years from then on the basis of the then railway fuel bill. The Committee had recommended, among other things, that efforts should be made to exclude from the future loco programmes, to the extent permitted by the transport situation, coals of calorific value of less than 12,500 B. t. u./lb. and that the use of low grade coal (calorific value below 11,500 B. t. u./lb.) on shunting locomotives should be gradually discontinued. In other words, the committee felt that the then policy of the railways tending to use more and more of low grade coals should not be carried too far.

The railways consume over 30 per cent of the total quantity of coal railed in India. The following table shows grade-wise quantity of coal consumed during the last four years:

Grade	Quantity (in million tons)			
	1952-53	1953-54	1954-55	1955-56
Selected 'A' ...	1.11	1.35	1.32	1.27
Selected 'B' ...	2.57	2.65	2.86	2.84
Grade I ...	5.43	5.43	5.99	3.47
Grade II ...	1.42	1.26	1.10	0.99
Grade III A ...	0.41*	0.23*	0.02	..
Ungraded coal ...	..	..	†	3.13
Small Coals ...	0.55	0.63	0.57	0.62
Total	11.12	11.36	11.85	12.31

* Grade IIIA and B. † Included in Grade I above.

Change-Over Policy

The decision of the railways to switch over gradually from the use of high grade coals to low grade coals formed part of the policy of conserving coking coals and better grade non-coking coals. This change-over meant not only an increase in the fuel bill of railways on account of larger quantities of lower grade coals required as compared with higher grade coals, but also extra wagons for transport purposes thus reducing the revenue-earning capacity, as well as imposing limitations on the transport capacity, which was already overstrained. The use of coking coals in railways was originally based on sound technical and financial considerations, but the railways agreed to the use of non-coking coals, despite financial loss, in the larger interests of national economy. It was not sufficiently understood in earlier years how far the increasing use of low grade coals would affect the finances of the railways. This and other technical considerations prompted the Driver Committee to recommend a change in the loco coal programme.

It will be noted from the above table that the proportion of high grade coals consumed by the railways in the last four years has not recorded any decline, while the total quantity of coal used has risen. It will be recalled that the Minis-

try of Railways has agreed, in the larger interests of the country, to the progressive replacement, by April, 1959, of the entire quantity of coking coal supplied to the railways by non-coking coal. This is, however, subject to the condition that coking coal should be replaced by one grade higher non-coking coal, provided railways got a preference in the allotment of any surplus quantities of coking coal.

The railways' fuel bill has gone up in the last four years by 73 per cent, that is, from Rs. 22.5 crores in 1952-53 to Rs. 39 crores in 1955-56. The revised estimate of the fuel bill for 1956-57 is Rs. 45.14 crores and the budget estimate for 1957-58 is placed at Rs. 50.76 crores. The relatively sharper rise in costs than in quantity is due to many factors, such as increases in the prices of coal, higher freight charges, excise duty and cess, etc. It is probably this mounting fuel bill that has prompted the Railway

Minister to economise in coal consumption.

One of the ways of achieving the objective is to use as recommended by the Driver Committee, electric, diesel and gas turbine tractions on a larger scale in place of the conventional steam locomotives. It is true that the railways have been gradually increasing the use of diesel locomotives—in April last, the Railway Board placed orders for 100 diesel electric broad-gauge locomotives of 2,000 h.p. each—but progress is somewhat slow. Though the switch-over may involve larger capital investment initially, it is worthwhile changing over, wherever possible, to diesel and electric traction, considering the saving in operational costs and large quantities of coal to be available for other industries.

(By Courtesy:

The Indian Railway Gazette)

Need for Correct Estimates of Expenditure by Govt. Depts.

The Public Accounts Committee of the Madras Legislative Assembly in its Report on the accounts of the Madras State for 1954-55, has made a strong recommendation that the Government departments "should make more accurate estimates of their spending requirements and work up to them with a closer degree of approximation than at present, especially in the present financial stringency."

The report stated that from the large number of individual cases of savings in the year under report, the Committee noticed a tendency on the part of some departments to provide funds in the Budget Estimates "without a frank and realistic appraisal of their spending capacity."

The Committee came across a good number of cases of substantial variations

between final grants and expenditure. After quoting some prominent instances, the report observed that it could not help feeling that the departments "still lag behind in the technique of making accurate forecasts of expenditure with the result that substantial surrenders and large excesses become inevitable at the close of the financial year. Belated reconciliation of or failure to reconcile, departmental figures with those of the Accountant-General's books is found to account for many of these variations. This Committee drew attention to the comments of the previous Public Accounts Committees on such delays and failures in the hope that there would be definite improvement in this direction in future."

The Committee found, according to the report, that apart from negligence and

inadequate check over village accounts by the supervising staff, in some cases, one important factor favouring embezzlements was the "unsystematic method of issuing receipts for revenue collections etc., by the village staff." The Committee urged that arrangements for the supply of adequate stocks of printed receipt books be made before the next kist collections to all the village officers, so that the defalcations of this type might be mitigated.

"This Committee would," the report observed, "unreservedly endorse its earlier recommendation, that Government should set up an independent organisation under the direct control of the Finance Department which would be responsible for carrying out the verification of stocks in those departments which maintain large quantities of stock, consumable stores, tools and plant etc. The Committee hopes that Government will be able to implement this recommendation without further loss of time."

The Committee came across a case in the Civil Supplies Department where Government had to reimburse the claim of a district wholesaler for a sum of

Rs. 1,635 being the loss allegedly sustained by him but without any strong evidence to support his claim. It would appear that certain vouchers forwarded by the wholesaler, to the department, through the Collector, had been lost in the Board of Revenue office, which, however, could fix no responsibility on its staff. As several other cases of missing papers and files, pertaining to this department were also brought to its notice, the Committee felt that Government should take up the general question of revising or improving the procedure by which it should be possible to fix responsibility on the staff for the loss of important documents and correspondence files.

Note : Slackness of supervision and want of adequate punishment for negligence or indifference in work are points to be attended to immediately and remedied. The disease has already spread very widely, particularly in Government Offices, where pampering of the so-called low-paid staff has led to results quite opposite to what was desired.

Ed, R. A

Co-ordination Committee for Safety of Railway Bridges, Railway Track and other Public Works

1. The functions of the committee are (1) exchange of information about schemes envisaged by any one department and likely to affect the working or the safety of assets of another department and consequential safeguards to be adopted; (2) keeping up-to-date of the list of railway affecting works, etc., naming of officials responsible for joint inspection of each such work immediately after monsoons, and if possible, also in advance of the monsoons, and seeing that the department responsible for proper maintenance of such works promptly

carried out the necessary repairs, (3) involving of a procedure for obtaining and broad-casting by the departments concerned of the warnings or forecasts of heavy rains, floods, storms, etc. (as well as the actual heavy rainfall recorded), and of expected floods downstream, to the officers concerned in various departments, and enlisting of public co-operation for promptly conveying to the department concerned any unusual occurrence like breaches of tanks, (4) assessing whether waterways, protection works, etc., provided by any

department in an area severely affected by floods proved to be inadequate and the improvements needed for future and (5) co-ordination of related schemes of the various departments represented.

2. While inaugurating the committee at Madras on the 8th Nov. '57, the Minister for Works, Madras., Government., pleaded for co-operation between P. W. D. Engineers & the Railways in the proper utilisation of Engineering talent for protection of tanks, irrigation canals railway bridges and railway track.

3. Mr. T. A. Joseph, General Manager, Southern Railway, addressing the Committee, said that whatever might be the reasons, it was a common belief that the pattern of rainfall was undergoing a marked change, a change which could cause considerable damage to life and property. Emphasising the need for tackling the problem in a scientific manner, he referred to the work of the Central and State Flood Control Boards and the Central Water and Power Commissions, and pointed out that River Commissions had also been set up for the Ganges, the Brahmaputra, the Godavari, etc. These Commissions had two-fold functions to perform: (1) to assist generally the Central Board in technical matters, and (2) to advise the State Boards on problems pertaining to flood control.

4. Referring to the problems facing the Indian Railways, Mr. Joseph said it was growing not only in its mileage but also in its standards of service. The railway engineers at one time designed the rail road for an axle load of about eight tons and for speeds of about 25 m.p.h. The recent locomotives were designed for speed up to about 60 miles with axle loads in the order of 18 to 20 tons. The bridges were designed by eminent engineers in the field. The intensity of train service was steadily on the increase, thereby causing more strain to the structures over which the trains

were passing. The permanent way was relaid with higher sections of rails and greater density of sleepers when heavier engines were running at increased speeds. The bridges, however, remained as permanent structures except that the girders were replaced when not found to be of adequate strength.

5. The Railway General Manager, continuing, said the masonry structures were being carefully watched and maintained efficiently to ensure uninterrupted service. It was considered expedient to review the condition of the bridges on the Indian Railways not only from the point of view of structural soundness but also from the point of view of adequacy of waterways under the changed pattern of monsoon conditions. He pointed out: For this purpose, every railway has appointed a Deputy Chief Engineer (Special) who is assisted by a few engineers and qualified executive staff".

6. Mr. Joseph narrated how a High Level Committee under the chairmanship of Mr. Khosla, ex-Chairman of Water Power Commission, guided the Special Engineer.

7. Detailing how the repair works were being carried on by the Railways, the General Manager, Southern Railway, said that a few selected catchment areas were being surveyed under the present conditions and observations were also being made to correlate the observed discharges with the intensities of rainfall. The observations would have to be continued for a few years.

8. The Railway Board, Mr. Joseph said, also arranged recently with the Central Water and Power Commission for enlightening the railway engineers on special duty with the latest methods adopted in America for purposes like survey in catchment areas. A very large amount of data had been collected and they were now able to forecast to a

fair degree of accuracy what would be the depth of discharge at any particular point along the course of a navigable river or a canal on a particular date. It was the endeavour of the Government of India that the sciences of Hydrology and Meteorology should be developed and co-ordinated to the same degree of precision as had been done in the more advanced countries. "The collection of data necessary for this has been commenced and it is by collaboration of similar efforts by other departments that the requisite data can be collected in the course of a few years," he added.

9. "The number of projects that have been taken up for execution, both big and small, have been so large in this country that considerable changes have occurred in the natural drainages," Mr. Joseph remarked. "There is unfortunately very little co-ordination between the works done by different departments, inclusive of the Railways, to assess the extent to which any one work affects the other".

As regards the question how far the breaching of tanks contributed to the breach of railway line, the General Manager said that it was already emphasised that such tanks should be maintained at safe standards. There were rules governing the classification of railway-affecting tanks and there were procedures for periodical inspection and intimation to the railway about the condition of such railway-affecting tanks. He hoped the committee would consider this question with the object of ensuring a satisfactory system of inspection and maintenance.

10. He added that there were about 1,133 railway-affecting tanks within Madras State of which 31 percent were being maintained by the P.W.D., 57 percent by the Revenue Department and the balance of 12 percent by private parties. Several years ago the restoration of the tanks was tackled on a programme basis and it might be necessary to take up the issue once again as some tanks might have gone into disrepair and several new tanks would have come into existence.

11. Referring to the arrangements made by the authorities in watching the safety of the railway lines, Mr. Joseph said this watching system was always intensified during monsoon season. Stationary and mobile patrolmen were posted with equipment to stop trains if danger was apprehended. It would be of great advantage if other Government departments could contribute for alerting the Railways about circumstances which they could foresee as potential dangers to the safety of trains. The P.W.D. and Irrigation departments were having several observation centres like river-guarding stations, and their timely advice of the rise in streams would be of some help to them.

12. Mr. Joseph said that the Chief Secretary to the Madras Government had issued instructions for enlisting the co-operation of persons living in villages along the railway line to intimate to the nearest station master any unusual occurrences like heavy rains or sudden rise in water and breaching of tanks so that timely action could be taken to protect the safety of trains. He hoped the public would respond to this call.

Cost Accounting

Debate in Lok Sabha

Mr. C. R. Narasimhan moved a resolution in the Lok Sabha on 15th Nov. '57, urging the Government to take the necessary steps to ensure that "costing

results" of industrial undertakings were properly certified.

Mr. Narasimhan said that a statutory body should be set up to control the conducting of the necessary qualifying

examinations in cost accounting and for regulating the practical training and enrolment of members who had qualified in such examinations. Such members alone should be permitted to certify the costing results of the industrial undertakings.

Mr. Narasimhan said that it was "unwise" to neglect the other side of accounting, cost accounting, and concentrate only on financial accounting. The two were inseparable and co-existent. Unless an efficient system of cost accounting was maintained by the industry seeking complete or partial protection, the Government would have inadequate data on which to base its policies. He wanted the major industrial and commercial undertakings to maintain compulsorily a thorough accounting system.

In the course of the debate, Mr. H. C. Dasappa said "the Public Accounts Committee, in its ninth report, had recommended that the Government should take steps, to train sufficient cost accounting personnel so that they should estimate correctly the production costs of various Indian industries. Such a step would help the Tariff Board in its work. Cost accounting would also enable the country to compete successfully in the export markets as it would be useful in keeping production costs down.

Mr. H. C. Heda said that both in the private as well as the public sector the need to minimise expenditure and bring down cost of production as low as possible had to be kept in view. He hoped, therefore, that the Government would accept the resolution or at least give a categorical assurance that in the next few months, some machinery would be created to train technical personnel who could determine the cost of every commodity.

Mr. T. B. Vittal Rao supporting the resolution, said there was no proper cost accounting even on railways though the

Estimates Committee had recommended that railways should recruit cost accountants. Both in the U.S.A. and the Soviet Union, he said, great emphasis had been laid on costing and it was but natural that with a view to having a proper estimation or assessment of the products in this country, there should be a statutory body for the profession of cost accountants.

Mr. Bhagat, the Deputy Minister for Finance, said that he was in sympathy with the objective of the resolution and that a country like India which had set its store on development and industrialisation could not ignore the importance of cost accounting. Determination of efficiency and economy of any process of production was a continuous and technical study and the Government realised the need, as pointed out by the Estimates Committee and the members of the House, for facilities for training of cost accountants.

But, Mr. Bhagat said, the Government's approach in this matter was first to strengthen an organisation which was functioning from 1944 in a limited way. He referred to the details of administrative recognition given to the Calcutta Institute of Cost and Works Accountants and the Government's right to nominate upto five persons to the Governing Body of the Institute. Mr. Bhagat said the Institute was at present holding examinations in Calcutta, Madras, Delhi and Poona. He hoped that with the building up of this Institute with Government participation, a large number of persons would avail themselves of the facilities offered by the Institute.

Mr. Narasimhan said he would expect the Government to move with "greater speed and vigour" in creating a statutory body as in the case of statutory accountants.

The resolution was withdrawn after Mr. Bhagat's assurance.

Some important aspects of the Pension Scheme for Railways

The pension rules as liberalised, vide Railway Board's Memo No. E48CPC/208 dated 8-7-1950 as amended or clarified from time to time, shall apply

(a) to all Railway servants who enter service on or after the date of issue of this letter; and

(b) to all non-pensionable Railway servants who were in service on 1-4-1957 or have joined railway service between that date and the date of issue of these orders, (16-11-1957) who opt for these benefits in preference to their existing retirement benefits.

The Salient features of the pension rules are contained in the Annexure * to the Ry. Board's letter, which annexure should not, however, be taken as authority and a reference is required to be always made to the original orders on the subject.

Class IV railway servants who quit service as Class IV employees shall on completing more than 30 years' qualifying service, be eligible for an additional death-cum-retirement gratuity at the rate of Rs. 200 per qualifying year of service beyond thirty years subject to a maximum of Rs. 1,000/-. This provision of the rules is, however, subject to modification or cancellation if the pension rules are further liberalised later.

Railway servants referred to in para 1 (b) above shall, on or before 31-3-1958 exercise an unconditional and unambiguous option on the prescribed form electing the pensionary benefits or retaining their existing retirement benefits under the State Railway Provident Fund Rules. Any such employee from whom an option form showing the employee's option is not received within the above mentioned time limit or whose option is incomplete or conditional or ambiguous, shall be deemed to have opted for the pensionary

benefits. Where, however, an employee has died or dies on or after 1-4-1957 without exercising any option for the pensionary scheme, his dues will be paid on the Provident Fund System.

The Government contribution and interest thereon credited to the S.R.P.F. account of an employee who opts for pensionary benefits will revert to Government immediately the option is exercised, and the account shall be converted into a non-contributory S.R.P.F. account from the date the account was opened. The existing S.R.P.F. rules except to the extent they relate to the crediting of Government's contribution to the Fund and Special Contribution to the Provident Fund will, however, continue to be in force irrespective of the fact that the employee has opted for pensionary benefits and the employee will continue to make compulsory contribution to the Fund under those rules. The service of the employee shall be deemed to have been in the pensionable establishment from the commencement of the employee's service, irrespective of the period of service for which the employee might have subscribed to the State Railway Provident Fund, and shall count for pension in the manner and to the extent provided for in the pension rules as they now stand.

Railway servants who demitted service on or after 1-4-1957 or would have been on leave preparatory to retirement but for being reemployed, including those who have received their retirement benefits under the Provident Fund system fully or in part, shall also have the option to elect pensionary benefits but only after they refund the entire Government contribution to S.R.P.F. with interest thereon actually with drawn by them and the excess, if any of any special contribution drawn by

* The annexure is not printed here as it is already publicised to the staff concerned.

them over the death-cum-retirement gratuity due to them under the pension rules.

The payment of the retirement benefits of the Railway Servants who have already quitted service on or after 1-4-1957 otherwise than under the Notice Clause in their service agreements or Rule 148-R. I should be arranged as early as possible on the basis of their option.

The provisions of Rule 148-R.I. for termination of service on notice shall

continue to apply to the railway servants even if they opt for pensionary benefits. The question of the pensionary benefits under Rule 148-R. I to Railway servants whose services are terminated under the notice clause is separately under consideration, but, irrespective of the decision on that issue, option once exercised is final and irrevocable.

For staff who have already retired, arrangements should be made to write to every one individually asking for his option.



Trichinopoly Town — with the Rivers Cauvery and Coleroon in the Background



NEWS, NOTES & COMMENTS

Survey for new Line in Delhi Area

The Railway Board has sanctioned the final location survey for a railway line between Ghaziabad and Tughlakabad via second Yamuna bridge, a distance of 16 miles. The survey will be carried out by the Northern Railway.

The main object of the construction of this line would be to provide an "avoiding line" for diverting goods traffic from Tughlakabad and Ghaziabad without passing through the extremely busy yards of Delhi and New Delhi stations.

Another object is to start passenger trains bound for Allahabad, Lucknow and Calcutta from New Delhi instead of Delhi main, as at the latter station the platform capacity is extremely limited and it is difficult to handle all the passenger trains.

India's First Main Line Diesel Locos Arrive in Calcutta

The unloading of the first consignment of 20 Diesel electric locomotives out of the 100 ordered by the Indian Railways earlier this year with an American firm commenced at the Calcutta port on 12th Nov. '57

When the consignment left U.S.A. by the ship *Belkarin*, it was described at a formal ceremony as the "largest single shipment of Diesel electric locomotives ever to leave the port of New York."

These locomotives will be the first broad gauge main line Diesels ever to be used in this country.

The 1800-H.P. locomotives, each weighing 110 tons, will be unloaded at the Calcutta docks by the ship's own derricks, after which they will be transferred on their own power to Gaya, where a new shed has been built to house them. After a thorough check there,

these locomotives will be utilised to work goods trains between Gaya and Dhanbad on the Eastern Railway.

Known as ALCO World locomotives, these engines are capable of hauling heavy loads at fairly high speeds; and consequently the number of engines required for working the same number of trains will be reduced. Moreover, two units can be worked together with one set of engine crew.

The locomotives will help the Indian railways to meet the pressure that is likely to develop as a result of the increased flow of traffic as the Second Plan progresses

The remaining 80 locomotives to be delivered next year are expected to be used in the regions of the three steel plants for carrying ore and coal traffic and also finished steel. When electrification upto Moghalsarai is completed, the Diesel electric locomotive will be transferred to some other sections of the Indian railways where increased traffic will have to be handled with the existing facilities.

A team of engineers representing the manufacturers has already arrived in India from U.S.A. to put the engines into commission and to train the running and technical staff.

Charge of Theft from Ry. Goods Shed

At Madras, the City Sessions Judge, Mr. B. Koman, delivered judgment on 20th Nov., convicting Kurien Paul and Natarajan, boiler smiths in the Perambur Loco Works, under Section 380, I.P.C., for the theft of piecegoods from the Salt Cotaurs goods shed, and sentenced them to undergo rigorous imprisonment for nine months each.

In this case, Kurien Paul and seven others took their trial on charges of conspiracy, theft, receiving stolen property, and assisting in concealment of stolen property, under Sec. 120-B read with Secs. 380, 411 and 414 I.P.C. The case for the Prosecution was that between September and November, 1956, the accused, along with the Approver in the case, one Susainathan, and others, entered into a conspiracy to remove cotton piecegoods bales awaiting delivery to consignees at the Salt Cotaurs goods shed, stole them, and dishonestly disposed them of to various persons. The first three accused were further charged with the removal of three bales of piecegoods valued at about Rs. 3,185, on September 11, the first two accused with having removed 10 bales of piecegoods on November 7, and the eighth accused with having assisted in concealing three bales of piecegoods stolen on September 11.

In all, 88 witnesses were examined for the Prosecution. The Sessions Judge held that the charge of conspiracy had not been proved and acquitted all the accused except accused 1 and 3 of all the charges. He found accused 1 and 3 (Kurien Paul and Natarajan), alone guilty of theft under Section 380, I.P.C., and sentenced them each to undergo rigorous imprisonment for nine months.

In the course of his judgment, the Sessions Judge observed that this was yet another case that had come to the notice of the Court within a few months of how considerable losses were being caused to the railway. The evidence of the Head Delivery Clerk had shown that this was an every day occurrence. It followed that large sums had to be paid to the public by way of compensation for such losses. From the evidence disclosed and from personal inspection made by him of the goods shed, it was clear that the care taken of the goods that arrived from out-stations was very inadequate. Most loss to the railway could be averted by taking proper steps to ensure the safety of parcels received in the goods shed. The impression one gathered from

the evidence was that none in the goods shed seemed to worry himself about such losses. It was also seen from the evidence that supervision by the higher staff was practically non-existent. In a large shed like this, it was necessary that an official of some status was held responsible to see that the goods entrusted got sufficient care and protection.

Note: The efficacy of the Watch & Ward establishment at the Goods Shed is obviously a questionable one. Further, why the causes of incidence of heavy compensation for losses were not thoroughly probed into automatically much earlier is a noteworthy point. It is hoped that hereafter at least, adequate safeguards would be provided.

Ed. R.A.

Responsibility of Auditors

It is reported that two S.A.S. Auditors of the Deputy Accountant General (Posts & Telegraphs) Office, Calcutta, have been dismissed from service for negligence. They were also punished with fines aggregating to Rs. 5000—one of the Auditors was fined Rs. 3000, and the other Rs. 2000—in the case brought up against them.

It is stated that the National Savings Bond Registers were maintained in an irregular manner and that some pages in the Register had also been torn. It is also stated that, due to the negligence of the Auditors, a cancelled National Savings Bond for Rs. 5000 was cashed fraudulently at Midnapore. The case was investigated by the Special Police Establishment attached to the Ministry of Home Affairs.

[This appears to be the first case of its kind where the S.A.S. Auditors of the Indian Audit Department have been chargesheeted and punished for gross negligence in the maintenance of Registers, etc., which led to financial loss to Government. In the absence of full and detailed facts of the case, it is difficult to comment on the irregularities and procedural defects; but if it is laid down and notified that this policy of charge.

sheeting Accountants and clerks for gross negligence leading to loss of Government money is extended to the Railway Accounts Department also—with the same severity as was exhibited in the case referred to above—there is no doubt that there would be a wholesome effect on the morale and sense of responsibility of Railway Accountants and clerks, and efficiency is bound to improve.

Ed. R.A.]

Railways and Roadways.

The need for a proper co-ordination between the Railways and the Roadways in the matter of transport and the importance of both these units functioning in an effective manner were stressed by Mysore's Industries and Home Minister Mr. C. M. Poonacha, at Bangalore on 28th Nov. when he inaugurated the meeting of the committee of engineers of Railways, Public Works and Irrigation Departments in his chambers in the Vidhana Soudha.

Mr. T. A. Joseph, General Manager, Southern Railway, and Mr. R. J. Rego, Divisional Commissioner, Bangalore Division, attended the meeting.

The Minister observed that the velocity of traffic had considerably increased of late and a number of difficulties were encountered especially in the matter of bridges. Engineers had a great duty to perform, particularly with regard to bridges and the inflow of waters. All these matters needed close consideration by those in charge of Railways and the Highways Department.

Mr. Joseph pointed out how co-ordination could be effected in regard to certain details.

Bill to Amend Rys. Act.

The Minister for Railways, Mr. Jagjivan Ram, introduced a Bill in the Lok Sabha on 28th Nov. to amend the Indian Railways Act, in respect of the constitution and jurisdiction of the Railway

Rates Tribunal. The amendment seeks to make the Tribunal "a more expeditious instrument for adjudication of Railway freight matters at a reasonable cost to the litigant".

The statement of objects and reasons of the Bill said that the Railway Freight Structure Enquiry Committee set up in 1955, had recommended some changes in the constitution, jurisdiction, and rules of procedure of the Tribunal in order to meet criticism that the functioning of the Tribunal had tended to be formal and legalistic and that its proceedings had been "prolonged and expensive". The Bill has been framed in the light of the Committee's recommendations.

The Bill also seeks to remove some lacunae and defects in certain other provisions of the Indian Railways Act, which have come to notice in the working of the Act, the statement added.

Rly. Compartments for Women.

Railway compartments meant for women will now be placed in the middle of all railway trains to enable women occupants to have refreshments at railway stations.

The Railway Board has instructed all railway administrations to adopt this practice as far as possible. A Rajya Sabha member, Mrs. Yashoda Reddy, had complained in the House that women passengers were not able to have refreshments as their compartments were usually at the rear of trains. The Railway Minister had agreed to remove this inconvenience.

Indian Engineers' Training in U. S.

The second group of 85 Indian steel engineers arrived in New York to begin a year's training programme in the United States, under the 1.5 million dollar grant from the Ford Foundation. The first group—comprising 115 members began training in August last.

Central Government Holidays for 1958

The following are the Government of India holidays for 1958:

Bank Holiday January 1; Republic Day January 26 & 27; Shivaratri February 16; Holi March 5 & 6; Ram Navami March 29; Good Friday April 4; Baisakhi April 13; Id-ul-Fitar April 21; Budha Purnima May 3; Id-ul-Zuha June 28; Muharam July 28; Independence Day August 15; Janamashtami September 6; Id-i-Milad September 26; Mahatma Gandhi's Birthday October 2; Dussehra October 20, 21 & 22; Diwali November 10 & 11; Guru Nanak's Birthday November 26; and Christmas Day December 25.

Training in Industrial Workshops.

Candidates who will be completing their Degree examination held in September-October 1957 (in Engineering/Technology) will be considered for training in industrial workshops, in the fields of Mechanical, Electrical, Civil and Chemical Engineering under the Govt. of India Practical Training Stipend Scheme 1957-58. Candidates selected for awards will be paid a stipend of Rs. 150 per month. They will be normally in training till August 31, 1958.

Forms of application can be had from the Southern Regional Office, Ministry of Education and Scientific Research, University Buildings, Chepauk, Madras 5 and should be submitted to that office through the head of the Institution concerned.

Pamphlet on Metric System.

A pamphlet on the metric system of weights and measures, priced at 35 naye Paise per copy, has been published by the Publications Division of I. and B. Ministry. The pamphlet deals with the origin of the metric system, its structure and its utility. The simplicity resulting from the adoption of the metric system is illustrated by examples

of arithmetical calculations based on the present system as compared with the metric system.

The pamphlet includes illustrations of the new metric weights that are to be introduced in India shortly and also contains simple conversion tables.

(By Courtesy—Indian Railways).

Issue of Children's Day Commemorative Stamps

Three special stamps have been issued to represent three major aspects of child welfare work: nutrition, education and recreating. The stamps are in the denominations of 8 nP. (book packet rate), 15 nP. (inland letter rate), 90 nP. (air mail letter rate to Europe). Each stamp is in a different colour—the 8 nP. stamp in red purple, the 15 nP. stamp in jade green and the 90 nP. stamp in mineral red.

Rail Accident near Igatpuri—Commission of Enquiry Appointed.

The Government of India have appointed a Commission of Enquiry to make an inquiry into the causes of the accident to the 1 Down Bombay-Calcutta Mail between Padali and Asvali stations on the Igatpuri-Bhusaval section of the Central Railway on November 23, 1957.

The Commission consists of Justice G. D. Khosla, I. C. S., a judge of the Punjab High Court (Chairman) Dr. P. Subramanian, M. P.; and Shri J. N. Nanda, retired General Manager of ex. Nizam State Railway (members).

The Commission shall

- (i) make an inquiry into the causes of the said accident and for that purpose take such evidence as may be necessary;
- (ii) state its findings as to the causes of the said accident and as to the person or persons, if any, responsible therefor; and
- (iii) suggest safeguards against similar accidents in future.

The Commission shall submit its report to the Central Government within a period of one month from the date on which it commences its inquiry.

* * *

Monthly Railway Statistics

The approximate Gross Earnings of Indian Railways during Oct. '57 amounted to Rs. 30.14 crores, showing an increase of 2.37 crores as compared with the actuals for Oct. 1956. The total approximate actual gross earnings from 1-4-1957 to 31-10-1957 amounted to Rs. 212.93 crores, representing an increase of 19.20 crores as compared with the actuals of 193.73 crores for the corresponding period of the previous year. This represents an increase of 9.91%.

Tonnage lifted: The total number of tons lifted from 1-4-1957 to 31-10-1957 amounted to 50,278,000 and 12,614,000 respectively over the BG and MG, showing an increase of 4.93 and 9.02% over the actuals of the corresponding period of the previous year.

Wagon Loading: The number of wagons loaded during Oct. '57 was 451,695 and 260,119 respectively for BG and MG, showing an increase of 5.35 and 2.22% over the figures for Sep. '57. The total number of wagons loaded from 1-4-1957 to 31-10-1957 amounted to 3,080,532 and 1,895,235 respectively over BG and MG, showing an increase of 6.17% and 11.8% over the figures for the corresponding period of the previous year.

There has been a general increase in the movement of grains and pulses, sugar, iron and steel others, manganese ore and coal for other Government Railways over the BG and grains and pulses, Jute raw, Jute manufactured, sugar, sugarcane, iron and steel others, other metallic ores, and coal for home line on the metre gauge. These figures have been partially set off by decreased loading in sugarcane on the BG and Miscellaneous smalls on the MG. There has

been a marked improvement in the movement of all commodities.

* * *

Reservation for Special Interests Abolished : Railway Board's Directive

The Railway Board has issued orders for the abolition of separate accommodation quotas for "special interests, such as high officials and defence services personnel" in air-conditioned coaches. Booking for such interests is now to be made strictly in order of priority of receipt of applications. Hitherto the system has been to reserve some accommodation in air-conditioned coaches and in first class compartments of all trains for high civil officials and defence services personnel. The berths set apart for them are only allotted to others when they are not availed of by those for whom they had been reserved. Malpractices over last-minute allotment of such accommodation have been alleged and the Railway Board's decision is believed to be intended to check them. The system of maintaining separate quotas for special interests will continue in respect of first class compartments. Regarding women travelling alone in air-conditioned coaches, the Board's latest directive is that they should be accommodated in separate compartments. If the number of such women passengers is not sufficient to occupy all the berths of a compartment, they should be accommodated in a compartment in which there are women travelling with their relatives. The Railway Board has regretted its inability to accept a proposal to provide free of cost suitable reading matter, such as current magazines and tourist literature in air-conditioned coaches.

* * *

I. R. A. S. Probationers.

As a result of the combined competitive Examination held by the Union Public Service Commission in 1956, twentyone candidates have been appointed as Probationers in the Railway

Accounts Service and distributed as under:

Central Railway	4.
Westren Railway	2.
Northern Railway	3.
North Eastern Rly.	2.
Southern Railway	4.
South Railway	3.
Eastern Railway	3.

This list includes one lady candidate posted to the Northern Railway. Obviously this is the first time that a lady is appointed to the I. R. A. S.

* * *

Railway Accountants' Seminar.

We learn that steps are being taken to convene a Railway Accountants' Seminar at Madras, in the last week of December 1957 or in January 1958, for discussion of Railway Accountancy problems connected with the development of accounting technique, etc., particularly under the present conditions for the implementation of the Second Five Year Plan for the Railways.

* * *

Atomic Lamp for Railways

Several major railroads in the United States are currently testing a new type of atomic lamp in an effort to develop a "perfect" railroad warning system.

Such a warning system, railroad men point out, would use lamps that do not need refuelling, as do oil lamps, or that do not need any outside source of power, as do electric lamps.

The atomic lamps now being tested are made by the United States Radium Corporation of Morristown, New Jersey. They are called atomic lamps because they use radioactive Krypton, which is a peaceful product of atomic energy. It is a gas that has been made radioactive.

The radioactive Krypton is sealed inside of the lamp, where it reacts with

treated phosphor crystals that coat the inside of the lens. This reaction creates light.

The light-making process is entirely automatic and continues for a long time. Technicians of the United States Radium Corporation estimate that the lamps will continue in operation, without any maintenance being necessary, for 10 years or more.

The atomic lamps were originally put on the market in December, 1956, but their performance has been greatly improved since that time.

With the first lamps it was possible to read a newspaper held about 4 inches from the lens. The latest models make it possible to read newspaper type clearly at a distance of about 3 feet from the lens.

The light of the lamp, however, is said to be clearly visible at a distance of 500 yards.

In addition to their use by rail-roads, the lamps are being tested for use in a number of other fields, the manufacturer says. Tests are being conducted on use of the lamps as highway construction warning signals and on cars used in underground mines. Their possible use as marine markers as, for example, on buoys, also is being investigated.

* * *

New Diesel Locomotive

A diesel locomotive, tested secretly over the last two months, has averaged 63 m.p.h. on the 160 mile London to Doncaster run.

This is the locomotive of the future, say British Railway officials.

As part of the development scheme for inter-city diesel services, the tests have been carried out with two coaches, with the 450 h.p. engine fitted under the floor, an arrangement already employed on some local services.

**LOK SABHA :****Bridge over Bramhaputra.**

Replying to a question by Sarvashri Amjad Ali and Basumatari in the Lok Sabha on 15th Nov., the Deputy Minister for Railways, Shri Shah Nawaz Khan, stated that a bridge across the Bramha-river has been provided in the second Five Year Plan. It is estimated to cost about Rs. 10 crores and will be constructed between Pandu and Amingaon.

The actual construction of the bridge is likely to be taken up in the working season of 1958-59. Preliminary arrangements are being made.

Remodelling of Delhi Station.

The remodelling of the M. G. portion of the Delhi Junction station, estimated to cost Rs. 13.28 lakhs, was sanctioned in December 1955 and 60 per cent of it has been completed stated the Deputy Minister for Railways, Shri Shah Nawaz Khan, in a written reply to a question in the Lok Sabha on 15th Nov. by Sardar Iqbal Singh.

The reply added that the B.G. portion, estimated at Rs. 38.50 lakhs, sanctioned in June 1957 has just been taken in hand and arrangements for constructing quarters in replacement of those required to be dismantled for the remodelling scheme are in progress. Permanent way materials are being arranged.

Workshops on Northern Railway

No workshop on the Northern Railway has been remodelled in the recent past

but the work of remodelling loco, carriage and wagon shop at Lucknow is now in progress, was the information supplied by the Deputy Minister for Railways, Shri Shah Nawaz Khan, in a written reply to a question by Sardar Iqbal Singh.

The reply listed the following workshops which are proposed to be constructed on the Northern Railway during the Second Five Year Plan:—

- (i) Signal Workshop at Ghaziabad.
- (ii) Bridge Workshop near Allahabad.

The following existing workshops are proposed for expansion in the Second Five Year Plan:—

- (i) Locomotive Workshop at Amritsar.
- (ii) Loco Workshop at Bikaner.
- (iii) Carriage & Wagon Shop at Jagadhri.
- (iv) Bridge Workshop at Jullundur Cantt.

First Aid Facilities on Railways

In a written reply to Shri Khadiwala and two others, the Deputy Minister for Railways, Shri Shah Nawaz Khan stated that First Aid Boxes containing standard first aid equipment, as for instance, sterilized dressings, bandages, splints, tourniquets, sticking plaster, iodine, etc., have been provided on big railway stations in the country. No fee is charged from the passengers for these facilities, which are available for all the 24 hours.

The reply further added that first aid boxes are not kept at unimportant, small road-side stations. But all trains carrying passengers have first aid boxes with the Guard, so that first aid can be provided even at such unimportant small road-side stations during train times, should the need arise.

Electrical Lifting Barriers

In a written reply to Dr. Ram Subhag Singh in the Lok Sabha on 20th Nov. the Deputy Minister for Railways, Shri Shah Nawaz Khan, stated that the Railway Research Centre, Lucknow have carried out trials on electrically operated lifting barriers at the Alambagh Road Level Crossing near the Research Centre. The trials have now been completed and the device will be handed over to the open line for further experience in actual working on different locations.

Aerial Ropeway for Assam

The first phase of the aerial ropeway scheme of the Government of Assam, which provides for the construction of a ropeway from Shella to Shillong, had been approved, subject to certain conditions, Shri Raj Bahadur, Minister of Shipping, informed Shrimati Mafida Ahmed, in Lok Sabha.

As regards the second phase of the scheme, namely, extension of the ropeway from Shillong to Pandu, the proposal had been accepted in principle, subject to the condition that the position would be examined by the Central Government afresh in the light of experience gained in the installation and working of the ropeway from Shella to Shillong.

Asked when the work would start, Shri Raj Bahadur told that the matter was under consideration of the State Government and a decision was likely to be taken shortly.

North East Frontier Railway

Replying to Sarvashri Shree Narayan Das and Radha Raman in the Lok Sabha on 20th Nov. the Deputy Minister for Railways, Shri Shah Nawaz Khan, stated in a written reply that the details of the bifurcation scheme of the North Eastern Railway have been settled. The new one with headquarters at Pandu would, to begin with, function only with the jurisdiction of the present Pandu region. The question of Katihar-Barauni section with connected branch lines will be considered later after completion of the Ganga bridge near Mokameh. The zone with headquarters at Gorakhpur would continue to function with the remaining sections of the existing North Eastern Railway.

The reply further added that the name of the bifurcated railway would be North East Frontier Railway.

Pension For Railway Employees

A pension scheme for the benefit of Railway employees will begin to operate from April this year. This was stated in the Lok Sabha on 15th November, by the Deputy Railway Minister, Shri Shah Nawaz Khan. The scheme has been approved by Government primarily as a measure of improving security for an important sector of Government employees. Special retirement benefits are to be given to class four staff who put in more than thirty years of service, in whose case the benefits under the present pension schemes might be less favorable than those under the contributory provident fund scheme. In order to equalise the retirement benefits, it has been provided that such employees will get an additional gratuity of two hundred rupees for every year of qualifying service beyond thirty years, subject to a maximum of one thousand rupees. This improvement in the pension scheme will apply to all pensionable staff retiring as class four staff.

Electrification of Ry. Lines.

Mr. Jagjivan Ram replied that out of Rs. 80 crores allotted for electrification in the plan the Government had made commitments for Rs. 23.27 crores. "Provided the foreign exchange difficulty is not there the railway expects to complete the programme of electrification by the end of the Second Five-year Plan" he said. The Minister told Mr. Ramnathan Chettiar that civil engineering works on the Tambaram—Villupuram section had already been started and it was hoped to complete the electrification by the end of the Plan period.

Mr. Shah Nawaz Khan, Deputy Minister for Railways, told Mr. D.C. Sharma that on the Eastern and South Eastern Railways electrification work was progressing satisfactorily on the Howrah-Burdwan and Tarakeshwar-Sheoraphuli sections. The first electric train on the Howrah-Sheoraphuli section was expected to be run by the end of this month.

For the remaining sections, he said technical associates had been appointed. An order for the first batch of 100 locomotives had been placed.

On the Southern Railway, the Deputy Minister said that civil engineering works on the electrification scheme (Tambaram Villupuram) was in progress. A sum of Rs. 7.75 crores had been spent so far. Foreign exchange required for electrification was about 70 percent of the entire cost.

Mr. Shah Nawaz said that estimates in regard to electrification schemes of the Central Railway were under examination.

Training of Cost Accountants Minister on Steps Taken by Govt.

Mr. B. R. Bhagat, Deputy Minister for Finance, told the Lok Sabha on the 29th Nov. '57 that while the Government recognised the importance of cost

accounting in the context of a developing economy, the setting up of a statutory body for regulating the training and enrolment of cost accountants would only be taken up after assessing the results of the steps already taken by the Government in this regard.

RAJYA SABHA :

Workshops and Loco Shed Expansion

In written replies to three questions by Moulana M. Faruqi, the Deputy Minister for Railways, Shri Shah Nawaz Khan, stated in the Rajya Sabha on 19th Nov. that the work of *remodelling the loco shed at Ujjain* has been taken in hand and it would take some time to complete it. The estimated cost of **remodelling** would be Rs. 10.08 lakhs. After the work is completed, the loco shed will be able to hold 45 engines instead of 2, as at present.

About the *expansion of the signal and tele-communication workshop at Mertuguda*, the reply stated that its expansion has been taken in hand. An expenditure of Rs. 23.43 lakhs is estimated to complete it. Its capacity would go up from Rs. 8.2 lakhs to Rs. 24.3 lakhs of annual production on completion of the expansion.

The *signalling and tele-communication workshop at Byculla* has not been expanded this year. But an estimate amounting to Rs. 92 lakhs has been sanctioned for the purpose. When the work is completed, the capacity of the workshop will go up from Rs. 5.7 lakhs to Rs. 14.88 lakhs per annum.

Kottayam-Quilon Railway Line

The Deputy Minister of Railways, Shri Shah Nawaz Khan Stated in reply to a question that due to the late receipt of girders and permanent way materials, the Kottayam-Quilon railway line could not be opened in October '57 as originally programmed ; but would now be opened by about the middle of December 1957.

Subjects of Moment

(Continued from page 252 of THE RAILWAY ACCOUNTANT for November 1957)

Comparative Statement showing the sub-heads of demands as they existed prior to 1957-'58 and as now rearranged from 1957-58.

[illegible]

Demand No. (1)	Particulars of sub-heads prior to 1957-58. (2)	Particulars of sub-heads from 1957-58. (3)
6. Operating Staff	I. Power II. Carriage & Wagon III. Steamers & Harbour IV. Traffic V. Electric Traction VI. Signal & Tele-communication VII. Dearness allowance	I to VI as in Col. (2)
7. Operation — Fuel	I. Cost of Coal (excluding Sales Tax, Excise duty and cess) II. Sales Tax, Excise duty and cess on coal III. Cost of other fuel IV. Freight and handling charges on Fuel V. Cost of electric current for Traction Purposes VI. Loss or Gain on working of State Railway Collieries VII. Losses on Fuel	I to V as in Col. (2) VI. Losses on fuel.
8. Operation — other than Staff & Fuel	I. Stationery forms and tickets II. Handling, collection & delivery of goods and expenses at outstations III. Compensation for goods lost or damaged IV. Electrical Services—Other than staff, current for traction purposes & Stores V. Payment to other Railways VI. Clothing & Stores VII. Other expenses VIII. Dearness Allowance	I to VI as in Col. (2) VII. Other expenses VIII. Suspense

Demand No. (1)	Particulars of sub-heads prior to 1957-58. (2)	Particulars of sub-heads from 1957-58. (3)
9. Miscellaneous Expenses	I. Contribution to Provident Fund II. Gratuities and Special Contribution to Provident Fund III. Contribution and grants IV. Compensation V. Subsidy on grain shops VI. Other expenses VII. Dearness Allowance VIII. Suspense	I to V as in Col. (2) VI. Catering Department VII. Other expenses VIII. Suspense
10. Working Expenses— Labour Welfare	I. Medical Department II. Health & Welfare Services III. Education IV. Canteens and other staff amenities V. Dearness Allowance.	I to IV as in Col. (2) *
	*	*

Objections Relating to Receipts

Lists of unaccounted for Invoices/PW Bills for traffic interchanged between Indian Government Railways.

As it has been decided that a ledger should be maintained to record the progress of clearance of unaccounted for items in the prescribed form and a report regarding the outstanding items is also submitted to the Railway Board through Quarterly and Half Yearly Arrear Reports, the Register of Objections relating to Receipts (To Pay Invoices/PW Bills issued to Foreign Railways and included in the unaccounted for lists submitted to Foreign Railways) maintained as per para 370-A has been decided to be discontinued.

Tenders and Negotiations.

The Railway Board have decided that contractors who are called in for negotiations and who had not originally tendered, should

be called upon to furnish the earnest money as would have been paid, had they originally tendered, before their rates can be considered for negotiation.

Travelling Fare Concession to Union Govt.'s Class IV Employees

Govt. of India Class IV employees will pay only ten per cent of the travelling fare when they go on leave if their posting is more than 100 miles away from home. The balance will be borne by the Union Government.

The concession to benefit about nine lakhs of employees and their families from January 1, 1958, will not, however, be available for the 100 miles of the journey. Also, the employees should have put in at least one year of service and the leave, once in two years, should be other than casual for not less than 15 days.

The minimum limit till now was 250 miles but the Class IV employees benefiting from

this concession have been comparatively small. It has been found that most of them have their homes within 250 miles of the headquarters.

In the case of other Government employees, as announced earlier by the Union Ministry of Home Affairs, the Centre will meet 90 per cent of the actual fare for those servants whose homes are more than 250 miles away. Here also, the entire cost of the journey for the initial 250 miles will be borne by the Government servant himself.

The scheme is meant to enable the Central Government to draw their employees from all parts of the country. In the absence of such facilities, it is felt, the possibility of long distance postings from home deterred persons from seeking employment under the Central Government.

Railway Servants not to accept invitations to declare buildings etc., open, or lay foundation stones

Railway servants should not accept invitations to declare buildings etc., open, or lay the foundation stone of new buildings, etc.

(R. B. No. E (D & A) 57GS 1-29, dated 29-10-57.)

Training and Appointment of Instructors

Suitable staff for appointment of instructors as and when necessity arises should be spared for technical training centre at Mhow, Shahjehanpur and Madhupur.

(R. B. No. E (F) 57/PL/2, dated 29th October 1957.)

Better Conditions of Travel

It has been proposed that the Ministry of Railways should present to the Parliament a pamphlet entitled *towards better conditions of travel*, while the Railway Minister presents the budget for the year 1958-59. The Railway Board have called on Railways for furnishing

requisite materials for compilation of the pamphlet.

(R. B. No. 57/WI/AMNY/112 dated 22nd Oct. 1957.)

Grant of Leave to superannuated staff—on re-employment

Where re-employment consists of more than one spell but without any break, the leave earned during the previous spell may be allowed to carry forward, to be enjoyed during the entire period, failing which it will lapse.

(R. B. No. (E) 57/LE-1/2 dated 24th Oct. '57.)

Confirmation of Class II Officers

The Board have re-considered and decided that confirmation of an incumbent should be on the basis of his seniority in the combined list of the cadre of the branch to which the post in question has been allotted.

(R. B. No. E(GS)56 PM2-50 dated 9th Oct. 1957.)

Efficiency Bar — a test for temporary officers

The Railway Board have desired Railways to warn all temporary Assistant Officers that they will have to undergo an Efficiency Bar Test at the appropriate time; but those officers who have already reached or passed the stage of Rs. 590 per month or will reach that stage before completion of three years service should undergo the examination at the end of three years service.

(R. B. No. E(GR-P) 57 RC 15-6 dated 10th Oct. 1957.)

Re-fixation in upgraded posts and payment of arrears to retired Class III (C. G. II) Staff

The benefit of re-fixation of pay in the upgraded posts should also be extended to persons whose services terminated during the period from 1-4-55 to 7-3-57 or account of retirement, death or discharge or termination of sanctioned posts, if they are otherwise entitled to the same.

(R. B. No. E(S) I—57 CPC/108 dated 14th Oct. 57.)

Vigilance Branch to watch progress of disciplinary cases

The Railway Board in their order of 28th June '57 stipulated that the Vigilance Branch will only watch the progress of all disciplinary cases relating to Class IV Staff. The Board have now decided that the same procedure should be adopted in respect of Class III Staff also.

(R. B. No. E 57 VGI—35 dated 16th October 1957.)

Convalescent Homes for Railway Staff

The Railway Board have decided that Convalescent homes should be set up on each Railway for the benefit of convalescing Railway employees after sickness who have not the wherewithal or the financial resources to go for a change at their own expense and recuperate their health. Medical facilities should be provided at these homes.

(R. B. No. E(W) 57 WE 4-1 dated 14-11-57.)

Stores purchases quotations to include Taxes

Stores Purchases quotations should be invited by the Railways on an ALL-INCLUSIVE BASIS, i.e., INCLUSIVE OF SALES TAX AND OTHER LOCAL TAXES.

(R. B. No. 57/645/K/RS) (G) dated 21st October 1957)

Local Purchases without reference to preceding rules

Where it is inconvenient to obtain stores included in the list at para 1111-S through the agency of the Controller of Printing and Stationery, India, petty local purchases may be made without reference to the preceding rules by Heads of Departments and Divisional Superintendents up to an overall limit of Rs. 2,000/- per annum.

(R. B. No. E (X) II-57/PW-4/4, dated 21-10-1957.)

Extraordinary leave to count for increment for Class IV Staff

The Railway Board have decided that Class IV Staff governed by the new leave rules are also eligible for the concession of counting the extraordinary leave without pay up to four months at a time for increments.

(R. B. No. : F (E) 57/ICI/I dated 12-10-57 further to R. B. No. : 839 E/28/IIIE (iv) dated 20-8-57.)

Allocation of cost of ballast replaced by improved type of ballast

As a result of the recommendation of the Railway Convention Committee, 1954, that the cost of replacement of assets created out of Development Fund should be charged to Depreciation Reserve Fund instead of to Development Fund, the Board have had under consideration the question of allocation of the cost of ballast, i.e., replacing sand ballast by stone ballast etc., which under existing paragraph 936 (ii)-G is charged to O.L.W.R./Development Fund, as the case may be. Since the ballast is not considered as a unit of asset under the Depreciation Fund rules and also the cost of ballast replaced by ballast of similar quality, and of ballasting an unballasted line after 3 years of its opening is charged to Ordinary Revenue, vide para 952(4)-GI and 936(i)-GI respectively, it has been decided, in keeping with the above rules, that the replacement of ballast by improved quality of ballast should also be likewise charged to Ordinary Revenue. These remarks apply, *mutatis mutandis*, to the cost of positive or definite increase in the depth of the existing ballast giving improved standard.

Advance correction slip to paras 910 and 936-GI. are given below, effective from the year 1958-59.

(1) Para 910-GI, List (C) under note (2) thereof.

Delete item (a)(14)—Improved type of ballast (c.f. paragraph 936(ii)—appearing under this list.

(2) Para 936-GI.

Substitute the following for this paragraph: Additions of Ballast.

936. Except when connected with the relaying of permanent way and/or replacement of, and changes in, the type of sleepers, the cost of additions of ballast shall be charged to Ordinary Revenue—

(i) when ballast is added after three years of the opening of a line; and

(ii) when there is an improvement in the type of ballast (e.g., when sand or moorum ballast is replaced by stone ballast) or a positive and definite increase in depth of ballast which gives an improved standard.

Note: Cost of ballasting an unballasted line within three years of its opening will follow the allocation of the original construction estimate.

If the additions or improvements are so connected with the relaying, etc., the supply of additional or improved ballast should form an integral part of the operation of, and be com-

bined with the 'Permanent Way' portion of the estimate relaying and replacement for the purpose of allocation.

Note: The word "improvements" occurring in this sub-paragraph includes "renewals".

[R.B. No. F (Spl.) 55-G/IX dated 31-10-57].

* * *

Improvements, extensions and additions to Office buildings.

The Board have decided that the additions to Office buildings, referred to in item (f) under List C to para 910-GI is intended to include additional building for the same Office even when provided at a new site for administrative or technical reasons such as paucity of spare land etc.

(R.B. No. F (X) 1-56-ALC/1 dated 1-11-57.)

* * *

Rate of Interest to be charged on passage advances etc.

The rate of interest to be charged on passage advances and advances for the purchase of motor cars and other conveyances granted to Government servants from Central revenues during the period 1st April, 1957 to 31st March, 1958, has been provisionally fixed at 4% per annum.

(R. B. No. F (E) 57/IT2/(1) dated 22nd November, 1957).

Personnel

South Eastern Railway

Sri S. P. Sahni is appointed as FA & CAO, South Eastern Railway. *vice* Mr. Martin Kamath, proceeding on leave preparatory to retirement.

[This is in supersession of the relevant item published at page 275 of the RAILWAY ACCOUNTANT for November 1957.]

Sri. M. B. Jagannathan, S. A. O., Chittaranjan Locomotive Works has been promoted to officiate as Dy. Chief Accounts Officer, South Eastern Railway

Sri A. K. Basu, General Manager, South Eastern Railway, who was due to retire on the 10th Oct., on superannuation has been given extension of service for a few months as he is member of the Railway Rates Structure Committee. He will continue in service till finalisation of the Report.

Sri D. N. Chopra, Joint Director, Railway Board, has been posted as Chief Engineer, S. E. Railway, Calcutta.

(Continued on page 309)

Readers' Forum

Levy of Departmental charges

Para 1049-E lays down that departmental charges at 12½% or any reciprocal rate should be charged for works done by the Railway for outsiders, generally called Deposit Works. This percentage is to cover tools and plant, establishment supervision including all unnamed overheads. Para 1050-E stipulates the conditions under which the departmental charges viz., 12½% can be waived in full or in part by the General Manager, as under:

"1050. *Remission of Departmental charges.* The General Manager may, at his discretion, waive wholly or partially the recovery of the departmental charges leviable under paragraph 1049, provided that

(a) the railway gains some advantage, not necessarily financial, by such remission;

(b) the reasons for the remission are recorded in each case and the remission is allowed with the concurrence of the Financial Adviser and Chief Accounts Officer; and

(c) the non-incurrence of extra charges on account of tools and plant and establishment supervision does not in itself constitute sufficient justification for the remission.

The departmental charges in respect of ecclesiastical works should in no case, be waived."

A question arises whether the above rule equally applies to works which are allowed to be carried out by the parties including Government Departments. An instance in point is the case of an assisted or private siding, where generally the tendency is for the parties to state that they would be prepared to undertake the sub-grade work (earthwork, bridges, etc.) as they generally think they could do this at cheaper cost than if done by the Railway, and they also agree to have the work done to the satisfaction of the Railway authorities. Should the supervision charges at 12½% be levied on such portion of the work as per para 1049-E? Para 1049-E does not specifically provide for such cases which are not apparently contemplated under the rule. So long as effective supervision by the Railway is essential for such works, it would appear that the supervision charges should be levied at 12½%, and para 1049-E should be deemed to apply, as irrespective of whether the work is done by the outside party or by a contractor through the Railway or by the Railway itself departmentally, the fact remains that supervision is involved and the principle of para 1049-E should apply.

The Railway Board may perhaps consider issuing a correction slip to the Code para clarifying the intention.

PERSONNEL (Continued from page 308)

Southern Railway

Sri B. G. Balakrishnan has been elected as Chairman of the Executive Committee of the Madras District Association of the Southern Railway Bharat Scouts and Guides.

Sri S. K. Mitra, I. R. A. S., Probationer on completion of training is posted as Junior Accounts Officer, Stores, Perambur, with effect from the 29th Nov., 1957, against a temporary sanction of A. A. O., for one year.

North East Frontier Railway

Sri D. B. Singh, Divisional Superintendent, N. Railway, has been posted as Chief

Engineer of the new N. E. F. Railway at Pandu.

Western Railway

Sir M. P. Bhargava, M. A., Senior Accountant, Training, is promoted to officiate as Accounts Officer, Finance, with effect from 4th Dec. '57 (A.N.) in place of Sri C. R. Nagalingam, retired finally from W. Rly.

General

Sri A. Balakrishnan, retired Accountant General, and former FA & CAO, M. & S. M. Railway, has been appointed as Chief Accounts Officer to the Madras Electricity Board.

(Continued on page 310)

Letters to the Editor . . .

This Section has been started at the request of readers to ventilate their grievances. The Management does not take any responsibility for the opinions of correspondents; but reserves to itself the right to tone down any objectionable language that may appear in the originals.

I. Pay Structure of T.I.A's on Railways

We have received from one of the aggrieved parties a copy of a petition submitted to the Secretary to the Pay Structure Enquiry Committee, New Delhi.

The petition, after giving a history of the Pay Scales from 1930 onwards, proceeds to analyse the proposed scales of pay in view of the Living Index which has risen abnormally to very near 500. The petition requests that the Dearness Pay should be enhanced to compensate the fall in real wages and also requests the grant of an adequate amount of bonus to employees as a measure of profit-sharing, as is usually done in commercial concerns.

The petition further points out the necessity for the provision of a peon-cum-cook for each TIA at Government expense. Further, it also urges that the ratio between the posts of Junior and Senior TIAs should be 1 : 1 as in the case of Accountants Grades, and that a certain fixed percentage of gazetted posts should be exclusively set apart for the TIAs, particularly in the Traffic Accounts Branch.

The petition concludes with the plea for enhancing the number of holidays admissible to TIAs just as is done to Accountants.

Note : It is always possible to enumerate grievances; but to discuss them from the viewpoints of the employer and the employee and to suggest constructive methods of meeting both aspects is what would be more desirable,

if real effect is desired. We feel that the Central Pay Commission will have a hard time in collecting evidence and coming to conclusions, which would be satisfactory to both the parties. We however wish that they would put their heart and soul into the affair and deal with the cases before them in a humanitarian spirit, without overlooking Government commitments.

Ed. R A.

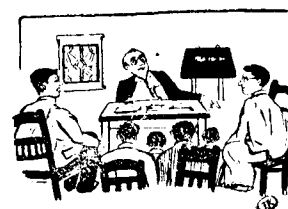
II. Unification of scales of Pay of Junior and Senior Accountants and Inspectors of Stations/Stores Accounts in Railway Department :

In the Accounts Offices of other Departments (*viz.*, Civil, Military and Postal) and in the Audit Department (including Railway Audit Offices) the scale for Accountants and Auditors is Rs. 200—Rs. 500, but in the Railway Accounts Offices, this scale is split up into two, *viz.*, Junior Grade Rs. 200—Rs. 350 and Senior Grade Rs. 350—Rs. 500, with the result that only a few get chances of promotion, to the senior grade. Since there is no justification to maintain two grades only in the Railway Department, Railway Board may kindly amalgamate the two grades. The Railway Minister has already introduced a number of reforms in the grades of clerical etc., staff, (*e.g.*, amalgamations of Rs. 80—Rs. 160 & Rs. 160—Rs. 220 grades), and it is hoped that similar sympathetic consideration will be given to the above request also.

D.R.S.

PERSONNEL (Continued from page 309)

Shri K. T. Mirchandani, Dy. F. A., N. E. Rly., has been appointed as Joint Director, Finance.



STUDENTS' CORNER

To help the examinees of App. II and III Examinations a few questions of importance were answered in this Section last month. A few more questions have been included in this Issue also. It is hoped that the Students will derive substantial benefit therefrom.

Q. Explain briefly the purposes served by the Works Register in the Accounts Office.

Ans. : The Works Register is maintained separately for each divisional office, to serve as a collective record of all sanctions relating to the audit of transactions included in divisional accounts and the audit conducted against them during a year. The register is divided into five parts. Part I of the Register deals with all sanctions and orders relating to a work as a whole and with the expenditure recorded against it. It shows month by month, the group of works for which there is a separate allotment. Part II relates to sanctions of periodical charges whether in connection with work charged establishments or on other services. In Part III are registered only such sanctions relating to contractors for works, supplies, carriage etc., as are communicated by authorities higher than the Divisional Officer. Unless a special agreement is drawn up in any case, the form of the agreement is quoted in column 8, and in column 7 are set forth as briefly as possible, all the terms and conditions which may be necessary to apply in audit. Part IV of the Works Register (Accts Office) is intended to facilitate a watch over special recoveries of all kinds, which may be ordered by competent authorities or promised by the Divisional Officer as a result of audit enquiries and objections or otherwise. Orders relating to the recoveries on account of rents are also entered in this part till the entry giving effect to the orders appears in the Divisional Schedule of Rents. Similarly, orders relating to recoveries which have to be watched through the account "Miscellaneous Advances" are

noted in this part till the appearance of the necessary debit in the divisional schedule of Miscellaneous Advances. In respect of recoveries from contractors, only such of them are entered in this register as cannot at once be brought to account in the Ledger. Part V is intended primarily for all other sanctions and orders against which audit of expenditure brought to account by the Divisional Officer may have to be conducted. Sanctions to remissions of revenue are also entered in this part.

* * *

Q. Write short notes on the following, bringing out the purposes which they are intended to serve :

- Works Abstracts
- Objection Statements
- Secured Advance

Ans. (a) *Works Abstract* is a classified account of all transactions relating to a work or sub-head of a Major estimate for each of which separate accounts are kept. It is posted in the sub-divisional office day by day from the Cash Book and the connected bills of contractors and suppliers; cash refunds and write-back of final charges are shown as minus entries. The stock and adjustment transactions are, however, added monthly before submission to the Divisional Office. It is used to watch the progress of work and expenditure against several sub heads of a major work and and the recoveries of the advances made to contractors as well as an effective check over the unpaid labour. When finally completed in all respects, all the Works Abstracts of a month are examined by the Divisional

Officer, who is required to initial and date them in token of check. This is not submitted to the Accounts office.

(b) *Objection Statements*: In presenting to the Divisional Officers the result of audit of the Divisional Accounts, objections to the substance of the accounts on the score of deviation from financial rules or standards of financial propriety are entered in an Objection Statement. The objects to be aimed at are to give the Superintending Engineer an opportunity of reviewing month by month in respect of each division, (i) each irregular transaction which cannot be regularised without his order, or those of a higher authority; (ii) collectively, all irregular transactions which, unless there be further expenditure, can be regularised under the orders of Divisional Officer himself, but regarding which no evidence of issue of such orders has reached the Accounts office and (iii) such of the other points raised in internal audit as may be considered important or indicative of serious disregard of rules.

(c) *Secured Advance* is the term applied specially to an advance made, on the security of materials brought to site of work, to a contractor whose contract is for completed items of work.

* * *

Q. In what cases are detailed measurements of works not necessary? What precautions are necessary in such cases?

Ans. The detailed measurements of works are not necessary in the case of:—

- (i) Lump Sum Contracts (except in respect of additions and alterations);
- (ii) Repair works of which Standard Measurement Books are kept; and
- (iii) for work done by labour engaged through contractors or departmentally if it is not susceptible of measurements.

In cases of works executed on Lump Sum Contract basis, the intermediate payments should not be made except on a certificate

from duly authorised responsible officers to the effect that by superficial or general measurement or by other suitable method (which should be specified) he has satisfied himself that the value of the work done is not less than a specified amount in conformity with contract agreements and that, with the exception of authorised additions and alterations, it has been done according to the prescribed drawings and specifications. Final payments should not be made without recording detailed measurements in respect of additions and alterations and a certificate of completion of work according to the prescribed drawings and specifications signed by an experienced engineer authorised in this behalf.

The following precautions are necessary in the case of Standard Measurement:—

(i) The measurement books should be numbered in an alphabetical series so that they may be readily distinguished from those assigned to ordinary measurement books.

(ii) The entries of the measurement books should be recorded in ink and their correctness certified to by a responsible officer.

(iii) They should be inspected by the Divisional Officer periodically with a view to ascertain that they have not been tampered with and that the corrections or alterations, if any made, are reliable.

(iv) When payment is based on standard measurements, the gazetted officer or subordinate preparing the bill should be required to certify that the whole of the work (or work since the previous bill) has been done and that it has not previously been billed for in any shape.

In the case of labour employed on works which are not susceptible of measurements, the attendance of labour should be recorded by an officer of highest standing available and daily reports of labour employed should be submitted to the Sub Divisional Officer which are precautions against the wastage of labour charges.

THE RAILWAY ACCOUNTANT

DECEMBER 1957

RAILWAY ELECTRIFICATION SUPPLEMENT

Railway Electrification Supplement

The occasion of running an electric train in the Calcutta area for the first time after a hundred years of steam locomotion in the area has been used as an opportunity for obtaining a number of special articles by experts on the various aspects of Railway Electrification in India. A few of these are published in the following pages. Reference to the broad basis of this electrification has already been made at pages 199 and 267 of the RAILWAY ACCOUNTANT for September and November 1957 respectively.

The Press Note issued, in regard to the progress of the decision, by the Government of India is published as the first article within.

Some interesting statistics collected by the Railway Board have also been summarised below, so far as they pertain to the main issue.

—Ed. R.A.

Railway Electrification

It is interesting to note that it was only sixtyfive years after the World's first steam-operated train ran in Great Britain in 1825 that the first Railway electrification on the British Railways took place, i.e., in 1890. Other countries followed from 1894 onwards

and India had its first electric train in 1925, i.e., seventytwo years after the inauguration of Railways in India. The latest to introduce electric traction is Turkey, in 1955, i.e., nearly ninety-nine years after its first railway train.

Taking the statistics for thirtyfive different countries of the World in 1955, it is found that Bolivia has only six electrified route miles as against a total route mileage of 1734, while Holland has 828 electrified route miles against a total of 1975 route miles of Railways; Morocco has 474 electrified route miles against 1090 route miles of Railways. It is further seen that Italy, Japan and Sweden lead in electrified route miles with 4,97, 6618 and 4331 electrified route miles as against total railway route miles of 11210, 14113 and 10063 respectively.

India has only 240 electrified route miles for a total route mileage of 34705. The U.S.A. is also comparatively very poor in electrified route mileage, having only 2044 miles against a total route mileage of 2,21,666. The U.S.S.R. is, however, better by having 3430 electrified route miles for a total mileage of 74,753.

In the light of these figures, the plea for electrification of Railways in India, which is a vast sub-continent developing very fast industrially, is worthy of note.

* * *

Railway Electrification in India

The electrification of suburban lines in the Calcutta area and also of the main line from Howrah to Moghalsarai had been under consideration for many years. During the first plan period, the electrification of the Howrah-Burdwan and the Tarakeshwar branch line, a total distance of 88 miles, was finally sanctioned at a cost of about Rs. 11.84 crores. The first electric train on the Howra-Burdwan line is expected to run in December, '57.

Railway electrification in India has hitherto been done on the D.C. System. The system in vogue in the Bombay and Madras area is 1500 volts D.C. In the Calcutta area on the Howrah-Burdwan and the Tarakeshwar branch line the system adopted is 3000 volts D.C. This is an advance in science and better operation, and more economical.

The latest scientific advances in the field of railway electrification have pointed to certain definite advantages in favour of the A.C. 50 cycle industrial frequency traction system, adopted in recent years by a number of foreign countries, such as France, United Kingdom, Japan, Belgian Congo, Turkey, Portugal. Russia is launching on a big scheme on this system.

With a heavy electrification programme in hand during the second Five Year Plan, it was felt that the basic decision must be taken whether all future electrification in India should be on the D. C. system or on the A.C. system which has become increasingly popular in foreign countries. This decision was absolutely fundamental to the future of railway electrification in India.

The French Railway Engineers' Mission which came out to India last year at the request of the Government of India to study this question and advise the Railway Board made an emphatic recommendation that in the conditions prevailing in India the A. C. system was to be definitely preferred.

The matter has since then been under anxious consideration of Indian Railways engineers as some doubts still remained about the possibility of harmful effects of Railway electric traction on the normal load of an electric supply system. As it was important that these doubts should be satisfactorily resolved, it was decided to send a Mission to Europe to study the question carefully. As the matter had already been delayed considerably, adversely affecting the implementation of the second Plan electrification programme, the Mission was empowered, after consulting competent technical opinion in Europe, to take decisions on the spot.

The Mission was led by Shri Karnail Singh, Member (Engineering), Railway Board, and included two other senior Railway electrical engineers : Shri L. N. Mathur, Chief Electrical Engineer, Central Railway and Shri S. C. B. Majumdar, Chief Electrical Engineer, Western Railway.

The members of the Mission visited France, United Kingdom, West Germany, Japan and Turkey, and held discussions with railway authorities and top consultants. As a result of the investigations they came to the conclusion that the Indian Railways should adopt the A. C. system. The fact that there would be economies in capital and running expenditure as a result of adopting this system was confirmed.

The Mission went further. It had been authorised that before returning to India it should try and conclude an agreement for technical association with appropriate parties to design and progress the electrification schemes on the Eastern and South Eastern Railways. For this purpose global tenders were also invited. The Mission before returning to India, signed an agreement for technical association with the French National Railways (SNCF). The agreement provides for

the training of Indian engineers and staff also.

A team of five French Railway engineers arrived in India recently to begin their work in pursuance of this agreement. The team includes Mr. Vaubourdolle, Head of the Fixed Installation Department of the French National Railways and Mr. Nouvion, Head of the Electric Rolling Stock Department of the French National Railways. The latter came to India twice last year in connection with the preliminary investigations regarding the suitability of the A. C. system for the Indian railways.

The Mission has also placed an order for the supply of 50 A. C. electric locomotives with a consortium of eight firms from four different countries in Europe. These countries are : France, West Germany, Belgium and Switzerland.

In the second Plan period, electrification of 1,373 route miles is provided. The bulk of the electrification programme is on the Eastern Railway. That on the South Eastern Railway is also fairly heavy.

It is proposed to electrify the Howrah-Moghalsarai section via Grand Chord on the

Eastern Railway ; Asansol to Rourkela and Rourkela to Bara Jamda sections on the South Eastern Railway ; the suburban sections around Calcutta ; the Igatpuri-Bhusaval section of the Central Railway ; and Tambaram - Villiupuram main line of the Southern Railway.

The Eastern and South Eastern Railway electrification programme is scheduled for completion early in 1960. The scheme on the Central and Southern railway are also in hand.

In view of the necessity to conserve foreign exchange, the Railway Board has decided that the operation of the suburban services on electricity around Calcutta should in the first place be by the use of electric locomotives and coaches. This would result in an economy of about Rs. 7 crores in capital expenditure in terms of foreign exchange.

Incidentally, as a result of adopting the 50 cycle A. C. traction system for railway electrification in India, the existing overhead lines of the P. & T. Department would be replaced by underground cables. This would considerably improve the efficiency of the long distance telecommunication circuits.

Advantages of Electrification

BY ANAND MOHAN, *Chief Commercial Superintendent, Eastern Railway*

Among the advantages of electrification are better acceleration, higher average speeds, increase in average load of trains, cutting out of halts for watering and comparative independence from the human element. The author says that railway electrification is not merely a financially attractive proposition, but it will also benefit many activities contemplated under the second Plan.

On the 14th of December, at Howrah, largest railway terminus in East India, the Eastern Railway presents to its patrons electric suburban train service (initially worked by electric engines, to be replaced later by electric multiple unit stock) on the section between Howrah and Sheoraphuli, a distance of about 14 miles. This, of course, is only a modest beginning—a

precursor of extensive electrification, e.g. over the entire Calcutta suburban area and from Howrah to Moghalsarai via the Grand Chord etc.

That Calcutta, the premier city in this sub-continent, had not unlike Bombay and Madras received the benefits of electrification all these years was not due to any lack of sympathy or

enthusiasm on the part of the authorities, as will be clear from the number of reports on the subject produced from 1914 onwards.

In these previous investigations, however, economic factors alone had been considered in deciding whether electrification of a section was justified or otherwise. The aftermath of the World War II, however, led to a complete transformation in the conditions of suburban traffic in the Calcutta area, which was further accentuated by the effects of the partition of the country in 1947. With passenger traffic nearly three and a half times the pre-war level, the saturation point was reached, both at Howrah and Sealdah, in regard to the capacity for moving passengers by steam trains.

ELECTRIFICATION A 'MUST'

There could be no appreciable improvement, without electrification, in the conditions of overcrowded travelling even under the existing level of suburban traffic and the position was an impossible one to contemplate when one visualised the future. The growth of population and the travelling habits and the rising trend of traffic were a clear pointer to the likelihood of suburban passenger traffic doubling itself in 10 years. It would be an impossible task to cater for it by steam trains and electrification was just a *must*.

A clear realisation of the problem led to the appointment in 1953 of Shri Sarangapany as Project Officer to prepare in detail a comprehensive scheme for electrifications and it was on the basis of his preliminary report that the execution of the first phase of Calcutta suburban electrification was sanctioned on June 4, 1954.

ADVANTAGES OF ELECTRICAL MULTIPLE UNIT

The main instrument under electrification which makes possible the vast increase in the handling capacity of suburban passenger traffic is the use of the electric multiple unit stock. A multiple unit train consists of one

or more units; each unit usually consisting of two, three, or more coaches which are coupled together and one or more of which are equipped with electric motors. This motor equipment provides sufficient power to act as the locomotive of the train unit to which it is attached.

The train unit can be operated from either end and so there is no necessity to reverse the train engine at the end of each journey as will be the case if trains are hauled by locomotives. The train, can, therefore, leave terminal stations on its return journey within two or three minutes of its arrival, the exact duration depending on the time required by the motorman to walk from one end the train to the other.

Further, as the motive power is divided over a number of units, a very much greater number of axles is driven than is the case with trains hauled by locomotives. Consequently, a much greater percentage of the total weight of the train is available for adhesion. This explains the high starting acceleration which is characteristic of the electric multiple unit operation and enables much higher scheduled speeds being attained on suburban trains than can ever be visualised under steam conditions. These advantages place electric traction in the unique position of being the only effective answer to the mounting needs of suburban passenger traffic.

BENEFITS OF ELECTRIFICATION

The West Bengal Government has been taking active steps to develop townships in the outer suburbs of Calcutta to relieve congestion in the city. In the development of these, electrification has a great part to play. Unless the residents are assured of a cheap, rapid, and reliable transport system, it will be difficult to induce the city's floating population to settle in healthier surroundings in the suburbs. This is what electrification will ensure, as with the electric services, it will be possible for passengers from the more distant

stations to complete a journey by rail to Calcutta during the peak periods at almost double the present speeds and under conditions of better cleanliness and comfort.

The benefits of electrification are not confined to suburban traffic but are reflected, even to greater advantage in the trunk line electrification.

Taking the section Howrah to Moghalsarai *Via* the Grand Chord, for example, the Grand Chord line between Asansol and Moghalsarai short circuits the main line route (*Via* Patna) between the same stations by 51 miles and, therefore, forms the main artery for the flow of the cross-country traffic between the Calcutta area and the northern, central and western parts of the country.

The presence of the Raniganj and Jharia coalfields on this section has further contributed to its importance and the density of traffic borne by it. For maximum economy in operation, this section is, therefore, used up to its full capacity. For many years, the actual goods traffic for stations above Moghalsarai has been far in excess of its capacity necessitating diversion of the overflow over the longer route *via* the main line without fetching any higher income because of the increased mileage, as transport by the longer route is done for Railway's convenience. Electrification will enable all the goods traffic which offers being conveyed by the normal and shorter route instead of the longer route thus making operating economies possible.

TRAFFIC DURING SECOND PLAN

Not only is the present traffic to be considered, but also the additional load, particularly in goods traffic, expected to result during the second Five Year Plan. Apart from the normal growth in the population of the areas and the consequent increase in the consumption of essential commodities, there will be considerable increase in agricultural production as a result of the major and minor irrigation and industrial projects now in hand or planned for in the two Five Year Plans. This

will lead to considerable increase in goods traffic to be conveyed by rail. Similarly, there will be considerable additional requirements of coal for industries. There will also be additional requirements of coal for export and bunkering. These will mean considerable increased coal movements, principally *via* Moghalsarai and to a lesser extent down country.

The electrification of the Howrah-Moghalsarai *via* Grand Chord route will make all these movements possible by an increase in line capacity consequent upon electrification. This increase in line capacity as a result of electrification is principally caused by:

(i) Better acceleration of electric locomotives which reduces the additional time required for starting passenger and goods trains after each halt.

(ii) The higher average speed obtained with electric locomotive. While the difference in the average speeds is marked even on level sections, it is particularly noticeable on grades.

(iii) The increase in average loads of trains brought about by the bigger capacity of the electric locomotives.

(iv) Cutting out of halts at the watering stations required at intervals for steam locomotives.

(v) The comparative independence from the human element in the case of the electric locomotive in its day to day performance. It is well known that the average speed of the steam trains is often reduced by the inability of the crew to maintain steam. This difficulty is not shared by electric locomotives.

(vi) Less chances of goods trains being stopped *en route* for giving precedence to passenger trains. Due to the higher average speed of the locomotive, it should ordinarily not be necessary to stop through goods trains to give precedence to passenger trains.

The benefits of the electrification of the Grand Chord route will thus be very substantial. The diversion of the above Moghalsarai

traffic *via* the Grand Chord will lead to a welcome saving in the working expenses on the existing traffic.

In addition, due to the curtailment in the average turn-round time of wagons, a large number of them will be released for carrying the anticipated increase in traffic and, to this extent, capital expenditure on additional wagons will be reduced.

Due to the increase in line capacity consequent on electrification, it will be possible to cater for additional transport requirements of the second Five Year Plan.

HELP TO PLAN ACTIVITIES

The expansion of electrification under the second Plan will reduce the requirement of loco coal at a time when a huge increase in coal production is anticipated for the development of industries and thus result in a corres-

ponding reduction in the capital investment in the public sector.

Railway electrification under the second Plan is, therefore, not merely a financially attractive proposition in itself but will also have a beneficial effect on many of the activities sponsored in the Plan.

The 14th of December marks the beginning of electrification and promises to be the starting point of a great advance in transport and economic progress of the country.

The happiness of the constituents and the prosperity of the people are the greatest rewards for all classes of railwaymen whose enthusiasm and efforts of yesterday and today are ushering in a bright tomorrow. This reward will continue to urge them to even greater efforts in the service of the nation in future.

Selecting a Locomotive Diesel or Electric ?

BY R. G. HARDIKAR, *District Electrical Engineer (Rolling Stock)*
Calcutta Electrification Project, Eastern Railway

The science of engineering must always bow down to finance, whatever praises the designer of a railway engine may sing of the product of his ingenuity and labour. True it is that diesel locomotive has successfully established its ability to cope with the modern needs of rail transport viz., reliability, starting under load, wide fluctuations in load, need for hauling goods, express passenger and suburban services, also shunting in big yards.

But, as very often happens, if a particular instrument of transport has operating advantages it is more expensive. If that be not so there will be no two opinions about giving it preference. The new locomotive will replace the old one in no time. Therefore, it is always a question of balancing fixed charges, interest and depreciation, resulting from the larger investment against economy and other advantages of operation.

RISE OF DIESEL TRACTION

Diesel traction received its greatest fillip during the lean years 1929-33 when railways all over the world fell under the two evil influences of motor bus competition and the all pervading industrial and agricultural depression. During those days, particularly in Europe and America, the diesel locomotive came to the rescue of the railways in saving hard cash. On account of its very much higher thermal efficiency the diesel locomotive progressively began to replace the "steam horse" from (a) shunting, (b) branch line, and (c) express passenger and suburban services.

As an apprentice engineer I had to do quite a great deal of testing on test-beds for two of the 1500 B. H. P. 1-E-1 express passenger locomotives ordered by the Russian Railways. One of such locomotives (1200 B. H. P.) was

tested along with a steam locomotive of exactly the same rating and the fuel consumption per H. P.—hour was observed to be :

Diesel electric	..	0.24 Kg.
Steam	..	0.80 Kg.

The same liquid fuel of 10,000 Kilocal/Kg calorific value was used in both cases. It has been repeatedly proved ever since by many manufacturers in Europe and America that a

railway diesel engine consumes only about 30 per cent of the fuel required for the steam locomotive.

In Germany trial runs were made in order to determine the economic value of the steam locomotives as compared with the different types of diesel locomotives. These locos hauled 1,000 metric tons at a maximum speed of 72 Kms. per hour and the following figures were recorded :

Operating Costs (in marks)

Items	Steam	Diesel		
		Electric	Mechanical	Compr. air
Fuel	573.75	438.75	375.00	531.00
Lubrication	5.25	33.00	33.75	48.00
Water	19.50	—	—	—
Cleaning	2.25	6.00	7.50	7.50
Lighting	0.75	1.50	2.25	2.25
* Miscellaneous	13.50	16.50	8.00	18.00
** Sundry expenses, Interest charges and depreciation (Locos)	161.25	239.25	216.75	177.00
Repairs	217.50	176.25	195.00	187.50
Interest and depreciation, fixed charges	112.50	67.50	67.50	67.50
Wages (Crew)	322.50	243.75	243.75	243.75
Wages (Shed Staff)	28.50	28.50	28.50	28.50
Operating	43.50	9.00	9.00	9.00
General Expenses	18.75	11.25	11.25	11.25
	1519.50	1271.25	1208.25	1331.25
Percentage saving over steam costs	—	16.3	20.5	12.4

* Miscellaneous consumption included sand, grease, spares for running repairs, springs, fire-bars, brake blocks etc., etc.

** Capital costs were in the following proportion :

Steam	Diesel		
	Electric	Mechanical	Compr. air.
100	162.16	135.15	124.32

These test runs were made with the same trailing load on the same track in up and down journeys.

It is estimated that something like 35 to 28 per cent of transportation costs, on a railway, are spent on shunting movements. Thus by replacing a steam shunting locomotive by a diesel one we are able to cut down transportation cost in one of the highest cost items.

In branch Line services, apart from the financial saving in transportation costs by

diesel haulage there are very weighty advantages like

- Multiple Unit working
- Driving from either ends
- Smokeless and sparkless running

ELECTRIFICATION VERSUS DIESELISATION

The diesel locomotive has proved its economic superiority, given certain conditions, over steam haulage, alike for (i) main line express (ii) Branch lines (iii) shunting and even (iv) suburban Services. Whether for specific

duty a diesel locomotive will be more economical than its rival, the steam or electric loco, depends mainly on:

- (a) comparative energy costs (coal, oil and water)
- (b) traffic density
- (c) suitability of boiler feed water for steam locos (on the Kandla—Deesa section of the Western Railway water is unsuitable for steam locos)
- (d) extent of motor bus competition
- (e) availability of skilled labour

For the ever-increasing present day demands on our railways, what is primarily required is to speed up both passenger and goods services without greatly remodelling the track and the signalling equipment. The only effective measure to achieve this is to run short length, light weight, high speed trains at frequent intervals.

The problem as to whether electrification or dieselisation is more profitable to replace steam haulage is to be solved by taking into account the most important factors of capital cost and operating costs. Both of these factors are considerably affected by the traffic density in a given area or division. There are also other factors like heavy gradients and available water power, which favourably influence wholesale electrification, as in Switzerland, of at least the most heavily loaded lines. Or, as in certain parts of Germany, railway electrification is attributed to the indigenous brown coal which is burnt more efficiently in thermal power houses than in locomotive boilers.

For a line with frequent services, it is more economical to remove the diesel engines off the train and put them in power houses generating electricity for the moving train. This will need a smaller number of diesel engines on account of the improved load factor, thereby reducing the capital cost with resultant increase in efficiency and reduction in weight of the moving train. Conversely, where traffic is light, it will pay more to instal the diesel engine and its electric generator on the moving train.

TRACTION FOR MASS TRANSPORTATION

The running of high speed trains at considerably more frequent intervals means that in the case of steam or diesel traction the provision of a larger number of trains will result in an increase in the total capital cost. In the case of electric traction, on the other hand, that portion, approximately half, applying to coaching vehicles will be increased; the remainder of the capital cost increasing only slightly. An increase in the scheduled speed in the case of steam and diesel traction will involve the provision of more than proportionate horse power, thereby increasing the capital costs in proportion to the rise in horse power. In the case of electric traction, however, the characteristics of the traction motors and the power distribution system operating with the central station or the grid, can provide substantial energy to the trains to propel them at greater running speeds. And this can be brought about at a relatively small cost.

The dead weight per passenger seat is very much lower for suburban electric trains than for the self propelled diesel railcars. No doubt the capital charges per track mile of electric railway are very high. These, however vary according to the usage of the plant and hence electric or diesel haulage will be either cheaper or costlier than the other when the capital costs and running charges are reckoned together. This depends entirely on the anticipated traffic density.

Diesel locomotives, unlike their electric counterparts, have no qualms about co-existence with steam locomotives on any particular section. Since the electrification of a given section of railway line requires a considerably long time before it can advantageously displace the steam locomotive, diesel locomotive often steps in, to speed up matters, during the transition period as is being done now on the Gomoh-Gaya section of the Grand Chord on the Eastern Railway.

The result of this experiment, particularly in the coal belt, will be anxiously watched all over the country.

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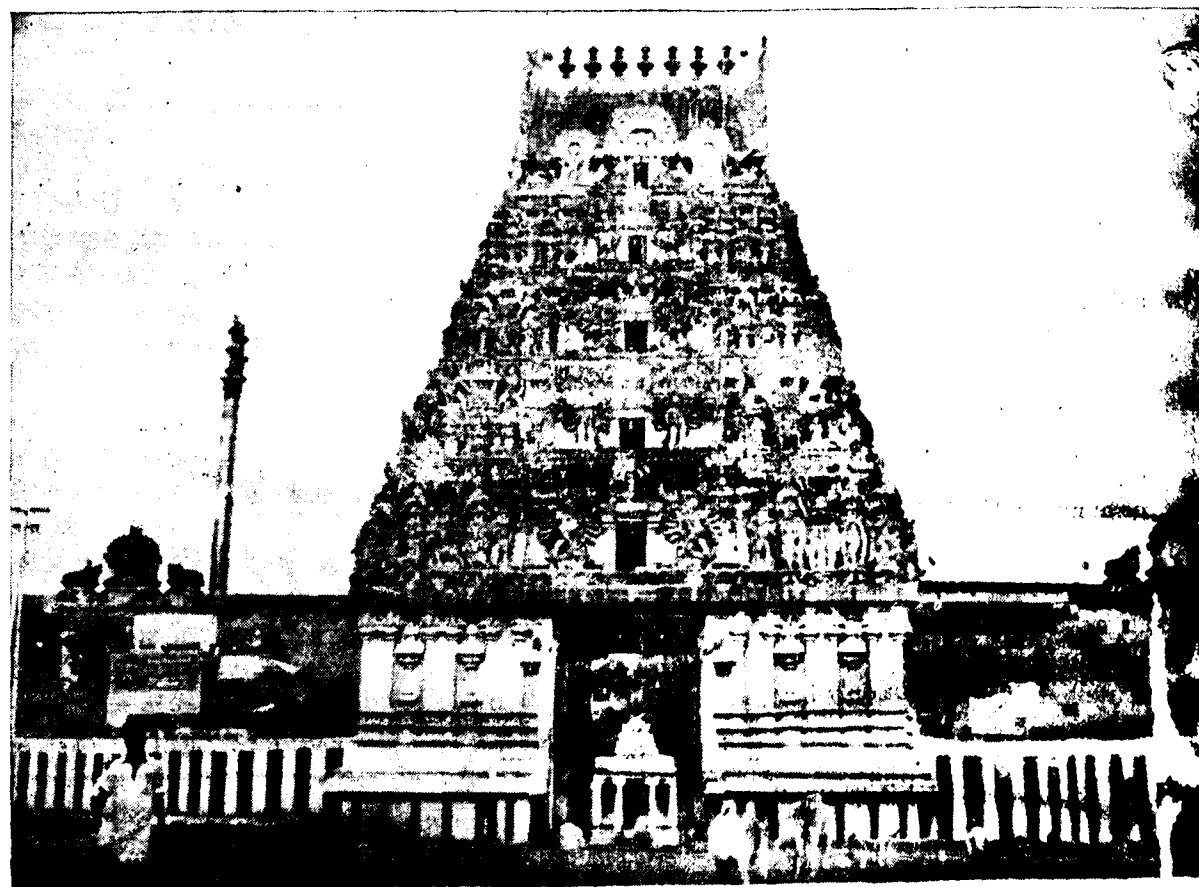
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Mg. Editor, R. A.



Entrance Gopuram, Tiruvottiyur

Mr. Lal Bahadur Sastri, while he was the Minister for Railway said: "But I do feel also that the Unions of Workers have to change their outlook and approach altogether. Work and efficiency will have to be given priority over everything else; otherwise, the whole edifice might one day break..."

* * *

Do you know that the Russian satellite passed over Europe and said "Bleep, bleep!". Then it passed over Asia and said "Bleep, bleep!". Next it passed over Africa and said "Bleep, bleep!". But when it passed over America it said "Ha ha!"

(The Hindu)