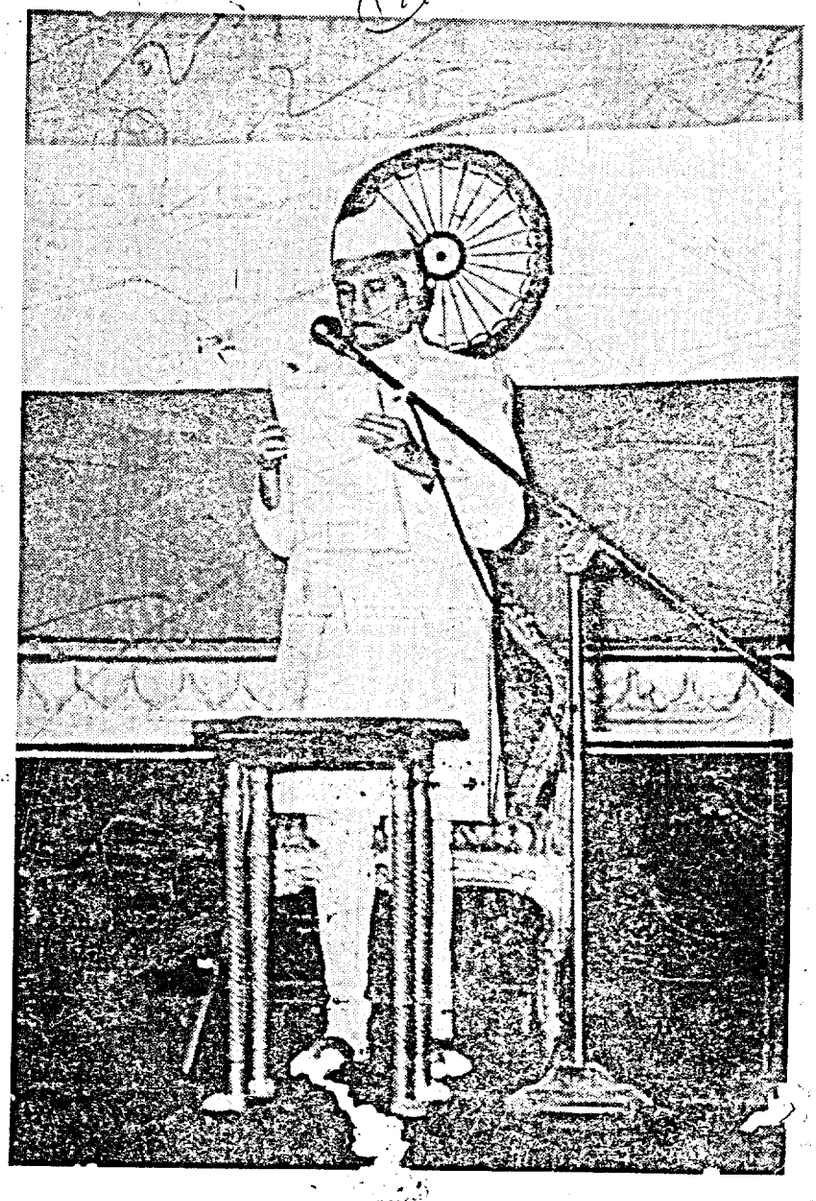
Electolite

A Journal of Electricity Supply and Utilization



ELECTOLITE

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The Cover : Mr. N. V. Gadgil, minister for Works, Mines and Power who inaugurated the All-India Power Engineers' Conference in Delhi, during the last week of February.

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FEATURES

Electolite

—EDITOR : R. PARTHASARATHY.

VOL. II | ~~APRIL~~ — JUNE. ~~1949~~. | NO. ~~2~~ 1

More "Power" to India's Elbow

THE All-India Power Engineers' Conference held in Delhi during the last week of February was an event of outstanding importance from more angles than one. For one thing, this was the first important technical Conference of those engaged in the generation and distribution of electricity — after freedom was won, the previous one having been held in 1944. For another, the Conference was truly representative in the sense that representatives of private licensees were present now—unlike in the Conference of 1944—which, incidentally, should serve to explain the doctrinaire nature of some of the resolutions then adopted.

Nevertheless, that was the first occasion during recent years, at which the power development programme of the country had been reviewed as a co-ordinated whole. As the resolutions passed at this Conference formed the basis of Central policy, not only in the sphere of development, but also in the sphere of organization, it was only to be expected that the present Conference should review the previous resolutions. Now, it had the additional advantage of the presence of hard-headed realists from business.

Mr. N. V. Gadgil, Minister for Works, Mines and Power, who inaugurated the Conference, warned the Engineers to guard against any maladjustment between the production of power and its planned utilization. He said that the total installed power generating capacity in the country was about 2.2 million kW's, which accounted for a total annual consumption of electricity of about 5,500 million kW hours. Assuming that the annual rate of increase of power consumption during the next ten years was of the same order as was during the war years, he continued, India's total consumption of electricity in 1958—59 might be estimated at 10,000 million kW hours. Whilst what they required to meet this increase in power, was roughly an additional generating capacity of 1.9 million kW's, the installation of hydro and thermal generating capacities, as was now being planned by provincial governments, he added, would provide them with an additional capacity of about 3 million kW's —an excess of one million kW's of generating capacity over what could be effectively utilized by their estimated growth of load during the next ten years.

There were only two ways, according to the Minister, in which such maladjustment could be corrected. Either they could try and develop their load faster —indeed faster than it developed even

take over—what was still left in private hands—(about 1·5 per cent) of generation.

The minister's attention was drawn at this stage to the Industrial Policy of the Government of India—according to which private enterprise was to proceed without interference at least for a period of ten years—and how the proposed legislation of the Government of Madras would militate against the policy of the Centre.

While admitting the truth of this criticism the Minister defended himself by saying that conditions in Madras differed vastly from those—say, in a province like Bombay. Many small undertakings were in pretty bad state, he continued, and anything short of acquisition was not calculated to improve the position. The minister added:

"I realise, of course, that some important companies like the South Madras Electric Supply Corporation and the South Arcot Electric Supply Company Ltd., are running efficiently."

But even these according to Mr. Bakta vatsalam were unable to go ahead with the necessary expansion. In reply, it was pointed out to the minister that this state of affairs was largely due to the uncertainties underlying Government policy, and that the present position would be greatly remedied if only Government would not be precipitate in its action.

As regards the proposed Bill, the Minister continued, that it was still the subject of correspondence between the Province and the Centre and that the latter's sanction was expected to be received in about six months' time.

Discussion then centred round the vexed question of compensation. Earlier reports had indicated that Government proposed to pay as compensation Book Cost less depreciation, but the minister did not, during this interview, specify the precise nature of the formula to be adopted for compensation.

The minister was, however, definite that it would not be the market value as provided for, in Section 7 (1) of the Indian Electricity Act, 1910, because market value was so 'unconscionable.' To the question as to what would have been the attitude of his Government, if instead of the present high costs of plant and machinery, lower costs had ruled, the minister would not vouchsafe an answer. Obviously, he did not like to be drawn into a hypothetical controversy, and one has probably to be satisfied with his assurance that compensation would be reasonable.

The interview, which lasted about 20 minutes and was characterised by extreme cordiality on both sides, closed with this observation by the minister—namely, that Government proposed, at present, to arm itself with powers of acquisition.

ELECTRICITY DEVELOPMENT IN INDIA

ALL-INDIA POWER ENGINEERS' CONFERENCE

AN historical landmark in the development of Electric Power was touched when the All-India Power Engineers' Conference met in New Delhi during the last week of February. Commencing on Feb. 21, it closed on Feb. 25. Mr. N. V. Gadgil, Minister for Works, Mines and Power, inaugurated the Conference, in the presence of Dr. Shyam Prasad Mukerjee, Minister for Industry and supply, and Mr. Jairamdas Daulatram, Minister for Food and Agriculture.

About eighty representatives from the various provinces and State-Unions and States, including Hyderabad and Kashmir, were present. The Conference was called to co-ordinate the different electric power projects in the country so as to minimise costs, to avoid overlapping and lop-sided development, and to ensure maximum efficiency and utilization.

Among those present were the following representatives of the Federation of Electricity Undertakings:—

1. Mr. V. F. Noel Paton, *Chairman*
2. ,, H.K. Ramaswami, (*Madras*)
3. Mr. J. V. Church, (*Bengal*)
4. ,, H. N. Chowdhury, } (*Bihar*)
5. ,, N. R. Kirkby, }
6. ,, J. A. Colaco, (*Bombay*)
& 7. ,, R. P. Aiyer. (*Secretary*)

Representatives of the Institute of Engineers (India) and the Institute of Science (Bangalore) were also present.

WANTED—A REALISTIC ASSESSMENT

Opening the Conference, Mr. N. V. Gadgil said that the aggregate cost of the power equipment that would be needed in India during the next ten years, even on the basis of the rate of progress made during the war years, would be about Rs. 300 crores.

An outlay of this magnitude, continued Mr. Gadgil, called for co-ordinated planning at a very high level. He called upon administrators and engineers dealing with the development of electricity in the country to reduce the generalities of the earlier years into specific development schemes, capable of efficient and economical execution "within the limits of our physical, financial and human resources".

during the next years, or they must eliminate from their development plans all un-economic schemes.

To take the second suggestion first: the Central Electricity Commission, on whom squarely rests the responsibility for reviewing and co-ordinating the power capacity expansion programmes of provinces and states, might be trusted to eliminate all unjustifiable schemes. As Mr. Gadgil himself added by way of explanation, "schemes which cannot be justified even on the basis of an optimum increase in the rate of growth of load" will have to go.

To return to his first suggestion: the scope for power utilization in India is, indeed, tremendous because of the vastness of the country and because of its back-ward economy. The problem of utilization need hardly present any formidable difficulties, if only Government would care to make use of the industrial leadership and technical talent that the country can offer. Industrialists, naturally, expected big things of a National Government. They are, to-day, a disappointed body of men—not to over-state the case. Not that they made any impossible demands, as witness, for example, these — security of tenure, assistance in importing equipment from abroad and a rational programme for locating and developing basic industries. If only the Industries Ministry establishes better co-ordination between itself and industrialists in the country—what India will have to face eventually will not, probably, be a glut of power, but a shortage of it.

Industrial load apart, there is enormous lee-way to be made up, even on the Home Front. The uses of electricity are, at present, mostly confined to a few items like lights and fans. Electrical cooking—to mention only one common use to which it is put—has yet to catch the fancy of the Indian house-wife. Several urban areas still remain to be electrified—and as for unelectrified villages—their name is legion.

The ultimate ambition should, of course, be to supply every village and hamlet in India with electricity, but scarcity of materials imposes certain compulsions on the country. Electrification has, in the first instance, necessarily to be confined to such of the villages as are in the proximity of the present grids —and where power will be utilized for boosting crop yields. It will not, therefore, be correct to take up an un-economic extension, just because it is in implementation of a noble ideal. When it comes to rural electrification, Power Engineers will have to proceed rather warily.

In the course of his inaugural address Mr. Gadgil also, referred to his anxiety for the early formation of the Provincial Electricity Boards, envisaged by the Electricity (Supply) Act of 1948. What is, perhaps, more important than the formation of the Boards is their composition. Unless these Boards provided for the inclusion of representatives of the industry, they would be denying themselves a vast wealth of experience—experience, which should stand the country in good stead, in its schemes of electrical development and utilization.

P. W. D. MINISTER ON NATIONALISATION

INTERVIEW WITH FEDERATION SECRETARY

PRAISE FOR S. M. E. S. C. LTD.

Mr. M. Baktavatsalam

THE Secretary of the Federation of Electricity Undertakings of India took the opportunity of a recent "busman's" holiday in the South for a discussion with Mr. M. Baktavatsalam, Public Works Minister, Government of Madras, on the proposed measure of Government for the nationalisation of the remaining Electric Supply Undertakings in the Province.

The interview with the Minister took place at the Secretariat, Fort St. George, Madras, on February 12. Mr. K. Gopal Rao, Asst. Secretary of the Madras Presidency Electric Licensees' Association was also present.

Mr. Baktavatsalam's attention was recalled to the representation made by the Federation during June 1948, and before the Federation spokesman would re-affirm his views on the subject, he sought clarification on the following:—

(*a*) What was *actually* Government's intention?

The minister was reminded, that the Federation did not have any authoritative statement to go by excepting the reports in the Press, regarding Government's policy.

(*b*) When did the Government propose, if at all, to bring up its bill?

(*c*) What will be the basis of compensation—if nationalisation was decided upon?.

The Minister replied that reports in the press largely reflected the intentions of Government and that it proposed to provide itself with necessary powers to

Mr. Gadgil asked engineers to make an "overall realistic assessment" of the major power projects, and to guard against maladjustment between the production of power and its planned utilization.

Emphasizing the importance of the development of rural electrification schemes, the Minister for Power said that electric power should be quickly brought to the service of the villagers.

Mr. Gadgil concluded:

"In the circumstances, it would seem to me to be in the best interests of the country that provinces should avail themselves at the earliest possible date of the powers under the Electricity (Supply) Act of 1948 and constitute autonomous Provincial Electricity Boards charged with the responsibility for co-ordinated power development in their areas".

FEDERATION CHAIRMAN'S PLEA

Mr. V. F. Noel Paton, Chairman of the Federation of Electricity Undertakings, who followed Mr. Gadgil, assuring the Conference of the fullest co-operation of the Federation, pleaded for the encouragement of private enterprise, which, he said, would serve as an incentive to a higher technical efficiency and managerial skill. He added that his federation did not represent big money bags; rather it represented tens of thousands of small investors. It was an erroneous deduction, he continued, to blame private enterprise for the disparity between availability and demands of power. He felt that security of tenure as well as a reasonable return would encourage private enterprise to play its part in the electrification of India.

Mr. D. L. Mazumdar, Secretary to Government, Ministry of Works, Mines and Power, assured the Federation spokesman that the intention of the Electricity (Supply) Act was certainly not to snuff out of existence private licensees, but merely to see that there was greater co-ordination between them and the autonomous Boards, with a view to rational development. Private licensees need, therefore, have no fears whatever, on that score, he added.

Mr. Mazumdar said that he was grateful to private enterprise for all that it had done so far, and would request the industry to continue to help Government in trying to promote the material well-being of the Nation.

Dr. J. C. Ghosh, Director-General of Industries, reviewed in the afternoon the various industrial plans of India and estimated that the demands of industries would be 600,000 Kilowatts by 1956.

Chief difficulties that hampered development appeared to be shortages of various descriptions—notably cement and steel—and transport bottlenecks.

February 22:

Speaking at the second day's session of the Conference, Mr. N. N. Iengar, Chairman, Central Electricity Commission, reviewed briefly the scope of the work of the Commission and indicated the way in which it could help provinces and states in the implementation of the projects.

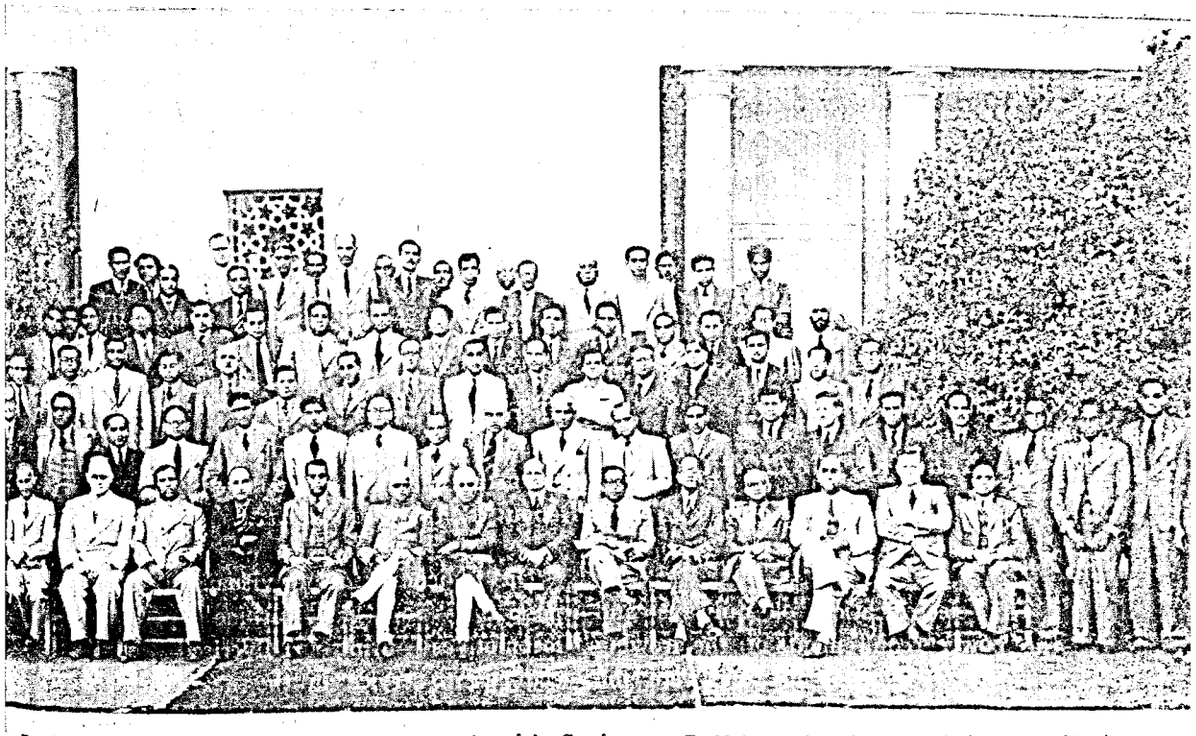
IMPORTATION OF STEEL

The Conference also passed a resolution to-day recommending to the Central Government that, in view of the extreme inadequacy of the present allotment of steel for power projects, arrangements should be made for the annual importation of 60,000 tons of steel for the next five years for the purpose of electric power projects under construction to enable them to be completed according to schedule.

The present allotment is approximately 30,000 tons a year.

The Conference further recommended that, having regard to the higher cost of imported steel, the extra cost of such steel be spread over the entire steel consumption, in India.

It also recommended that special facilities be afforded for expediting transport of the materials required for power projects as the delays now being experienced were resulting in disproportionately increased construction costs, and that the Central Electricity Commission arrange for full-time supervision of the allocation of transport facilities for moving construction



r Engineers Meet: Group Photo taken on the occasion of the Conference: Pt. Nehru and Mr. N. V. Gadgil are seated in the centre

material and machinery, required for these projects.

Another resolution said that in view of the difficulties that were being experienced by provincial 'and state governments, as a result of the large advance payments required by suppliers of heavy power plant long before such plant was due for shipment, the Government of India should negotiate with the appropriate authorities, for obtaining the most favourable terms of payment.

Discussion later centred round matters arising out of the Electricity (Supply) Act, 1948, with particular reference to the progress made in the direction of the establishment of Provincial Electricity Boards, introduction of uniform systems of accounts of electric power in the country, and the general trends of power costs and tariffs.

Representatives of all the provinces (except Madras) appeared to be anxious about the formation of the Boards. The Madras representative said that in his province already electricity generation was almost entirely in the hands of the State—with more than 60 per cent of its distribution, as well.

ELECTRIFICATION OF RAILWAYS

February 23:

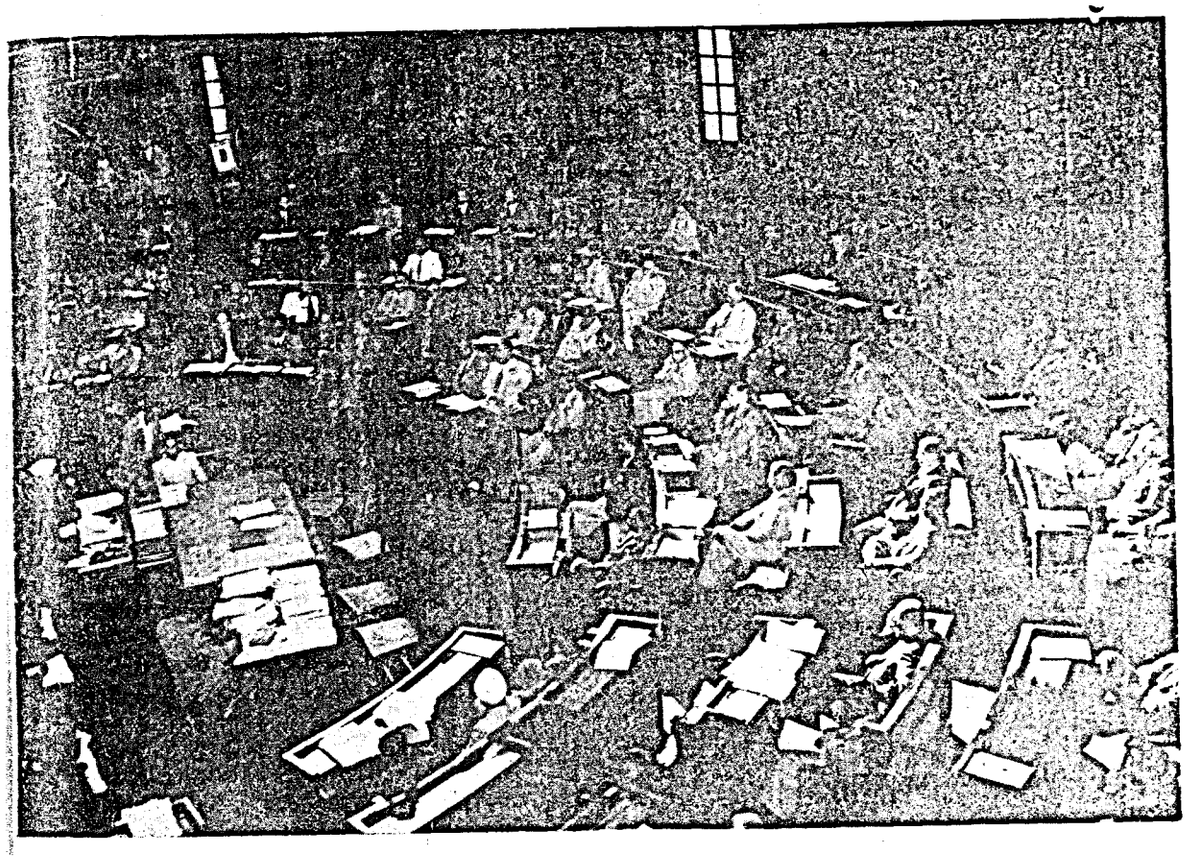
The electrification of railways and the power requirements of the growing refrigeration industry in India were the subjects of discussion on the third day of the Conference.

It was revealed during discussion that proposals for the electrification of nearly 1,500 route miles on various railways at a total cast of Rs. 36 crores were, at present, under investigation by the Consulting Engineer to the Railway Board.

The lines, the electrification of which is under consideration, it was revealed, were the Tambaram – Chingleput – Arakonam – Villupuram routes on the S.I.R., Howrah to Mughalsarai on the E. I. R., Iyatpuri to Bushawal and Poona and Dhond on the G. I. P. and Bombay to Ahmedabad on the B. B. & C. I.

Dr. H. J. Nichols, Engineer Member of the Railway Board, said that the whole scheme of Railway Electrification hinged primarily on the question of costs and saving of coal. He was of the view that electrification at places where hydro-electric power was available would merit more serious consideration than in places served by thermal power. He said that electrification of Railways by thermal power would not result in saving of coal as what would be saved by steam locomotives would be utillised by the theremal stations concerned. This was based on the assumption that the ultimate efficiency at draw-bar was about equal in the two cases.

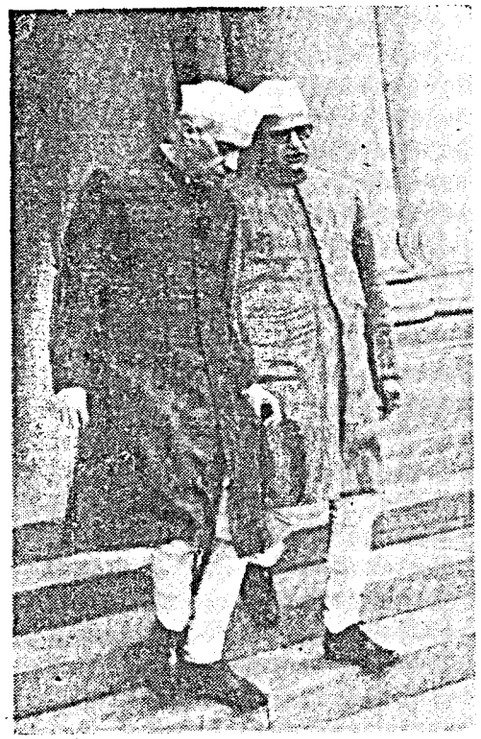
Dr. Nichols also visualised the possibility of gas turbine operated locomotives firing pulverised coal coming into service, in the near future, and added that the efficiency of these would be greater compared with electric



Pt. Nehru addresses the Conference. *"It is a battle against Nature . . . which we are going to win"*

locomotives. A thorough examination of the question was necessary, he concluded.

Mr. J. V. Church who spoke next said that from the point of view of conserving the coal resources of the nation, electrification of Railways should be seriously considered. He believed that, in large areas not reached by hydro-power, electrification of Railways by thermal power should not be ruled out. Electric locomotives enjoyed certain advantages like cheaper maintenance. As regards the gas turbine, Mr. Church thought that its commercial use would take a long time to materialise, and in any case, before it could be applied to locomotives successfully it would have been in operation in thermal power stations. He said that Railway electrification should be immediately considered where the density of traffic warranted it, and quoted the Howrah—Mogul serai Section as a typical example.



Pt. Nehru and Mr. N. V. Gadgil leaving the Conference hall after the former's address on February 23, 1949.

rotted could be made available to the public if adequate refrigeration facilities were available.

The high-light of the day's proceedings was an address by Pandit Jawaharlal Nehru who spoke for about 20 minutes.

Pandit Nehru said that in the development of Electric power, as in every other phase of national activity, they must keep in touch continuously with the evolving and progressive life of the community. Inevitably, they had to think much more of the vast numbers of the people who lived in the villages and the small towns of India, and not so much of the more sophisticated people, living in the larger cities. As far as possible there should be no gap or hiatus between what they produced in the shape of power resources, and their utilization.

"NON-VIOLENT" ENGINEERS!

The activity of power engineers, Pt. Nehru continued, was fortunately a peaceful activity, and should not injure anybody. Nevertheless, they should look upon it with the stress of a war emergency. "It is a battle against Nature, a peaceful war sometimes against considerable odds. It is a battle for the benefit of the people of our country. It is a battle which we are going to win and we are winning", he concluded.

Later, during the session, the Chairman called upon Mr. M. L. Khanna, Refrigeration Development Engineer, Food Ministry, to speak. In a witty speech Mr. Khanna dealt with the requirements of electric power for purposes of conserving perishable foodstuffs and outlined, in brief, Government's programme for developing refrigerated stores. He referred to the need for a "Save More Food" campaign instead of a "Grow More Food" campaign and revealed that as much as 50 per cent. of the perishable foods in India which now

February 24:

Rural electrification came in for a flattering amount of attention from the Power Engineers, during their session to-day.

The review of progress made by the different States and provinces disclosed that only Madras, Mysore, Travancore, and, to a little extent, the United Provinces, had made any appreciable progress in rural electrification.

Describing the progress made in the province of Madras, Mr. G. Sundaram, Chief Engineer, Electricity Department, Government of Madras, said that with the notable exceptions of the South Madras Electric Supply Corporation Ltd., and the South Arcot Electricity Supply Co., Ltd., the progress made by other licensees was not anything remarkable.

SOUTH INDIA'S PROGRESS

Mr. Mohd. Hyath of Mysore describing the progress made in his State said that what little they had been able to accomplish was due to relaxation of the Indian Electricity Rules as regards clearances. The Indian Electricity Rules needed careful re-examination, he continued, and relaxation should be

Party to Power Engineers at the Govt. House: Mr. N. V. Gadgil was the host. In the group may be seen H. E. Shri C. Rajagopalachari, Mr. K. Santanam and others.

made, wherever possible — of course consistent with general safety, and satisfactory service.

Mr. H. K. Ramaswami, on behalf of the Federation and the South Madras Electric Supply Corporation, Ltd., then traced briefly the progress that had been made by his Corporation in rural electrification. What often damped their enthusiasm and acted as a brake on further progress, he said, were the random statements of those in authority, regarding Nationalisation. Capital, therefore, became more shy and all progress had necessarily to come to a stand-still.

Mr. Ramaswami put in a spirited plea for the relaxation of the Indian Electricity Rules. Particularly in Madras Electrical Inspectors appeared to have stern and exacting consciences—so much so that their interpretation of rules went, indeed, one better on the rules themselves.

February 25 :

The Power Engineers' Conference, which concluded its session, to-day, recommended that electricity consumption for industrial and agricultural purposes should be exempted from all forms of direct taxation, including sales-tax and octroi duties.

The conference also suggested the constitution of a general standing committee of co-ordination to ensure co-ordination in regard to location, construction and maintenance of power and tele-communication installations.

The conference also recommended the removal or relaxation of restrictions on the import of electrical goods required for generation, transmission, etc., atleast from the soft curreney areas, and suggested that all the materials required to be imported for electric power projects be ordered at concessional rates of duty—which, at present, were applicable to certain items of heavy power plant only.

To sum up: from the stand-point of new contacts made and old contacts renewed, the Conference was, indeed, a very successful get-together of recent times. Aside from this, the Conference served to underline the urgency of rural electrification. Another salient conclusion that emerged from the proceedings was that the Government of India were extremely anxious about the early implementation of the Electricity (Supply) Act of 1948 and the formation of the Boards.

On the whole, an extremely useful time was had by those who attended the Conference. The arrangement for the boarding and lodging of visiting delegates left nothing to be desired.

The COLD WAR OF A HOT TOWN— ICE CANDY MANUFACTURE

by

K. S. NILAKANTA SARMA

ICE CREAM, in a good restaurant, leaves a schoolboy cold ; certainly its price does !

But the price of an ice candy is well within his reach ..and mother, also, does not consider her freedom from a darling, if refractory, son too dearly bought, at only half-an-anna. Maternal nature being the same everywhere, you find all the little giants of any place *so* crowding around the ice man. Particularly, at the school corner, business *is* brisk. It may be that a school engenders, in its scholars, a thirst for other things, besides knowledge ; or, again, it may be that the Sun or the teacher is too much with the boys—to revise Wordsworth. Well, whatever the reason, money rapidly changes hands, and judging by the looks on the faces of the boys, it seems probable that they are living in some sort of "school's paradise ! "

It will be a mistake to suppose, however, that children are the only patrons of the ice candy vendor ; among them, are adults, too, but probably only a courageous minority would care to be seen, sucking a candy—in public ! Nevertheless, even if a sucker is born every minute, the most gifted of ice candy vendors has not been known to pay super-tax; so, for that matter, the most gifted of school teachers and members of several other professions.

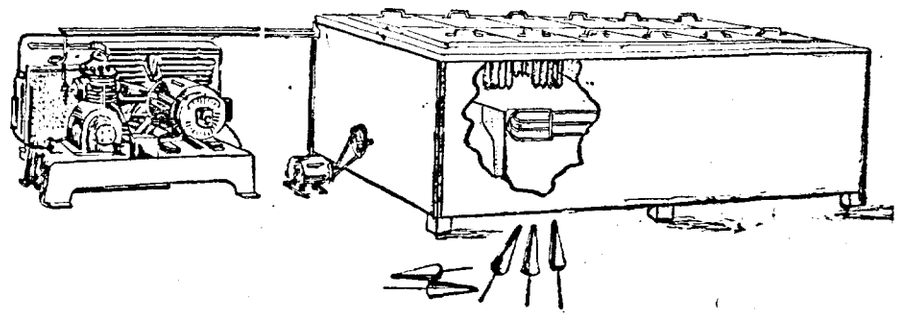
If ice candy vendors do not end up as millionaires — what about the manufacturers themselves? Is theirs big business? Do they belong to the higher income brackets ? Do they go about in sleek limousines ? Not so fast...

At the moment of going to Press the ice candy manufacturer is not quite a big shot, but he is certainly on the road to big things—provided he will organise and will develop other allied lines.

SIMPLE EQUIPMENT

Probably the best thing for me will be to take you round a factory. Perhaps, I must also tell you first that there are now in Tiruchirapalli, seven plants engaged in the manufacture of ice candies. If more have not been put up, it is because of lack of power, at present, and not because of any lack of enterprise on the part of local citizens. Indeed, the necessary equipment has been received by one or two "parties," but operation has not been possible on account of the current energy shortage. The Mettur System cannot now cater — even to small loads of one or two HP !

Here we are... You see the equipment does not take up much space at all. I agree that the place could have been kept a little more tidily. I, also, agree that the boy over there need not be sucking a candy himself—unless, of course, he is trying to give us an object lesson on : " How *not* to do it !"



Ice Candy equipment

The ice candy plant, as you see, consists of (*a*) a freezing and storage combination cabinet and (*b*) an automatic refrigerating unit.

The cabinet as you see, again is of wood ; it panels on a sturdy timber frame, and is insulated with thick slab cork...This one is what they call the master-tank—it contains calcium chloride brine solution. Occupying about two thirds of its length, you see smaller tanks. The remainder is for holding the ice candy moulds—wherein the candies are frozen.

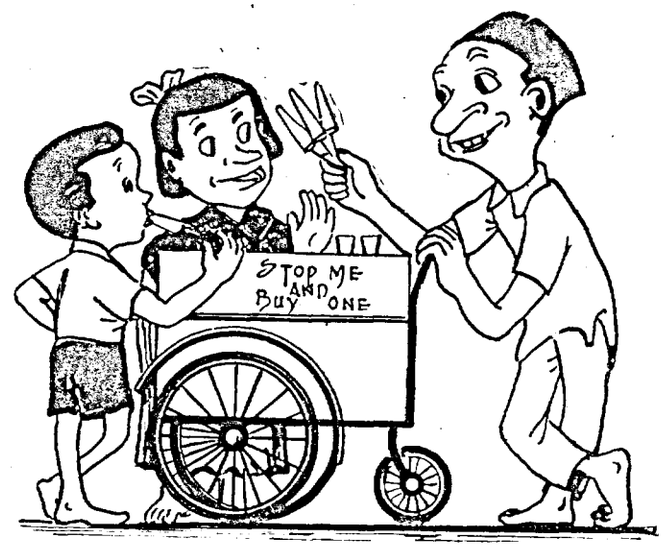
Installed along the bottom of the tank and immersed in the brine are cooling coils, over which brine is forced by this agitator here...and driven by this electric motor.

The refrigerating unit, as you will observe, consists of (*a*) a compressor (*b*) an air-cooled condenser and (*c*) a liquid refrigerent receiver. The refrigerant—usually freon gas, or ammonia—circulates back and forth the compressor and the cabinet.

MANUFACTURING PROCESS

The process of manufacture of the candies is carried out thus. The candies are formed in the metal moulds —you saw in the cabinet — by the freezing of a solution of different sweet syrups. Thin bamboo sticks are first placed in the moulds—these facilitate convenient handling by users later—and the solution poured into them. The candies form around the sticks. The whole process takes about 20 minutes, and the candies are then handed out to the vendors. The vendors are all provided with flasks by the manufacturers—two to four a-piece—and they go on their rounds, from school to school, and street to street.

Sometimes vendors penetrate into remote villages, but it is said that local inhabitants are scared stiff, at the sight of them ; they are, often, mistaken for vaccinators !



Eloquent " eyes " or is it ice ? Ice Candy Selling á la Bombay

The vending boys get a commission of 25 percent. on sales.

I think, we could now as well go over the whole economics of candy production.

Outlay on plant (including erection) and the cost of 50 flasks :-	Rs. 10,000 0 0
Working expenses per mensem :	
Wages of 6 men (3 shifts)	Rs. 180 0 0
Essence (6 lbs.)	120 0 0
Sugar (2 bags)	150 0 0
Rent	50 0 0
Interest on capital at 6 per cent.	50 0 0
Depreciation	25 0 0
Maintenance on flasks	45 0 0
Energy	40 0 0
	Rs. 660 0 0

Sales average from Rs. 40/- to Rs. 50/- a day ; so a manufacturer should be able to sell at least for Rs. 1200/- a month, and deducting all his expenses, his books should be showing a handsome profit of Rs. 600/- In calculating the profits, I have made due allowance for the slack winter months.

But as the poet rightly asks ; " If Winter comes, can Spring be far behind ?" Only, I must issue a correction slip. Read "Summer" for " Spring "—remembering that it is Tiruchi we are talking about !

RURAL ELECTRIFICATION IN THE UNITED STATES

(A Review of Progress up to end of 1947)

THE year 1947 saw the extension of electricity to a greater number of rural people of America than in any previous year.

At the rate of more than two connections a minute for every working day, 294,000 more rural consumers were connected to electric power lines in the fiscal year 1946-47, improving the comfort of their homes, increasing the production of foods vitally needed the world over. By the end of 1947, both private and government financed electric utilities were bringing the vital power to rural Americans at a rate of one new user every ten seconds of each working day.

In 1935, only one American farm in 10 had electricity. To-day, six out of ten farms—3,500,000—are connected to power lines. And there are thousands of additional establishments in rural districts—schools, churches and other rural community buildings as well as more than 10,000 rural industries—receiving low-cost, dependable, electric power.

Behind this progress is the story of the efforts of the farmers themselves to obtain electricity and of the United States Government's action to help them. Thirteen years ago the United States Congress set up the Rural Electrification Administration as a Government agency to make funds available to rural co-operative groups on a long-term basis at low interest rates.

Here is an article which records the progress made by the Rural Electrification Administration of the United States. It should prove to be of special interest to our readers—particularly to distribution engineers in view of what Pandit Jawaharlal Nehru and Mr. N. V. Gadgil said at the Power Engineers' Conference held in Delhi, in the last week of February.

In the United States, electricity is put to varied uses in rural districts—from ministering to such needs of the farmer as heating and lighting to incubating his (the possessive denotes merely ownership) eggs, dairy farming, preparation of cattle fodder, soil heating, crop control, refrigeration and destruction of pests. This range of utilization, it may not be possible for us to achieve here in this country, and in all probability, for several years to come, the use of electricity will have to be confined to agricultural and domestic pumping—and providing the farmer with such basic amenities as lighting.

Nevertheless, we believe that this article should set distribution engineers a-thinking about the enormous possibilities that lie ahead. —*Ed.*

With these REA funds, farmers formed independent, user-owned and controlled groups among themselves, and set up their own electric systems and distributed electricity on a non-profit basis.

"The rural electrification progress made since 1935," the REA stated in its recent annual report, "is a result largely of the initiative and determination shown by farm people everywhere in organizing and developing rural electrification on a co-operative basis. Without these co-operative efforts, the programme authorized by the Congress could not have been made effective."

Since the inception of the electrification programme more the $ 1,000,000,000 in loans have been approved by REA, $ 190,000,000 in fiscal 1947 alone, nearly twice the previous record advancement of 1940. More than nine-tenths of REA loans have gone to the independent, rural groups and power districts which, as of October, 1947, served 1,843,000 rural users.

The REA itself does not generate or distribute electric power; its primary function is that of making loans. Most rural users obtain their power from commercial or public power plants; only about one-tenth furnish their own.

Nor does REA maintain the rural power systems. While REA engineers advise as to the best methods of setting up the systems to obtain the most efficient results, the rural groups themselves have their own maintenance crews. Because of the great importance they attach to their systems, some groups have hired electrification specialists to work full time with members to help them obtain maximum service. This step is strongly endorsed by REA, particularly in view of the present increased energy load on the electric systems and current equipment shortages.

DEMAND EXCEEDS SUPPLY

The problem REA faces to-day is not that of selling the merits of electricity to rural people. The experience of a farmer group in Kansas is typical of the trend. In 1936, when a few farmers decided to obtain electric power on a pooled basis, they had a difficult time convincing enough of their neighbours to make such a system feasible. Finally, they obtained 100 members to start the project calling for about 100 miles (160 kilometers) of line. On the advice of REA engineers, however, the group installed lines heavy enough to supply many more consumers than the original number. They soon learned this was good advice; as other farmers in the area who had no electricity saw what was being done on electrified farms, wanted electricity, too. The result: the Kansas group now operates 1,000 miles (1,600 kilometers) of power line servicing hundreds of farmers.

The pressing problem to-day is to find equipment and locate sources of power to supply all who want it. The REA receives an average of about $ 1,000,000 in additional loan applications daily. Not only are new rural power systems in

be added, but already established systems are adding new members. Furthermore, each farmer is making increasing use of electric energy to aid him in his farm tasks, bringing an increased load on existing systems.

Despite equipment (orders placed for generators will not be delivered for three years) as well as steel shortages, the REA plans to help extend electric service to even more rural people in 1948 than in record 1947. It is expected that funds advanced during 1948 fiscal year may reach a total of $ 320,000,000, almost twice that of 1947. This goal calls for completion ot 198,000 miles (316,680 kilometers) of new lines serving 535,000 additional consumers. It also calls for expanded service on existing systems.

HIGHER RURAL STANDARDS

The ultimate goal of REA is to see that electric power is extended to all of the 5,750,000 farms in the United States. "Rural electrification is not an end in itself," REA says, "but it represents a means of strengthening the rural economy, of raising rural standards of living, and of contributing materially to the high level agricultural production necessary both to the Nation's nutritional welfare and to the maintenance of world peace."

The reason behind the rapid growth and popularity of rural electrification may be seen in the many services electricity provides farmers. Studies show that about one-half of the average farmer's working time is spent around the farmyard, feeding and tending live-stock and poultry, caring for his produce, doing maintenance and related jobs. It is in this farmyard work that electric power plays a most important part.

Electricity enables American farmers to use modern productive methods. For example, they now turn out a recorp volume of milk and eggs of generally higher quality than pre-war. While it may appear trivial that the average farmer, through advanced methods, has saved one minute in producing each gallon (3. 8 litres) of milk and two minutes per dozen of eggs, when these minutes are multiplied by America's annual output of 4634,000,000 dozen eggs and 13,900,000,000 gallons(52,800,000,000 litres) of milk, they add up to a vast saving in total farm labour time.

On thousands of American dairy farms, electricity provides lights, pumps water, grinds feed, milks cows, and cools and refrigerates milk. Newly developed equipment even cleans barns and pasteurizes milk. On poultry farms, lighting of laying houses maintains a more uniform length of day for hens and helps to stabilize year-round egg production to offset seasonal shortages or gluts. Electrically heated brooders protect the lives of delicate baby chicks, and electric power grinds their feed and warms their drinking water. Electric refrigeration of eggs helps to keep them fresh during warm weather.

To save time and labour on chores, many farms use electric drills, welders,

emery wheels, air compressors and other equipment that maintains and repairs equipment and installations. The electric-powered barn cleaner does the back-breaking job of removing refuse from the gutters in a few minutes at the press of a button. An electric machine does the job of throwing down ensilage from the silo. Belt buckets run by electric motors do the work of loading and unloading trucks.

QUALITY YIELD

New methods of preventing crop losses include ventilating grain and hay with electric powered hot-air blowers which reduce the moisture content after storage and stops spoilage and infestation. Automatic barn ventilators hold down moisture in the entire barn, going into action on a signal from an electronic humidity detector. Grain and boled-hay electors, chopped hay and ensilage blowers, and semi-automatic feeders also save time and labour and improve the quality of farm yields.

Another trend is the use of electric power for farm processing. With equipment to pasteurize and bottle whole milk on the farm, the small dairy can sell directly to consumers, and the pasteurizer also protects the farmer's own family from the danger of picking up unduland fever (Malta fever) from fresh milk from his own cows. Electric power is making it possible to establish many small industries and processing plants throughout the United States which are closely allied to agricultural production.

Many possibilities are still to be explored in the use of electric light to provide artificial sunshine, to control germs and bacteria, and to trap damaging insects. Other possibilities lie in the further development of super-sonic seed treatment, in soil sterilization, and in the uses ot ultra-high-ferquency electro-magnetic waves (diatrermy) for heating, The REA is continuing to learn the special electrical needs of rural people, and to encourage research work and the manufacture and distribution ot special equipment that meets these needs.

—USIS

"The features are distinctive ... so are the articles."—*Indian Express*, MADRAS.

HOW TO WIN FRIENDS AND INFLUENCE PEOPLE —IN OFFICE!

(After Dale Carnegie - Considerably After !)

by

R. CHANDRACHOODAN

EASY enough, but only there is no magic formula. I may also caution my gentle reader, here and now, that my approach to the subject is going to be negative. That is, I propose to list a few " deadly sins " which have to be avoided like the plague. If you will only do all this... and more too, the chances are not unlikely that some day you will be initiating orders instead of merely taking them. Otherwise, well, your mother may think that you are potential executive material, but, then, she will be in a minority of one ! Sorry, two, I forgot you !

My catalogue is, by no means, exhaustive, I agree. This has, however, been made so—deliberately—so as to enable you to think up a few for yourself by personal introspection.

Let us proceed alphabetically after the worthy example of a School Attendance Register. Skipping over the A's and the B's and the C's, we naturally come to the D's. And what is this that stares me in the face. Actually, hits me in the eye, like an American tie ! (There's poetry for you.)

Discourtesy : What does this word mean ? *Rudeness, incivility.* Cardinal Newman, long ago, defined a gentleman as a person who does not offend any body. Further, you owe it to yourself to be pleasant to others. It is an insult to your intelligence that you should be referred to as a surly, ill-tempered person. This apart, the penalties are also formidable. If you are rude to your superiors, you are on the carpet and the boss tells you confidentially : " I admire your spirit ; I should like to give you an acccelerated increment, but I can't, because you are no longer working for this Corporation ! "

... You are on the carpet

If you are rude to customers, the chances again, are that you get it in the neck, because with all progressive firms an article of faith is : " The customer is ALWAYS right."

The only people now left to whom you can be rude are your associates and those lower than you in the administrative hierarchy. Go ahead, brother...Only remember that it would hurt their sense of form, if they did not have an eye for eye and a tooth for tooth !

Disloyalty : As this is a particularly serious crime, I wouldn't try to be funny. And don't you...either ! When a firm subscribes itself to its patrons as " yours faithfully," it means it, and without the loyal co-operation of its employees, such subscription would be a hollow mockery. Particularly, since the war ended, standards of loyalty have considerably fallen off, and man's faith in fellow-men is terribly shaken. It is up to every one of us to try to restore this faith—at least, so far as we are concerned. Disloyalty is not merely a crime against one's employer ; it is a crime against the whole of humanity.

Difficulties, Family : No body is interested in your—as the Stores Officer would put it. So cut the cackle and get to work.

Perseverance, lack of : He had really genius who defined it as 99 per cent. perspiration and one per cent. inspiration. A few " flashes in the pan " won't do. What is required is back-breaking, gruelling toil.

Slovenliness : The Oxford Dictionary has quite a few acid things to say about a 'sloven.' " *Personally untidy or dirty, careless and lazy or unmethodical person.*" When one attends office, one is expected to be reasonably tidy in dress and appearance. Polonius put it in a nut-shell when he advised his son : " Costly thy habit as thy purse can buy, but not expressed in fancy...For the apparel oft proclaims the man." In South India, a presentable appearance, so far as dress goes, is easily achieved, for our conventional costume is eminently simple.

...don't vault through a window.

Please, do not, also, allow the hair on your head to stand on end, like quills upon the fretful porcupine. And that facial fungus must be cleared ; there is no excuse for that !...And again, don't try to vault through a window if you can enter a room by a door ! Douglas Fairbanks might have made his pile that way, but you and I have to adopt the safe, normal courses.

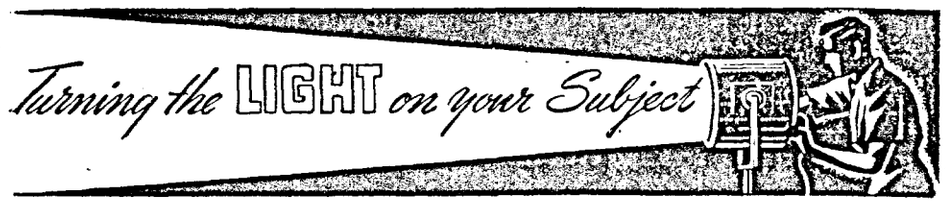
Sullenness: It is an ill-mind that blows no body any good. Unless you have committed a murder or about to commit one there is no earthly reason why you should look so glum.

Unreliability: Another vice which did not get any employee going...far. When you make a statement, be quite sure, therefore, that you can quote chapter, verse and line.

I have nearly reached the end of my uninvited lecture, but it has been done in good faith. Take it or leave it. But if you left it, you would probably be doing what only employers are at present earnestly urged to do—namely, **notifying the nearest employment exchange!**

.....''I was very pleased to receive a copy of your first issue of ELECTOLITE. It is certainly a very fine issue and should do much to encourage all the personnel engaged with your company to make electricity even more popular than it is at present. I should like to receive copies of future issues and in return I propose to send to you copies of our new magazine CONTACT.''

J. McMinn,
Chief Administrative Officer,
Electricity Dept., Liverpool, England.



Q. I am running a rice and flour mill with a 20 HP. motor. The iron-clad switch which contains the fuses gets excessively heated even when the motor runs only for a very short period, and I have to stop the motor. Will you let me know how this can be rectified?

A. First of all, you should check up whether the switch is of adequate size. A 20 HP. motor on full load will draw about 30 amperes. The iron-clad switch should be rated for 60 amperes.

The fuses should be wired properly, and the fuse wires should be well secured to the screws provided, on the carriers. Loose contacts invariably result in excessive heating of the fuses.

Similarly, the contacts of the carrier and the fuse base must be periodically cleaned and slightly vaselined, so that the contacts may engage properly, and are clean. Dirt on the contacts develops high resistance and will cause heating—which may ultimately result in damage to the porcelain fuse carriers.

You will, also, do well to obtain a check-up on your installation once in two or three months—by an electrician. He will clean the motor and switches, rectify the wiring and put right the earth connections, if necessary, thereby, ensuring safety to your equipment and also to your personnel. Any progressive supply undertaking offers such service to its power consumers.

Q. In my house, I have at present 12 electric lights (average 40 watt lamps) and two ceiling fans. As water supply from the public mains is inadequate, I would like to go in for a domestic pump for gardening and other general purposes. I would also like to use a few electric appliances for cooking purposes. May I have your advice on the equipment that I should buy, on the tariff for such equipment and on the over-all economies of going in for electricity for all these purposes?

A. I am glad that you are becoming more and more electrically minded. Although lights and fans are taken for granted almost in any house other equipment is still placed under the luxury class. Actually, this is not so, as I shall try to explain here.

If you have a small garden, a single phase ½ HP. pumping set either of the automatic type with a pressure distribution system or one with an overhead storage tank will be a great help in your gardening activity. Plenty of water will

be available for ordinary domestic purposes. A domestic pump is certainly not an article of luxury at all. Rather, it is a desperate necessity almost in every home. Town water supply is available only in the more important places and even then supply, as you have pointed out, is not plentiful. It would be an un-social act for one to draw on public supply for anything except very essential needs like cooking, drinking, etc.

Other items which one can profitably have in the home are (1) an electric iron (2) a small kettle (3) an electric hot water boiler and (4) a covered hot plate of 1500 watts. With these, a small family of four to six members can run the home without any domestic help and ordinary fuel.

With an electric iron most of the washing and laundering of a home can be taken care of.

The electric kettle gives you boiling water at short notice for making coffee and tea—the cup that cheers, but never inebriates !

The hot water boiler—built out of a four gallon copper cylinder with a 1 kW or 1.5 kW two—heat, tubular heater gives us, in a matter of minutes, enough hot water for bathing the whole family.

The covered hot plate of 1.5 kW. capacity will cook a regular meal in half-an-hour's time. For this purpose a cooker (the *Annapurna* or *Icmic*-type) made with a perfectly flat bottom, will come in quite handy.

Equipped thus, you can give your contumacious cook the usual month's notice !

Now, about tariffs: Supply undertakings generally offer two types of tariffs (1) a separate tariff for lights and fans—about 4 annas per unit and a tariff for all domestic equipment, at about an anna per unit. This tariff will require separate circuits for these two classes of loads, and separate minima will be demanded. The second is an "all electric" or "all-in" tariff which will permit a common wiring circuit for lights, fans and equipment. Under this a small block of units consumed every month will be priced at a high price about 4 as. and all the extra units consumed at a low price, about 1 anna.

I would recommend the second tariff as this should save you in wiring costs, and also leaves you the option of using your fans during nights. As you know summer nights in these parts, can be perfectly horrible ! The Supply Company offers you this tariff with a view to encouraging you to use more electricity for domestic purposes.

I should, perhaps, add that in getting proper equipment and in arranging for installation you should engage a good contractor. By the installation of good equipment and by careful wiring, safety can be ensured. —*H. K. R.*

Current Topics

Rural Electrification: Having in mind the magnitude of the problems involved in complete rural electrification in the country, the Central Electricity Commission has recommended that, for the present, such schemes should be considered only for a few selected areas. It is estimated that complete rural electrification in India would mean the laying of 400,000 miles of secondary and low voltage lines, the training of two to three thousand engineers besides a large force of technical and skilled labour, and would involve an expenditure of 700 crores of rupees.

Generator Factory for India: It is learnt that the Government of India has commissioned the Associated Electrical Industries Ltd., of Britain, and the International General Electric Co., of America, each, to prepare a project report on the establishment of a factory for manufacturing electric power generating machinery. The factory, which will be State-owned, would cost about £15 millions, it is estimated. The reports should be ready in about six months' time. One of the conditions of preparing the report appears to be that the firm should undertake to carry out the subsequent works on terms, not less favourable than those now quoted, if Government decides to appoint them. The question of royalty will be settled later.

India's Power resources: It has been estimated that the major hydro-electric projects now actually under construction or in advanced stages of planning in India, will, when completed, add more than 14 million kW of power to the present supply. The total installed capacity of hydro-electric works in the country is now about five million kW representing roughly 1·5 per cent of the country's power potential. On completion of these projects, India's resources of developed water-power will probably rank as the third largest in the world, being next only to those of the U. S. A. and the U. S. S. R. Total water-power potential in India is estimated at 40 million kW.

Radio Sets Manufacture: The manufacture of 50,000 low-priced and 20,000 higher-priced radio sets in India during 1949 is recommended in a report being considered by the Industries Advisory Council, in New Delhi. Targets for 1950 are put at 85,000 and 25,000 sets, respectively, and for 1951, approximately 120,000 and 30,000 sets. A development committee has suggested that components and other raw materials required for the assembly of radio sets should be allowed to be imported duty-free, but the Government should not allow the indiscriminate growth of mush-room companies to make such sets.

Manufacture of Generators • Radios - "Made in India" • Amenities for rural areas •

Replying to a question in the Indian Parliament on Feb. 18, Dr. Shyamaprasad Mookerjee, Minister of Industry and Supply, said that Government was negotiating with four foreign concerns on the establishment in India of a state-owned factory for the manufacture of wireless and radar equipment. The Companies are: Standard Telephones & Cables Ltd., London, Marconi's Wireless Telegraph Co., the Radio Corporation of America, and the *Compagnie Gènèral Telègraphie sans Fil*, Paris. It was hoped to enter into an agreement in the next three or four weeks with one or more firms, he added. The reports would deal among other things with facilities necessary for the proper location, factory capital cost, raw materials required and cost of production.

Production of electrical equipment: An Advisory Committee set up by Government to investigate the development of the electrical equipment industry has suggested production targets which would make the country virtually self-sufficient in various types of A. C. motors and generators from 1956 onwards. The panel's estimates of requirements, and its production targets are given in the accompanying table. It has been suggested that first priority be given to the manufacture of heavy electrical equipment.

Equipment	Annual Demand 1949/54	Annual Production 1949/51	Annual Production 1951/56
A. C. 3-ph. slipring motors	4,500	1,000	2,000
A. C. Fr. h. p. motors	18,000	3,000	7,000
A. C. 3-ph. squirrel cage motors :	75,000	35,000	75,000
Motor starters	60,000	40,000	60,000
Generators	4,000	1,000	2,000

Revised arrangement between Bombay and Mysore: An Agreement was finalised recently for a bulk supply of approximately 11,500 kW from the Jog and Harihar power stations in Mysore State to the Bombay Province. Under an earlier agreement between the two governments, Bombay was entitled to obtain only 3,750 kW. Dr. M. D. D. Gilder, Minister for Public Works, Bombay, has made it clear, however, that three to four years must elapse before a supply is available to Hubli, and other areas in the Province, for some 100 miles of transmission lines have to be erected. Meanwhile, the survey of the Kali river project in Kanara district is now in progress. It has been estimated that this project, which will take six to eight years to execute, would yield an output of 350,000 kW.

Provincial Electricity Board: The constitution of a Provincial Electricity Board formed the subject of an interpellation in the Legislative Assembly on March 23.

Mr. M. Bhakthavatsalam, Minister for Public Works, answering Mr. S. Mohamed Ismail, stated that the Government of India had asked the Madras Government to constitute a Provincial Electricity Board under the Electricity (Supply) Act, 1948. The matter was under the consideration of the Government.

MR. ABDUL MAJID: Is it not a fact that the unilateral policy employed in the constitution of the Provincial Electricity Board will affect the progress of electricity development in the Province ?

MR. BHAKTAVATSALAM: There is much force in the point made by the member.

Electrical facilities for rural areas: In pursuance of the policy of providing electrical facilities in rural areas for agricultural purposes, the Government of Madras, have sanctioned a loan of Rs. 8,26,700 to the South Madras Electric Supply Corporation, Tiruchirapalli, for the construction of new transmission and distribution lines in rural areas. The loan is to be repaid in 15 annual instalments with interest. The following villages are to benefit from the loan scheme.

Sittalavai
Kottathur
Neduvalur
Kirambur
Vadasseri
Vedaranyam
Edumalai
and Palayur

Strictly Personnel

Sarvodhaya Day:—Sarvodhaya Day was observed by the staff of the South Madras Electric Supply Corporation Ltd., on Sunday Jan. 30, 1949 at 8 A. M. A meeting was held at the Association Hall with Mr. G. Varadarajan, President, District Congress Committee in the chair. A special souvenir containing a tri-colour photo of Gandhiji and a poem on him by Swami Sudhananda Barathi was distributed to those present.

In the course of his introductory remarks, Mr. K. K. Raman, Director, observed that Gandhiji was throughout his life wedded to the twin ideologies of truth and non-violence and that the best memorial they could put up to him was to eschew in their own daily living violence both in word and deed.

Mr. N. Halasyam, B.A., B.L., Advocate, and a prominent local congressman who next addressed the gathering dwelt at some length on the life and teachings of Mahatma Gandhi. An active participant, himself, in all the various civil disobedience movements launched by Gandhiji, Mr. Halasyam had cheerfully sacrificed both his health—and a lucrative practice at the bar, on Freedom's altar.

Small wonder, therefore, he spoke with feeling and small wonder, again, staff listened to him in so rapt a silence that one could have heard a pin drop or even an infinitive split !

Mr. Halasyam was followed by Kothamangalam Subbu, the matinee idol of South Indian movie fans. Subbu read quite a large number of excerpts from his justly celebrated, "Gandhi Story." A deeply moving epic, Subbu's opus had strong men weeping—including the author—down whose cheeks could be seen tears copiously streaming. As he came to that part of the story—dealing with Rajaji's contribution to the National Struggle, his hand spontaneously went up to the portrait on the wall—and judging by the lusty cheering that greeted this unchartered gesture, it was obvious that each one of the audience present was vicariously enjoying the the thrill of being the Governor-General of India ! Credit for the success of the function largely goes to the organisers Messrs J. Gopalan and V. Ramaswamy.

R. Seshasayee Memorial Day:—Yet another solemn anniversary occurred during this quarter. On Feb. 11, fifteen years ago, Mr. R. Seshasayee, Senior Partner of the firm of Seshasayee Brothers Ltd., met with his death in an air-plane accident. "Senior" as he was endearingly known to his staff, received his technical training in the United States of America—in days when foreign travel—leave alone training—was not the popular thing that it is to-day.

Mr. R. Seshasayee brilliantly applied his knowledge to the service of the public in this presidency. At first opportunity to use his wonderful technical ability and managerial skill seemed lacking but this period of comparative inactivity was only a passing phase, and when the time came for the installation of electricity, in this town, the man was ready.

R. SESHASAYEE

Mr. R. Seshasayee had a great deal of pioneer work to do in the way of explaining to people how they would all be benefited not only by being able to purchase electricity at a reasonable rate but by having a safe and profitable investment for any funds that they might be having.

Much water has flowed under the Cauvery bridge since those distant days but the high standard of work that Mr. R. Seshasayee then set, still remains for us the standard—to measure up our own humble effort.

Obituary: Death dealt with our staff rather cruelly during this quarter — the toll paid being as many as five lives.

1. Mr. M. Sengulathan, Lineman.
2. ,, V. K. Balasubramanian, Clerk, Stores.
3. ,, M. Pichai, Lineman.
4. ,, V. Pichai, Asst. Lineman.
5. ,, Chenni Naicken, Asst. Lineman.

At a condolence meeting held for the purpose, Mr. K. K. Raman spoke feelingly—touching the deaths of these members of our staff. We tender our heart-felt condolences to the bereaved families.

Canteen: To turn now to less solemn matters: Since we wrote last about the Canteen, a veritable storm has brewed in a tea-cup, or more correctly, coffee-cup. One not-so-gentle reader wrote to say that the praises of Canteen coffee had been sung too high, and too hoarsely, and that we did not know our onions. For good measure, the gentleman added that coffee as we got it at the Canteen or what passed for it, there, was nothing much to write home lyrically about. Indeed, the Stores Officer, if ever he noticed a shortage in his stocks of transformer oil could always make a safe guess...and so on and so forth.

We now realise that we last wrote rather in an Omar Khayyam-vein. Short of stating, "A book of Verse,

a cup of Canteen coffee, and thou beside me, Wilderness is Paradise enow," we suppose, we said everything else.

Even now, we do not think that Canteen coffee is really as bad as it is made (out) to be, but still...it is not as good as we said it was, in the last issue.

Thank you all, readers: And that brings us to this Journal itself. Bouquets have been tossed at us so airily and so affectionately from every corner of the globe that it is practically impossible for us to acknowledge them all in suitable terms. We will simply say: "Thank you ever so much, gentlemen. The very best is hardly good enough for you. In the years ahead we mean to do even better."

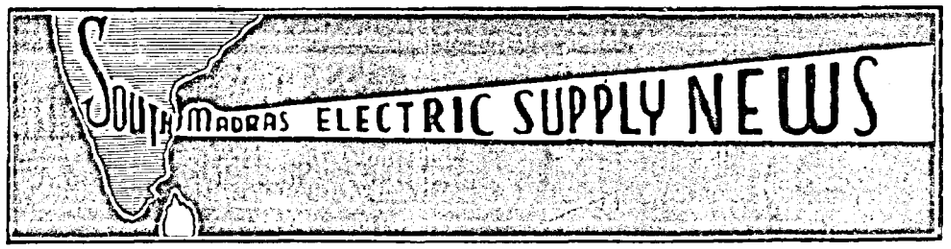
With the bouquets were one or two brick-bats. One reader was rather bitter about our IN MEMORIAM ode. The caption had been wrongly spelt, he complained. Neither do we ourselves much fancy originality in orthography—notwithstanding Bernard Shaw and the Spelling Reform School. It was one of those obvious little slips—overlooked, "in the sick hurry" of the composing room. Another criticized that 'at least' had been spelt as one word and not as two words. To this our neat rejoinder was: "At least' is one word unlike 'Im-possible' — which is two words!" Our authority: Sam Goldwyn. That silenced him!

To get a bit of our own back on all such captious critics, we beg leave to print the following poem—coming to us from *The Writers' Studio* via *Indian Print & Paper*:

The typographical error is a slippery
thing and shy
You can hunt till you are dizzy, but
somehow will get by.
Till the formes are off the presses it is
strange how still it keeps;
It shrinks down in a corner and it
never stirs or peeps,
The typographical error, too small for
human eyes,
Till the ink is on the paper, when it
swells to mountain size.
The boss stares hard with horror, then
grabs his hair and groans;
The copy reader drops his head upon
his hands and moans—
The remainder of the issue may be
clean as clean can be,
But the typographical error is the only
thing you see!

—R. P.

Pardon us: Because of pressure on space, it has not been possible to include, in this issue, the statistics relating to rural development, in the Presidency. We hope to publish these statistics in the next issue. —**Ed.**



(A) TIRUCHI-SRIRANGAM AREA

Vishnampettai: (Tanjore Tq.) This village is about 1½ miles from Tirukkattupalli, and has been served by an extention of 22 kV lines from the Dalmia South feeder.

Supply has been effected through a 25 kVA transformer sub-station.

Forty lighting services and 15 st. lights have been connected so far and further houses are being wired up.

A rice mill driven by a 15 HP. motor is ready to take supply, but due to Mettur Low Water restrictions, supply has not yet been effected.

The scheme materialised expeditiously on account of the keen enthusiasm of the Hon. President of the Panchayat Board, Sri V. S. Narayanaswami Iyer. After his retirement from Government service (Agricultural Dept.) he has been ceaselessly working for getting various amenities to his village.

The village largely owes its present good roads to Sri Narayanaswami Iyer's noble effort.

A pleasant function was got up by the Panchayat Board on Jan. 21, 49, and lights were formally switched on by Mr. H. C. M. McLaughlin, Collector of Tanjore. There was a small tea party.

The village has a population of 1,784.

Katchamangalam: (Tanjore Tq.) This village is five miles from Tirukattupalli. Supply was given to a rice mill by a 25 kVA transformer, tapped off the Dalmia South feeder (22 kV) on Jan. 31. A rich rice mill centre, it is expected that with the inauguration of supply to the mill, lighting of the houses in the village too will, quickly, follow.

Pillapalayam: (B Station) (Kulitalai Tq.) The scheme here was to bring into cultivation lands lying adjacent to the High Level Channel, but not irrigated by the canal system — on account of the elevation. Government have permitted local ryots to draw water from the canal by pumps and to bring the lands under the plough.

Pillapalayam (A) Station which was brought into use some six months back provides supply for 65 HP. of pumps

and irrigates 300 acres of land. Pudupatti sub-station also in the area supplies power for 20 HP. of pumps and feeds about 50 acres of land. The present B sub-station which was brought into use on Feb. 23, is for supply of power to 45 HP. of pumps, and feeds about 200 acres.

The lands, in this area, are very fertile and have remained barren so far, for want of water facilities. With electricity, now made available for pumping, it is expected that further and larger blocks of land will be cultivated, mainly for growing paddy, sugar cane and maize.

The success of these schemes is chiefly due to the indefatigable energy of Sri R. Rajagopalan of Kulitalai — who owns 200 acres of land and receives supply for his lands from the A sub-station. He had to carry on prolonged negotiations for getting his permission to draw water from the canal, and for electric supply—at a time when construction meterials were extremely difficult to obtain.

Keeranur: (Pudukottai) This viliage, situate about 15 miles from Tiruchi, on the Tiruchi-Pudukottah 22 kV feeder is the principal township on the route. Marketting centre for villages miles round, it does a thriving trade in rice and oil seeds.

Supply was effected to the village on Feb. 26, and 500 lighting consumers have so far been connected. About 100 st. lights are expected to be put up. Delay is due to administrative changes brought about by Integration. The Panchayat Board are having a pretty thin time of it—between the Pudukottai administration and the Local Boards Department of Madras.

About 200 HP. of mills — rice miils and oil expellers are ready to take supply, but have not received it so far, on account of the present Mettur Low Water restrictions.

(B) EAST TANJORE AREA

Keelakurichi: (Pattukottai Tq.) Supply was given on Feb. 2, 1949, for a rice mill by a 25 kVA transformer sub-station tapped off the Mannargudi-Pattukottai feeder.

* * *

Improvements to System — To rectify voltage troubles and to cater to the growing loads on the system, additional sub-stations were provided at (1) Sengiliandapuram in the Tiruchi municipal area and at (2) Dharmapuram in the Mayavaram municipal area. The former is a 75 kVA sub-station, but designed to be changed to 250 kVA for meeting industrial loads—as the area has been declared to be an industrial one within the Tiruchi municipal limits. The latter is a 30 kVA station and takes care of the supply to Dharmapuram Mutt, and the neighbouring zones of the Mayavaram municipality — where the voltage needed rectification.

(C) SUPPLY TO S. I. R.

Stations of the S. I. Rly. that were recently connected to our system are :

(1) Jeeyapuram (near Tiruchi on Tiruchi-Erode line). (2) Koradacheri (Tanjore Dt. on the Tanjore-Negapatam line). (3) Kuttalam (near Mayavaram on the Tiruchi-Madras Main line) and (4) Coleroon (near Shiyali on the Tiruchi—Madras Main line).

This is a part of the over-all scheme of the Railway to provide electric lighting for all its stations.

(D) GENERAL

During the period from Jan. 1, 1949 to March 31, 1949, 963 consumers were connected to our mains—bringing the total up to 30,778.

But for the acute shortage of materials and restrictions necessitated by lack of transformer capacity, we should have done far better.

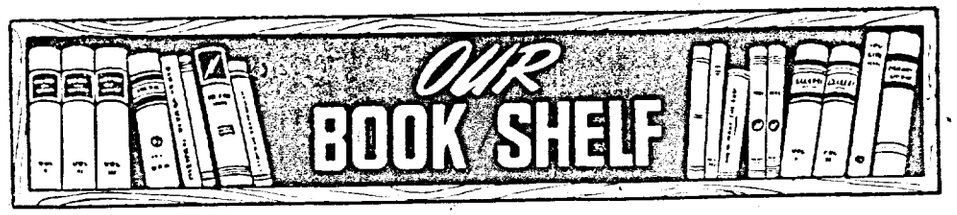
Power Restrictions: We have again to face power restrictions due to the present low water position at Mettur. At the time of compiling these notes, water level in the lake is only 44·25 ft. despite a few showers, which brought in a small flow—raising the level by two ft. during the course of the past few days.

All new power connections have had to be asked to be stopped. Existing power loads, excepting key industries like cement, have been ordered to be worked on alternate days so that the maximum demand on the System may be appreciably brought down. Consumption has also been restricted—so as to give us a 25 per cent over-all cut.

This regrettable state of affairs has been a regular feature for three years now, in succession. It is hoped that the situation will improve only by 1952—when the new station at Moyar will be put into commission—as also a new steam station at Madura, with the necessary inter-connecting transmission lines.

Meanwhile, consumers served by the Madras Hydro-Electricity System, either directly or through licensees will have to put up with the inconvenience of having to work to restricted hours. The Electricity Department are doing their best to resolve the situation as quickly as possible, despite the severe handicaps from which they suffer—like delay in the delivery of plant and machinery from abroad, shortage of construction materials, etc. Consumers who are already on the mains can greatly assist both the Department and the Licensees by reducing the use of electricity to the barest minimum, and those who are ready with installations and intend taking supply will have to bear with us for another year and a half or more with the inconvenience of restrictions on supply. Lighting and agricultural supplies will naturally receive the highest priority, and will not be subject to the same severe restrictions we have regretfully to impose on other supplies.

—H. K. R.



DAMODAR VALLEY PROJECT : [(Modern India series 6) issued by the Publications Division, Ministry of Information and Broadcasting, Government of India, Delhi,—Price Rs. 1/8/0]

THIS book is about a mighty river, the Damodar, and the valley formed by it...and how the project now well under way, will refashion the economic life of this valley and transform its people.

The object of a multi-purpose project, as the opening paragraph of the book beautifully puts it, is " to banish famine, abolish poverty, modernise agriculture and set up new industries", fulfilling thus the expectation of a higher standard of living on the part of the masses in the brave, new India of to-day.

Rich, as this country is, in its potentialities of water-power, mineral resources, and cultivable land, these have not, however, been exploited to the full. It is significant that only a half-a-per cent. of the water-power available in India has, so far, been harnessed—although even at that, India leads other Asian countries! Further comment on the back-ward economy of the Asian continent, as a whole, appears superfluous.

To go back to the Project : this is one of the first multi-purpose projects to be investigated and formulated by the CWINC and CEC—the two central organisations—set up by Government for the co-ordinated planning and development of the power-resources of India, and for solving the problems of her turbulent rivers.

The Damodar Valley Project is patterned on the TVA. What happened in the Tennessee valley is, sure, to happen here. A wandering and inconstant river was changed, there, into a chain of broad and lovely lakes. Waters once destructive now create electric energy to lighten life's loads. Fields once barren are now vigorous with a new fertility. Numerous industries, big and small, fertiliser plants, metal works, etc., which largely depend upon cheap power have sprung up. What has been possible in the Tennessee valley is possible, in any valley, where a river runs from the hills to the sea.

The TVA transcends the political boundaries of seven states, and is an

independent public corporation, solely responsible to the federal Government.

The Damodar Valley Corporation is set up on similar lines. The River Damodar rises in the hills of Chota Nagpur, and passes through the provinces of Bihar and Bengal to the sea, at Hooghly. The river and its tributaries have been doing great havoc, receiving as they do, over a short period, a very heavy rainfall. Appropriately enough has the Damodar been called, " The River of Sorrows ". The valley is rich in mineral and forest wealth, and the soil is fertile—although much eroded by the ravages of the floods of the river. The project is to control this river and its tributaries by dams at various sites like Maithon on the river Barakar, and near Panchet Hill on the Damodar. Future plans provide for dams at Aiyar, Balpahari and Tilaiya. The area submerged by the storage due to the dams will be 175 square miles, but an area of 9780 square miles will receive the benefits of such stored waters. Rehabilitation of displaced persons from submerged areas calls for the planning of model towns and villages with the attendant problems of sanitation and water supply. The main benefits of the scheme will be flood control, navigational facilities, provision of cheap transport for the rich mineral and coal fields, and abundance of electric power—both hydro and thermal.

The Project envisages the most rapid industrialisation of the area. It is expected to take ten years to be completed—with an expenditure of five to six crores of rupees per year during the period. When the scheme materialises the brown rugged hills of Chota Nagpur will be neatly terraced hill-sides covered with vegetation and young trees. The marshy and malarious tracts of the lower Damodar valley will give place to green productive fields. New life is promised to the vast rural population and the Adibasis of the area will have modern amenities, never before known to them.

The DVC has been formed, and works are well on hand. Everyone in India is looking forward, with the keenest interest, to its early completion.

To adopt here what *Power* magazine said of **TVA—Democracy on the march** by **David E. Lilienthal** :

> " It shows what can be done by men of goodwill, utilizing the resources of science and of the locality to rehabilitate conditions."

Printed on art paper and lavishly illustrated **Damodar Valley Project** is a book which makes very interesting reading, indeed.

—R. P.

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OVERHEAD ELECTRICAL WOOD POLE STRUCTURES IN INDIA—by Dr. S. Kamesam (Published by the Author, 4, Miller Road, Bangalore, Price Rs. 2/8)

The author will, probably, be the first to admit that he is biased in favour of wood poles. This is but to be expected

of one, who was formerly the Timber Development Officer of the Government of India. Little wonder, therefore, the book lacks in objectivity and dispassionate treatment.

The several advantages that the author mentions for wood poles, such as, for instance, (1) low initial costs with a life expectancy of 25 to 30 years for treated poles (2) better elasticity (3) higher electrical resistance (4) easy erection (5) low erection costs (6) low maintenance costs and (7) better scrap value are either not unfortunately borne out in actual experience or are offset by other factors.

There can, however, be no two opinions for evolving a suitable substitute for steel, and for a proper study of the uses of wood with this end in view, but there can be—on how far one should go.

As the author records in this book, the results of a long, patient and painstaking research, it should give engineers much valuable food for thought.

—H. K. R.

LABOUR LAW JOURNAL

As an instrument for educating the public, on current problems of Labour and Capital, LABOUR LAW JOURNAL is a welcome addition to the ranks of South Indian Journalism.

Ever since the war ended, relations between Labour and Capital have not been as cordial as one would wish these to be. During recent years, strikes and lock-outs have been frequent and unhappy features, and their elimination pre-supposes, on the part of both Labour and Capital—a proper appreciation of their respective rights and duties.

This journal, therefore, bids fair to be of service in resolving industrial disputes by conciliation or arbitration.

To the busy lawyer, in particular, it should prove to be a mine of information—judging by the contents of the first number.

The editor will do well to include a Tamil section of the journal. This reviewer would also suggest that he devoted some space in its colums for educating Labour into a more lively appreciation of its duties along with its rights. Edited and published by Mr. R. Venkatraman, its annual subscription for 1949 is stated to be Rs. 15 and for the subsequent years—Rs. 20. Address: 1/174 Royapettah High Rd., Madras.

—N. GOPALAKRISHNA IYER, B.A., B.L

Mr. R. SRINIVASA IYER

As we go to Press, we have learnt with regret, the news of the sad demise of Mr. R. SRINIVASA IYER, one of our directors, at the General Hospital, Madras, on Tuesday, April 12.

At a representative and largely-attended condolence meeting held at the Association Hall, on Thursday, April 21, with Rao Saheb K. E. Chidambara Iyer, Chairman of the Board, presiding, Dr. T. S. Balasubramania Iyer, Seth Moolji Ramji and Mr. K. K. Raman spoke eulogising the services rendered by Mr. Srinivasa Iyer to the Corporation.

We respectfully extend our deepest sympathies to the members of the bereaved family.

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