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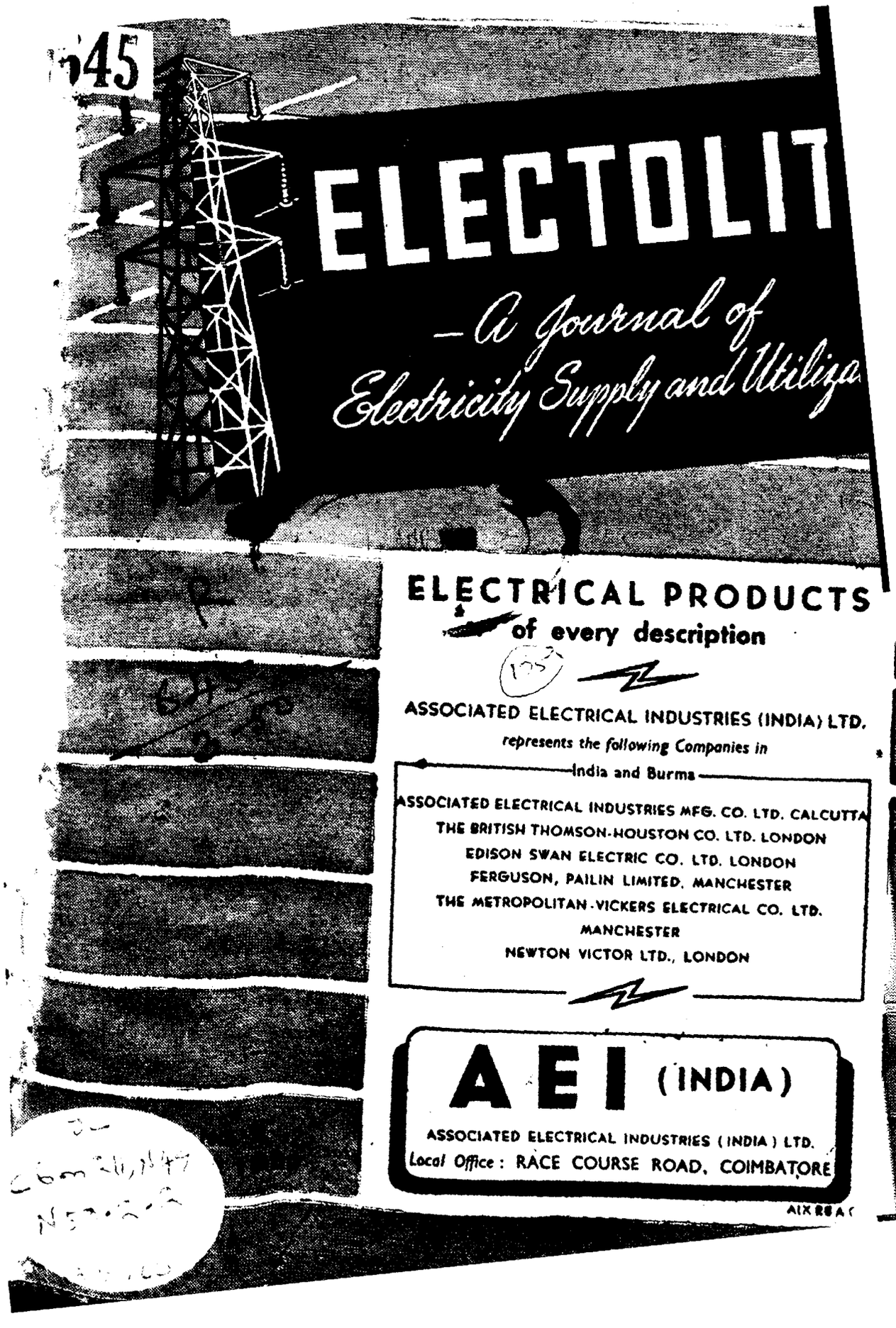
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EDITOR : R. PARTHASARATHY

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POWERLESS TO HELP

FOR four years, now, during each summer, consumers served by the Mettur, the Papanasam and the Pykara Electric Systems have had to put up with power cuts. For their forbearance and co-operation we would, first, tender grateful thanks.

We have said it before, but it will perhaps bear repetition, when we say it again that it is no pleasure to the department to impose these periodical cuts on consumers, nor to us who have to see to their enforcement. We fully realise the desperate need for power, but we are—literally—powerless.

In previous years, only industrial loads were the ones to be affected most—these being asked to work either on alternate days or during certain periods with pre-determined weekly quotas. But this year, storages in the three reservoirs serving our areas reached such low levels as even street lighting and new domestic connections have had to come within the compass of cuts.

Again "notice" came pretty early this year. In the past, the first intimation of restriction of power supply would arrive around mid-January, but this year, such intimation came, on December 24, almost a month in advance.

Elsewhere in this issue is given a brief *resume* of cuts that have had to be imposed from time to time; so we will touch here only on one or two points, not referred to there.

Situation became so critical early in May that applications for new service connections had reluctantly to be turned

down, and as we go to Press, comes in a news item to the effect that 'in view of the further fall of water level in the river Cauvery, it may become necessary to impose a cut of cent per cent on all industrial loads from June 1, if there is no improvement in the water position.'

It is most unfortunate if, perhaps, inevitable that restrictions reach their highest point when summer is at its worst. Consumers are asked not to switch on fans, not to use their refrigerators, in fact, not to put electricity to all those uses which romantic pioneers had taught them to expect as basic parts of a normal pattern.

The human mind is a curious piece of mechanism; it can accept the failure of monsoons, but it can only half-grasp the consequent failure of electricity. It is dimly aware, of course, that if the flow of water in a river thins from a surging flood into an anaemic trickle, there will be some little shortage of power; but if failures are to be the recurring phenomena that they have come to be during recent years, faith in electricity itself begins to be shaken.

Schemes have been taken on hand to put up additional power plants at Pykara and Papanasam, to build a new hydro-station at Moyar and a new thermal station at Madura and to inter-link the hydro-electric area with the Madras power station, which itself is being expanded into a larger unit.

Delivery deadlines quoted by foreign firms are said to be distant, and there are other difficulties too, in getting plant from abroad. It would, therefore, be restrained optimism to hope that in about two years' time there would be enough plant in operation to enable us to meet seasonal shortages.

We are already having instances of millowners and other power users changing over to their own self-generating sets. Once confidence in the public supply of electricity is shattered, it will, indeed, be difficult to build up industrial loads again.

It is, therefore, necessary for Government to issue a Press Statement setting forth clearly what their schemes are, and what assurances they can give, with regard to the future supply position of electricity in the province.

It would not, perhaps, be out of place to suggest here that one quick way of resolving the present position will be to set up medium-seized diesel stations (5000 or 7500 kW) at load centres. Deliveries of diesel plant are said to be slightly easier, and we learn that if dollars can be made available, a sufficient number of such stations could be set up, in a year from now. Possibly, the next seasonal shortage (which according to forecasts is expected to be even more severe) could then easily be combated.

*BUDGETS *in* BUSINESS

By

R. Varadarajan

I have taken the subject of "BUDGETS" for discussion at today's meeting because it seems to me that the importance of a really well-formulated budget has not been fully realised. It may sound a trifle sweeping when I say that the chances of the failure of an enterprise will be extremely slender, were it only to be guided and controlled by a budget based on:

(1) Past Experience,
(2) Present Conditions, and
(3) Future Trends.

It is true that in several industries, executives prepare annually some sort of a statement of anticipated revenue and an estimate of the expenditure likely to be incurred, but to call this a budget, will be to use language rather loosely.

DEFINITIONS

Let me first attempt at a definition of the term "Budget". A budget may be defined as the systematic method of collecting information both from the past and the present, and in the light of the material so collected, formulating plans for the future, indicating also how plans have to be carried out. I have culled out from various well-known authors a few definitions which would perhaps help us in getting a clear picture of all the aspects of "budgetting."

According to one, "Budgetary Control is accounting in terms of the future. It means a careful planning of all functions of a business in advance."

"Budgetary control deals with the co-ordination of the several departments to the end that a well-formulated programme is to be made for the business as a whole," says another authority.

According to a third, "A Budgetary control system is a carefully worked-out financial plan including the procedure involved in its operations for co-ordinating the various divisions of the business for the ultimate purpose of earning a profit."

And lastly, this is what yet another authority says:

"In our practice we regard the purpose of the budget as one that will analyse

* Being a paper read at the Officers' Club by Mr. R. Varadarajan, Secretary, Seshasayee Brothers, Limited.

the situation, develop the course our business is to follow, and then assist management in controlling operations so that desired objectives are obtained or at least approximated."

ADVANTAGES

The advantages of a sound system of budgetary planning have been ably summarised by Ernst and Ernst.

(1) Budgetary control has a marked influence on the most economical use of working capital since it is planned to make the maximum use of plant facilities and current assets.

(2) It prevents waste since it regulates the spending of money for a definite purpose and in accordance with appropriations established by the executives of the business.

(3) It places definitely just where it belongs the responsibility for each function of business.

(4) It makes for co-ordination. It compels all departments of a business to co-operate in attaining the results fixed by the Budget.

(5) It presents in cold figures, the best judgement of executives committed to a definite business objective, thus guarding against undue optimism which often leads to over-expansion.

(6) It acts as a safety signal to management since it indicates the variance between estimates and the actual results attained. Thus it shows when to proceed cautiously, as well as when manufacturing and merchandising expansion, may be safely undertaken. It is an automatic check upon the judgments of executives—a check frequently revealing the losses in time to stop the waste.

(7) It is the most potent force in business for the conservation of the resources of business since it regulates the spending of money within the confines of the income.

(8) It is invaluable to Management in determining the effect of sales, production and financial policies.

(9) It compels Management to study its markets, products, methods and service, thus disclosing ways and means for strengthening and enlarging its business.

(10) It compels Management to study and to plan for the most economical use of labour, material and expense.

(11) It is the only means for predetermining when and to what extent financing will be necessary.

(12) It sets up a target to shoot and provides a gauge for measuring the accuracy of the shot. It is a test of the ability of the Management to make things happen in accordance with a well-ordered plan.

(13) Managements which have developed well-ordered budget plans and which operate accordingly find a greater favour with Bankers and the State.

(14) Managements fortify themselves with adequate accounting, cost accounting and financial records.

MORE ADVANTAGES

In addition to the above, I should like to mention a few more advantages :—

The establishment of budgetary control tends to instill in executives and their subordinates the habit of careful study, before a decision is taken.

There can be little doubt that variations in business profits result fully as much from changes in general economic conditions as from changes in competitive efficiency. They emphasize the importance of co-ordinating the plans of the business with the general trends of economic conditions. The failure of economists to come to an agreement on the causes of the business cycle and the frequent differences of opinion among business analysts as to future trends have tended to make executives sceptical regarding the whole matter of forecasting. The fact remains, however, that a business moves through periods of both activity and depression. Frequently there are advance signals of these movements as related to a particular business. These signals must be watched and the plans of the business must reflect courage or caution depending upon the expected trend of general business conditions.

Another important advantage of budgetting lies in the development of a balanced programme. Before the actual disposal of the available finance, it is well to give serious attention to the amount which can be profitably spent, where it is to come from, just how it should be spent and what results may reasonably be expected.

A certain portion of the funds must be directed towards equipment and inventions and a certain amount to sales promotion but these amounts should be kept in proper balance. No more should be produced than can profitably be sold and no sales programme should be developed beyond that needed for the planned production. Such a balance of factors directed towards a definite objective represents the ideal, and whilst it may not be achieved fully in practice, the closest approximation to its achievement is possible as a result of careful advance planning. Without such planning, stocks are likely to be out of all proportion to sales and production requirements and there is also the additional likelihood of an ineffective use of production facilities.

As plans are made and responsibilities delegated to executives, weaknesses in organisation will come to light. Where joint responsibilities are necessary, provision might be made in advance for an orderly procedure of joint action.

The unique feature of the Budget system is its universal applicability to all types of business big or small. While the basic plan of budgetting is applicable to all types and sizes of business concerned the method of application alone varies.

Individuals can well regulate their matters of personal finance by adopting a budget system and avoiding embarrassing situations.

ESSENTIAL CONDITIONS

For the successful operation of a budget in business the following five requirements are essential and should receive the prior consideration of executives:—

(1) *Satisfactory organisation*: While one of the advantages of budgetting is that it will reveal any weaknesses in organisation it must be borne in mind that a budget cannot be operated successfully until the company is properly organised.

(2) *Adequate accounting records*: To a considerable extent future plans must be guided by past experience. The accounting records must be sufficiently complete to past operations in all necessary relationships. It is not enough to know that sales costs and profits are *so much*. The records must reveal what goods were sold, to whom, when, how and where: what the costs were to make and to sell the goods, and the detailed components and the relationships of these costs, and what profits resulted from the several departments. It must be possible to determine from the records, the relationship of costs and results and the efficiency of individual, divisional and functional performance. Moreover current trends must be apparent both in operating and financial relationship.

(3) *Research*: Records of past experience are not enough. They must show not only what has been attempted and with what results—but also what might be done and with what probable results. What new products and services and what new methods of producing, selling and financing should be tried? The successful business must be guided by the spirit of research—the determination to do the old tasks better and to find new methods, products and services which will meet the needs and desires of consumers.

(4) *Definite responsibility for budgetting procedure*: Some one must be definitely in charge of the budgetting procedure. No function of the business is more important, yet none is more likely to be neglected. Usually the Chief Accounting Officer is the logical person to assume this responsibility as his purview extends to all departments of business and he is not barred by other functional responsibilities. Some companies place the responsibility with a planning committee of which the Chief Accounting Officer is the Chairman.

(5) *Support of Chief Executive*: No effective budgetting can be accomplished without the full support of the Chief Executive. The procedural part of the task can be delegated to the controller but the final executive force which is necessary to motivate the action must come from the chief executive. Intensive study, resulting decision, action and responsibility for results are not undertaken readily by most men. Unless the prod of executive force is applied, plans may not develop. Moreover if the chief executive himself is not willing to study the problems on hand and make the necessary decisions the machinery of budgetting will either stop entirely or will develop into an empty and fruitless formality.

Thank you,

THE ELECTRONIC DWARFS

by

DR. TREVOR I. WILLIAMS,
(*Deputy Editor of the Scientific Journal, "ENDEAVOUR"*)

ELECTRONIC devices—which means essentially containing some form of radio valves—have become so very widely used that but for constant improvements in design, they would have been defeated by their own weight. In the earliest day when radio concerned itself largely with simple communication between stations on land or in ships, compactness and weight were not of any great importance. To-day, when simple communication is only one of the many applications of radio, the situation is completely different.

Electronic devices are used in television, radar, hearing aids, fire and burglar alarms, for controlling industrial processes, in temperature controlling apparatus, and in many other ways in which compactness and lightness may be of paramount importance. Modern aircraft, for example, normally carry equipment requiring many hundreds of radio valves as well as other components. To make this equipment from components of conventional design would be impossible, for it would occupy far too much space and be so heavy as to seriously reduce an aircraft's range.

REDUCTIONS IN SIZE

Many of the new developments in electronics have been made possible only by constant reductions in the size and weight of radio components of all kinds. Radio valves in particular are now made far smaller than would have seemed possible even ten years ago. A British firm, for example, recently displayed in London a radio valve for hearing aids so tiny that three could fit inside a thimble and with filaments that are ten times finer than the average human hair.

Such tiny valves have other advantages than those of compactness and lightness. They are unexpectedly enough much more robust than their large counterparts. They will withstand shocks and vibrations which would immediately shatter valves of the ordinary type. They have the advantage, too, that as they consume much less current they require smaller batteries.

A recent exhibition in London, organised by the Radio and Electronic Component Manufacturers' Federation, provided an opportunity for manufacturers to display other components of all kinds, and of a size corresponding to that of modern miniature valves. A rotary switch, for example, which is probably the smallest ever made commercially has been operated more than a quarter million times under full load without its efficiency being impaired at all.

Another firm showed a potentiometer —a device for measuring electrical voltage—which also is probably the smallest commercial model of its kind in the world. It is intended primarily for deaf aids but has other applications. A corresponding reduction of size has been made in what are now called capacitors —though to the public they are still generally known as condensers.

MASS-PRODUCTION METHODS

The making of all these miniature pieces of radio equipment calls for much more than improvements in design. That is only the first stage; equally difficult is to translate the design into practice. This calls for both new manufacturing methods and new materials. Extraordinarily delicate methods have been developed for mass-producing very tiny porcelain insulators often of quite intricate design. The two greatest difficulties here are to ensure that the porcelain is absolutely uniform—for the slightest irregularity would spoil the finished product—and to make the exact allowance for the small change of volume which inevitably occurs when clay is fired.

Plastics of various kinds which are especially suitable for the mass-production of components of intricate shape are to-day widely used in the radio industry, especially for insulation purposes. Of particular importance, because of its quite exceptional insulating properties, is polythene, a British plastic which was first produced commercially on the very day war broke out and later proved indispensable for the manufacture of radar equipment Unfamiliar metals, such as tantalum and molybdenum, also play important parts in the manufacture of modern radio equipment.

RAPID GROWTH

The growth of the British radio component industry during the past five years has been extraordinary for during that time it has multiplied its output many times over. In 1945, exports which go to almost every country in the world amounted to about £ 1,000,000 (Rs. 1.33 crores). Last year they were worth nearly £ 6,000,000 (Rs. 7 98 crores) and this year they will probably be even more. If one includes made-up equipment as well, such as receivers, communication equipment, navigational aids and electronic industrial equipment, the total value of exports last year was well over £ 12,000,000 (Rs. 16 crores).

It is by no means rare for such industrial expansion, which creates employment for thousands, to follow new scientific discoveries and the history of science provides many other examples. When William Perkin discovered the first coal-tar dye just under a century ago he unwittingly laid the foundations of a world-wide chemical industry which now represents an expenditure of hundreds of millions of pounds. In the same way, Sir Ambrose Fleming's invention of the thermionic valve in 1904 created a completely new industry which has profoundly affected the history of the world.

Economy Loading of Generating Plant

Foundation on which to Build Up Load Dispatching Systems

By G OLDROYD*
A.M.I.E.E., A.M. Inst. F.

MANY attempts have been made to find a method whereby a total load can be allocated between individual generating sets, on a large supply system, so that maximum overall economy of operation will result at all load levels. The most favoured system in this country has been the principle of "base loading to maximum capacity rating," largely due to the simplicity with which it can be handled. On this basis the most economical machine at m.c.r, is first loaded to capacity, then the next best and so on, load being reduced in the reverse order. It is realized that the best economy of operation has not resulted from this method, as all generating plant is obviously not most economical when running at m.c.r.

In order to improve on the m.c.r. loading, method, base loading to the most economic rating was occasionally tried. This depends on loading the most economical set at e.r. to that rating, followed by the next best and so on, load being increased to m.c.r. in the same order. Analysis of this system shows that the most economical load allocation is not achieved at all load levels and, like the m c r. method, the system is the result of thinking in terms of individual machine economies rather than in terms of the economy of combined operation.

Attempts at a complete solution have usually been based on the direct use of the turbine, or overall turbine and boiler plant, input/output characteristics in the form of "Willans" or "Parsons" lines. Any method which employs input/output characteristics directly involves the participant in the calculation of every possible machine combination for every possible load, in order to select the correct combination for each load level. On a large system with a rapidly fluctuating load this is obviously out of the question. Machines have been designed to perform the necessary calculations, leaving the operator free to make his selection of the most economial combination. In practice such machines are usually unsatisfactory, as unless the operator tries every possible combination for a given load he can never be sure that he has the right one. It may be added that the possible plant combinations for one load level on a large system could run into hundreds of thousands. A machine to make all these calculations and deliver the right answer quickly and automatically would have to be of the nature of the "electronic brain."

* Assistant efficiency and test engineer, East Midlands Division. B.E.A.

It has been suggested that a trained operator with a rough knowledge of the relative economics of individual machines might be able to limit his selection by trying only a few combinations which he considered the most probable. It is extremely doubtful if such a "cut and try" process would warrant the construction of anything but the most simple machine and even then it is unlikely that the results obtained would be superior to those of either previous method.

Theory of Incremental Rates

Thus attempts to solve the problems involved by the direct use of input/output characteristics are generally foredoomed to failure unless special elaborate and costly calculating devices are employed.

The problem is, however, basically amenable to a simple solution and one does in fact exist in the "theory of incremental rates" which states that: "When certain machines have been selected and paralleled with a common load, the individual machine outputs, for minimum combined input, are given when the individual machines are operating at loads corresponding to equal incremental rates."

TABLE I.
M.c.r. Merit Order.

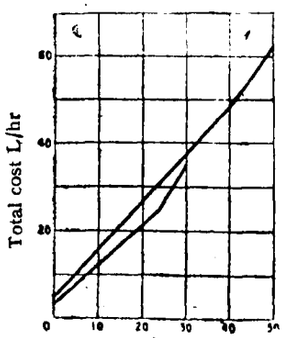
Machine	M.c.r. MW	M.c.r. Cost d/kWh.
A ...	30	0·280
B ...	50	0·298

The term "incremental rate" is defined as the rate of change of input with respect to output. The incremental rate curve of a machine is, therefore, the first derivate of the input/output curve. In the case of power station plant, incremental rates can best be established as constant values between turbine valve points, i.e., the input/output characteristics can be closely approximated by straight lines between turbine valve points.

Fig. 1 shows that the turbines involved have two steam supply valves on each machine, a main throttle valve and a by-pass valve which admits steam at stages lower down the turbine when the load reaches a certain level, in this case 24 MW on "A" machine and 40 MW on "B" machine.

Proof of the incremental rate theorem for any two machines in parallel operation is as follows: For any given value of combined output it is required to find the conditions under which the individual machine outputs are such that the combined input is always the minimum. Let I_T = combined input of the two machines, I_1 and I_2 = individual machine inputs, L_1 and L_2 = individual machine outputs and L_T = combined output.

Fig. 1.—Turbine cost characteristics, Lower curve, Machine "A"; Upper curve, Machine "B"



Turbine Load MW

I_T is the minimum when its first derivative with respect to L_1 becomes zero; that is:—

$$\frac{d\,I_T}{d\,L_1} = 0 \quad .. \quad .. \quad .. \quad (1)$$

$$I_T = I_1 + I_2 \quad .. \quad .. \quad .. \quad (2)$$

and $$L_T = L_1 + L_2 \quad .. \quad .. \quad .. \quad (3)$$

Therefore $$\frac{d\,I_T}{d\,L_1} = \frac{d\,I_1}{d\,L_1} + \frac{d\,I_2}{d\,L_1} = 0 \quad .. \quad (4)$$

Then $$\frac{d\,I_1}{d\,L_1} = -\frac{d\,I_2}{d\,L_1} \quad .. \quad .. \quad (5)$$

But $$\frac{d\,I_2}{d\,L_1} = \frac{d\,I_2}{d\,L_2} \times \frac{d\,L_2}{d\,L_1} \quad .. \quad .. \quad (6)$$

From (3) $$\frac{d\,L_2}{d\,L_1} = \frac{d\,L_t}{d\,L_1} - \frac{d\,L_1}{d\,L_1} \quad .. \quad (7)$$

But L_T is constant for any one load, therefore:—

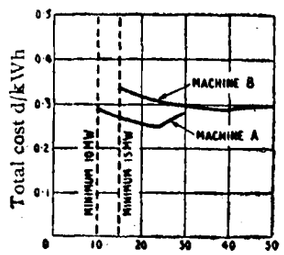
$$\frac{d\,L_2}{d\,L_1} = -1 \quad .. \quad .. \quad (8)$$

Substituting in (6) $$\frac{d\,I_2}{d\,L_1} = -\frac{d\,I_2}{d\,L_2} \quad .. \quad (9)$$

Substitute in (5) $$\frac{d\,I_1}{d\,L_1} = \frac{d\,I_2}{d\,L_2} \quad .. \quad (10)$$

From (10) it is seen that each side of the equation is, by definition, the incremental

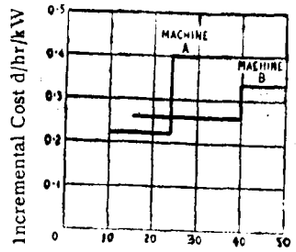
Fig. 2.– Turbine cost rates.



Turbine Load MW

rate of the respective machine. Therefore from the original assumption in (1) the conclusion drawn from (10) is that minimum combined input results when the two machines operate at equal incremental rates. This conclusion is valid for any number of machines.

In the case of the machines related to Fig. 3, the incremental rates are represented by a series of discontinuous horizontal straight lines, the extremities being joined merely to indicate that the two sections belong to the same machine. As the incremental rate curves are discontinuous, it is not possible to divide the load between them on the basis of equal incremental rates. This type of curve, however, considerably simplifies the problem, as it now only becomes necessary to load the machines in merit order on their incremental rates, that is, the machine with the lowest initial incremental rate takes all the load to the limit of that incremental rate range, then the next lowest machine and so on, load being reduced in the reverse order.



Turbine Load MW

Fig. 3—Turbine incremental cost rates of the two machines

Comparison of these incremental rate curves with the cost rate curves (Fig. 2) indicates the two methods of loading the machines. On a rapidly rising load, when both machines must be running in order to be warmed up for rapid load pick up, Fig. 2 curves indicate that machine "B"

should be held at minimum load, warming up, until machine "A" has been fully loaded to its m.c.r. of 30 MW. Loading of machine "B" should now commence and continue until it is fully loaded to 50 MW. The curves of Fig. 3 immediately show that if the machines are loaded on the incremental rate principle the above method is incorrect, and machine "A" should first be loaded to 24 MW holding machine, "B" at minimum load and, as load increases, machine "B" should be loaded fully to m.c.r. of 50 MW followed finally by machine "A" being loaded to 30 MW.

It must be emphasized here that an incremental rate schedule, as shown in Table II, gives no indication whatever of the sequence of adding to, or taking machines off, load. This must first be decided by inspection of the cost rate curves of Fig. 2 which show that, when loads are stable and are not liable to exceed the capacity of one machine, machine "A" should run in preference to machine "B". If the load exceeds the

TABLE II.

Incremental Rate Merit Order.

Machine	Load range	Incremental cost rate
	MW	d/hr./kW.
A ...	10—24	0·220
B ...	15—40	0·258
B ...	40—50	0·336
A ...	24—30	0·400

capacity of machine "A" the Tables show that it is preferable to run both machines loaded on the incremental rate principle, rather than run machine "B" alone, for example, at a total load of 40 MW the total cost/hr of machine "B" by itself is £ 48 (Rs. 672/-). Running two machines incrementally loaded, that is, from Table III, 16 MW on "B" and 24 MW on "A" the combined cost is £ 47·2, clearly indicating that two machines should be in operation.

Economy loading thus resolves itself into two entirely separate problems: (1) in what order shall machines be placed on, or taken off, load, and (2) when the order in (1) has been established, how shall the load be allocated between the running machines?

Problem (1) is solved from the cost curves as previously indicated and, when this has been done, one is at once committed to the no-load losses of the running machines; consequently the incremental rates will then prevail in deciding the individual machine loadings.

Tables I and II show the m.c.r. and incremental rate merit order schedules respectively, while Tables III, IV and V give a comparison of the various loading methods described, the results being illustrated graphically in Fig. 4. The considerable improvement effected by the incremental method of loading is clearly shown. Base loading to e.r. has not been shown in Fig. 4 for the sake of clarity, as this method corresponds with the incremental method between the load range 25 MW to 64 MW and then become the same as the m.c.r. method from

64 MW to 80 MW. Base loading to e.r. shows up rather favourably in this particular example, but this is purely fortuitous and is by no means invariably the case.

The example quoted is intended to indicate the broad principles involved in incremental loading, and does not take into account the many added complications inherent in any large power system, such as the various combinations of turbine and boiler plant occasioned by outages of equipment, security and spare running, circuit limitations, etc., to name but a few. With these added complications load scheduling becomes a very complex problem and is far beyond the scope of a single individual equipped with a slide rule. The only satisfactory method of dealing with the multiplicity of plant combinations and still be able to retain the basic principle of incremental loading with any degree of accuracy, depends on using punched card indexing methods as used in business accounting machines.

In conclusion it should be pointed out that the accuracy of any such system as the one envisaged depends entirely on the accuracy of the basic data for individual plant items; the first step towards the economy loading of generating plant therefore rests with the plant test engineers.

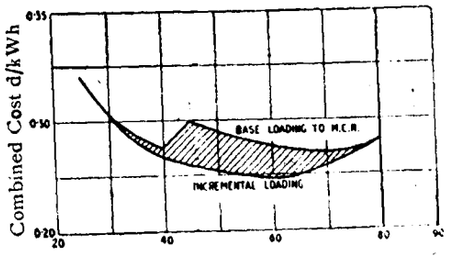


Fig. 4—Comparison of m.c.r and incremental cost rates showing the advantage of incremental loading.

TABLE III

Base Loading to M.c.r.

1	2	3	4	5	6	7	8	9
Machine "A"			Machine "B"			Combined		
Generation	Total cost	Cost per kWh	Generation	Total cost	Cost per kWh	Total load	Total cost	Cost per kWh
MW	£	d/kWh	MW	£	d/kWh	MW	£	d/kWh.
10	12 2	0 292	15	21·2	0·338	25	33·4	0.321
15	16.8	0.269	15	21·2	0.338	30	38.0	0.304
20	21.4	0.257	15	21.2	0.338	35	42.6	0.292
25	26 7	0.256	15	21.2	0 338	40	47.9	0.287
30	35 0	0.280	15	21.2	0.338	45	56.2	0.300
30	35.0	0.280	20	26 5	0.313	50	61.5	0.295
30	35.0	0 280	25	31.8	0.306	55	66.8	0.291
30	35 0	0.280	30	37.3	0,298	60	74.3	0.289
30	35 0	0.280	34	41 6	0.293	64	76.6	0.287
30	35 0	0.280	35	42.7	0 293	65	77.7	0.287
30	35.0	0 280	40	48.0	0.288	70	83.0	0.285
30	35.0	0 280	45	55 0	0.294	75	90 0	0.288
30	35 0	0.280	50	62.0	0.298	80	97.0	0 291

TABLE IV

Incremental Loading

1	2	3	4	5	6	7	8	9
MACHINE "A"			MACHINE "B"			COMBINED		
Genera-tion	Total Cost	Cost per kWh	Genera-tion	Total cost	Cost per kWh	Genera-tion	Total cost	Cost per kWh
MW	£	d/kWh	MW	£	d/kWh	MW	£	d/kWh
10	12.2	0. 92	15	21.2	0.338	25	33 4	0 321
15	16.8	0,269	15	21.2	0.338	30	38.0	0.304
20	21 4	0.257	15	21.2	0.338	35	42.6	0 292
24	25.0	0 250	16	22 2	0 333	40	47.2	0.283
24	25 0	0 250	21	27 6	0.315	45	52 6	0 281
24	25 0	0.250	26	32,9	0.304	50	57 9	0 278
24	25.0	0.250	31	38 3	0 296	55	63.3	0.276
24	25 0	0 250	36	43.6	0 291	60	68.6	0.274
24	25.0	0 250	40	48.0	0.288	61	73.0	0 274
24	25.0	0.250	41	49 5	0 289	65	74.4	0 275
24	25 0	0.250	46	56 4	0 294	70	81 4	9 279
25	26 7	0.256	50	62.0	0,298	75	88 7	0 281
30	35 0	0.280	50	62.0	0,298	80	97 0	0.291

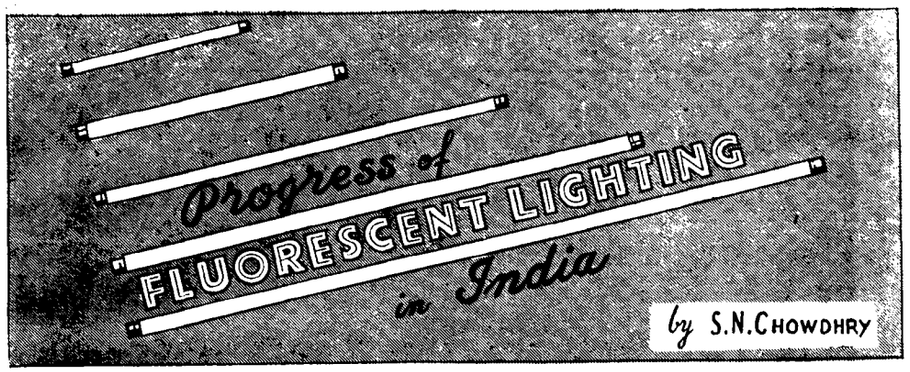
TABLE V

Base Loading to Economic Rating

1	2	3	4	5	6	7	8	9
MACHINE "A"			MACHINE "B"			COMBINED		
Genera-tion	Total cost	Cost per kWh	Genera-tion	Total cost	Cost per kWh	Genera-tion	Total cost	Cost per kWh
MW	£	d/kWh	MW	£	d/kWh	MW	£	d/kWh
10	12 2	0.292	15	21 2	0.338	25	33.4	0.321
15	16 8	0,269	15	21 2	0.338	30	38 0	0.304
20	21.4	0.257	15	21 2	0 338	35	42 6	0.292
24	25.0	0.250	16	22.2	0.333	40	47 2	0.283
24	25.0	0 250	21	27,6	0.315	45	52 6	0 281
24	25.0	0.250	26	32.9	0.304	50	57.9	0.278
24	25.0	0.250	31	38.3	0 296	55	63 3	0 276
24	25.0	0 250	36	43 6	0.291	60	68 6	0.274
24	25 0	0 250	40	48.0	0.288	64	73.0	0 274
25	26.7	0,256	40	48,0	0.288	65	74.7	0 276
30	35.0	0 280	40	48.0	0,288	70	83.0	0.285
30	35.0	0 280	45	55.0	0.294	75	90 0	0 288
30	35.0	0 280	50	62.0	0.298	80	97.0	0 291

(*Exclusive to* ELECTOLITE)

—By special arrangement with and through
the kind courtesy of ELECTRICAL REVIEW



TO obtain heat and light under controlled conditions is one of the oldest ambitions of man. It was understandable, therefore, when man eventually was able to produce light he was more interested in the light-source than in the illumination. The midnight candle had a special romantic appeal to the poet and the philosopher. The same instinct persists even to this day and accounts for the shopkeeper fixing a bright bar of Fluorescent lamp in the centre of his showcase, attracting attention *not to the contents of the showcase so much as to the lamp itself*

WAR AIDS PROGRESS

In 1938 Fluorescent lamps suitable for use directly off the domestic electrical service were offered to the American public. But it was not until the year 1946 that the Fluorescent lamp became available in Calcutta and other large cities of India. This delay of eight years was obviously due to the Second World War, which, apart from restricting civil trading, imposed black-outs in the most important cities. Black-out in the U.K. however, had an opposite effect on the use and development of Fluorescent lighting. The armament factories were forced to work at high efficiency for 24 hours for years together under artificial lighting conditions. The industrial application of artificial lighting, therefore, received very close attention. It was found that the morale and efficiency of the workers under these arduous conditions was sustained by the use of artificial lighting reproducing near-to natural lighting conditions. The Fluorescent lamp, a new development at that time, was able to reproduce the colour rendering properties of natural daylight at a much lower cost of electricity than was possible with the general service Tungsten filament lamps (bulbs). It was also found that the long tubular Fluorescent lamp gave results akin to natural daylight in that it produced very little shadow. Lamp factories in the U. K, therefore, developed and manufactured Fluorescent lamps during the war years solely as a means of aiding production

During early 1946 and thereafter, Fluorescent lamps and lamp auxiliaries were offered for sale from American Army Disposals in India, and Indian electrical business accorded extremely enthusiastic reception to this new form of lighting. This American equipment was, however, mostly suitable for 110 volts, 60 cycles A. C. whereas the large cities of India are provided, in some areas with 220 volts, D. C. supply, whilst 230 volts, 50 cycles is the standard for existing and future A C supplies.

The purchase cost of Fluorescent lighting was in excess of what people were accustomed to pay. But a demonstration in 1946 of an ordinary 80 watt Industrial Fluorescent lighting fitting in a large stationery shop, in an A. C area of Calcutta, attracted so many curious visitors that the stationer immediately decided to install this lighting. A few of the larger shops adopted Fluorescent lighting and in so doing considered they had achieved advanced individuality. At a later date Lighting equipment of more competitive character appeared on the market permitting more widespread use of this lighting until gradually even the smallest shop installed a Fluorescent lamp.

"WHITE MAGIC"

The thoughtful shopkeeper, however, had learnt in the meantime the value of initial planning of the lighting and had realised that while the employment of Fluorescent lamp by itself might not retain his distinctive identity the trained lighting engineer by providing the correct type of standard fitting in the correct place was able to create wonders with his shop lighting.

Against this background, the decision of Messrs. Associated Electrical Industries (India) Ltd , Calcutta to set up a Lighting Advisory Service under the direct

Probably the largest single Fluorescent Lighting unit in India: it is installed in the Council Room of the Indian Institute of Science, Bangalore.

guidance of a B. T. H. Lighting Specialist, was a step, the value and wisdom of which cannot be over-estimated. This Lighting Advisory Service has provided India with a unique organisation proffering advice on all lighting matters. Formally inaugurated in September 1946, the good work of this organisation is reflected in the model lighting installations in a variety of interiors already put up in different parts of the country.

An outstanding example in South India is the Fluorescent lighting of the Main Building of the Indian Institute of Science, Bangalore. The photograph reproduced on page 24 shows the Council Room of the Institute It will be seen that only one lighting unit is

Loom Shed Lighting - with Fluorescent lamps at Sree Niwas Mills, Bombay.

used. Probably the largest single Fluorescent lighting unit constructed in India, it measures about 16 feet by 8 feet, weighs about 16 cwt. and employs 24, 80 watt B. T. H. Mazda 'Daylight' Fluorescent lamps affording 30-40 ft. candles on the horizontal plane at the council table, and a minimum of 5 ft. candles at the corners of the room.

An interesting example of loom-shed lighting is afforded by photograph No 2 showing a portion of the Loom Sheds of Sree Niwas Mills, Bombay, where 380 single-lamp, 80 watt Industrial dispersive lighting fittings are in operation.

To round off this article with a quotation from a recent issue of the *Industrial Health Bulletin*, Ottawa: "Good lighting in Industry can assist in the maintenance of health and operating efficiency. If the rules of proper illumination are violated, unnecessary strain is placed upon the worker which may affect his well-being and output. While poor lighting may not be the only factor in a below standard working environment, it is one which occurs frequently and may readily be corrected".

A. C. S. R. MANUFACTURE IN INDIA

Opening of new factory in Travancore-Cochin State.

ON April 24, Sri T. K. Narayana Pillai, Chief Minister, Travancore-Cochin State, formally declared open THE ALUMINIUM INDUSTRIES LIMITED, KUNDARA, (Managing Agents: Messrs. Seshasayee Brothers (Travancore) Ltd) in the presence of a large and distinguished gathering of officials of the State, prominent industrialists and businessmen

MR SESHASAYEE'S WELCOME SPEECH

Welcoming the gathering Mr. V. Seshasayee said that the factory was turning out on an average of 10 to 12 miles of cables per day, and that they had been found to be extremely satisfactory--comparing favourably with the imported conductor material. The high standards of material and workmanship that their own testing and inspection departments had set for themselves, coupled with the enthusiasm of their workers had enabled the Factory to maintain a "uniformly good quality," he added.

Continuing, Mr. Seshasayee paid a tribute to the Government of the State for the help and encouragement that the factory had received from them. He also thanked the Central Government for permitting them to import, duty-free, the raw material needed for the industry.

Concluding, the speaker expressed the hope that the Aluminium Cable Factory—the only one of its kind in India, at the moment—and which the Chief Minister of the Travancore-Cochin State was good enough to inaugurate that day would help in the transmission of electricity throughout the length and breadth of the country, making its benefits particularly available to those vast populations who lived in India's villages.

CHIEF MINISTER'S REPLY

Declaring the factory open, Sri. T. K. Narayana Pillai said: "This was one of the industries in which the Government of Travancore got itself interested in the latter part of the last war. Realising the potentialities of aluminium and with a view to ensuring a profitable investment for the surplus money that the inflationary tendencies of a war economy had promoted, the Government of the day had sponsored the scheme."

Continuing, the Chief Minister said that there were critics who could not see eye to eye with Government in its industrial policy. It had been pointed out, he added, that the investment of government funds along with private capital in ventures like this was a half-way house between private capitalism and state socialism.

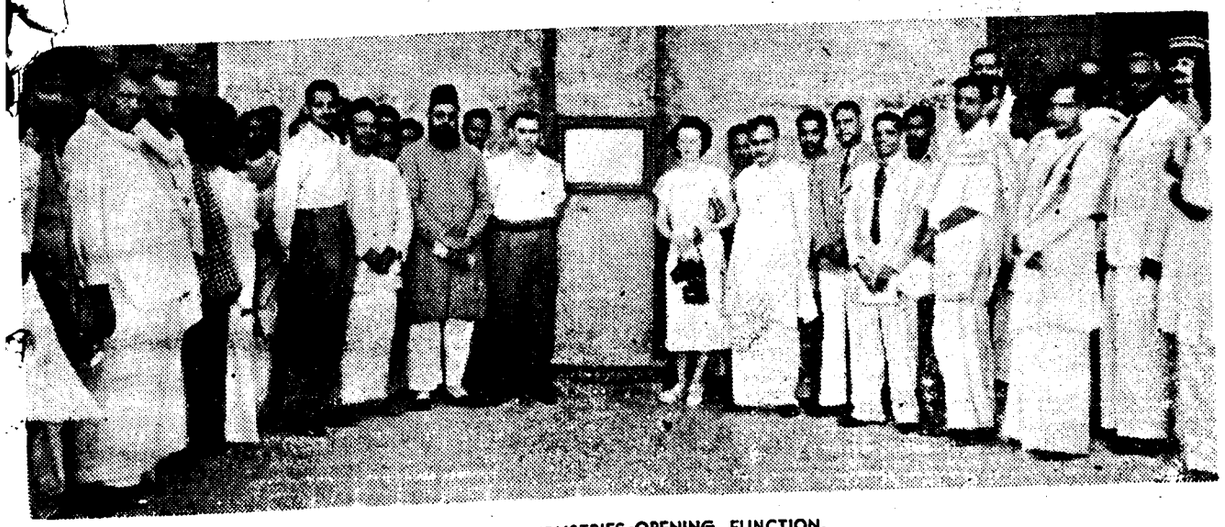
"But the point is" the Chief Minister observed, "how it operates against the common good and prosperity, which I think, is the aim of us all."

Uttering a note of warning against hasty nationalisation without careful planning, forethought and preparation Sri T.K Narayana Pillai, said: "Complete nationalisation, meaning thereby the utilisation of Government funds alone as the capital and operation of the concern directly under the management of the Government do not by themselves mean that the profit motive would not be dominant or that the worker would get a fair wage for the work that he does."

The Chief Minister further stated that the appointment of the National Planning Commission was a matter of immense gratification. "With the co-operation of industrialists, financiers and labour the commission must be able to give us a blue print for the economic regeneration of the country as a whole" he concluded.

A lavish tea had been arranged and the guests present were also given copies of an attractively got-up commemoration souvenir.

With a vote of thanks proposed by Mr. V. G. G Nayar, Works Manager, the pleasant function came to a close.



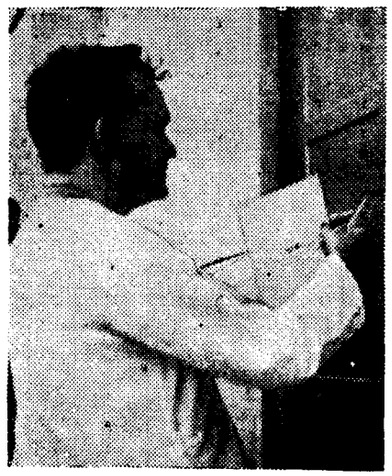
ALUMINIUM INDUSTRIES-OPENING FUNCTION.

THE FACTORY

The factory itself is situated on the shores of a broad and beautiful lake called *Ashtamudi* (the lake of eight creeks)--the Loch Lomond of Travancore.

The machinery and equipment installed in the plant had all been selected and ordered by ALUMINIUM LABORATORIES LIMITED MONTREAL, acknowledged leaders in the field.

The main raw material is 3/8 in. electrolytic aluminium conductor rods produced by the Associated Companies of ALUMINIUM LABORATORIES and imported into India. The other raw material is high tensile galvanised steel wire, also imported at present, from the U. S., the U. K. or the Continent.



MR. T. K. NARAYANA PILLAI

For fabricating the cables and the wires, the aluminium rods are first drawn through graduated dies in multi-die, wire drawing machines, until the proper diameter is obtained.

The finished wires are, then, passed on to the stranding machines where the aluminium wires are stranded over a central core of single or stranded steel wire for producing A. C. S. R. (Aluminium Cable Steel Reinforced.)

A.C.S.R., as its name implies, consists of aluminium wires stranded round a single or multi-strand single wire, combining the high conductivity of aluminium with the high strength of steel.

Although accurate figures of India's annual requirements of A C.S R. are lacking, these have been placed at the order of 5000 tons, in the first one or two years, and are expected to go up to 10,000 tons, in the space of the next five or ten years.

The factory has a separate technical control department, equipped with a hydraulic tensile testing machine and a sensitive Hoopes Conductivity Bridge for ensuring that the finished cables possess the requisite strength and current carrying capacity.

Run under the supervision of Mr. V.G.G. Nayar, Works Manager, a highly qualified engineer who received his technical training in the giant cable-making plants of Canada, a career of dedicated service, in bringing nearer the benefits of electricity, particularly to rural India, is promised for this new factory.

EXTENSION TELEVISION

(*Exclusive to* ELECTOLITE)

THE extension loudspeaker made its appearance early in the history of radio reception. Given a power output stage in the receiving set, its installation presents no great difficulty. The convenience and the usefulness of being able to make the same receiver operate one or more distant reproducing units in addition to its own built-in loudspeaker were clear from the first. It is not therefore surprising that the majority of receiving sets to-day are provided with terminals for an extension speaker.

To devise an extension unit for a television receiver is a much bigger problem. There are no extension terminals to which it could be connected; moreover, in some television sets the modulating voltage for the c. r. t. is applied to the grid, whilst in others voltages differing in phase by 180° are fed to the cathode of the tube. The extension loudspeaker is a relatively simple electro-mechanical unit, complete in itself; but the extension viewing unit must contain not only the cathode-ray tube, but line and frame time bases and the necessary power pack.

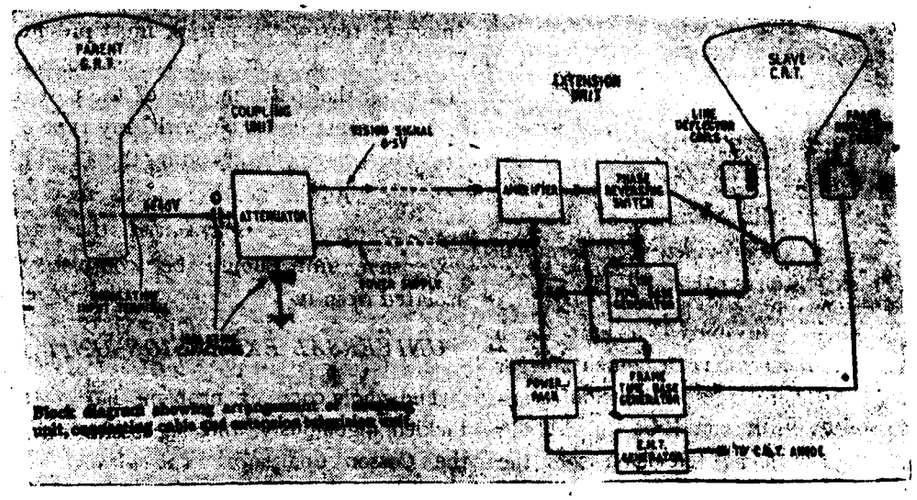
Further, if it is to be a success commercially, a television extension unit, must be reasonably priced, must provide a good image, must have no adverse effect on the performance of the parent set and must be usable with any type of television receiver, including the a.c./d.c. models. As the a.c./d.c. chassis may be live to earth, it is essential that an extension unit should be completely isolated from it.

UNIVERSAL EXTENSION UNIT

The whole complex problem has been tackled ingeniously and successfully by the Cossor Company. The idea of a television extension units is by no means new. At least one type has been on the market in the United States for some time now and in the U. K. three or more distant viewing screens are fed from the parent set of operating-theatre television equipment used in hospitals

for the instruction of students. Extension units for monitoring purposes are also widely used at television transmitting centres, both in the U. K. and in the U. S. But each of these is designed to work from one particular kind of master receiver only, whilst one of the most impressive features of the Cossor unit is that it can be fed by any make or type of television set. The method of connection involves no more than the attachment of a small " cathode-coupling unit " to the back of the parent set and the making of one connection between this unit and the terminal of the parent c. r. t. to which the modulating voltages are fed.

The figure shows schematically the details of the coupling and extension units. Two capacitors effectively isolate from the parent set the coupling unit and the leads connecting it to the extention unit The coupling unit contains one valve, which receives its power supplies from the power pack of the extension unit by means of a pair of leads in the cable. The peak modulating voltage of the parent tube may be anything from about 8 V to 40 V, according to the make and type of the receiver. To simplify line impedance problems this is attenuated by the coupling unit to 0·5 V, restoration to a suitable value taking place in the amplifier of the extension unit.



Block diagram showing arrangement of extension unit, connecting cable and extension coupling unit

The Cossor extesion equipment contains also a permanent-magnet moving-coil loudspeaker : the connections for this are completely orthodox and no account is taken of them in the description.

The connecting link (which is of quite small diameter) consists of a special coaxial cable for the vision signals, a pair for the power pack's input to the coupling unit and a pair for the loudspeaker feed.

The output of the amplifier is controlled by a two-position switch, providing 180° phase change in the modulating voltage. Whether the present c. r t. is grid-modulated or cathode-modulated, the signal voltage can thus be made to suit the cathode input of the slave c. r. t. and the requirements of its associated time-base generators. The slave c. r. t. has a diade interference limiter circuit. It is claimed—and demonstrations appear to bear this out—that, since the vision signals are twice limited in this way, reception on the slave screen may be freer from interference effects than that on the master screen. It is also stated, with some justification, that, when the parent set is grid-modulated, the use of an extension unit may reduce interference effects on both screens.

It is, of course, of the highest importance to ensure that the use of an extension shall not in any way impair the performance of the master set. This objective has been obtained, for it is not possible to detect any falling-off in the parent receiver's performance with three extension units connected to it Actually the slave may furnish a better image than the master set in all or any of three ways. In addition to the greater freedom interference already mentioned, the slave screen may show a considerable improvement in linearity over that of the parent receiver. The reason is that the time bases of the Cossor unit ensure strict linearity in its images. The signal conveyed over the linking cable is entirely unaffected by any non-linearity that there may be in the master set.

The third way in which the extension unit's image may be the better is one of considerable interest and importance; it can be larger than that of the master. It is proposed to market standard Cossor units with 10-inch c. r. ts; but *de luxe* models with 12-inch or 15-inch tubes will be available. There is no reason why a slave unit with a 15-inch tube should not be worked satisfactorily from a master set containing say, a 9-inch tube. The extension unit can be manufactured comparatively cheaply and its cost will be substantially less than that of a complete television receiver of the same screen size. A figure of well under 100 dollars was suggested as the price in America when the exchange rate was still $ 4·03 to the £ 1.

The mention of America recalls the fact that Cossor's claim that the range of the pre-set variables in the unit is such that it can be attached without alteration, to any 525-line, 60-frames/second receiver and adjusted in a few minutes to operate perfecty.

By special arrangement with and through the kind courtesy of
WIRELESS WORLD

POWER & PRODUCTION: (Published by the Standard Technical Press, Ltd., 38, West Sion, Bombay 22. Annual subscription Rs. 8/- —Single copy: Annas Twelve.)

A welcome newcomer to the ranks of technical journalism in India is, POWER AND PRODUCTION—a monthly journal of mechanical, electrical, hydel, irrigation and general production engineering. The first number contains messages and good wishes from, among others, Sri N. N. Iengar, Chairman, Central Electricity Commission and Shri S. A. Gadkary, Member, Central Electricity Authority, Member, (Hydro-electric) Central Waterpower Irrigation and Navigation Commission, Government of India, New Delhi. Articles include one from the facile pen of Mr. R. P. Aiyar, Secretary, Federation of Electricity Undertakings of India, on the Electricity (Supply) Act, 1948. In another article Prof. V. Lakshminarayanan of Birla Engineering College, Pilani, deprecates the present distressing tendency of importing "knowhow" men from abroad. Says he: "Countries whose very economic existence is based on their export policies, on their powers of invention and on their development of new techniques, will not commit suicide by revealing their secrets. At best they will export second-hand or obsolete technical knowledge, or they will prepare the way and make the country technically-minded, *just enough*, so as to dump newer types of mechanical equipment... India will be made to remain at best two decades behind the progress of the other countries."

If the fare offered in the first number is any indication, a useful career is promised for this new magazine.

* * *

FACTORY WELL-BEING: By C. Conway Plumbe, B.Sc., (Lond), formerly Supervisory Inspector of Factories. (Seven Oaks Press, Ltd., 165, Victoria Street, London, S. W. I. Price 17/6/-)

The conception of a Factory as a place solely devoted to the production of manufactured goods is, to-day, an outmoded one. A factory is still, of course, primarily this, but it is increasingly being recognized as something else, also. No longer regarded as a group of buildings merely housing inanimate machinery, it is now looked upon as a place where men and women spend the best years of their working lives.

Understandably enough, therefore, Mr. CONWAY PLUMBE turns his spotlight on men—rather than on machinery—in his illuminating volume.

Mr. PLUMBE stresses one basic fact in all his chapters—namely, that it will not do for an employer, in these enlightened days, merely to comply with the statutory requirements relating to the safety and welfare of workers; he must endeavour to understand the spirit underlying legal phraseology—"the spirit which has prompted well-meaning pioneers during the various stages of the development of the factory system to pave the way for making the factory a happy community."

Of special benefit to employers and workers alike in India will be his chapters on accidents, their causes and prevention.

Regarding factory inspection (in the United Kingdom) this is what the author says:—

> "Inspection by paid servants of the Crown of premises privately owned and controlled, was once bitterly resented. (now) it arouses little or no opposition."

In India, too, opposition to inspection is dying out, because more and more "occupiers" are realising that an inspection is "a watch over potential offenders even more than a guard over defenceless populations."

And the "populations" are not so "defenceless" now!

* * * *

CLARENCE DOCK, LIVERPOOL: (Designed and produced by Garraway Ltd., 37 (a) Kensington High Street, London, W. 8 for the Merseyside and North Wales Division of the British Electricity Authority.)

An attractively got-up brochure dealing with Clarence Dock Power Station Liverpool, has recently been issued by the Merseyside and North Wales Division of the British Electricity Authority. Profusely illustrated with photographs and diagrams, it gives a remarkably comprehensive and lucid history of the station.

—R. P.

Current Topics

B. B. C.'s New Television Station :—The New Television Station of the British Broadcasting Corporation recently opened by the Postmaster General at Sutton Coldfield near Birmingham is the most powerful of its kind in the world. The British Radio Industry, it is learnt, has requested the British Government for facilities of inspection being accorded to engineers of all countries, which have, under consideration, the establishment of television stations, in the near future.

Minister's plea for Power Plant manufacture in India :—Addressing the annual session of the Bombay Centre of the Institution of Engineers (India) in Bombay on Feb. 21, Dr. Jivraj N. Mehta, Minister for Public works, asked its members to come forward with suggestions regarding the different schemes which Government were handling at present. Dr. Mehta also stated that shortage of technical personnel was an important bottleneck. Another considerable handicap with which Government had to contend, he said, was the shortage of construction material and long periods of delivery offered by foreign firms for the supply of heavy plant, machinery and equipment.

Dr. Mehta concluded his address with a plea for the development of large-scale manufacture of power plant and machinery with a view to making the country attain self-sufficiency in the shortest possible time.

T. V. A. Report :—During the fiscal year ended June 30, the T. V. A. generated 15,734, 764,000 kWh. and its power revenues amounted to $ 58 million, says the report issued by the Tennessee Valley Authority for 1949.

The T. V. A. also added, during the year under review, seven units of plant with a combined capacity of 190,800 kW. compared with a net increase in T. V. A's installed capacity of only 52,000 kW for the three years preceding.

Installed capacity of the system on June 30, according to the report, was 2,419,000 kW and this is expected to be reached to 3,959,160 kW by the end of 1952.

Industrial X-ray plant :—The Government Test House, Alipore, Calcutta, has installed an industrial X-ray plant of 240,000 volts which is available for State and public use to examine steels up to 3 in. thick as well as lighter metals and alloys of any thickness. Radiographic testing has the advantages that it helps production by reducing rejections; assures the quality of the product and indicates the presence of such internal flaws as blow-holes, piping porosities, and cracks. All these help welding shop and foundry technique.

" Mobilophone ":-In a few months, the Mobilophone network will be completed in Holland, which is the first country in Europe which has extensively developed this new system of communication. This means that it will be possible to telephone in the whole country from cars equipped with such an installation to anybody who has a link with the existing telephone system in the country. The person who has equipped his car with a Mobilophone equipment will, if he is driving in the northern part of Holland, be able to telephone to a customer in Amsterdam or even to another person in another car driving in the southern part of Holland.

Holland is the first country in the World which has introduced this universal system. In the United States, only certain routes have the facilities of this system—that is, only along big and important highways.

Trains are also being equipped with these installations, so that it will be possible to telephone from a running train to anybody attached to the P. & T. Telephone System or to the P. & T. Mobilophone System.

It is obvious that a great future lies ahead in many countries for this unique communication method.

The advantages are obvious. Many doctors, whilst driving their cars, can be telephoned from their houses immediately to proceed to a serious case. Police cars are, of course, all of them equipped with this system. Furthermore, various taxi companies have equipped their taxis with this new communication system—in order to be of service to the customer, who can still conduct his business whilst driving his taxi, and to be able to redirect taxis to any new customer, so that it will not be necessary for an empty taxi to return to the stand before being able to pick up passengers.

" Goods for India " :-In the last issue of this journal, it was stated that "among the goods recently placed on India's existing Open General Licence No. 4 are electrical insulating materials, wires and cables and electrical instruments". We should have made clear that these were for export, and not for import.

The omission is regretted.

SOUTH MADRAS ELECTRIC SUPPLY NEWS

IT was only to be expected that during March - May the water levels in the hydro-electric reservoirs of Pykara, Mettur and Papanasam would "hit a new low", but storages dwindled so badly, this summer, as to constitute almost an all-time record.

It would be recalled that from January 15, a cut of 25 per cent had been imposed practically on all categories of consumers. Effective from March 1, the supply of electric power to all industrial and domestic undertakings in the areas served by the Mettur, the Pykara and the Papanasam systems was cut by another ten per cent.

From May 1, a further cut in the consumption of electricity was imposed, bringing the over-all cut to 50 per cent. Effective from the same date was imposed a cut of 10 per cent in the demands of all H.T. consumers in the Mettur area. Street lights in all *Panchayats* were also asked to be switched off at 10 P. M.

As we go to Press, Government have ordered a further cut. With effect from May 22, the over-all cut rises to 75 per cent. Explaining the reasons for the imposition of this further cut, Government have issued a Press Note :—

"Water storages in the hydro-electric reservoirs at Pykara, Mettur and Papanasam have all dwindled considerably due to the extremely poor summer inflows, obtained this season. It is feared that at the present rate of draw of water for power production, the storages will barely last till the end of this month. The catchments of the reservoirs have not benefited to any appreciable extent from the recent thundershowers in Tamil Nad and Mysore.

It was hoped that with a few interspersed thundershowers and the early setting of the South-West Monsoon, the power situation could be tided over with the 50 per cent cut in consumption, imposed from May 1.

Present meterological indications, however, are that the Monsoon is not likely to set in, till the middle of the first week of June. The available water storages have to be utilised with the utmost economy till then.

It has, therefore, become necessary to increase the cut in power consumption in the H. T. and L. T. industries in the Pykara, Mettur and Papanasam systems from 50 to 75 per cent, with effect from May 22.

In addition, street lights in all *Panchayats* and Municipalities will be switched off after 11 P. M.

The number of shows in all cinemas will be restricted to one show per day."

New Supplies :—Railway stations electrified during January - April are: (1) Virkudi (2) Kodikalpalayam and (3) Manganallur in the E. T. area (4) Ramnad in the E. R. area.

The Hon'ble Sri. M. Bhaktavatsalam's visit to Vadasert and Vellivadi

Agricultural supplies :— Supply was given to the villages of Vadaseri and Vellivadi, Kottathur and Keerambur on March 5. The Hon'ble Sri M. Bhaktavatsalam, Minister for Public Works, switched on the supply.

Outlining the efforts of Goverment for the distribution of power to rural areas the Minister stated at Vadaseri that in the matter of expansion of electricity, specially for rural areas, Madras stood first. He added that rural electrification helped the Grow More Eood Campaign.

Speaking next, Sri. V. Seshasayee said that along with Government assistance, individual effort must be there for national advancement with which was inextricably bound one's personal advancement. He added that traditional methods of irrigation like baling out by bullock-power could not produce the same results as those bound to emerge from the use of agricultural pumpsets.

Continuing, Mr. Seshasayee said that electricity must not be looked upon as an item of luxury and that they must utilise it to the full, realising its immense potentialities.

Speaking at the function arranged in the evening for switching on supply to the villages of Kottathur and Keerambur, Sri Bhaktavatsalam stated that at present the country was spending huge sums of money in the import of food-grains. This was matter for deep regret, he said ; it was up to every one of them to end the present distressing state of affairs.

Among those present, at the function, were Sri P.B.K. Raja Chidambaram, President, District Board, Sri P. Ponnambala-Gownder, M. L. A., Sri K. K. Raman, Director, Seshasayee Brothers Ltd., Sri H. K. Ramaswami, Deputy Chief Engineer, and Sri S. Sankaran, Superintending Engineer of the South Madras Electric Supply Corporation, Limited.

At Kottathur, a welcome address was presented to Sri. K. K. Raman. Twenty-nine pumpsets and 7 domestic services at Vadaseri and Vellivadi have been connected so far. Up to end of April, 44 pumpsets and 15 domestic services have been connected at Kottathur and Keerambur.

(2) Mr. V. N. Rajan, I. C. S , Collector, switched on the street lights and house service connections in the villages of Alathoor and Mela Kalkandarkottai near Golden Rock on March 6. Mr. K. R. Avadhani presided over the function. Supply was extended to these villages under the rural electrification scheme.

(3) Supply was given to Vazhudaiur in Lalgudi Taluq on April 13. Mr. S. Sankaran, Superintending Engineer of the Corporation switched on the power.

(4) Supply was rendered to Serukalattur village, in Nannilam Taluq, on April 5. The special efforts of Rao Bahadur R. Ramjidas Iyer, Zamindar of Kannivadi, made the extension possible.

Water Supply Scheme :—Arantangi :— Supply was afforded to the Arantangi Water Works on May 10. A mile of H. T. line and a sub-station were installed for this purpose.

The despatch and expedition with which the work was completed evoked appreciative comment from Sri S. Jambunathan, Executive Engineer, Public Health Division, Tiruchirapalli. An extract from his letter is given below :—

" I am extremely pleased to see that the work has been completed in the quickest possible time, barely within a month after I accepted your terms for the service connection. My thanks are due to your Managing Director and his staff for having bestowed their personal interest on such an important and humanitarian work as water supply to a town which suffers a great drought particularly during summer. Your firm has done very well and co-operated whole-heartedly..."

Government Loan :—The Government of Madras have sanctioned us a second loan (Rs. 3,11,000) for the extension of electric power to the villages of Alangudi, Keelathur, Melathur and Rajamangalam villages in Pudukottai taluq.

The load prospected is expected to be about 300 H. P. for industrial power and 500 H. P. for agricultural pumpsets, about 100 in number, in the first instance. About 1000 acres could be developed with this power supply.

—*P. N. R.*

Strictly Personnel

Republic Day :—STAFF celebrated, with due ceremony, January 26, the historic day on which India was declared a sovereign democratic Republic. Rao Sahib K. E. Chidambaram Iyer, Chairman of the Board of Directors, hoisted the national tri-colour.

In the course of a brief address to Staff, later, Sri Chidambaram Iyer stated that with the attainment of independence, a most glorious chapter had been written in the history of the country ; now a brilliant post-script had been added.

Messages wishing the function success received, included one from Sri V. Seshasayee and another from Sri K K. Raman.

In his message, Sri. Seshasayee exhorted Staff ' to dedicate themselves anew, on this momentous occasion, in the service of the motherland.'

Sri Raman stated, in his, that Staff should ' do their utmost in helping to solve the difficult problems facing the nation.'

With the singing of national songs by school children, and the distribution of sweets to them and *pansupari* to Staff the function came to a close.

Rao Sahib K. E. CHIDAMBARAM IYER ADDRESSING STAFF

Sarvodhaya Day : —Following this, came *Sarvodhaya* day, the death anniversary of Mahatma Gandhi, Father of the Nation. Sri Thiruloka-Sitaraman,

Editor, *Sivaji*, spoke on the "Life and Teachings of the Mahatma." Sri S. Sankaran, Superintending Engineer, presided.

Retirements:—Before passing on to record the usual activities of Staff, during the quarter, we should like to mention, first, the retirement of Mr. T. S. Shanmugha Mudaliar of the Accounts Department, which became effective from March 3, 1950. After an initial spell of a few years' service, Mr. Mudaliar left us—to rejoin us, later during 1943. Friends who knew him during his first years are all unanimous in their praise of his helpful attitude in the early, difficult days of the Corporation.

Mr. Shanmugha Mudaliar now retires after a period of a little over six years, and our good wishes go to him in his retirement.

Obituary:—While on the subject of retirements, it would be recalled that we referred, in our last issue, to Mr. G. Doraiappa Iyer's retirement. It is now our melancholy duty to record his death. Mr. Doraiappa Iyer had been ailing for some weeks before, we knew, but we hoped that he would somehow pull through. This, was, however, not to be and he passed away on April 14. We extend, through the columns of this Journal, our heart-felt condolences to the members of the bereaved family.

Sri Rama Navami:—Now to turn to the other activities of Staff: Accounts Department of the Corporation celebrated *Sri Rama Navami* (April 1) in grand style. There was reading from Poet Valmiki's death-less classic, followed by the distribution of *prasadams*.

Lower Anicut Picnic:—Mention of Sri Rama naturally evokes memories of his great friend and devotee, Hanuman—the god with the caudal appendage. In an earlier issue, we remember stating how, with many members of our Staff, the Lower Anicut Hanuman was a sort of tutelary deity, and how an annual visit to this temple was a "must" with them.

And on May 14, came off our annual retreat to Lower Anicut After the dust and heat of the town, a dip in the waters of the Cauvery was most refreshing, indeed, and a welcome lunch awaited us on "landing". This afforded ample proof to the fact that some of us were no mere gluttons ... for work! Later, there was 'sporting ... in the shade' with dog-eared packs of playing cards, and every one had "a wonderful time".

Welcome, Stranger:—A visitor whom we were glad to welcome early in May was Signor Piero Mortara of *Compagnia Generale Impianti*, Ltd., of Rome. Our engineers showed him round the Government receiving station, a few typical rural and urban stations, the A. I. R. transmitters and our Power House.

Asked for his impressions, Mr. Mortara expressed himself as being greatly impressed with what he saw in and around Tiruchi.

Pressed to give a few suggestions for our possible adoption, the visitor said that he would like all sub-stations to display caution boards bearing the sign of a death-head with cross-bones and the legend: "Who touches the wires, dies"—*'Chi tocca ifilli, muore*—in Latin. He also stated that he would recommend still much lower clearances, and a far larger use of concrete structures than appeared to be the case, at present.

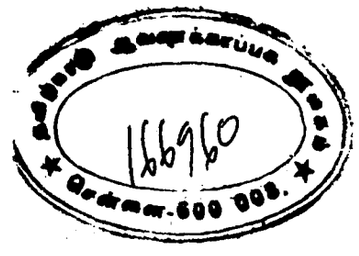
Mr. Mortara has promised to write for this Journal on his return to Italy, and it need hardly be added that we will be looking forward, with the keenest interest, to publishing his article.

Electolite:—And that brings us to what CONTACT, the MANWEB House Journal (Liverpool) has to say about "Electolite" in one of its recent editorials. Remember that in our Republic Number, our review of that Journal concluded with the words: "Altogether a snappy piece of job, this CONTACT"?

"We whole-heartedly return this compliment", says the editorial, "for on another page our contemporary printed a delightful story concerning a "Baby" Austin and a certain make of American car" ...

We are not quite sure whether the present issue, (which according to one friend, is 'chockfull of technical articles') is 'altogether a snappy piece of job', but then as Oscar Wilde once button-holed a dramatic critic about one of his pretty frequent fiascos and told him: "My dear fellow, as you should have observed, the play itself is a great success. It is the audience that was most disappointing!"

—*R. P.*



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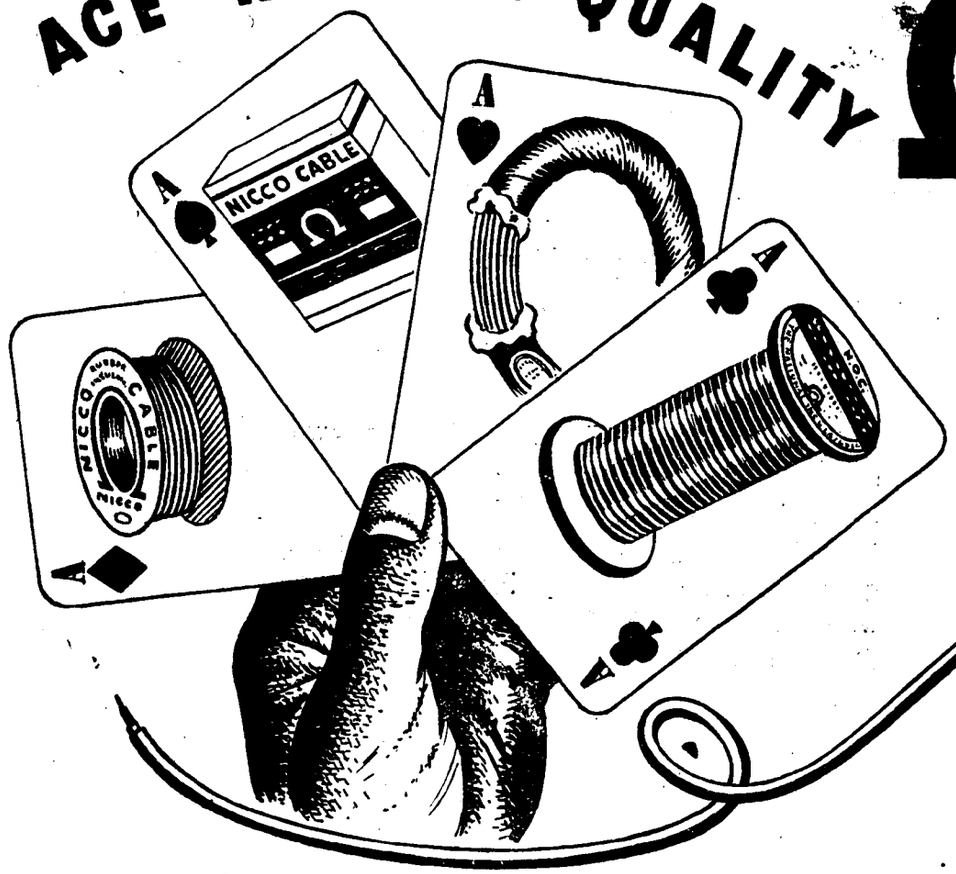

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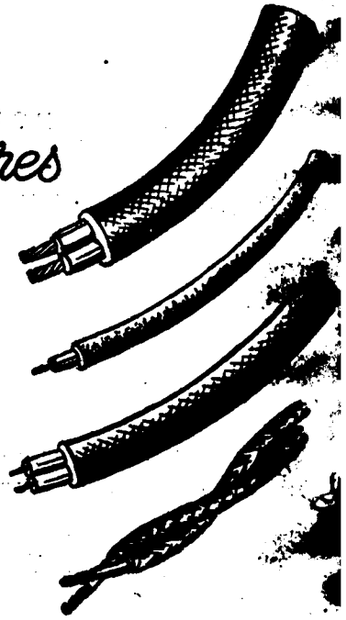

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