

Industry

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Full Story of
Decennial Celebrations



OCTOBER 1960

No. 20

Editor :

R. PARTHASARATHY

THE PURPOSES OF THIS PUBLICATION ARE :

- (i) To record the accomplishments and achievements of our employees, their joys and sorrows so that our other friends like our customers, shareholders and neighbours may get to know our family better ;
- (ii) To encourage in our employees pride in workmanship and the high quality of our products ;
- (iii) To help create and sustain amongst them a spirit of friendliness ; and
- (iv) To tell the story of our business and that of our customers and other friends so that mutual understanding and respect might be fostered.

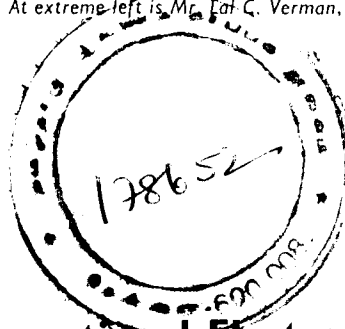


THE COVER

Saying it with flowers: Board Chairman S. Narayanaswamy garlanding Chief Minister Pattom Thanu Pillai.



Dr. S. Radhakrishnan, Vice-President (extreme left) of the Republic of India, inaugurated the IEC twenty-fifth meeting. Next to him is Mr. Lal Bahadur Shastri, Minister for Commerce and Industry and immediately behind Mr. Shastri is Mr. Hayath, Chairman, Central Water and Power Commission. At extreme-left is Mr. J. C. Verman, Director, Indian Standards Institution



International Electro-technical Commissio

THE TWENTY-FIFTH MEETING OF THE INTERNATIONAL ELECTRO-technical commission was held in New Delhi from 30th October to 12th November 1960. Dr. S. Radhakrishnan, Vice-President of the Republic of India inaugurated the meeting. The first time ever such a meeting was organised on the continent of Asia, the conference attracted a large number of experts from all parts of the world.

The IEC came into being about 56 years ago. As a pioneering body among international technical organizations, IEC has accumulated a vast fund of invaluable experience in practical international co-operation.

The active interest taken by India in the work of the IEC has contributed to particular attention being given by the IEC to problems connected with the operation of electrical equipment in tropical conditions.

News & Developments

C.I.G.R.E. Convention in Paris

THE EIGHTEENTH INTERNATIONAL CONFERENCE on Large Electric Networks which is more generally known as C.I.G.R.E., opened in the Fondation Berthelot in Paris on June 15 and concluded on June 25. A large number of delegates from all over the world have been presented and discussed. In this article we deal with the first half of the proceedings. The opening ceremony was presided over by M. Jean nency, the French Minister of Industry, who inaugurated the convention by stressing the importance of large power networks and the great value of the work of C.I.G.R.E. in this particular field of electrical engineering. After the Minister had expressed his interest in the convention Mr. G. Silva (president, C.I.G.R.E.) welcomed the delegates to this eighteenth function in the series and explained the significance and scope of the proceedings. Two short speeches were then delivered by Messrs. J. Møllerhøj (Denmark) and M. Vidmar (Yugoslavia) on behalf of the English and French-speaking delegates respectively. The opening ceremony was rounded off by M. P. Ailleret, assistant general manager of Electricite de France, who delivered a short, but interesting, illustrated address on the French electric power system with particular reference to the 380 kV network and interconnections with other countries.

The technical sessions began on Thursday morning, June 16, with discussions of papers sponsored by the Committee for Insulator studies, which was presided over by G. H. Gillam (Taylor Tunnicliff). During this session L. Gion and H. Meier (France) described an insulator having helicoidal sheds which can be used as line insulators as well as in high voltage apparatus. The authors said that in many cases the reduced dimensions of the helicoidal sheds provided characteristics which were better than those of classical insulators.

System stability :—The great importance which is attached to system stability all over the world was illustrated by the fact that no fewer than eighteen papers were presented at the technical sessions concerned with this subject. Among these was a study committee report giving an analysis of the different methods of load-frequency control. It had been prepared under the chairmanship of M. Renchon (Belgium) and among the authors was E. B. Powell (C.E.G.B.).

The performance of continuously-acting voltage regulators with additional rotor angle control was discussed by V. Easton and J. A. Fitzpatrick (C.E.G.B.) and K. C. Parton (G.E.C.). They described a new regulator system for large generators

which had been successfully put into service and a large number of site tests conducted. The important new feature was the use of rotor angle signals for control and stabilisation in order that the regulator system might achieve the most comprehensive overall control possible.

J. K. Dillard and H. K. Sels (U.S.A.) described a new approach to system planning involving "operational gaming" and "Monte Carlo" methods. These methods were statistical approaches to the selection of likely combinations of random events. A mathematical model of the utility system was set up on the digital computer. When the random events were balanced against human competition through the use of gaming methods, the model operated just like the actual system. It ran the system hour by hour for a 20-year period or longer. It computed the risk of losing load. It permitted machines to be taken out for maintenance or forced outages. It built transmission facilities as required. After several 20-year games were played, a plan of expansion was evolved and evaluated. Then the computer printed out the whole expansion programme with dates of generation additions, capital requirements, and the present worth of all future revenue requirements.

The control of the interconnected power systems of Sweden and Finland was dealt with by A. Wedeen and K. E. Johansson (Sweden) and E. Voipio (Finland). When the Swedish and Finnish power systems were interconnected during the spring of 1959 the regulation of the tie-line power was added to the control programme.

Lightning and surges : The report of the study committee on lightning and surges (H. Baatz) discussed the two basic parameters on which present predictions of the lightning protection of overhead lines depended. These were the measurements of lightning current amplitudes and the shielding effect of overhead earth wires. The protection of substations connected to overhead lines through comparatively short lengths of cable was also considered. As a result of many measurements of the amplitudes of lightning currents on overhead lines, Dr. R. H. Golde (E.R.A.) showed that correct results could be obtained from oscillographic records and from magnetic links on lightningconductors, extension rods of towers and overhead earth wires when lightning struck the earth wire in the plant.

In another contribution D. Muller-Hillebrand (Sweden), O. Johansen (Norway) and E. Saraoja (Finland) described experience gained in Scandinavia with 167 Pierce-Golde type lightning counters.

Reporting on the work of the study committee dealing with high-voltage direct current transmission, the chairman, F. J. Lane (Preece, Cardew & Rider) referred to the two projects now in hand, namely, the Anglo-French link of 100 mW at ± 100 kV and the Stalingrad-Donbas scheme of 750 mW at ± 400 kV.

Corrosion problems arising out of the use of an earthed return were discussed by J. H. Gosden (Great Britain) who pointed out that while cathode electrodes presented no problems, metallic anodes directly buried in soil or immersed in the sea suffered severely, although iron was satisfactory if surrounded by magnetite.

In a comprehensive paper J. Sallard and R. Telfier (Electricite de France) and D. M. Cherry and C. C. Barnes (C.E.G.B.) reviewed the engineering problems associated with the Channel link with special reference to the terminal stations and to the submarine d.c. cables and the methods to be adopted for their handling, laying and repairs.

A paper dealing with the other aspect of d.c. transmission—a long-distance overland route—was presented by E. S. Groiss and others (U.S.S.R.). This related to the 800 kV (± 400 kV) overhead line which was designed to link the Stalingrad hydro-electric plant with the Donbas grid, the largest system in European Russia, 475 km away.

Measurements carried out in Sweden for determining precautions against undue radio interference from the converters at Lydd included in the link with France were described by R. E. Martin and J. N. Prewett (Central Electricity Research Laboratories).

In a comparison between d.c. and a.c. insulators, H. Witt (Sweden) pointed out that on grid-controlled d.c. systems switching surges and other internal over-voltages were negligible.

(Condensed from ELECTRICAL REVIEW)

Erecting Cable across Zambesi Gorge
Details of the operation by which eight tons of aluminium cable were slung across the Zambesi gorge at Kariba are now available. According to Dr. D. Di Giacomo, Joint Managing Director of Rhodesian Power Lines, the firm which over the past few months has put up nearly a thousand miles of power cable to distribute the power from the Kariba hydro-electric undertaking over a wide area in the Rhodesia, the Kariba operation was one that demanded preliminary planning and great care while it was under way, as even slight damage to the aluminium cable could have meant that the whole operation would have to be done over again. It was four days before the cables stretched from the terminal towers at either end of the Kariba Dam. The operation required that six conductors be swung across a 3,000 foot-span of gorge on the lake side of the dam wall. In addition two earth lines were set in position. Each foot of cable averaged 1 lb. in weight. The work involved the use of a motor-boat, vehicles, winches and a large number of workmen. The supervisor of the operation insisted that his greatest worry was to ensure that the cables did not

suffer any damage, as a cable carrying high voltage must be perfect in every respect, for even the slightest scratch can cause a break-down. A boat was stationed in the lake containing men to pass each cable through their hands to ensure that it would not suffer damage. He pointed out in addition that at the centre the cables sagged some 200 feet.

“Operation — Line Chopper”
Recently, the British Central Electricity Generating Board carried out what was called operation “Line Chopper”. This was an exercise in the rapid location and repair of overhead line faults with the aid of a helicopter. The operation was carried out by the Transmission Department of the South Eastern Division from the Canterbury district headquarters.

It sometimes takes two to three days for locating and repairing line damage by normal methods in severe winter conditions. The British C.E.G.B. has, therefore, been investigating the use of a helicopter to overcome this delay. Last winter, helicopters were used by the Canterbury district line gang for fault-location observation.

Heavy Electrical Plant at Bhopal

Prime Minister Nehru recently inaugurated in Bhopal the first phase of production of the Rs. 100-crore heavy electrical plant, a major public sector undertaking, amidst scenes of great rejoicing.

Located over an area of 550 acres, the Heavy Electricals plant is the first of its kind in India for the manufacture of heavy electrical equipment. The imports of such equipment during the last three years alone amounted to Rs. 80 crores.

The project—which is being established with British collaboration—was initially planned to be completed in three phases, the first phase providing for an annual output of Rs. 6,250 crores at an estimated cost of Rs. 21.46 crores.

In view of the increasing demand of heavy electrical equipment, estimated to be of the order of Rs. 100 crores, per annum, during the Fourth Plan, it was decided to take up all the three phases and proceed on double shift working to raise the annual production capacity of the project to Rs. 25 crores at an estimated cost of Rs. 47.47 crores.

The targeted output of Rs. 25 crores annually is scheduled to be achieved by 1965 and it is expected that it would further be doubled by 1968.

The capital investment for the annual output of Rs. 50 crores for the Bhopal project by 1968 would be of the order of Rs. 97.50 crores exclusive of an initial allotment of Rs. 9 crores for a township with a capacity for housing 7,000 staff and 3,000 workers. This annual production would entail the employment of 35,000 workers.

To begin with, the manufacture of smaller sizes of transformers and switch-gear has been started and this manufacture will be followed by the manufacture of capacitors. From June next, manufacture of traction motors would be taken

up and within a year thereafter production of hydro-turbines, generators and heavy motors will be started. Thermal turbines will be taken up next.

With all this programme, it is proposed to turn out nearly a million kW of generating equipment annually, the maximum size of a generating unit being 150 megawatts.

The output of equipment in 1961-62 is likely to amount to Rs. 3.5 crores and in the next year to Rs. 9 crores.

100 Years Young

Prime Minister Nehru, paying a tribute to Dr. Mokshagundam Visvesvaraya, on the occasion of his 100th birthday celebrations, at 10 a.m. on September 15, said that the life of Dr. Visvesvaraya had been great not only because of his achievements but in his having also lived a life of integrity, ever adhering to the high standards and exhibiting that spirituality which came to a man of integrity.

“We honour you as a person young in spirit and in ideals, looking to the future. Let us all imbibe that and learn from you that nothing can be achieved except by hard work and labour. And if we do so, all will be well”, said Mr. Nehru.

Prior to inaugurating the celebrations, Mr. Nehru walked from his seat to where Dr. Visvesvaraya was seated and paid his homage to him and presented him a bouquet.

At Lal Bagh a large and distinguished gathering was present.

The celebrations were presided over by the Governor of Mysore, Mr. Jayachamaraja Wadiyar, who in a brief speech on the occasion, described Dr. Visvesvaraya as a “combination of endeavour, adventure, courage, intellect, capacity and strength.”

Among the leaders who attended the function, were the Union Minister Mr. K. C. Reddy, and Mr. S. Nijalingappa, Chairman of the Celebrations Committee.

Both the Houses of Legislature did not sit for the day to enable members to participate in the celebrations.

After invocation by Srimathi T. Rukmani, Mr. S. Nijalingappa, Chairman of the Visvesvaraya Centenary Celebrations Committee, welcoming those present, observed that Dr. Visvesvaraya “rightly achieved fame as an exceptionally brilliant engineer, a far-sighted statesman, an able administrator, a pioneer in organising industry and above all as a gentleman whose watchword has all along been selfless service to the nation.”

Mr. Nijalingappa then referred to the construction of the Industrial and Technological Museum, now under way, as a fitting memorial to the great work of Dr. Visvesvaraya and said that help had come from every quarter in India—rich and poor agriculturists and manufacturers, officials and non-officials.

“We, in our country”, the Prime Minister said, “have the unfortunate reputation of talking a great deal and not living up to what we say. You, Sir, have



Dr. M. Visvesvaraya

been a great exception to that rule. (Cheers.) If you had talked a little and done much, let us learn from you that also.”

Dr. Visvesvaraya replying said: “Base your policies on world experience, cultivate team spirit, maintain a high level of discipline both in private and business life and develop integrity of character in all ranks of the community. This done, no Indian need fear about a successful economic future for his country.”

Dr. Visvesvaraya, smartly dressed in a blue suit and with his favourite laced turban, walked haltingly half the way from the entrance of the Glass House to the dais where Prime Minister Nehru, Governor Jayachamaraja Wadiyar, Chief Minister Mr. Jatti, Union Minister Mr. K. C. Reddy and Chairman of the Celebrations Committee, Mr. S. Nijalingappa, were seated already. He was chaired and carried to the dais as it was already 20 minutes behind schedule for the commencement of the meeting. He was received with *poorna khumbam* at the entrance and was led to the dais, priests chanting Vedic hymns.

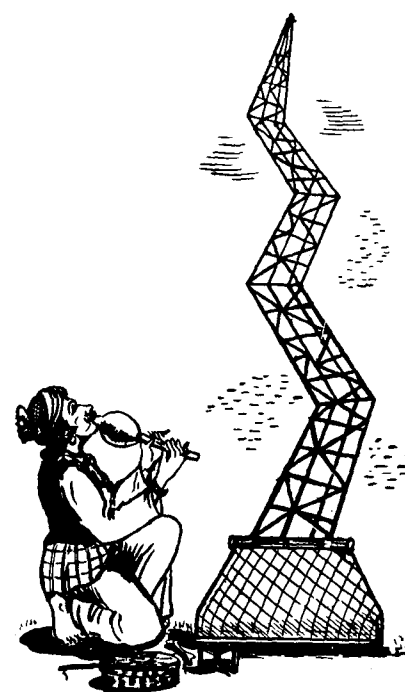
Third Five-Year Plan Draft Outline
The Draft Third Five-Year Plan released by the Planning Commission on June 20 provides for a total investments of Rs. 10,200 crores in the economy out of which a sum of Rs. 975 crores is envisaged for power development. The Draft Plan has indicated that out of this sum Rs. 925 crores will be accounted for by Projects to be undertaken by State agencies and Statutory Corporations and Rs. 50 crores * to be invested by Licensees’ Electric Supply Undertakings. The approximate break-up of the outlay by State agencies is:—

Rs. 580 crores for hydro and thermal generating schemes.

Rs. 52 crores for nuclear power.

Rs. 24 crores for uranium mining, fabrication and plutonium extraction plant.

Rs. 270 crores for transmission, distribution and rural electrification.



There is no dogmatic assertion of the suitability of any specific method of generation, and the Draft Outline has indicated that development should be related to the suitability of a Scheme to a given area. In giving consideration to the adoption of a particular method of generation the key factors, which it is considered, should be reckoned are the capital costs per kilowatt of installed capacity, the foreign exchange component, the cost per kilowatt-hour generated, the duration of project construction, its impact on other allied development activities such as coal mining, washeries, irrigation, exploitation of natural gas, and stimulus to the development of new technology, etc. It has been indicated that the average production costs of electricity for hydro, coal-fired and diesel power stations are of the order of 1.2 nP., 3 nP. and 2.5 nP. per kilowatt-hour respectively. The Draft Outline anticipates that the cost of nuclear power generated would be about 3.5 to 4 nP. per kilowatt hour, and so “will be comparable with coal fired stations in areas remote from coal fields.” There is recognition that because of the different characteristics of the various types of power generation, optimum economy can be achieved by proper balance in the different modes of generation and inter-connecting them as far as possible to meet the varying conditions of power demand such as base, and seasonal loads in grid.

The Second Five-Year Plan visualised the raising of the installed capacity to 6.9 million kW of which 1.0 million kW was

to be accounted for by the self-generating industries. The actual achievement is now expected to reach 5.8 million kW. After examining the targets that have been fixed for the various industries, railway traction etc. the Draft Outline has indicated the need for power generating capacity being increased during the Third Plan period from 5.8 million kW to 11.8 million kW—doubling up during the five-year period. This pattern, it has been pointed out, is in line with the conception of 30 million kW of installed generating capacity by 1975-76.

The Draft Outline visualises strengthening of the transmission networks on a large scale. The programme visualised is that from 70,000 circuit miles in respect of transmission lines in 1960-61 the target would be raised to 150,000 circuit miles by 1965-66. This development is expected to absorb a sum of Rs. 165 crores, and in addition a provision of Rs. 105 crores has been set aside for rural electrification.

Speaking of rural electrification, the Draft Outline of the Third Plan provides for the electrification of a further 15,000 villages and towns, bringing the total villages electrified at the end of the Plan period to 34,000. In a vast country like India there are a number of isolated areas where small hydro plants of 10 to 100 kW each can be set up. The cost of such plant is expected to be very modest and such units up to 100 kW capacity “are now being manufactured in the country.” It has been pointed out that in the long run such units “will be more economical than diesel-alternator sets and relatively easy to maintain, and will not involve foreign exchange for their procurement or operation”. It has been indicated that a separate unit has been set up in the Central Water and Power Commission for initiating and assisting in field surveys and in the installation of such plants. The State Governments have therefore been called upon to give special attention to this aspect of power development and formulate suitable programmes.

India's capacity for power development in the coming years will largely be governed by the availability of plant and machinery from indigenous sources. In this context, the establishment of the Heavy Electrical Plant at Bhopal assumes great significance. This plant is already in the preliminary stages of production. In addition to completing the plant at Bhopal and further expanding it during the Third Plan, it has been pointed out that additional plants both in the public and private sectors are also being planned for immediate develop-

ment. These when completed are “expected to meet a substantial portion of the country's need in the fourth plan for hydraulic and steam turbines, boilers, alternators, transformers, switch-gear, etc.”

Bhakra Dam

The first unit of the left bank Power House of Bhakra Dam was inaugurated by Mr. N. V. Gadgil, Governor of Punjab on 14th November 1960.

The Rs. 10-crore Bhakra Power House, has an installed capacity of 90,000 kW and comprises five units each of 11,500 kVA rating capacity. This is the biggest power house in Asia and also ranks among the first ten power houses in the world.

A penstock of 15 feet diameter brings the water from the Gobindsagar reservoir to the scroll casing. The penstock is connected to the scroll casing through a dresser coupling which functions as an expansion joint.

The Indian engineers and workmen laboured round-the-clock to recondition and re-erect the plant after the mishap of August 1959, the worst ever disaster known in the history of dams all over the world. They even succeeded in giving a trial run to the first unit strictly according to the schedule on September 16 last.

Kotah Barrage

The Kotah Barrage, with the Gandhi Sagar Dam and Power House was inaugurated by Prime Minister Nehru on Saturday the 19th November 1960.

As Mr. Nehru pressed a button from a high rostrum, the entire dam and the surrounding area were brilliantly illuminated by myriad electric bulbs and the sluice gates on either bank of the Chambal river slowly lifted themselves.

The waters of this ‘Bloodstream of Malwa’ which will irrigate 11 lakhs acres in Rajasthan and Madhya Pradesh is a successful illustration of inter-state co-operation and a symbol of new India in the making.

The Power House has five units of 23,000 kW, four of which are ready for power generation. The transmission lines about 923 miles in both the states are nearing completion. This winds up the first stage of the Chambal Multi-purpose Project.

Technical Notes

E-X-P-A-N-D-E-D ACSR

In a recent issue of the ELECTRICAL WORLD, three authors (Mr. P. L. LUMSHIZER, Superintendent of Transmission, Pennsylvania Electric Co., Mr. N. K. BARR, Chief Engineer, Electric Conductor Division, Kaiser Aluminium and Chemical Sales, Inc., and Mr. R. L. LARSON, Staff Engineer, Rome Cable Division, Aluminium Company of America) give details of an EHV project of Pennsylvania Electric Company. In the context of the construction of a national, super grid, power engineers in this country should find this article (reproduced here with grateful acknowledgment to the ELECTRICAL WORLD and the authors,) to be of special interest.

FIVE EXPANDED CORE ACSR HAVE BEEN selected for Pennsylvania Electric Co.'s 460 kV prototype transmission line which will be energized this summer. By means of this extra-high-voltage project, Penelec expects to obtain operating experience at 460 kV and to carry on extensive research, including tests on conductors, structures, and equipment to determine the types most suitable and economical for the company's future requirements.

The line joins Saxton and Claysburg, respectively in Blair and Bedford Counties, Pa., and traverses an area considered representative of that served by the utility in terrain and weather. For 13 miles, it parallels a 115 kV line, and arrangements have been made for it to carry the existing line's load to afford experience with the 460 kV line as a link in the Penelec system.

The 115 kV line may become part of a 460 kV line, if the latter voltage proves feasible. Four conductor diameters, selected on the basis of experience with lower voltage lines and on laboratory tests, will be used in four sections of the line. The optimum conductor, it is believed, is bracketed by these sizes. Kaiser Aluminium and Chemical Corporation and Aluminium Co. of America will each supply half of the expanded ACSR in each of the four sizes and will co-operate with Penelec in studying erection problems and conductor performance. The project will require nearly 380,000 ft. of aluminium conductor.

30 Designs Considered

Some 30 conductor designs were considered, and samples of several were fabricated in an effort to arrive at the best

at the lowest cost. Chosen as the four "standard" conductors were the paper expanded ACSR types which have proved themselves over several years of service in lines operating at up to 345 kV.

Besides the four "standards", three spans of a new conductor design will be tried. This conductor has aluminium tubes as the expanding medium. In bundled construction, 4,480 ft. of this conductor will be installed on the middle phase in spans of 550, 445 and 1,245 ft. totalling 2,240 ft. from the Claysburg substation to the end of the third span, a dead end structure.

A sample of this fifth construction was made to test the feasibility of production techniques, and a routine patent search was instituted. Every part of this "new"

design had been covered by George C. Over in his patent issued Nov. 4, 1930.

Normal load will be 750 amp. per phase; emergency load 1,500 amp. Excess capacity, of course, will be available in some sizes and designs. It is difficult to avoid exceeding the metal areas actually required to carry the load in designing satisfactory conductors of such large diameters. The large metal area, reducing I²R losses, often makes the larger sizes more economical over the years. Often the excess capacity can be used economically as load increases.

Starting at the Claysburg substation, the conductors will be installed in the following order:

1. 1.75 in. dia. two conductor bundle, including three spans of tubular expanded conductor, 4.14 miles.
2. 1.60 in. dia. two conductor bundle, 3.17 miles.
3. 1.40 in. dia. two-conductor bundle, 3.78 miles.

Information will be sought on the costs of stringing two-conductor bundle lines compared with single-conductor of larger sizes. To make this comparison conclusive however, it would be necessary to string longer sections to allow time for improved organization and better use of manpower and equipment.

Spacing between conductors in the bundle will be 16 in. Flat-phase spacing

will vary between 24 and 43 ft. It will be 24 ft. on the four-pole tangent structure, where insulator vee-strings will restrain conductor side swing; 39 ft. on laminated-wood, H-frame structure; and, 43 ft. on steel-tower tangent structures, where single suspension insulator strings will be free to swing. Table I contains the calculated values of resistance, inductive reactance, and surge impedance for phase spacing of 24 to 39 ft.

In all, there will be about 15 structure designs, using various arrangements of wood poles, laminated wood, and steel towers. Suspension strings will contain 26.5 in. by 10 in., 25,000-lb. rated insulator units, and in dead-ends 30 similar units. Shielding rings will be installed on the conductor end of the strings.

Table II gives some idea of what the supporting structures will carry in loads per ft. of conductor and overhead ground (static) wire, either bare or subjected to ice and wind loads as specified by the National Electrical Safety Code for the Heavy Loading District.

A variety of accessories will be used to obtain construction and operating experience for determining the most suitable and economical materials. At conductor suspension points, both twisted and performed type armour rods will be installed. Suspension clamps will be aluminium alloy. Armour grip suspension units will be used at some suspension points, and corona spheres will be placed on the ends of

armour rods. Splices and dead-ends will be compression type.

In two-conductor bundle sections, several spacers will be used, including solid bar, coil spring, and performed types.

RI Tests slated

All conductor will be strung under tension to minimise chances of abrasion which could result were the conductor pulled out over the ground. Lighting protection for the line will be two overhead ground wires, either 1½ in. Bethlehem "C" steel or 1½ in. (seven-strand No. 6) Alumoweld.

Radio interference and corona loss will be measured. To facilitate RI measurements, wave traps will be installed between each of the four sections of line using different conductors so as to isolate noises produced by conductors in each section. Facilities will be on hand for opening the line between each of the four sections as well as at each end. This provision will permit the line to be energized from one end while noise measurements are made on one, two, three, and four conductor sections. The procedure can be repeated with the line energized from the opposite end. Such measurements, along with those on each section of the line closed at both ends, are expected to furnish comparative noise levels for each type of conductor. During noise measurements, a complete record will be kept of weather conditions.

TABLE I—CALCULATED CONDUCTOR VALUES

Dia.	MCM	AC Resistance at 50° c. Ohms/mile.	Inductive Reactance Ohms/mile.	Capacitive Reactance Megohms/mile.	Surge Impedance Ohms/Phase mile.
24 ft. Phase Spacing					
1.40	1864 ¹	.0558	.5734	.1390	282
1.60	2550 ¹	.0416	.5692	.1370	279
1.75	2828 ¹	.0378	.5631	.1357	276
1.75	3282 ^{1*}	.0312	.5604	.1357	276
2.32	2294 ²	.0503	.7701	.1848	378
39 ft. Phase Spacing					
1.40	1864 ¹	.0558	.6323	.1534	311
1.60	2550 ¹	.0416	.6281	.1514	308
1.75	2828 ¹	.0378	.6220	.1501	306
1.75	3282 ^{1*}	.0312	.6193	.1501	306
2.32	2294 ²	.0503	.7701	.1848	378

¹ Two-conductor bundle, 16 in. spacing

² Single conductor per phase

* Area of tubes included

TABLE II—CONDUCTOR AND STRUCTURE LOADING

Loading—lb. per ft.					
Conductor MCM	Dia. in.	Vertical weight : bare conductor	Vertical weight, conductor ÷ ½" ice	Horiz. wind 4 psf ice	Resultant* Constant of 3.01 Lb.
* 932	1.40	2.804	5.167	1.600	6.030
* 1.275	1.60	3.654	6.266	1.733	7.122
* 1.414	1.75	4.254	7.053	1.833	7.907
* 1.641	1.75	3.730	6.530	1.834	7.402
* 2.294	2.32	3.375	5.129	1.107	5.557
Static Wires 7 No. 6 Alumoweld ...	.486	.416	1.030	.495	**1.433
2r EHS Bethanized "C" Steel ...	.495	.517	1.136	.498	**1.530

* Loading is for two-conductor bundle

** Used constant of 0.29 per NESC, 5th Edition

*** Area of tubes included

COMPANY'S FOURTEENTH ANNUAL GENERAL MEETING

Chairman's review

THE FOURTEENTH ANNUAL GENERAL Meeting of the Aluminium Industries Limited was held at Kundara on 10th October 1960.

Addressing the shareholders on the occasion, Mr. S. Narayanaswamy, Chairman of the Company observed that ALIND had set up some records in 1959-60 and that the production of bare conductors had improved to 34,400 miles from 26,300 miles in the preceding year, and that of covered conductors to 7 million core yards from 3.50 million core yards.

The following is the text of Mr. S. Narayanaswamy's speech :—

Gentlemen,

Before I commend the results of the year for your consideration and move for adoption of the Annual Report and Accounts, I would like to make some observations by way of review of performance and of assessment of prospects. ALIND has set up some records in 1959-60. The production of bare conductors improved to 34,400 miles from 26,300 miles in the preceding year and that of covered conductors to 7 million core yards from 3.50 million core yards. Our profits before allowing for depreciation and taxes were Rs. 47,69,783.00 for the year while the corresponding figure for the previous year was Rs. 33,54,830.00. The increase in profit of just over Rs. 14 lakhs enabled us to make provision for the increased tax liability of Rs. 16 lakhs wholly from out of the year's revenue, after providing Rs. 11,88,838.00 towards normal depreciation and Rs. 4,36,750.00 towards Development Rebate. This profit has enabled us to recommend a dividend of 18 per cent for the year, which leaves in the hands of the shareholder a nett dividend of 12.6 per cent as against a "tax-free" dividend of 12.5 per cent, which the shareholders have

been receiving since the Company commenced paying dividends in 1951. Your Directors are happy to have been able to recommend a retainable dividend not below the quantum of previous years.

COVERED CONDUCTORS

The demand for our covered conductors has been increasing rapidly and we have been stepping up our manufacturing capacity to satisfy this growing demand. It is evident that our covered conductors, while fulfilling the exacting stipulations of our more fastidious customers and wiring contractors, are found to be well within the reach of middle income groups, judging by the broad pattern of our custom and the heartening absorption of our output. I have reason to hope we shall do even better in covered conductors this year. The monthly production curve in the current year seems to bear out my optimism.

HIRAKUD

Our Hirakud Plant has been in full commission, with the Chief Minister of Orissa doing us the honour of switching on the Rod Rolling Mill earlier this year. Our Hirakud Rod Rolling Mill, which is an improvement on our Kundara Unit, has a rolling capacity in excess of what our cable unit can absorb. The surplus is being sold to sister bare conductors manufacturers. Our enhanced installed capacity since Hirakud was commissioned has enabled us to make nearer-dated delivery offers than before and there is evidence that consuming Governments and Electricity Boards are appreciative of our less remote-looking delivery dates. Despite increasing competition resulting from the larger installed A.C.S.R. capacity in the country, the demand for ALIND conductors continues satisfactory.

GALVANIZED STEEL WIRE PROJECT

At Kundara our work in connection with the high tensile steel wire Plant has commenced. The terrain having been levelled, work in connection with the Factory buildings will shortly get going. I am confident we shall keep to our original time table of commissioning the Plant early in 1962. The visit of our General Manager to Japan has enabled us to get a clearer picture of the technical details as well as our commitments and this I am happy to say has enabled us to secure some economies in the capital outlay. Our Japanese collaborators Messrs. Kokoku Iron & Steel Wire Manufacturing Co. Ltd. with whom we are already linked in regard to steel wire supplies now consumed by us, have been most helpful in meeting our requirements. We have deputed one of our engineers to Japan to get the necessary factory training meantime. On completion of this project, we shall achieve self-sufficiency in our range of bare conductor raw material and I am glad that we shall be the first in the country to achieve it.

The company is continuously exploring the possibilities of new lines of development and at the moment we are examining one particular project in regard to which the potential seems large. Our colleague on the Board, Mr. B. V. D. Menon, has just returned after a trip to Europe where he has had discussions with our technical consultants who have been most helpful. The financial and foreign exchange aspects of this attractive project are under scrutiny by the Board. You will appreciate it is not in the interests of the company that I should disclose more about it at this stage—at any rate till we are sure we have all the facilities for embarking on it. We have every hope that the company will shortly be enabled to make an announcement.

REVIEW OF TARIFFS

The Tariff Commission have taken up for review the questions of continuing protection for the bare conductor industry as the present tariff expires in 1960. The picture as to external aluminium conductors has altered considerably in the last two years. The aluminium metal price has declined in Europe and America and there has been a corresponding marking down of bare conductor prices. World competition for bare conductor markets, particularly in project-intensive countries like India, has increased greatly. Countries that command low cost aluminium have a natural advantage over countries like India that produce them at high cost. Another new factor the Indian conductor industry has to reckon with, is the offer of bare conductors by some European countries on rupee payment terms, which claim to take the sting out of our foreign exchange stringency. The Central Government have been inclined to encourage these rupee payment deals in bare conductors, notwithstanding the large installed capacity in India licensed by them.

The decline in foreign conductor prices on the one hand and the high cost of bare metal in India have been tending for sometime to neutralize the advantage of protective tariffs. Since the Excise Duty was imposed on electrolytic aluminium of Rs. 300.00 per metric ton under the Finance Act of 1960, notwithstanding the countervailing import duty, it is possible for a foreign seller of bare conductors to place his wares on the Indian market on terms more attractive than those of domestic producers, when rupee payment is acceptable to the sellers. Indian conductors made with indigenous high cost metal with the excise duty of Rs. 300.00 per metric ton of metal pyramided thereon create an impression of exorbitance which is not healthy for a growing industry. This is a point for serious consideration by the Tariff Commission.

PRICE FIXATION

Another aspect of the matter is that of fixation of ex-factory prices on the basis of costing principles

approved by the Tariff Commission. Price fixation is intended to protect consumers against high prices and profiteering. However the levy of an Excise Duty of Rs. 300.00 per metric ton on bare metal has lifted the table of conductor prices in such a manner as to deprive ex-factory price fixation of much of its significance from the consumers' angle. I often wonder if the fixation of ex-factory prices, with which duty Central Government have charged the Tariff Commission, affords any satisfaction to the consumer, who is intrigued by the spectacle of the same Central Government levying excise duties on the very articles the factory cost of which is so painstakingly investigated by Cost Accountants of the Tariff Commission, who incidentally take care to see that in the process, some very legitimate outgoings by way of expenditure are disallowed.

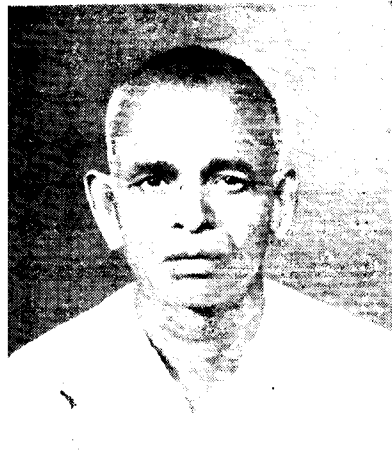
It is interesting to observe from a press summary recently published that the World Bank Mission have recommended a re-examination of the present system of price fixation by the Tariff Commission, based on a 8 to 12 per cent return on capital employed, on the ground that such a system in actual experience, leaves little finance for expansion. While I have not read the full report, it is clear from the press summary that the World Bank Mission, from a wider and more objective angle and with its vision undistorted by 'vested interests,' have strongly endorsed the view held in many responsible quarters in this country, that the present rigid price fixing policy based on employed capital has whittled down retainable resources in the background of prevailing high cost expansion needs. The consumer in whose interests all this relentless vigilance is claimed to be exercised, finds meantime, that the small gains in ex-factory price fixations are more than cancelled out by Excise Duties levied on the article when it reaches him. One hopes the Central Government will give the World Bank Mission report the attention that so high-level and disinterested a document deserves—in the interests of internal capital formation in industry.

In the case of the aluminium bare conductor industry, about 98 per cent of the consumption is by State Governments, project authorities and Electricity Boards. The incidence of these excise duties therefore falls on Governmental bodies and the duties have the effect of channelling revenue from States and Statutory Boards to Central Government; which means a retrocession in part of Plan finance earlier provided by the Centre to these Governments and Agencies. It is a rehash of the classical story of the serpent eating its tail.

In the process of reconnoitering for resources to finance our Plans, our tax gatherers particularly in the field of indirect taxation, unwittingly but not infrequently fly to great heights only to do parachute landing on the un-muscular shoulders of State Governments, who are not slow to avail of these handsome opportunities for clamouring for larger plan allocations to meet the larger expenditure. Today consequently we see this snowball of consumer prices and project costs assuming disconcerting proportions.

In conclusion, I must take the opportunity of placing on record our great appreciation of the loyalty and capacity for team work first among the top executives of the Company, which has enabled the units at Kundara and Hirakud to be maintained at a high pitch of efficiency and secondly the sense of dedication with which the engineers, technicians and all ranks of skilled and unskilled workers have carried on the good work of the company. I cannot resist paying a tribute to the work done by our colleague on the Board Sri B. V. D. Menon, whose vigilance and foresight have enabled us to grow as we have done; to our General Manager Sri V. G. G. Nayar, whose energy and zeal have imparted dynamism to our work both routine and development; to Sri N. Satyanathan our Secretary, whose clear-headed approach to our accountancy and costing problems has enabled us to keep our affairs in proper trim.

Our Family



N. Govindan Asari to whom we said farewell



D. Y. Varghese Panicker whose gift of the gab proved rewarding at a U.N. day function

Mrs. Abraham and Jacob Abraham, one of our new bridal couples



We said welcome to . . .

K. K. Velayudhan (Supervisor), (Plant No. 3)
N. Balan Pillai (Clerk)
K. R. Ramachandran Nair (Clerk)
E. S. P. Nair (Clerk)
P. K. Vasudevan Nair (Clerk)
P. Sivasankaran (Assistant Engineer)
P. K. Krishnan Nair (Assistant Engineer)
S. Seshadrinathan (Assistant Engineer)
M. K. Mani (Assistant Engineer)
T. K. Gopalan Nair (Project Accountant)
N. Madhavan (Assistant Personnel Supdt.)
N. Ramabhadran (Clerk)
S. Harihara Iyer (Clerk)

APPRENTICES

Baruch Varghese
M. M. Philip
Mir Valiyulla Hussain
Denzil Jacob
N. Jayachandra Bose
T. V. Bhaskaran
R. Sasidharan Nair
M. Sukumaran Nair (Plant No. 3)
P. A. Kamarudeen
P. A. George
N. S. Indrapalan Nair

We said farewell to . . .

N. Govindan Asari

U.N. DAY

THE FIFTIETH UN DAY WAS CELEBRATED under the auspices of the Alind Recreation Club in the Club Hall on the 25th October 1960. V. G. G. Nayar presiding.

An elocution contest was held in which twelve students from local schools participated.

D. Y. VARGHESE PANICKER from M.G.D. School, Kundara was declared first and awarded a silver medal and Rs. 40.

V. BALAGANGAN and P. J. THOMAS, who were placed second and third, received Rs. 20 and Rs. 15.

Mr. Thomas Chandy, Manager, Peirce Leslie & Co., Kundara, Mr. Warriar, Asst. Educational Officer, Kundara, Dr. M. S. Nayar, Medical Officer and S. Peer Mohammed, Sales Manager acted as judges.

Amongst employee speakers on the occasion were M. K. Varughese and G. K. Warriar, S. K. Vikrama Kumar and V. N. Subramanyam.

At the Quilon District League Football match conducted this year, the ARC team retained the Janis Spink Trophy for the fourth year in succession.

Mr. Bhaskara Marar, IPS, Supdt. of Police, Quilon, presents the JS trophy to K. K. M. Nair, Captain of the Alind Team



Hammer thrower

N. ANANDA PADMANABHA KURUP, Sales, is a B.Sc. from St. Berchman's College, Changanacherry and a B.COM. from N. S. S. Hindu College of the same place. He took his science degree in 1954 and his commerce degree in 1957.

During 1957-58, he was a clerk in the I.G.'s Office, Trivandrum, and during 1958-59, an accountant in Kerala Service Bank.

Kurup's sports activities include tennis and hockey, and he is a hammer-throw prize-winner, too. His hobbies are reading novels (Somerset Maugham is a favourite) and playing cards.

Music—his food of love

E. ARTHUR GONSALVEZ, Junior Operator, C.C. Plant, who joined Alind in 1957, had his education at Infant Jesus Anglo-Indian Boys' High School, Quilon. He is a matriculate. A bachelor still (but he is only 23), music is his food of love. Fiction (English), films (Hindi) and football are other favourite relaxational pursuits with him.

Practising Catholic

F. BENZILY, Operator, Wire Mill, has a very noble ambition in life—he wants to be a practising catholic. Indeed, such spare time as he has he devotes to social service. Novels with a purpose and short stories that point a moral are his favourite reading matter.

One-thing-at-a-time man

'Work while you work, play while you play' is the motto of N. CHELLAPPAN PILLAI, Junior Operator, Wire Mill, four times Efficiency Award winner.

Chellappan Pillai joined Alind about six years ago. Outside of work, reading and volleyball are his two chief interests. His favourite author happens to be a namesake—N. P. Chellappan Nair.

Chellappan Pillai considers the death of his father his most unforgettable experience.

Efficient Guard

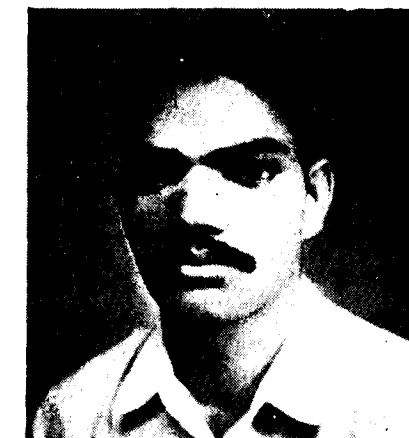
R. DAMODARAN, Guard, is a former military man, who joined Alind in 1955. Winner of a class 'A' certificate of merit for showing a high level of efficiency, he has, also, won prizes in volleyball and tug-of-war. Kumaran Asan is his favourite author, and short stories are what he likes most in reading material.

'To lead a true and pious life' is his ambition.

F. Benzily



N. Chellappan Pillai



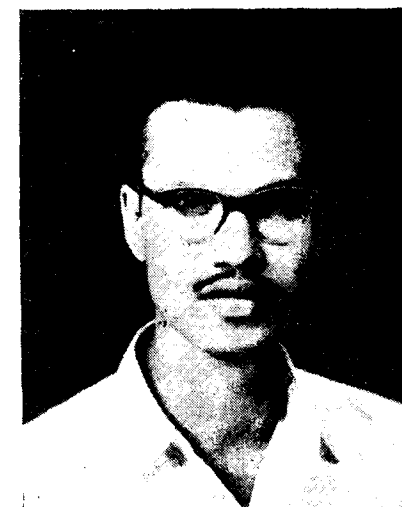
R. Damodaran



Alinders



N. Ananda Padmanabha Kurup



E. Arthur Gonsalvez



Independence Day Procession: Alind juniors march from the Administration Block area to the factory entrance for flag salutation.



INDEPENDENCE DAY

"AUGUST 15" WAS CELEBRATED BY ALINDERS WITH customary solemnity. The ceremony took place at the Time Office with V. G. G. Nayar unfurling the national tricolour to choral singing of the National Anthem. A detachment of guards smartly saluted the flag as it fluttered in the breeze.

A feature of this year's celebration was a music recital by Thiruvattar Ravi with orchestral accompaniment by Coimbatore Rajan and party.

With the distribution of sweets to the children present, the function came to a close.

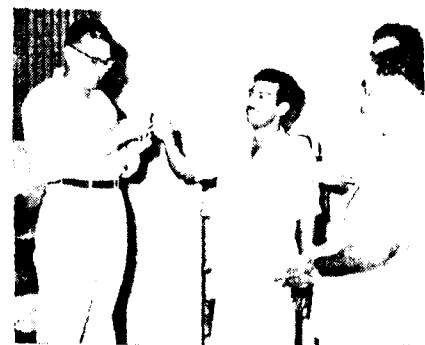


Marthanda Varma: The Independence Day entertainment programme included the staging of this historical play dealing with the rule of one of the builders of the former Travancore State. These three pictures depict some moments from the play.

THE MEN WHO CAME TO DINNER!

Alind Mess (Dormitories) had their annual dinner on October 10.

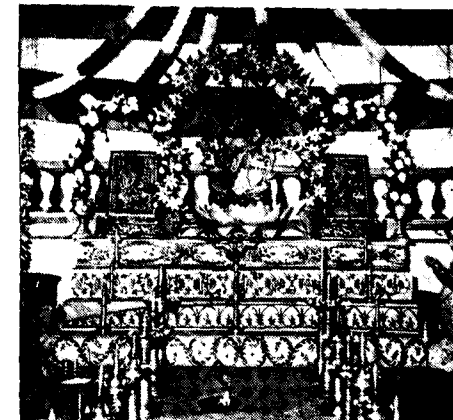
Facilities added to the mess during the year include a milk bar declared open by V. G. G. Nayar on October 23.



Cheers...at the new Milk Bar!

ALIND CELEBRATED AYUDHA POOJA as a grand art festival for two days on September 29 and 30. We started off with a procession, a bedecked elephant carrying the image of Saraswati—the patron goddess of learning and wisdom from the new ACSR core wire project area to the *Pooja Mandap* in the reel shop area.

At the Administration Block entrance Mrs. Vijaya G. Nayar received the procession in traditional style with *Kuthuvilakku* and *Nirapara*, and at the Time Office, S. Peer Mohammed gave the procession a similar grand reception.



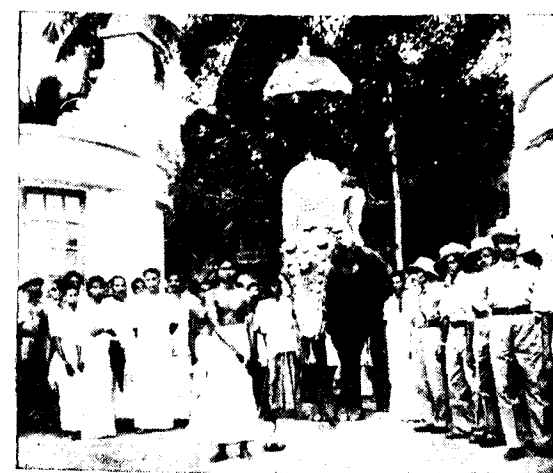
The Pooja Mandap

Pooja Veipu (installation ceremony) on the first day was followed by a *villu pattu* (folk music) by the Kerala Police Special Armed Unit from Trivandrum.

On the second day after *pooja eduppu* concluding rites we had music (*Ash-tapadi*) and devotional singing and readings from the scriptures. Following this programme was *Ottam thullal* (one-man ballad opera) by Chennannur Rukmini Devi and party.

The music recital by Mrs. Parasala Ponnammal and party in the evening and the play *Visha Vriksh* were other well-attended events.

A *kathakali* performance on October 2—*Nizhalkuthu*—was thrown in this year as a bonus item!



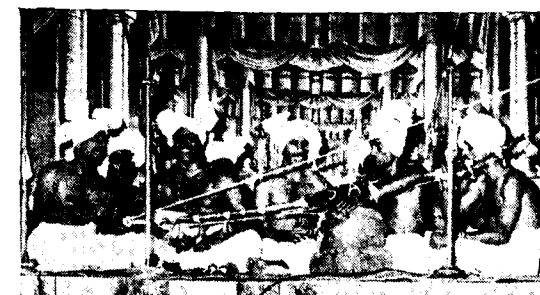
The procession: A bedecked elephant carries the image of the Goddess Saraswati

AYUDHA



Thullal dance by Rukmini Devi

POOJA



The villu pattu programme put over by the police party

GRAND



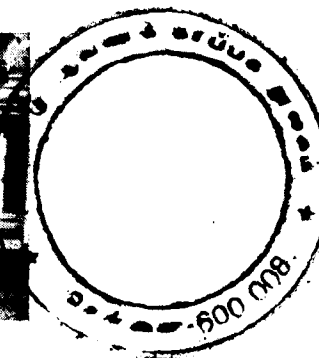
Music recital by Mrs. Parasala Ponnammal and Party

ART

FESTIVAL



Readings from the scriptures by Thazhava K. P. Janamma and K. P. Ramakrishna Pillai



A scene from Visha Vriksh



A scene from Suna mabti



The complete cast who took part in the Oriya play



A scene from Oru muri thenga



The cast who took part in the Malayalam play



The imposing four-foot idol of Lord Viswakarma

Viswakarma Pooja at Hirakud

VISWAKARMA POOJA WAS CELEBRATED by Alinders at Hirakud in great style for three days commencing from September 16.

An imposing, four-foot idol of the Lord was specially commissioned and mounted on a gaily-decked dais. Pooja proper was offered on the first day at 12 noon, that being considered the auspicious hour. Priests chanted Vedic hymns, while two *bhajan* parties rendered devotional music.

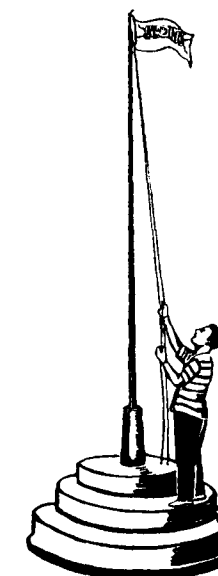
In the evening, an Adivasi dance brilliantly choreographed by one of our talented amateurs—who however prefers to remain anonymous—was executed by a score or so of local belles.

The programme on Sept. 17, included two plays one in Oriya (*Suna mabti*) and one in Malayalam. *Oru muri thenga*). Both efforts were extremely well received.

The immersion ceremony of the Lord took place on Sept. 19.



Administration Block—illuminated for the Decennial celebrations



Alind completes ten years CELEBRATIONS AT KUNDARA

Kerala Chief Minister Presides

"AN INDUSTRIAL ESTABLISHMENT should not merely be after making money, but it should also strive for the progress of the nation and do its best for the welfare of the workers. Likewise, the worker should also contribute his share to the advancement of industry" declared Mr. Pattom Thanu Pillai, Chief Minister, Kerala State, who presided at the decennial celebrations of the Aluminium Industries Limited held at Kundara on October 8.

The venue of the function was the site of the old office, behind the new Administration Block. A huge *pandal* had been put up, and with flags and festoons and other decorative paraphernalia, the roof over our heads looked most impressive indeed. But more important than the *pandal* was that elusive thing called "atmosphere"—charged with drama, packed with history. Up on the dais against a beautiful, blue backdrop were seated

Kerala's Chief Minister, the guest speakers, the Chairman of the Company and other Directors.

Mr. Thanu Pillai also said: "We owe this factory to the genius of Mr. V. Seshasayee and thanks to his ardour, sincerity and diligence this State has witnessed considerable industrial development".

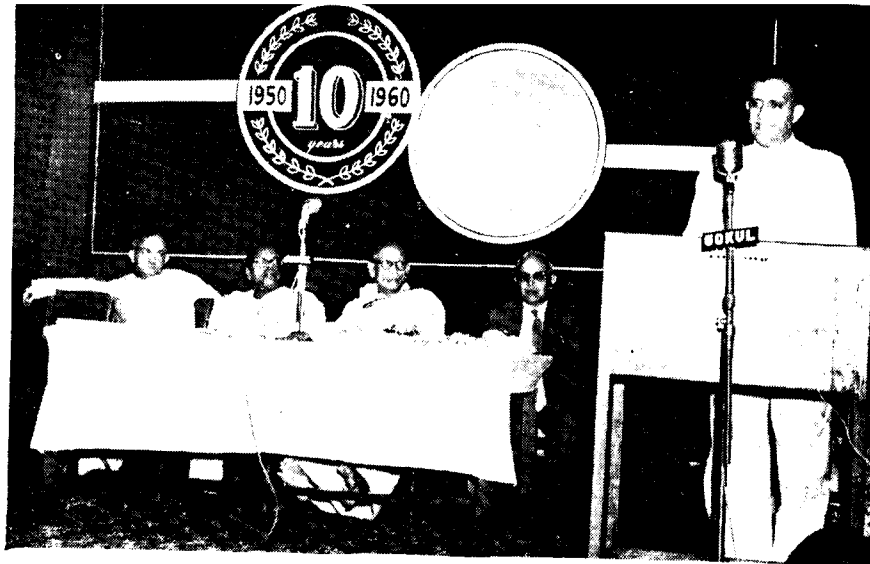
Continuing, the Chief Minister observed: "I am very happy to note that the management is doing its best to promote the welfare of the workers. I would like to see the same happy harmonious relationship prevailing in other industrial units."

A large gathering of officials, company directors, employees and visitors from all over the country was present.

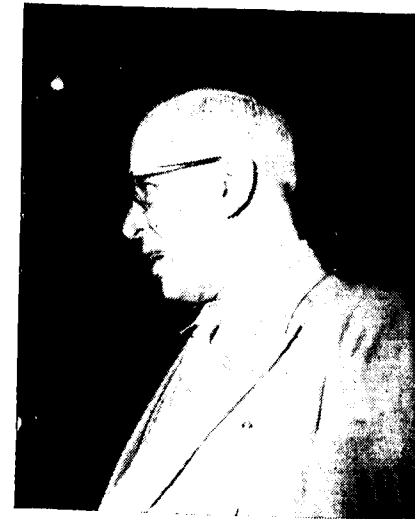
After invocation and a welcome song, Mr. S. Narayanaswamy, Chairman, Board of Directors, welcomed the gathering. Mr. Narayanaswamy said: "Ten years is a short period in the history of a country, perhaps not so in the history of an industrial establishment in extremely changing times".



Mr. T. K. Narayana Pillai, a former Chief Minister of the State who delivered the Decennial Day address and Mr. Pattom Thanu Pillai, Chief Minister, who presided



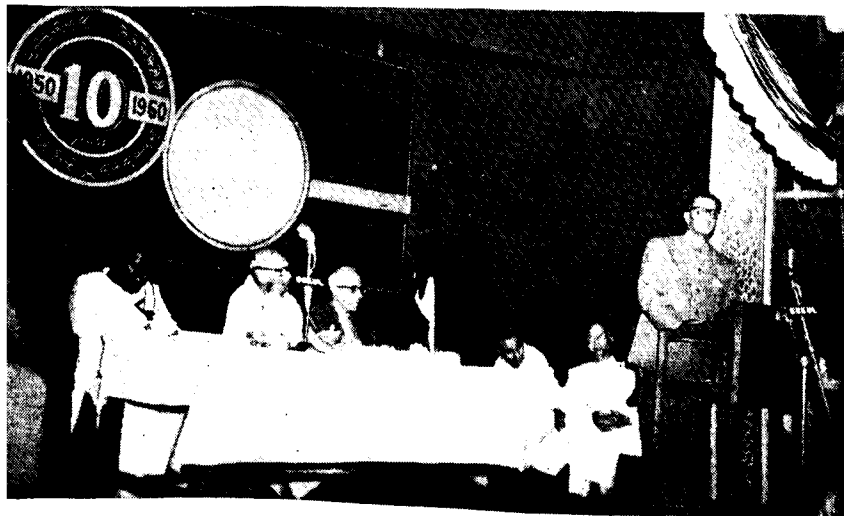
Mr. B. V. D. Menon addresses the gathering



Mr. S. Narayanaswamy, Chairman, who welcomed the gathering



Directors and Officers of the company with guests



Mr. A. O. Oommen, Chairman, Kerala State Elec. Board, one of our guest speakers

He continued : " We have in our own way developed this project in a very peculiar manner over a period of ten years. We started with stranding machines and made cables. We went into rod rolling at a second stage. From rod rolling we have come to covered conductors. And from covered conductors we have now gone into the production of high-tensile galvanized steel core wire ".

The speaker also paid tributes to Dr. C. P. Ramaswami Aiyar for initiating the project, to Mr. V. Seshasayee for implementing it and to Dr. K. P. P. Menon, Chief Engineer of the former Travancore Electricity Department for arranging for all the necessary technical assistance for putting through the project.

Among those who had sent messages of greetings and good wishes were Mr. V. V. Giri, Governor, Kerala State, Mr. V. K. Velappan, Minister of Electricity, Kerala State, Mr. K. A. Damodara Menon, Minister of Industries, Kerala State, Mr. P. Ranga Reddy, Minister of Electricity, Andhra Pradesh, Dr. C. P. Ramaswami Aiyar, the Bishop of Quilon, Dr. B. D. Kalelkar, Chief Industrial Adviser, Government of India, Mr. V. P. Appadurai, Chief Engineer and Technical Member, Madras State Electricity Board, Mr. V. Pappu, Chief Engineer, Andhra Pradesh State Electricity Board, Mr. H. V. Narayana Rao, Chief Engineer (Electricity), Hydro-Electric Construction Projects, Mysore

Invocation : Second from left is Mr. Panampalli Govinda Menon, another former Chief Minister of the State



State and Mr. M. S. Kulkarni, Technical Member, Maharashtra State Electricity Board.

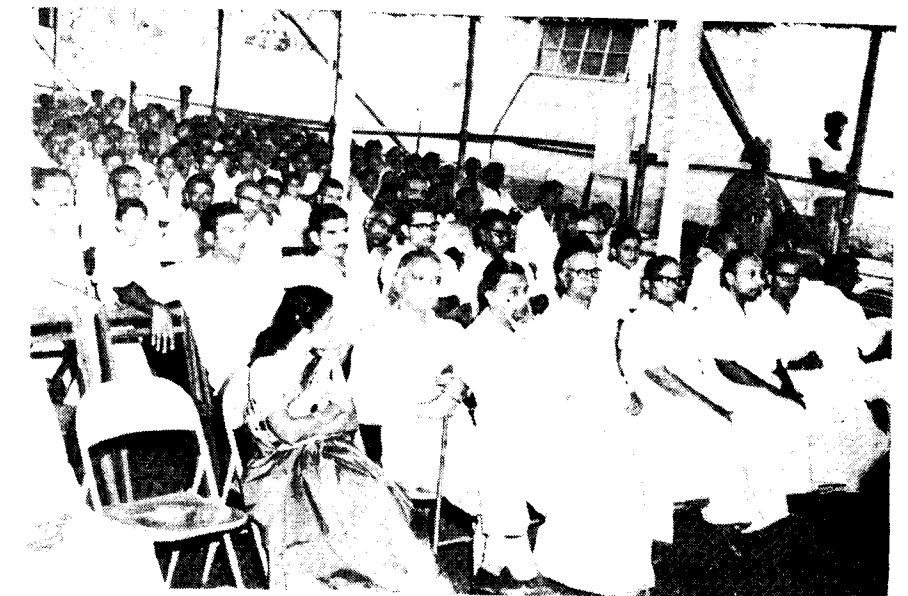
Tracing Alind's " Ten Years of Growth ", Mr. B. V. D. Menon, Director, briefly dwelt on the historical highlights of this eventful epoch.

Mr. Menon said : " In 1950, when we started we had a strength of only 75 employees and a capacity of 1,500 tons of bare aluminium conductors. The annual production worked out to a value of roughly Rs. 40/45 lakhs. And during the years 1952 and 1953, competition first began to be felt in the Indian market and we realised that unless we expanded we would not be able to stand on our legs longer ".

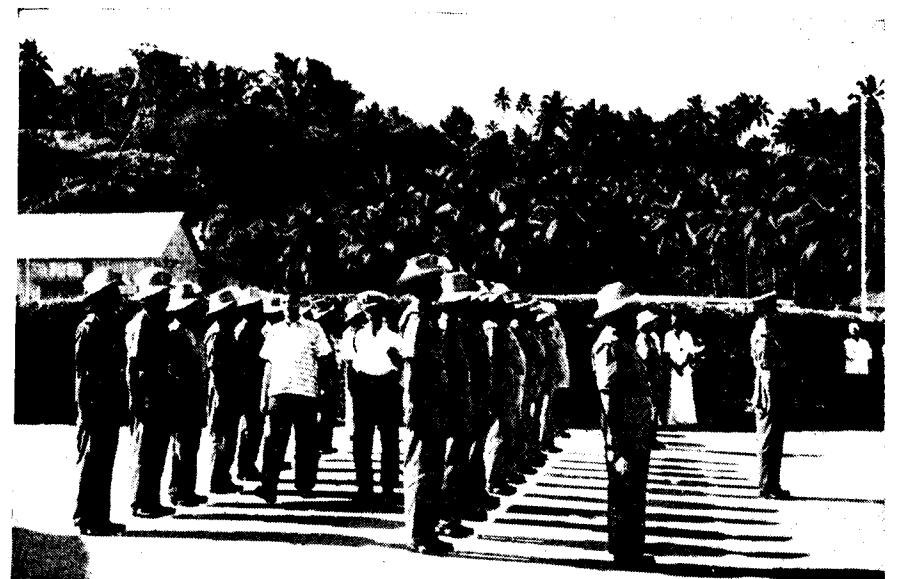
Continuing, he said : " In 1955, our rod rolling mill was established. A ' Properzi ' mill, this was the fifth or sixth of its kind in the world, and the first of its kind in India. And we are very happy to say that this process has come to be accepted as a modern and most economical method all over the world ".

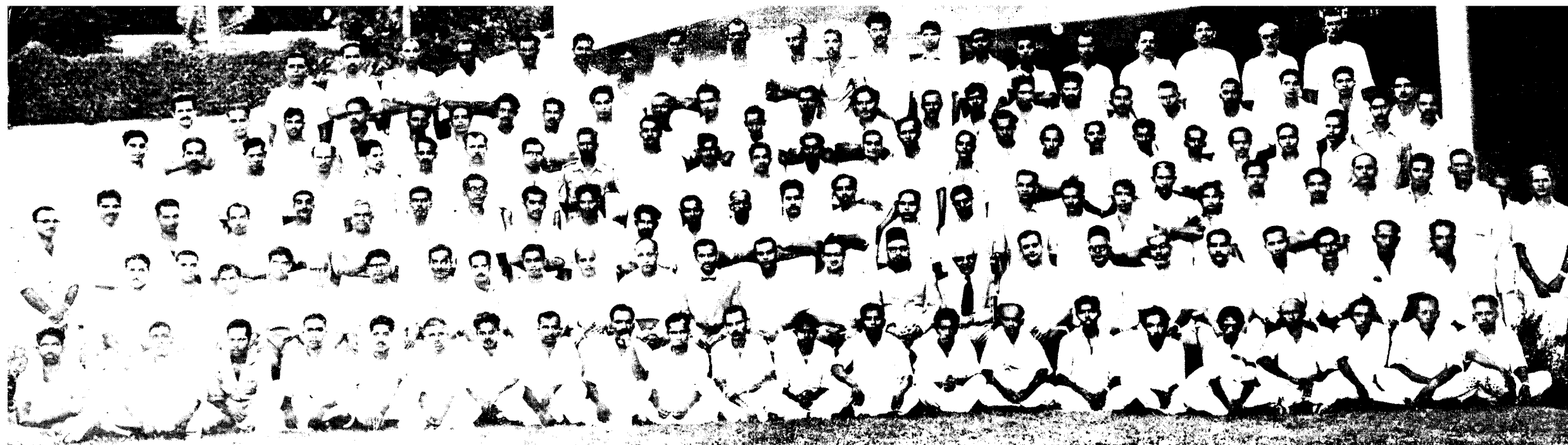
Mr. Menon also referred to the pioneering of a covered aluminium conductor project by the company in 1957 and to the setting up of cable making facilities at Hirakud in 1959.

In closing, he paid a tribute to the power engineers of the country who had co-operated with the company in spreading the gospel of aluminium conductors.



A section of the audience present on the occasion.





Directors along with employees

who have been with

the Company for

a decade

Delivering the "Decennial Day" address, Mr. Parur T. K. Narayana Pillai, who as Chief Minister of the State ten years ago had officially declared open Alind's Kundara Works, observed that all the industrial units started by the late Mr. V. Seshasayee in Kerala were thriving units. He also complimented Alind on the measures it had adopted for advancing the social, financial and cultural interests of its employees.

Referring to the impression generally prevalent outside the State that

Kerala was rife with industrial strife, Mr. Narayana Pillai said Alind offered concrete evidence in refutation of the theory.

Mr. A. O. Oommen, Chairman, Kerala State Electricity Board said: "We are celebrating to-day the tenth anniversary of one of Kerala's key industries—The Aluminium Industries Limited, Kundara. This industry was started about ten years ago, largely due to the pioneering genius of the late Mr. V. Seshasayee. I am sorry that Providence has not

permitted us to have him here with us to-day. His pioneering spirit, his far-sightedness, his capacity for organisation and leadership, and this above all, his affection for his staff and workers, have immensely contributed to the birth and the growth of this industry. Let us therefore pay homage to that great industrialist on this auspicious occasion."

He added: "Being pioneers in this industry, the Aluminium Industries enjoyed for the first few years an exclusive interest in the manufacture

of aluminium conductors. Recently, about ten more such manufacturing units have gone into production elsewhere. This has created competition, but it has given greater impetus to this factory to improve on its efficiency, and to expand its activities."

Mr. Oommen concluded: "Ten years may be a short period in the life of a nation, but this is not so in the life of an industry of this nature. The teething and incidental problems were great and I congratulate the

management on their efficient performance and the workers and staff for their willing co-operation, without which, the industry would not have attained its present high position. To the manufacturer of our most important basic requirements, I wish all prosperity and many happy returns of the day."

Mr. Panampalli N. Govinda Menon, a former Chief Minister of the State said: "Alind furnishes a classic example of success—of what

industry and hard work can accomplish. The company is an object lesson to other industrial establishments. Starting in Kundara, Alind has ramified in Orissa State. May the message of harmonious employer-employee relationship that this industry holds spread to all the States."

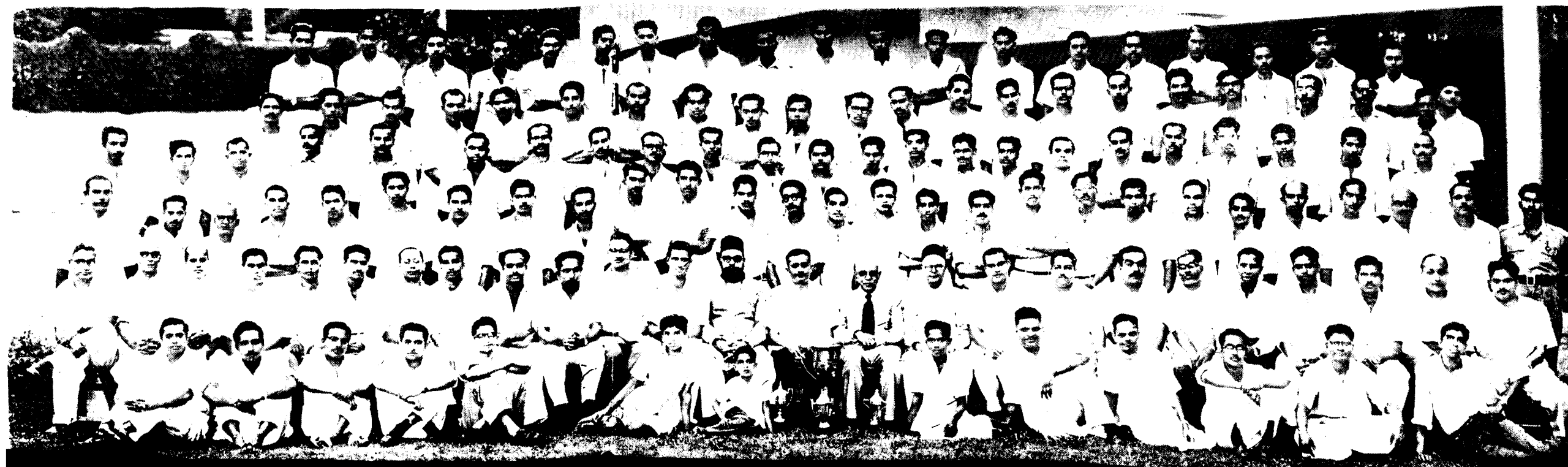
With a vote of thanks proposed by Mr. V. G. G. Nayar, General Manager, and the singing of National Anthem the proceedings came to a close.

Prize-winners in sports and

games, Efficiency

and Suggestion

award winners



DECENNIAL ENTERTAINMENT

Rich and varied fare provided



THE ENTERTAINMENT FARE OFFERED ON the three days of decennial celebrations was a rare treat both for the eye and the ear.

Mrs. Kamala Kailasanathan's music recital on Oct. 8 served as a sort of overture to the proceedings. The Kerala Police band was in attendance throughout.

And who ever could imagine that a police band would be so good? The force is certainly not what it used to be in the bad, old days! Well, it still perhaps wields a baton, only the baton is that of a maestro!

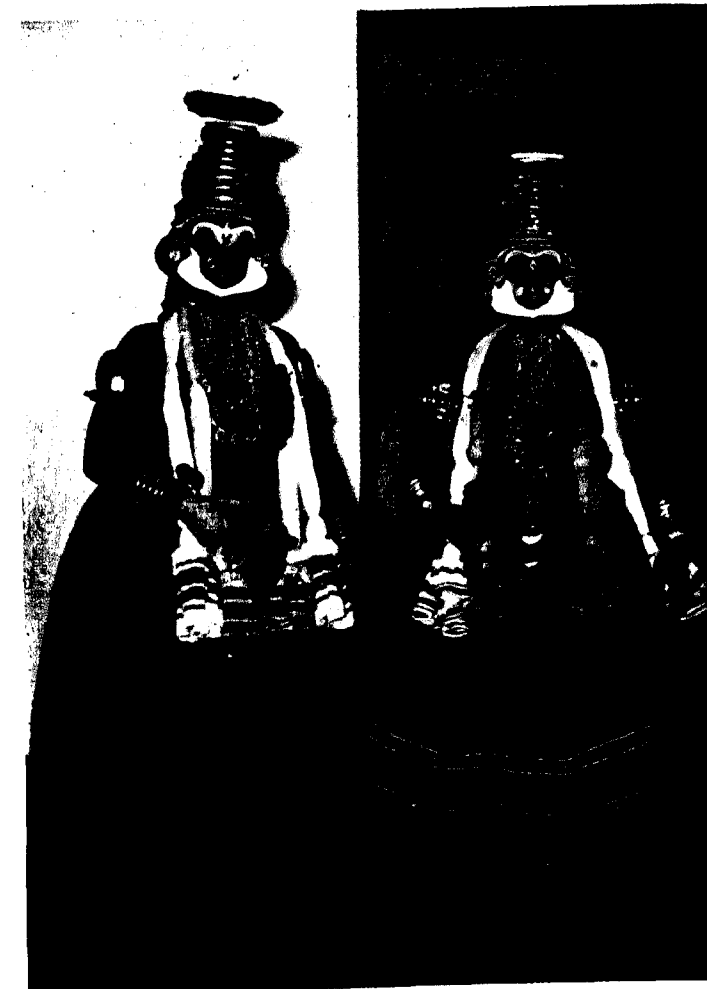
The first day programme also included a brief (i) *Bharata Natyam* recital, (ii) *Mohini Attam*, and (iii) a folk dance item.

The troupe was drawn from Kerala Kalamandalam, Cheruthurthi. The musical score was by Rajalakshmi and party.

A *kathakali* piece came as a fitting climax to the day's programme. There is nothing extraordinary about a *kathakali* performance in Kerala, only in this piece, among the artistes present, was C. R. Jones, an American enthusiast of Kerala's traditional dance-drama art-form.

On Oct. 9, again, we had a musical prelude provided for our "Factory Day" meeting, the artiste being Thuraiyur Santa. But what was perhaps the highlight of the evening's programme was *Alindyanam*, after Valmiki, considerably after him!

Directed and produced by K. Seetharaman the cast included besides himself such Alind celebrities as T. K. Radhamonie, M. P. Aravindakshan, M. N. Vasudevan Nair, T. V. Ramachandran and C. S. Parameswaran. The performance was several notches above that of our common, "garden" *bhagavathars*.



Kathakali: The artiste on the left is Mr. C. R. Jones, an American student of the art.

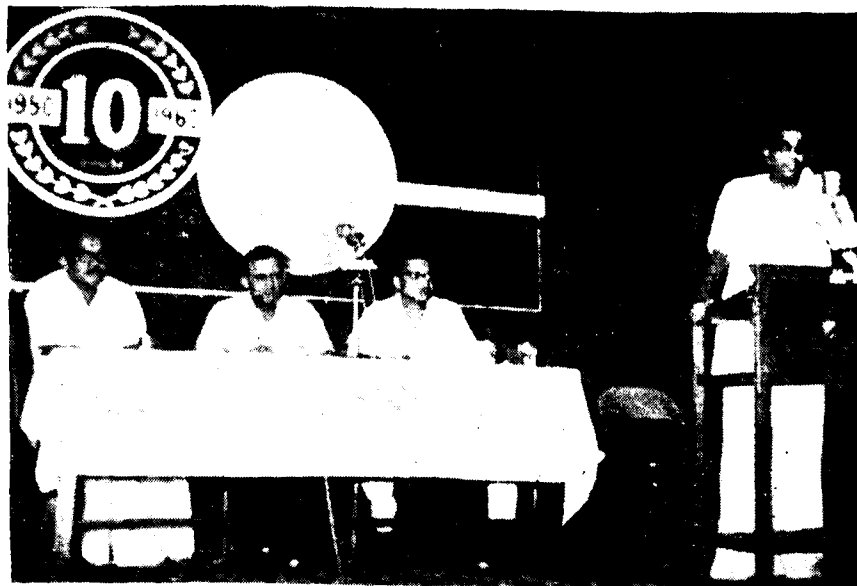
The police band was in attendance.

Later in the evening a delightful variety entertainment programme consisting of recitals of *Bharata Natyam*, *Mohini Attam* and Folk Dance was gone through—dealt with separately on another page.

At the employees' meeting held on October 9, the second day of the celebrations, Mr. C. M. Stephen, M.L.A., President, Aluminium Industries Staff Association and Mr. T. K. Divakaran, President, Kundara Aluminium Factory Workers' Union felicitated the company on the successful completion of 10 years of manufacturing operations. Mr. Divakaran said that labour-management relations in the factory had all along been satisfactory, but he also voiced the criticism that better trade unionism would make for better collective bargaining and other benefits. "Factory day meetings should not be allowed to be abused to talk of small, individual grievances and for vituperation of rival unionists," he added.

Mr. Divakaran went on: "Bonus on the basis of production is possible only when production is good".

Mr. Divakaran also suggested that a symposium should be organized to



Mr. C. M. Stephen addresses the gathering

evaluate the results of the long-term agreement.

Mr. Stephen said: "I am happy that during my association with Alind in the last ten years, I have been able to carry out successfully my responsibilities as a trade unionist. Working of the long-term agreement has been generally satisfactory. Both labour and management will have to make concessions, show a spirit of accommodation and discuss matters with an open mind."

He added: "A strong trade union is a must for successful negotiation with management."

Employees who spoke on the occasion included: N. Vasudevan; P. Innas; P. K. Govindan Asari; C. A. Antony; S. K. Vikramakumar; K. N. Sankara Pillai; M. K. Varughese; R. Gopalakrishnan; T. K. Krishnan; A. R. Nadar; S. Narayanan Nair; M. Gopinathan Pillai; K. Kunjan Pillai; N. K. B. Nair; V. O. Mathew.

At a reception held on October 10, for employees who had been with the company for a decade, service scrolls were presented. Prizes for successful competitors in

sports and games, and efficiency and suggestion awards were also given.

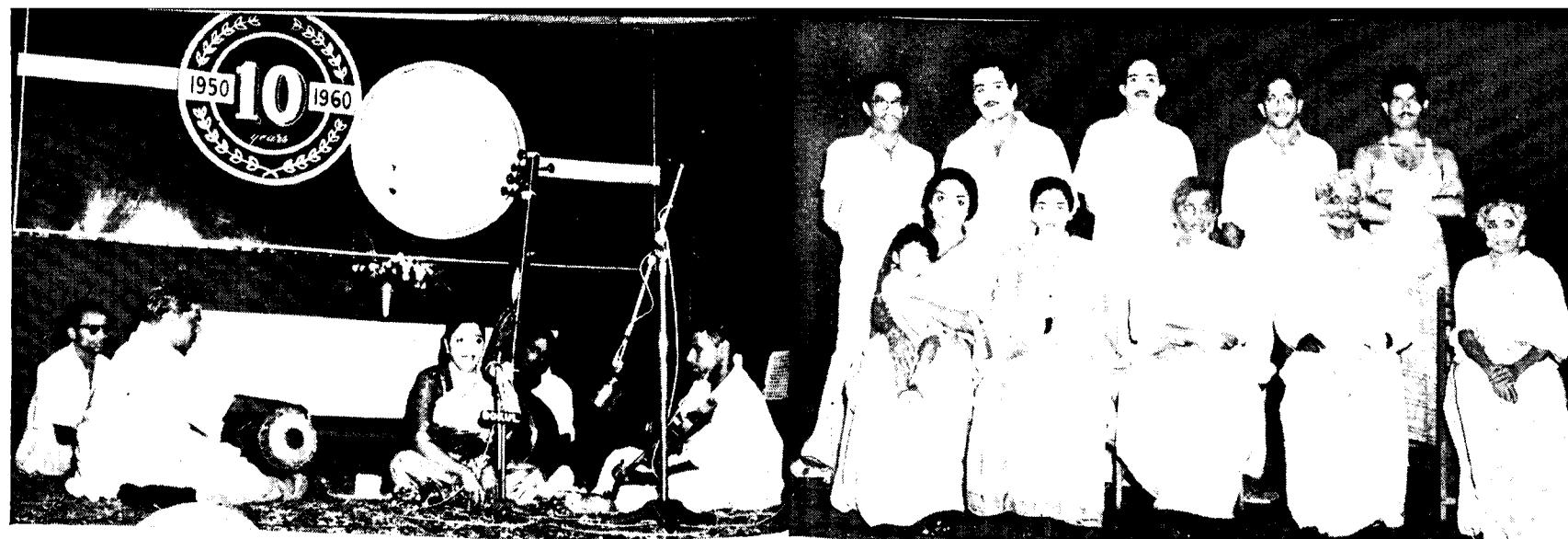
Mr. G. Sadasivan Nair proposed the toast of the company and V. Paramoo replied to it. Both speeches were excellent performances. Mr. S. Narayanaswamy wound up proceedings.



Mr. G. Sadasivan Nair



Mr. T. K. Divakaran



Music recital by Thuraiyur Santa and Party

The Alind troupe who staged the play Nashtakachavadam



Musical discourse in English by K. Seetharaman and party



Thullal Dance : G. K. Warrior



Music recital by Mrs. Kamala Kailasanathan and party



Bharata Natyam recital:
The artistes are members
of Kerala Kalamandal



Kalamandalam Gangadharan and P. Leelamonie

Although our traditional "discourers" use an occasional English phrase or two just to impress audiences that they too are familiar with the lingo, here we had Seetharaman & Co. dolled up in white pants and red ties doing the whole piece in English! Quite an effective parody it was, and the audience thoroughly enjoyed the programme. And the theme of the discourse was Alind's "Ten Years of Growth".

G. K. Warrior did a fine *ottam thullal* act, M. R. G. Menon and K. Kunjan Pillai lending him able background support. A little gem of a literary effort, the piece was witty, good-humoured and satirical.

And lastly we had the most ambitious item of them all—a ballet rendition tracing the origins and growth of Alind in the last ten years. A worker slant was used to interpret the story of the company in human terms. Kalamandalam Gangadharan and his talented cast of artistes did an exceedingly fine job of the piece, which was produced by Radhamonie and directed by Aravindakshan.



DECENNIAL
CELEBRATION
SPORTS

Champion :
Tommy Louie

Best all-rounder :
Rajan Philip

LIST OF PRIZE-WINNERS

Tug-of-War

Winners

Balan Pillai,
V. Kunjukrishna Pillai,
M. A. George,
T. R. Krishnan,
A. M. Gopalakrishnan Nair,
P. Gopalakrishnan Panicker,
J. K. Louies,
M. Gopinathan Pillai,
P. Narayana Pillai,
M. T. Xavier,
R. Damodaran,
R. Gopala Pillai,
K. Velayudhan Nair, and
Kainikkara.

Runners-up—(Wire Mill)

K. K. Thomas,
Thomas Antony,
P. A. Joseph,
B. B. Perumal,
G. D. Rozario,
P. Balakrishna Pillai,
A. K. T. V. Nair,
O. C. Chacko,
Sundaresan,
Shahul Hameed,
M. M. Philip,
F. C. Miranda,
N. Chellappan Pillai, and
A. V. Thomas.

Physique Competition

R. Gopalakrishnan—I.

Champion : Tommy Louie.

Best All-Rounder : Rajan Philip.

High Jump

Tommy Louie—I
K. N. Gopalakrishnan—II.

Hop, Step and Jump

Tommy Louie—I.
Abdul Kalam—II.

Pole Vault

Rajan Philip—I.
Tommy Louie—II.

100 Metres Dash

G. D. Rozario—I.
Tommy Louie—II.

200 Metres Dash

Rajan Ninan—I.
Thomas Panicker—II.

50 Metres Dash

Rajan Philip—I.
Stephen D'Silva—II.

Sack Race

Rajan Philip—I.
V. Bhaskaran—II.

Sack Melee

Rajan Philip—I.
R. Gopalakrishnan—II.

Cross Country Race

A. M. Mathew—I.
R. Velappan—II.

Slow Cycle Race

Rajagopalan—I.
J. C. Bose—II.

Shot Put

R. Gopalakrishnan—I.
Tommy Louie—II.

Veteran's Race

P. G. Chellappan Pillai—I.
Sanku Asari—II.

Long Jump

Tommy Louie—I.
Abdul Kalam—II.

Hammer Throw

Sukumaran Nair—I.
Tommy Louie—II.

Tug-of-War (Supervisory)

Winners—

S. Peer Mohammed,
K. P. Mukundan,
N. Satyanathan,
M. Andy Pillai,
S. Bhaskaran Nair,
G. Ramachandran Nair,
P. Sivasankaran Nair,
P. M. Mammen,
T. K. Radhamonie,
K. N. Gopalakrishnan,
P. Rajan, and
K. Kochukesavan Nair.

Runners-up—

P. M. Joseph,
Bhagavathi Perumal,
M. K. Varughese,
V. Hariharan,
M. G. Sukumaran Nair,
V. Paramoo,
P. Madhavan,
K. Nanu Panicker,
K. C. Ramachandran,
K. Seetharaman,
M. P. Aravindakshan, and
T. V. Ramachandran.

Shuttle Cock (Single)

Winner

P. K. C. Panicker.

Runner-up

P. M. Joseph.

Tennis (Single)

Winner

T. K. Radhamonie.

Runner-up

D. Sivasubramoniam.

Shuttle Cock (Doubles)

Winners

P. K. C. Panicker and K. B.
Pillai.

Runners-up

K. P. Mukundan and K. N.
Gopalakrishnan Nair.

Tennis (Doubles)

Winners—

T. K. Radhamonie and
O. C. Chacko.

Runners-up—

K. P. Mukundan and
P. B. Nair.

Badminton (Singles)

Winner—

K. B. Pillai.

Runner-up—

Shahul Hameed.

Tennikoit

Winner—

P. Sukumaran Nair.

Runner-up—

T. R. Raghunandanan.

Table Tennis

Winner—

P. K. C. Panicker.

Runner-up—

K. Seetharaman.

Caroms

Winner—

O. C. Chacko.

Runner-up—

M. V. Johnson.

Chess

Winner—

V. O. Mathew.

Runner-up—

A. K. T. V. Nair.

Badminton (Doubles (Open)

Winners—

K. B. Pillai and E. P. Radha-
krishnan.

Runners-up—

O. C. Chacko and N. N. Iyer.

Tennikoit

Winners—

P. Sukumaran Nair and T. R.
Raghunandanan.

Runners-up—

P. B. Nair and N. N. Iyer.

Table Tennis

Winners—

P. K. C. Panicker and K. B. Pillai.

Runners-up—

G. R. C. Nair and P. G. D.
Panicker.

Caroms

Winners—

M. K. Varughese and M. V.
Johnson.

Runners-up—

P. G. D. Panicker and Rajan
Philip.

Badminton (Fives)

Winners—

P. M. Joseph,
C. K. Koshy,
V. Hariharan,
P. Sukumaran Nair,
A. M. Mathew,
T. P. Kunjukoshy,
A. P. Jacob, and
C. G. Krishnankutty Nair.

Runners-up—

O. C. Chacko,
P. B. Nair,
M. K. Varughese,
M. S. Das,
Kainikkara,
M. Shahudeen,
M. R. G. Menon, and
N. K. Menon.

Volleyball (by lot)

Winners

P. M. Joseph,
M. V. Johnson,
S. Peer Mohammed,
K. B. Pillai,
Rajan Ninan,
M. K. Varughese,
G. R. C. Nair (Costing),
K. V. Lawrence, and
A. R. Gopalan Nair.

Runners-up—

P. Sukumaran Nair,
Bhagavathi Perumal,
Rajan Philip,
M. R. G. Menon,
K. R. Balakrishna Pillai,
M. A. Joseph,
N. K. Menon,
A. V. Thomas, and
M. Antony.

Basketball (by lot)

Winners—

N. Thomas Panicker,
Tommy Louie,
C. G. Madhavan Pillai,
Thomas Kurian,
K. R. Balakrishna Pillai,
P. Sivasankaran Nair,
Kainikkara,
S. Krishnan, and
C. Gopinathan Nair.

Runners-up—

P. Sukumaran Nair,
C. K. Koshy,
A. K. T. V. Nair,
P. M. Markose,
T. R. Raghunandanan,
M. Srinivasan,
Abdulkhadir Sahib,
Shahudeen and
P. G. D. Panicker.

Volleyball (Office vs. Works)

Winners—

P. M. Joseph,
C. K. Koshy,
Shahul Hameed,
M. V. Johnson,
M. S. Das,
Tommy Louie,
Bhagavathi Perumal, and
M. K. Varughese.

Runners-up—

E. P. Radhakrishnan,
P. Sukumaran Nair,
G. K. Warriar,
N. N. Iyer,
P. B. Nair,
S. Peer Mohammed,
Balan Pillai, and
M. Philips.

SUGGESTION AWARDS

R. Gopalakrishnan, Rod Mill	Rs. 50
No. 416 ... (C. I. Casting.)	
E. Gainneos, C.C. Plant	Rs. 50
No. 420 ... (Spare torpedo tube for extruders in C.C. Plant.)	
A. Rajan Philips, Rod Mill	Rs. 10
No. 422 ... (Use of 1 inch pipes in rod mill furnace.)	
G. D. Rozario, Wire Mill	Rs. 20
No. 423 ... (Connecting air compressor in the rod mill.)	
V. I. Thomman, Electrical	Rs. 10
No. 425 ... (Hoardings for covered conductors in all prominent places in Kerala.)	
V. I. Thomman, Electrical	Rs. 10
No. 426 ... (Installing a 15 KVA transformer for colony and Admin. Block.)	
M. V. Johnson, Mech. Maintenance	Rs. 10
No. 429 ... (Use of alkathene pipe or C.I. Pipes to wire stranders.)	
N. Thankappan Pillai, Safety and House Keeping	Rs. 10
No. 431 ... (Enquiry office at Main Gate.)	
A. John, Safety and House Keeping	Rs. 10
No. 433 ... (Recovery of cutting oil and keeping the area clean.)	
P. Rajagopal, Machine Shop	Rs. 10
No. 434 ... (Provision of independent shafting for each bay in tapping machine in C.C. Plant.)	
K. R. Balakrishna Pillai, Wire Mill	Rs. 10
No. 437 ... (Accident prevention.)	
V. I. Thomman, Electrical	Rs. 25
No. 439 ... (Special tests for insulated cables specially soldered spots.)	
E. Gainneos, C.C. Plant	Rs. 25
No. 440 ... (Separate colour tags for 250 V and 600 V grade cables.)	
A. Joseph, Inspection	Rs. 10
No. 441 ... (Recovery of scrap reels, steel scrap, etc.)	
E. Gainneos, C.C. Plant	Rs. 10
No. 442 ... (Safety slogans on pay envelopes.)	
J. Mathews, Laboratory	Rs. 10
No. 446 ... (Permanent duty electrician at telephone exchange.)	
J. Mathews, Laboratory	Rs. 10
No. 447 ... (Watering of the plants at proper hours.)	
F. Benzley, Wire Mill	Rs. 10
No. 449 ... (Concrete step around No. 2 W.S.)	
S. Krishnan, Security	Rs. 10
No. 450 ... (Thick tyres for hand carts instead of iron wheels.)	
K. Krishnan Nair, Welfare	Rs. 10
No. 451 ... (Disposal of waste paper from office for security reasons.)	

M. C. John, Electrical	Rs. 30
No. 458 ... (i) Installation of an isolator switch for the Rod Mill supply mains ; (ii) Provision of an emergency lighting battery during supply failures ; and obtaining power supply ; (iii) For Rod Mill furnace blowers from Wire Mill supply liner by the installation of a triple pole double-throw switch.)	
T. V. Antony, Reel Shop	Rs. 10
No. 459 ... (Remedy for water shortage.)	
T. P. George, C.C. Plant	Rs. 15
No. 465 ... (Provision of a separate length counter for each individual head of the braiding machine so as to obtain exact records of production in each shift thereby bringing to notice the fact of any head not working to full capacity in any shift.)	
T. P. George, C.C. Plant	Rs. 15
No. 469 ... (Removal of cotton waste from braiding heads.)	
N. Sadanandan, Mech. Maintenance	Rs. 100
No. 474 ... (Chain drive for all heads of braiding machine, replacing the 'V' belts now in use saving thereby the enormous recurring expenditure at present incurred by way of replacement of 'V' belts which coming in contact with oil from the machine, often get spoiled the required lengths of chain and sprocket wheels being available from the old discarded mechanical "spool lifts" of the No. 2 and 4 stranders of Wire Mill.)	
M. A. Joseph, Mech. Maintenance	Rs. 25
No. 483 ... (Scrap laminated sheets from discarded support rollers of stranders to be used as discs for the friction clutches of the same machines.)	
P. J. Varghese Panicker, Reel Packing	Rs. 25
No. 480 ... (Use of slightly smaller size wire nails for purposes of packing of bare conductor reels thereby effecting economy in the packing charges.)	
P. Rajagopal, Machine Shop	Rs. 50
No. 486 ... (Fixture for taking "Form Cutters" for cutting spur gear teeth of all sizes in the milling machine without recourse to costly cutters for each individual tooth size.)	
A. R. Gopalan Nair, Wire Mill	Rs. 10
No. 492 ... (Proper repair of reels, etc.)	
T. G. Bhaskaran Nair	Rs. 15
No. 494 ... (Provision of tension adjusting controls on No. 2 and No. 3 wire drawing machines.)	
T. P. George, C.C. Plant	Rs. 10
No. 499 ... (Stop-switch for compounding machine.)	
M. Velu Pillai, C.C. Plant	Rs. 10
No. 501 ... (Wire guides on braiding heads be made more tight.)	
P. Narayana Pillai, Time Office	Rs. 10
No. 507 ... (Monthly card system for canteen meals.)	
P. Rajagopal, Machine Shop	Rs. 75
No. 510 ... (In the absence of a tool port grinder, to fabricate an alternative grinding fixture to be used on the lathe for all grinding jobs particularly for grinding and polishing of old wire drawing drum sleeves.)	
P. Rajagopal, Machine Shop	Rs. 50
No. 512 ... (Jig to dismantle die-gear in Rod Mill.)	
N. Thankappan Nair, Stores	Rs. 10
No. 514 ... (Provision of a screen or small wall around wash basin in canteen.)	



Our Friend THE CUSTOMER

SESHASAYEE INDUSTRIES LIMITED

The "Customer", this time, is a company who, like ourselves, is a member of the "House of Seshasayees"—SESHASAYEE INDUSTRIES LIMITED. Topical justification for dealing with this company in this issue is that production in the unit was only recently inaugurated by Mr. Lal Bahadur Shastri, Union Minister for Commerce and Industry.

SESHASAYEE INDUSTRIES LIMITED is a public limited company with an authorised capital of Rs. 1 crore licensed to produce 1,200 tons of electrical porcelain insulators a year with matching quantities of the associated hardware, and an additional quantity to meet the needs of electricity supply undertakings, the Railways and the Posts and Telegraphs Department.

As the manufacture of high tensile technical porcelain is, however, a highly specialised process, the enterprise has been set up with German collaboration. Dr. Ing. Habil Kurt Draeger, a well-known German authority on electrical porcelain, is the company's technical consultant and mentor.

The plant is ideally located at Vadalur, (a place hallowed by the name of Saint Ramalingaswami) near Neiveli, fast becoming the scene of an industrial complex. In the region occur large quantities of china clay, the basic raw material of the industry. Other ingredients that go to make up the porcelain body, such as for instance, feldspar, quartz, and other plastic clays and gypsum are available in other areas of South Arcot district, or in the neighbouring districts of Salem and Trichinopoly.

The Madras State Electricity Board's grid lines are in proximity, and, indeed, the power supply position will further be augmented with the switching into commission of the Neiveli thermal power station (250 mW) expected to come off in 1961-62.

In all likelihood, during 1961-62, lignite briquettes, a cheap source of fuel for the gas required for the kilns and furnaces, will, also, be available in plenty.

The place is well served by road and rail transport facilities.

Water, which has been analysed and found to be suitable for mixing and wet-grinding, is available in plenty at the site.

The plant

Occupying an area of 38 acres, on land assigned to the company by the Government of Madras, the covered space of the works consists of a large building 329 ft. by 164 ft. for housing the ceramic plant and kilns and for lesser buildings varying in size from 90 ft. by 100 ft. to 40 ft. by 100 ft. for housing the ancillary facilities such as casting, malleabaling, forging and galvanizing.

The insulator plant consists of (i) dry-grinding and wet-grinding equipment, (ii) a de-aging pug mill,

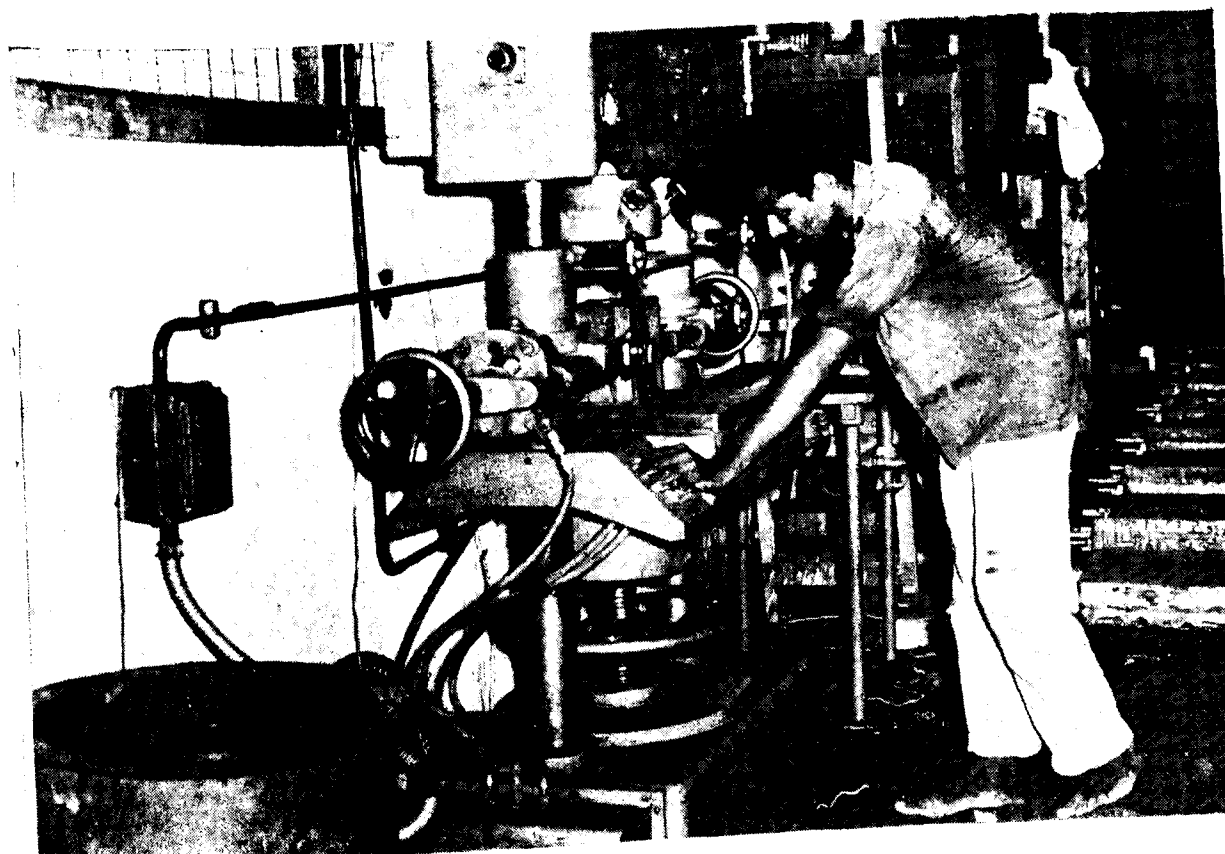
(iii) automat presses for forming and pressed porcelain parts, (iv) kilns for firing, and (v) an electrical and mechanical testing laboratory.

Imported items and equipment include the integrated grinding plant, automatic insulator forming machinery, burners and special refractories for kilns, the electrical and mechanical testing units, the electric melting furnaces, the moulding and core-making machines, and the pneumatic hammers. However, a considerable portion of the plant and all the electrical services are of indigenous manufacture.

Lines of manufacture

The company's electrical porcelain lines include: postal insulators; L.T. insulator pin-type; L.T. insulator shackles; guy insulators for L.T. and H.T. fuse units up to 100 Amp.; reel insulators; transformer bushings—L.T. and H.T. up to 33 kV; 11, 22, 33 kV pin-type insulators; 11, 22, 33 kV station-type insulators; 25 kV railway insulators; 11 kV disc-type insulators—15,000 lbs.; 11 kV disc-type insulators—25,000 lbs.; and solid core long rods from 66 kV to 132 kV.

Its other lines are: stalks for L.T. insulators; straps for shackles; metal parts for fuse units; stalks for

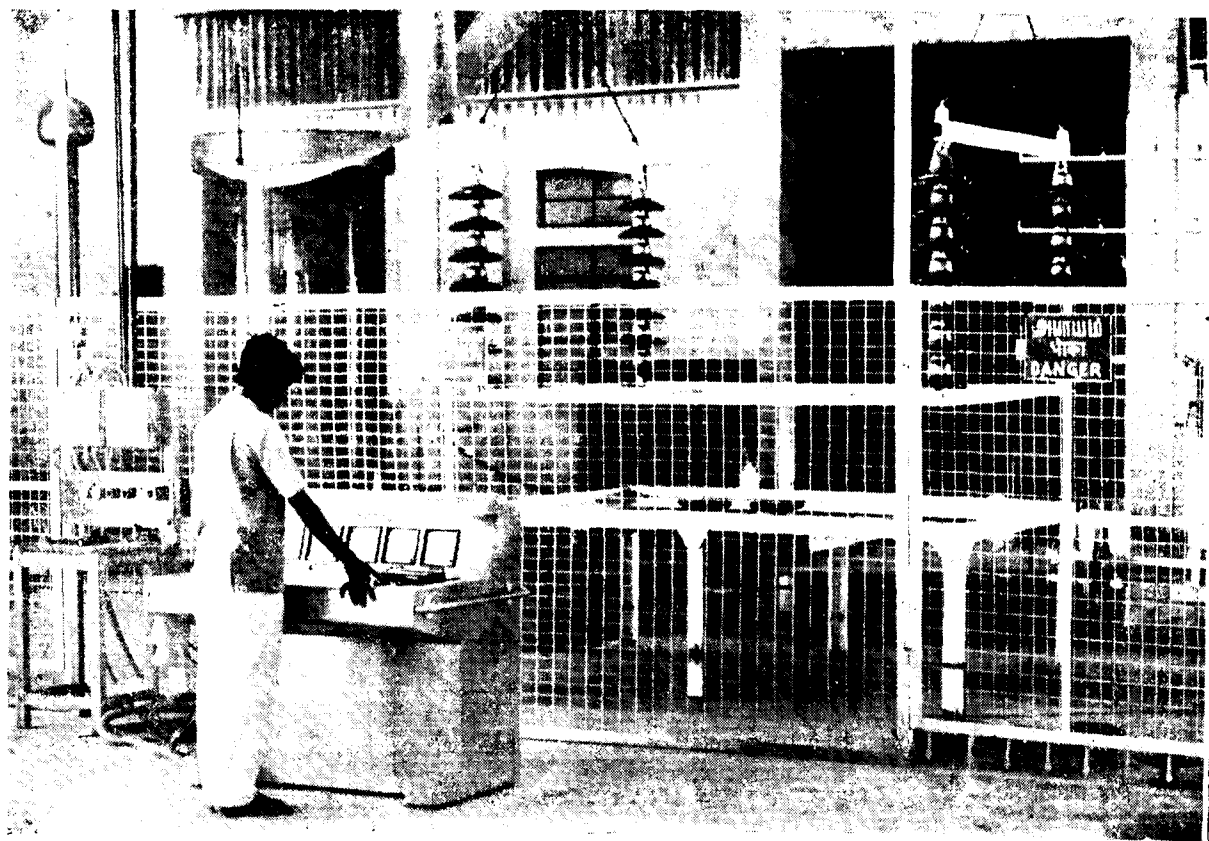


The foundry:
Core-making
operations



A view of the insulator
moulding section

In the background can be seen the
three 55-ft. pusher kilns for the
firing of H.T. & L.T. Insulators



High-voltage Laboratory

11 kV, 22 kV, and 33 kV pin insulators ; malleable fittings for 11, 22, 33 kV station-type insulators ; malleable fittings for 25 kV railway electrification ; malleable fittings such as caps, ball and clevis fittings for 11 kV discs ; transmission line accessories such as clamps, straps, etc. ; casting up to 2 cwt. for railways ; and grey castings for cable boxes, switch and switch gear-boxes, etc.

Manufacturing process

Non-plastic raw materials, quartz and feldspar, are first crushed to a coarse powder in a combined jaw and roller crusher, and elevated over a screen and magnetic separator to feed a continuous duty tube-mill. Here the material is air-separated, (dust-free air being finely ground, allowed to escape to atmosphere), filled in bags, and carried to storage.

At the stores, this material is batched with clays, wet-ground in ball mills, and de-watered in filter-presses to form cakes. Some of the cakes are dried, pulverised, mixed with binders, sieved and used for

making pressed parts in semi-automatic and hand-operated presses. And some are passed through a vacuum pug-mill, and the extruded slugs shaped into insulators by one or more operations like throwing, jiggering and turning. The dried insulators are glazed with a glaze prepared in the grinding section from the same raw materials. The insulators are then fired, in oil-fired, periodic or continuous kilns, to about 1,350 deg. C., allowed to cool, and finally unloaded. After inspection and testing, and grinding when necessary, the insulators are sent for assembly with metal parts or packed and despatched directly.

Metal pins, and other metal parts are forged in an upsetting machine or with a forging hammer. The required threads are cut on the pins and they are cleaned by pickling and shot blasting. They are then galvanized by the hot-dip process and assembled with the insulators.

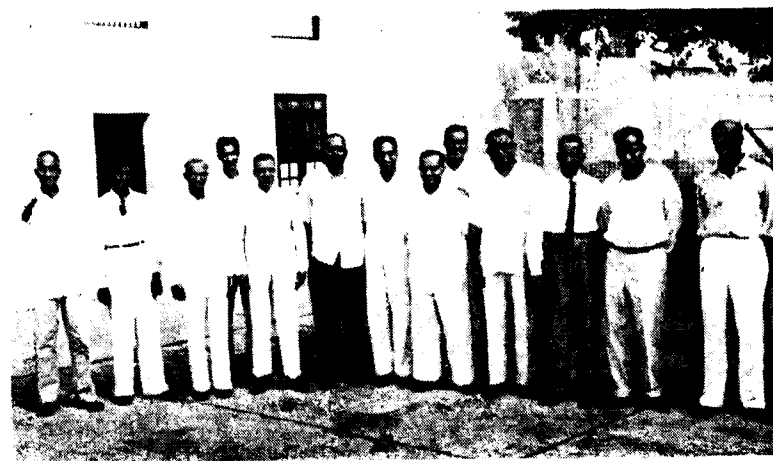
Caps, posts and other parts to be fitted to the porcelain insulators are cast in the usual way as in a grey iron foundry, and then malleabaled

in a malleabaling furnace. After malleabaling, the parts are machined and thoroughly cleaned by shot blasting. These parts are then galvanized by the hot-dip process and assembled with the insulators.

The raw materials employed are, for the most part, indigenous, only certain special items like bentonite (which builds plasticity into the body) and the special glazes being imported.

A complete control laboratory for testing the raw materials chemically and physically, and an electrical laboratory for testing the finished insulators to ISI and BS specifications are there to ensure the highest quality in the manufactured products.

SESHASAYEE INDUSTRIES LIMITED is a customer, a sister company, and a unit, like ourselves, dedicated to the electricity supply industry, so we take special pleasure in offering to this new enterprise and all those connected with it our very best wishes for every success.



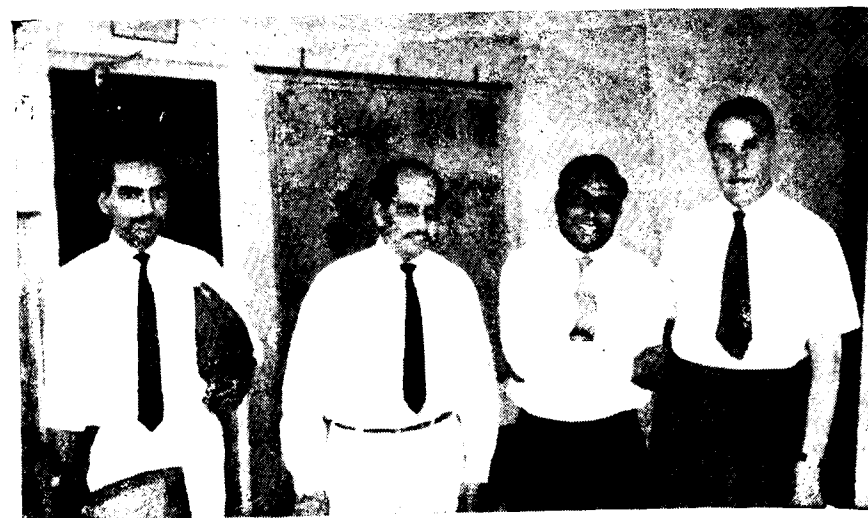
Members of the Development Council for Heavy Electrical Industries which met at Kundara on 26th October 1960



M. G. Iqbal, Superintendent of Post Offices, Quilon, and his family



Mr. W. E. Pattman of Bakelite Ltd., London (extreme right), Mr. Patel and Mr. Fernandez of Bakelite (India) Ltd. (Centre) and Mr. Ravi Menon (extreme left) of Best & Co., Coimbatore



Dr. Lloyd A. Knowler of T.C.M.



Mr. K. T. Achuthan, Minister for
Transport, Kerala State, and Mr.
M. Gopinatha Pillai, M.L.A.



Members of
the Rotary Club of
Quilon and Rotary anns



Mr. N. Kimura
of Ataka & Co. and V.G.G.



...and it giveth
light unto all
that are
in the house

— ST. MATTHEW. 5.

Wiring by: The Western
India Engineering Corpo-
ration Private Limited,
Bombay I.
Dealers: Vivin & Company,
31, Cama Chambers,
23, Meadows Street,
Fort Bombay-I.

A vast and magnificent
edifice, indeed, is the St.
Pius X College, Goregaon,
Bombay. Here, in this
Seminary, an ordinary
human will be transformed
into a wondrous being, a
“citizen of two worlds”,
a priest !

And we are humbly thankful
that for the electrification
of this thrice-blest building,
ALIND KER-AL-LITE has been
specified... covering nearly
1050 points.

Polythene-insulated and
polyvinyl chloride - (PVC)
sheathed ALIND KER-AL-LITE
is the ideal, low-cost alter-
native to conventional
CTS and TRS cables.

THE ALUMINIUM INDUSTRIES LIMITED

India's largest manufacturers of aluminium conductors and accessories

Plant No. 1 & Registered office: Kundara (Kerala)

Plant No. 2: Hirakud (Orissa)

Managing Agents:

Seshasayee Brothers (Trav.) Private Limited



AL-667

why ALUMINIUM and only ALUMINIUM for ELECTRICITY because



- (i) first and foremost a switch to aluminium means a tremendous saving in critical foreign exchange
- (ii) practically all the technical problems have been solved
- (iii) and it is just sound economics to use aluminium

Turn to aluminium and turn to ALIND for meeting your requirements of aluminium conductors.

- Electrical conductor grade aluminium rods
- ACSR and All-Aluminium conductors
- Conductor Accessories & Tools
- Covered Aluminium Conductors

THE ALUMINIUM INDUSTRIES LIMITED

India's largest manufacturers of aluminium conductors and accessories

Registered Office: Kundara (Kerala)

Plant No. 1: Kundara; Plant No. 2: Hirakud (Orissa)

Managing Agents: SESHASAYEE BROTHERS (TRAV.) PRIVATE LTD.



AL-665-3

Mr. Manubhai Shah visits Alind



Mr. Manubhai Shah, Union Minister for Industry honoured us with a visit on 29th Dec. He evinced a great interest in our development programme and expressed satisfaction at the progress made by the company since his last visit five years ago.

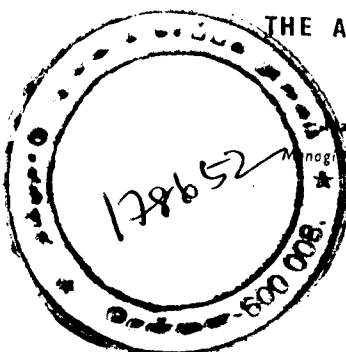
At an informal gathering of the ALIND SUPERVISORY STUDY GROUP, Mr. Shah exhorted all supervisory personnel to get over diffidence and "develop self-confidence, because only self-confidence can sustain an underdeveloped nation." "In a country like ours" he added, "where raw materials are scarce and machinery is in short supply, we must see that every rupee invested and every man honour put in gives the maximum productivity. ...Only hard and devoted work and proper use of our brain and muscle power can transform our population liability into a population asset."



Above:

Mr. Manubhai Shah, Union Minister for Industry (fifth from left).

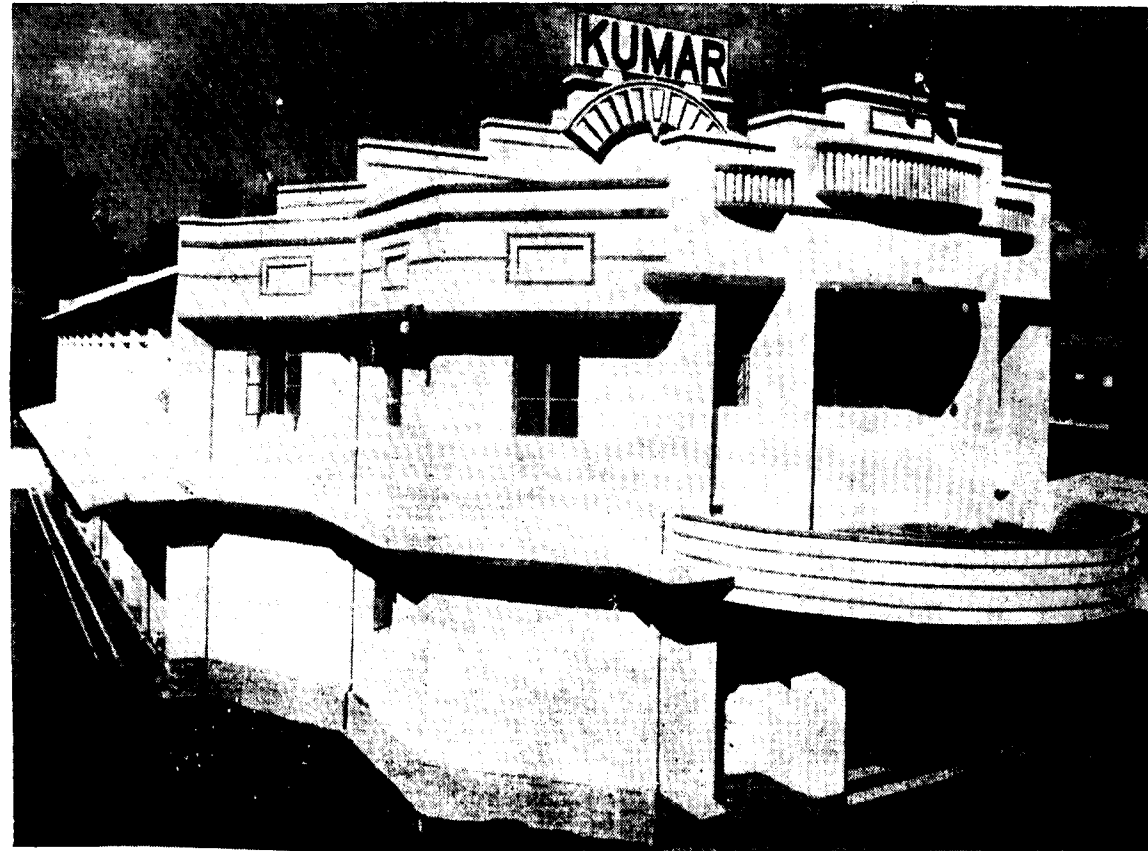
Mr. K. A. Damodara Menon, Minister for Industries, Kerala State, examines a pith model of the Alind works and colony.



Wired with . . .
. . . Alind Ker-al-lite



Rajah Talkies, Trichy



Kumar Talkies, Quilon

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