

Opening address

SIR JEHANGIR GHANDY

Director, Tata Sons Ltd.



Sir Jehangir Ghandy

DR ATMA RAM, DR BANERJEE, Ladies and Gentlemen: It is my pleasant duty this morning to extend a warm welcome to you on behalf of the Executive Council of the National Metallurgical Laboratory and on my own behalf. Particularly thankful we are to Dr Atma Ram, Director-General of Scientific and Industrial Research, who has spared some of his valuable time to inaugurate this Symposium on 'Recent Developments in Non-ferrous Metals' Technology'. If we

have been able to establish exchange programme and agreements in the field of science and technology with governments and national academies of other countries the credit, to a great extent, goes to the drive and initiative of Dr Atma Ram who has, if I may say so, contributed in rich measure towards the steady growth of CSIR and its expanding activities. We welcome him in our midst on this occasion.

As many of you are aware, this symposium is the sixteenth in the series organised by the National Metallurgical Laboratory. Over all these years, these symposia have attained international recognition, and the presence of so many distinguished scientists and technologists from overseas, and from India on this occasion is a proof positive of its importance and usefulness. I am sure that the interchange of ideas through technical papers and discussions would go a long way towards solving many problems which plague us today in regard to the proper development of non-ferrous metal industries.

There is no doubt that basic non-ferrous metals are of vital importance to our industrial development, and thus to our national economy. As an old saying goes, iron might be the 'master of all metals', but one often wonders as to what this 'old master' could have done for mankind without 'little masters' like aluminium, copper, zinc, lead, tin, nickel and the rest of the non-ferrous metals. As far as India is concerned, with the possible exception of aluminium, the production of which has received the maximum attention during the

successive Five-Year Plans, the demands for other non-ferrous metals like copper, lead, zinc and tin are almost totally met by imports. In 1967-68 alone, India had imported non-ferrous metals to the tune of about Rs 87 crores, and such imports are increasing from year to year with expanding industrial activity. If nothing is done immediately about the development of indigenous resources of non-ferrous metals, the import bill for the country on this single item might, I am told, run up to a staggering total of about Rs 500 crores annually by 1975-76.

The question, naturally, arises as to how we are going to meet the challenge of cutting down the imports of non-ferrous metals. The obvious solution lies in our ability to: (a) utilise our existing resources fully; (b) make an intensive search for new deposits; (c) substitute imported metals by indigenous ones as far as possible; and (d) generate requisite resources for purchasing such metals as cannot be substituted.

As far as aluminium is concerned, we have enough of bauxite reserves to support an annual output of 500,000 tonnes for over a century. In fact, our resources of this basic non-ferrous metal are so sizeable that one wonders why, as late as 1967-68, the country had to import 38,000 tonnes of aluminium. The need of the hour is to step up the production of this primary metal, and there is no reason why it cannot be done so long as electric power and other inputs are made available at reasonable rates. In view of the chronic shortage of base metals like copper, lead and zinc, aluminium will have to play a vital role in the economic developments of the country, and, therefore, it is only natural to expect that it gets all facilities and incentives to attain its target of 445,000 tonnes by 1972-73. There have often been complaints of high power tariff which is putting the indigenous aluminium industry in a disadvantageous position in the competitive export market. The industry, I understand, is also very much concerned with the high rate of excise duty on aluminium and its products, as it is in case of iron and steel too. The time, in my opinion, has come when problems of both ferrous and non-ferrous industry, particularly those arising out of the high tariff and heavy duties, should be thoroughly examined, and suitable measures are taken to provide the much-needed fillip to their steady growth in keeping with the needs of the nation.



Sir Jehangir Ghandy, Director, Tata Sons Limited, delivering his opening address on the inaugural day

Notwithstanding efforts for substituting copper by aluminium in electrical industry, the demand for the former is, according to an estimate, expected to rise from 85,000 tonnes next year to 124,000 tonnes four years later. Unfortunately, only a small fraction of the country's copper resources are being exploited at present. The only existing copper unit in India, the Indian Copper Corporation, has planned to expand its capacity to over 16,500 tonnes by 1970, and it is hoped, if all goes well, that the public sector project at Khetri will come up to its full production of 31,000 tonnes by the end of the Fourth Plan. Even then a big leeway will be there, and if the development programme does not proceed at a rapid pace, it will have to be covered by imports which are likely to be much more than what they are at present. Similar might be the position in regard to zinc and lead with increasing demands in the coming years because of the development of engineering industries and growing industrial and defence uses of these non-ferrous metals. As it is, deposits of these metals are negligible, and with a low indigenous output of lead in only one smeltery of the Metal Corporation and with only two plants in opera-

tion for zinc, imports are steadily rising and they might go up further in future if concerted efforts are not made to find fresh deposits and to carry forward a crash development programme.

From this standpoint, it is gratifying to see that the Geological Survey of India has given top priority to the survey of base metal ores. Recently air-borne surveys—named 'Operation Hard Rock'—have been carried out in a few selected areas, and the results of these exploration activities have been encouraging, specially in Bihar, Rajasthan and a few States of South India. As many of you are aware, new deposits of lead and zinc have been located in Rajasthan, and though no workable deposit of tin has been found so far in the country, necessary investigations are under way to study the potentiality of occurrences in Bihar. Whatever the results of our bid to find fresh deposits of scarce non-ferrous metals, there is no denying the fact that active steps must be simultaneously taken to expand our smelting capacity. I do hope that the expansion plan of the first smeltery at Tundoo, which could not be undertaken because of the non-availability of sufficient lead concentrates, will be revived

again, and that it will be possible to increase its capacity to the proposed target of 11,000 tonnes in a none-too-distant future. Similarly, I welcome the proposal that Government should encourage establishment of custom-based zinc smelters so that these units can operate well to feed the domestic market. I am confident that the Advisory Council of Non-ferrous Metals, set up by the Government of India, will be able to study the problems in all its aspects and recommend effective steps to be undertaken towards rapid development and proper utilisation of non-ferrous metals available in the country.

There is no denying the fact that research plays a key role in the technological advancement of the non-ferrous metal industry, as in any other field of the collective endeavour. With the market being increasingly selective and product specifications progressively exacting, it is not enough to rely merely on conventional processes and well-tried techniques. There has to be a ceaseless research to evolve new techniques, to try new ideas and to develop new methods, all suited to the soil in which they are sought to be implanted. Industrial research, in my opinion, should not only satisfy the technological needs of an enterprise, but it should also be aimed directly towards attaining higher productivity by lowering operational costs. Once this dual objective of research is properly understood, it is bound to lead to a growing awareness of its importance as is indispensable, and highly rewarding, part of any industrial activity. The Indian non-ferrous metal industry is no exception to this rule. Apart from evolving indigenous know-how, methods, processes and research in this field have to be so oriented as to match up with technology imported from various parts of the world, and integrate it with still more diversified imported plant and equipment.

It is often heard that in the Indian non-ferrous industry there is over-dependence on imported technical know-how, apart from equipment. While there is no doubt that there is a tremendous scope within the country for the fullest utilisation of indigenous talent and know-how, this does not rule out the desirability of borrowing new technology—with both hands, if necessary. Technological changes are taking place so rapidly in the world that no country can afford the outdated concept of complete isolation. Nor does it mean that we should be drawing all the time from the common pool of technological know-how without contributing anything to it. This is an age of give and take, and the best philosophy would be to develop our own talents, know-how and equipment wherever we can, and borrow from others where we cannot. If a design or a technical know-how comes only with a "package deal," there is no point in blaming others, and no harm in even accepting it. At the same time, however, we must develop our own know-how with which we can negotiate our own "package deals" with others. We can hold our head high in a competitive world only with this "balance of trade" in technical know-how and equipment. And, beyond a shadow of doubt, our research scientists and technologists have a great role to play in this all important direction.

In this context, I am happy to hear that the Government are considering establishment of a Central Design and Research Organisation for metallurgical industries, both ferrous and non-ferrous. I am told that when this Institute is set up, it would cover the existing gap in design and research facilities in the production of non-ferrous metals and alloys through a separate department. Equally welcome is the proposal of the Department of Mines and Metals to set up an Aluminium Institute which will make use of the existing facilities at the National Metallurgical Laboratory and other places in the country in co-operation with aluminium producers.

While laudable in their basic principles, these projects, I regret to say, take a long time to materialise, for one reason or other, which runs counter to the urgency of the task. I would, therefore, suggest that once a proposal is formulated, suitable machinery should be set in motion without any delay to follow it up and implement it as speedily as possible. Equally important is the integration of research and industry which, if I point out, is always a two-way process. In this connection, I recall the recommendations of the third Reviewing Committee of C.S.I.R., under the chairmanship of Dr Ramaswami Mudaliar, following which a team of specialists, including two non-ferrous experts from the U.K., Mr G. L. Bailey and Mr J. G. Berry, was set up to advise on how research could be so organised as to be of direct help to the non-ferrous metal industries. I also had the privilege of serving as a member of the Committee which was of the opinion that as a first step towards strengthening non-ferrous research in India, a separate unit should be established for the purpose at the National Metallurgical Laboratory in collaboration with the Indian Non-ferrous Metal Manufacturers' Association which would provide the liaison between the Laboratory and the non-ferrous industry. The idea was to utilise the facilities available at the Laboratory to the best possible advantage, and to enlarge the extent of work in this field by NML. Unfortunately, this recommendation was not properly followed up, with the result that no significant progress has been made since the last two years. Had some initiative been taken in establishing a closer rapport between the non-ferrous industry and the National Metallurgical Laboratory, the proposal would have been progressing today, and not lying in cold storage. Unless problems are identified by the industry, research laboratories cannot find solutions to them, and, in turn, unless research laboratories can 'sell' their ideas effectively and establish a hallmark of efficiency, they are always likely to find the industry lukewarm in coming forward with their problems. On the extent we can strike a harmony between the two depends the success of our endeavour in this direction.

While on this subject of research, I am unable to understand why non-ferrous metal industry in India is not coming forward to establish Co-operative Research Associations, or at least independent technical development associations, such as the Aluminium Federation of the U.K. or Centre Technique de l'Alu-

minium in France and many others. These scientific associations or development centres have their own importance, and the present trade associations, established in this country, cannot be a substitute to such organisations. The Council of Scientific and Industrial Research has been encouraging formation of such Co-operative Research and Development Associations, and let me hope that its efforts will bear fruit before long.

The venue chosen for the symposium is, indeed, ideal. This laboratory has carried out valuable work in the non-ferrous field, and I shall be failing in my duty if, on this occasion, I do not place on record my appreciation of the contributions made by Dr T. Banerjee, Scientist-in-Charge, and his colleagues to the everwidening scope of research and pilot plant activities at NML. The research themes at this laboratory cover a wide range, including beneficiation techniques for indigenous non-ferrous ores, recovery of metals from wastes, techniques of extraction of metals, development of substitute alloys based on available raw materials and also basic studies of the properties of non-ferrous metals and alloys. Some of their

research projects have already paid rich dividends, and I have no doubt that they will do still better in future.

The task of putting the non-ferrous industry of India on a sound footing is so complex, and its magnitude so large, that it would require a much greater tempo of work to tackle it and to solve even a part of the existing problems. This Symposium, and through it a much-needed exchange of views, has, therefore, been organised not a day too soon. I am sure that the deliberations here will be of immense benefit to the delegates, and that it would provide an impetus to research and pilot plant trials, thus helping in the progress of the non-ferrous industry in the country along right and proper lines. I thank the organisers for arranging this Symposium, and I would like Dr Banerjee and his colleagues to know that we in the NML Executive Council are deeply appreciative of their commendable efforts.

I have now great pleasure in requesting Dr Atma Ram to inaugurate this Symposium.

December 4, 1968.