

Inaugural Address

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*Dr. Altekar, Shri Jain, Shri Sharmajee,
Dr. Mathur, Dr. Kumar, Ladies & Gentlemen;*

A vast country like India with a vigorous tempo of industrial advancement and modernisation, naturally, has an enormous demand for minerals and metals. Mineral resources being non-replenishable wasting assets, their optimum use through conservation requires their beneficiation. As the current high grade ore reserves go on depleting year by year, it becomes imperative under the constant pressure of expanding industrial demands, to utilise continuously lower grades of ores and minerals after beneficiating them through "*processing*" to make them suitable for subsequent use. Quite a few R & D institutions, including NML, pioneered this cause of Indian industrial revolution by initiating mineral beneficiation research to provide invaluable service to the various organisations in private and public sectors like HSL, HCL, HZL, TISCO, NMDC, CMPDI, GMDC, MMC, BSMDC, RSIMDC, PPCL etc. for economic exploitation of Indian ores and minerals.

The miner and the miller have got inseparably married and have to understand each other's problems in the interest of the growth and survival of the mineral industry.

Mineral processing has now become a vast and specialised subject in which all the well-developed branches of engineering and science must actively participate. Under Indian conditions and opportunities available to the Indian scientists and technologists, a very rapid breakthrough will be a tall order on the mineral engineers.

There may be plenty of knowledge and literature available on the different processes and problems of ore-dressing like comminution, classification, gravity/magnetic/electrostatic separation, flotation, filtration and thickening, drying and agglomeration. But when these ideas have to be embodied in a plant to manifest collective knowledge and fruitful operation, the plant designers and manufacturers face another set of problems connected with availability of right type of material and facilities for fabrication. We are still far away from bacteriological or nuclear processing of ores but the ecologist has already moved in to add to the problems of the mineral engineers with rising need for cleaner air and water resources. Therefore we have entered an age of scarcity in plenty. Despite our having almost all the essential minerals including fossil fuels, that a modern nation may need and all the water and land resources that the most fortunate can have, all these problems are already at our door steps.

Mineral resources in future, will inevitably be of lower grade or more complex nature and would, therefore, require more sophisticated treatment. Yet such treatment must be directed towards less consumption of power and the present concept of grinding all that comes from the mine be replaced by selective methods of separation of the pay-material.

Alternate materials are to be produced to supplement or replace scarce items.

New processes are to be found out to change properties of minerals which are currently unused or described as difficult.

We continue to be scared of slimes and however much we best used slime by agglomeration techniques, we cannot but ultimately lose a lot of values through slimes. A way out has to be found out.

Effluents, slags and tailings should be better utilised instead of stamping them as dumped wastes, which are causing environmental pollution besides occupying lot of valuable land space and creating handling problems.

We must develop and use on-stream methods of measurement and control of our processing operations right from blending to the end product to fully normalise our mill head-grade, without seriously impairing the mining efficiency.

Our designers and manufacturers of machinery in mineral processing complain of the problems of appropriate quality of steel for even a good crusher, while the other world has gone ahead with space shuttles successfully. It is time that our manufacturers also take a fresh look at things.

Since the whole world of mineral engineers is seized with these problems and the progress made in several countries is already significantly ahead of us, we should not shirk or feel shy in obtaining technologies from them, as thereby we save lot of time and resources, that are otherwise required in developing them ourselves. A list of priorities of perspective problems should be drawn up for getting the solutions from any part of the world.

With the foregoing information, my request to this learned gathering would, therefore, be to adopt and discuss answers found by them for some of the problems, facing many of them, during their two days of deliberations here.

The present Seminar which is jointly organised by NML and IIME will focus on various aspects of the mineral processing industry and in particular crushing and grinding. It is, therefore,

both timely and important that NML has taken the initiative to discuss the various problems being faced by the mineral industry and achievements thereon from today.

Well, I would like to congratulate the Director, and the scientists of the laboratory for all that they have done and for all those discoveries and inventions which have been available through the laboratory. I would also like to wish them all the best in future. Today we shall have to have the metals and materials which will be useful not only on the land but also under the sea bed in the sea water, in the void of the space and the outer space. An institution like this has to pay attention to these aspects also. The need of the time, the need of the hour is to modernise the methods which we are using to educate ourselves, and to modernise the laboratory so as to develop the capability to cope up with the demand which the present time is making upon us. The task is really very arduous, as well as exciting and demanding. We too have certain difficulties, financial constraints, but it is necessary for us to examine the problems, examine the demands, and examine the requirements to modernise the educational system as well as the system which we have adopted to carry out the research and development and to find the solutions to the problems and to see that the maximum output is available.

This requires something more than the scientific input. Probably it requires the managerial input and planning input also. I am sure that this institute, this laboratory and all those who are concerned with this branch of development will pay attention to these things also. I have been thinking of coming to this laboratory since long, it was not possible for me to come here before, but I have come here when Dr. Altekar is laying down his office. I would like to congratulate him for all the good he has done to the institute and to this branch of knowledge. I would like to wish him all the best in his future life also. I am really very happy to come here and to be with you and to meet some of the giants in the field.

I am not a scientist who will be able to advise, or give views very strongly on the subject. But I am a person who is in the government, a government which thinks that science and technology would go a long way in helping us to develop our economy, and to make the life of our people very happy, a government which is keen to modernise, a government which is looking to the future, a government which thinks that we have to be ready to enter the twentyfirst century. These attitudes will certainly be helpful to the institutes and the laboratories also. We are in the field of policy making, If you present a case and convince us, we would certainly be

there to help you. The scientific aspect is your responsibility, the realm of policy making is partly our responsibility. Let us join hands and let us try to produce results.

Well, I have great pleasure in declaring this seminar inaugurated, I wish all the best to all those who are participating in the seminar. I think the conclusions of the seminar would go a long way in helping us to formulate the policies and in trying to do the best in the laboratories and institutions.

Thank you very much.