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With the Author's Compliments.

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Address of the Chief Guest

BY

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Geology, mining and metallurgy have a special importance in planning for national development. Leaving out imports, there are two basic types of domestic resources. One type is replenishable like water, plants and animals, and human beings. The other consists of minerals which are wasting resources and, therefore, require to be conserved with the greatest care. The aim must be to utilize these precious resources for industrial development in such a way that they would not be exhausted too soon. Mineral policy, therefore, illustrates the problem of planning in a typical form, namely, the importance of a proper balancing of current needs against conservation for future use.

2. Long term planning with a perspective of 10, 20, 30 years and more is therefore inescapable; and must call for policy decisions at a Government level. In India, until independence, Government was concerned only with geological surveys in which excellent work was done. Exploitation of minerals, with profits as incentives, was left entirely to businessmen. To be concerned exclusively with current needs has two dangers. It may either retard development too much, or lead to exhausting the resources too quickly. In India the production of steel has been much too slow while good coking coal is even now being burnt up much too quickly.

3. Fortunately, a new phase has begun. Increasing attention is being given by Government not only to geological surveys but also to mineral exploitation and long-term planning. The present policy of Government is to take the fullest advantage of individual initiative and skill in management through an active partnership between Government and private enterprise.

4. Both Government and private enterprise must, however, depend upon the geologists, mining engineers, and metallurgists to show the way, that is, to answer the questions: "What?" "How?" and, "When"? It is for the scientists and technologists to locate the mineral resources, prove the reserves, work out methods of extraction and processing, and also help actively in the preparation of long-term plans.

5. This raises an important question, namely, "Who"? India would need an increasing number of geologists, mining engineers, metallurgists and technicians at many levels in future. The expansion of teaching and training takes a long time, usually, much longer than the time required to open new collieries or new mines or to establish steel plants and metallurgical enterprises. Planning for technical man-power must, therefore, proceed far in advance of mineral exploitation and industrial-development. In India the lack of scientific and technical personnel may prove to be the most serious difficulty during the next 10 or 15 years.

* Delivered at the 32nd Annual General Meeting held in Calcutta on 28.9.56.

6. The members of the Geological, Mining and Metallurgical Society have a special responsibility in this matter. They can help in a most significant manner by formulating the requirements of scientific and technical personnel in their own field during the next 15 or 25 years, and also by indicating how training can be provided in an effective and economical way.

7. The requirements of scientific and technical personnel would naturally depend upon both the size of the national economy and the pattern of production at any given time. It is necessary to take a broad view of the future. The physical targets must be settled in such a way that there should be no shortages of machines, raw materials, men, or money at the stage of production. Also, there should be full utilization of the products without wasteful accumulation in warehouses. Technological as well as economic aspects must receive proper consideration. Long-term planning calls for a proper integration of geology, engineering and economics. This is a challenge to scientists and technologists who have the spirit of adventure and a vision of the future.