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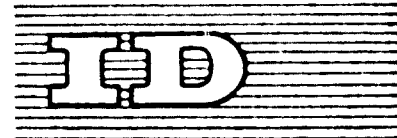
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Baku, USSR, ~~20~~³¹ - 31 October 1969

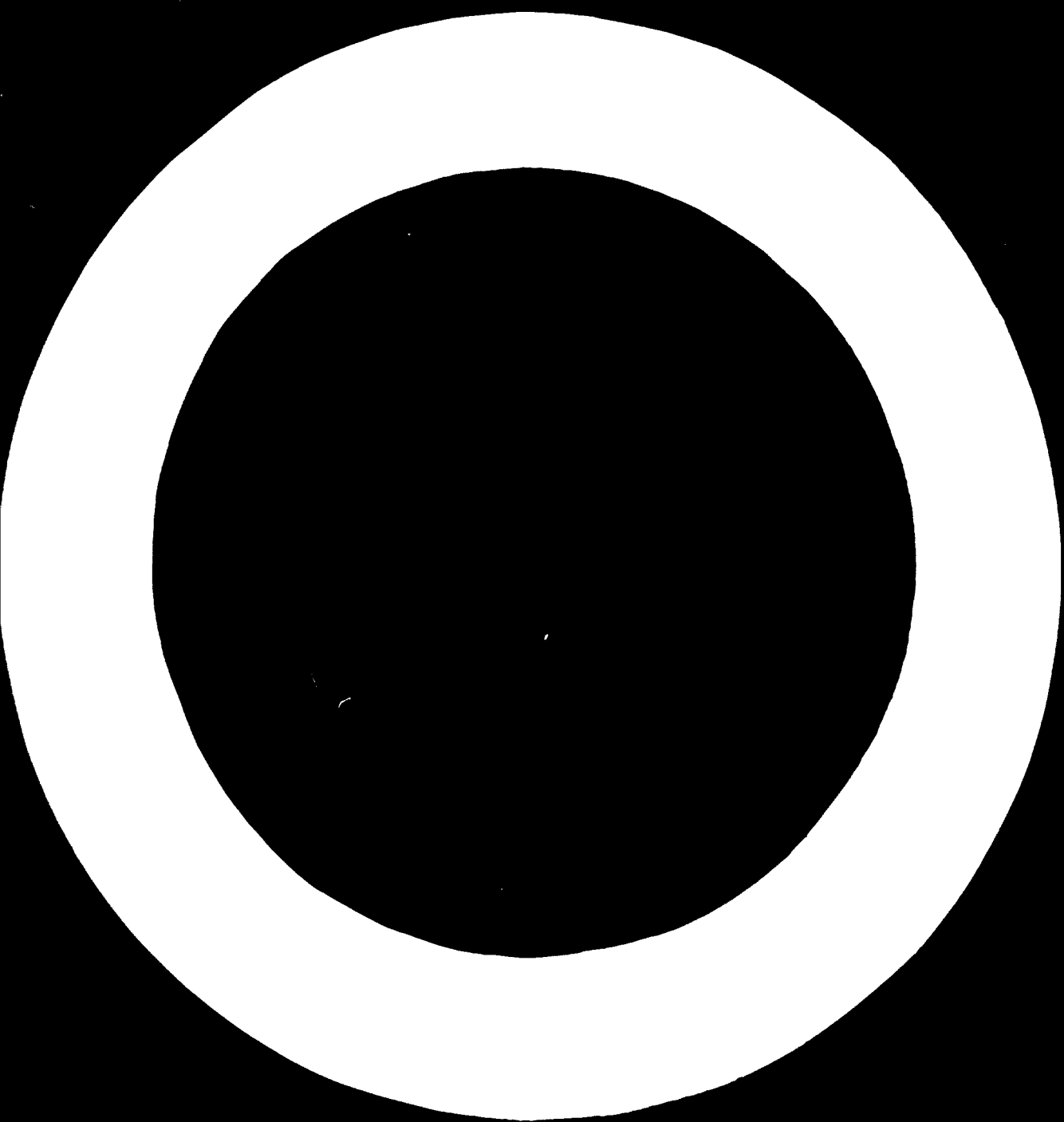
RESEARCH AND TRAINING OF PERSONNEL FOR

PETROCHEMICAL INDUSTRIES IN INDIA^{1/}

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Almost simultaneously with the development of petrochemical industries in India it was felt necessary to create facilities for research and training to support its growth. Perhaps it may interest you to know about our experiences in India of the problems involved and the measures taken so far to meet the requirements.

For developing petrochemical industries, trained technical personnel is required for

- (a) survey and evaluation of feedstocks such as natural gas, refinery gas, naphtha, residual oil etc;
- (b) assessment of demand of end-products, at different price levels and economics, different plant sizes;
- (c) detailed scrutiny of projects in all aspects;
- (i) process design and engineering;
- (b) management and operation of plants.

The principal academic disciplines involved in this field are chemistry, chemical engineering and petroleum technology. Graduates and post graduates generally turned out by universities are not adequately equipped to meet the requirements and therefore require specialized composite training.

TRAINING

In India such training started along with the process of planning for petrochemical industries. Survey of raw materials availability and demand of products started in the early sixties, 1960 to 1961. Within a short time several reports were prepared under the aegis of the Government, including some by international consultants. Private companies interested in the field also made their independent assessments.

Around that period the Indian Institute of Petroleum was established as a centre for research, training and project studies. One of their early works was the survey of the market for petrochemical end-products and plastics conversion facilities. Studies on various processes of interest to our country are regularly undertaken in our project division.

This provided good opportunities for training personnel in the Institute, for detailed assessment of raw materials, products, processes, and project situations. Besides this, a 1-2 year training programme for chemists and engineers was also organized in the Institute to meet the require-

ensive training in petroleum refining and petrochemicals which is of 15 months duration including 4 months training in industrial plants. We are also organizing short-term courses for engineers employed in the industry. These short-term courses, though condensed, cover all important aspects including recent developments in the concerned fields and lecturers are drawn, apart from the Institute's specialists, from the industry and other organizations. We are now organizing such a short-term course exclusively for ^{the} petrochemical industry early next year. The course will comprise of lectures, practicals, seminars, project studies and in-plant training.

We are receiving engineers from some neighbouring countries for training in these fields.

RESEARCH

Research work on well identified petrochemical projects was started in our country about 5 - 6 years back although, studies on various petrochemicals have been carried out in different universities and national laboratories for about 20 years. In our Institute, we started work first with the object of utilization of surplus materials and by-products from oil refineries. Activities have now been extended in various fields which can be indicated to have the objectives as:

- (a) evaluation of new materials for proposed plants;
- (b) utilization of intermediate in specific downstream units;
- (c) solution of problems in adaptation of foreign technology and those associated with alteration, if required, of production pattern;
- (d) development of know-how, improvement of processes;
- (e) development of products for import substitution;
- (f) analysis and product characterization.

The importance of such research activities for developing petrochemical industries need not be overemphasized. All evaluation of feedstocks are now done by us and we are able to study the intricate problem of optimization of petrochemical feedstocks and its interrelationship with specific trends of refinery products and the best economic returns to the refinery. We also plan testing and quality control laboratories in petrochemical industries.

Along with our process development work we are also building up expertise for process design and engineering. This field requires strengthening.

CONCLUSION

We have observed that for developing petrochemical industries, in order to make assessments of raw materials, process technology and product patterns, supporting facilities like training of personnel and research facilities require to be planned in advance. In India, we have made some progress in this direction and the facilities can be extended to possible extents to those who need them. In our experience, these are very important for selection of proper technology, product patterns, size of units and efficient operation of plants which helped in cutting down investments, saving of scarce foreign exchange and avoiding possible mistakes.





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