

# Current Science

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## ROLE OF SCIENCE IN NATIONAL RECONSTRUCTION

THE Government of India has on the occasion of the second anniversary of the Independence Day, reviewed the position with respect to the establishment of 11 National Laboratories which are expected to play a vital role in the context of National reconstruction. The amount to be spent on construction and equipment of institutions intended to serve the needs of such a vast country as India—the total cost will be Rs. 3,80,50,000—is small compared with the large sums spent on research in countries like the U.S.A. and the United Kingdom.

These National Laboratories are being organised under the auspices of the Council of Scientific and Industrial Research. Each laboratory will cover all aspects of research in its respective field and will be equipped

with semi-process or pilot-plant facilities for translating laboratory investigation into industrial practice.

The roles played by both fundamental and applied aspects of research have been fully recognised, and the laboratories are intended not merely to aid a particular industry with knowledge that is already available but also in the furtherance of such knowledge. Problems bearing on wider social aspects affecting the welfare of the community will also come within their purview, and they should be in a position to try alternative approaches to a problem simultaneously. It is not intended however that work of a kind ordinarily within the scope of research laboratories of industries or of Universities shall be undertaken.

## NATIONAL PHYSICAL LABORATORY

Largest of the laboratories, the National Physical Laboratory is being located in Delhi. Its functions will be similar to those of the National Physical Laboratory in the U.K. and the Bureau of Standards, U.S.A. It will have eight divisions, dealing with weights and measures, applied mechanics and materials, heat and power, optics, electricity, electronics and sound, hydraulics, and analytical chemistry. It is also proposed to attach a division of industrial physics, so that discoveries made at the laboratory may be worked out on a semi-commercial scale.

The Laboratory, the main wing of which is expected to be ready by the end of this month, is being built on a site of nearly 60 acres and is estimated to cover a total floor area of 220,000 sq. ft. Fully air-conditioned, it will be manned by more than 250 scientists and technicians.

## NATIONAL CHEMICAL LABORATORY

A special feature of the National Chemical Laboratory—under construction at Poona—will be the development of new processes up to the pilot-plant stage so that industry may be induced by the practical results obtained to adopt the processes developed for large-scale production. A pilot-plant for the manufacture of chemical cotton is at present being established.

This Laboratory will have seven main divisions, devoted to inorganic chemistry, physical chemistry, chemistry of high polymers, organic chemistry, bio-chemistry, chemical engineering, and survey and intelligence. The staff will consist of about 150 scientists.

## NATIONAL METALLURGICAL LABORATORY

To be established at Jamshedpur, the Metallurgical Laboratory will cover a total working area of 63,000 sq. ft. and its staff will include more than 100 scientists. Besides metallurgical research, it will undertake research on ores, minerals and refractories as applied to metallurgy. A noteworthy feature will be the Laboratory's collaboration with Tata's, and already one result of this collaboration is a scheme for the

substitution of manganese for nickel in austenitic steels. Specialists from the Laboratory will also be sent out to render technical advice to industrial firms in respect of other metallurgical operations.

## FUEL RESEARCH INSTITUTE

Research already under way at the Fuel Research Institute, being built at Digwadih, in the Jharia coalfields, is of considerable importance to India's industrial development, and the results obtained so far on blending of coal for coking, and washing of coal have evoked wide interest. The Government of India recently appointed a committee, under the chairmanship of Dr. M. S. Krishnan, to advise on the adoption of these results on a large scale.

The Fuel Research Institute, which will undertake work in connection with Government's plans for production of synthetic liquid fuel, low temperature carbonisation, utilisation of coal-tar products and introduction of pulverised coal in boilers (locomotive as well as stationary) will be manned by a scientific and technical staff of more than 150.

CENTRAL GLASS AND CERAMIC  
RESEARCH INSTITUTE

The Central Glass and Ceramic Research Institute's building is nearing completion in Calcutta.

It is proposed to set up a pilot-plant for optical glass manufacture. A sand-washing plant has already been installed, and following a survey of glass sands in the United Provinces, Central Provinces, Bihar, Punjab, Bombay, Madras and Travancore, more than 120 samples have been analysed and graded. Research work on multi-cellular glass and coloured glass is under way.

## CENTRAL LEATHER RESEARCH INSTITUTE

Plans have now been drawn up for a full-fledged Central Leather Research Institute in Madras.

Sections will be devoted to leather testing, chemistry, bacteriology, microscopy and physics. There will also be a model research

tannery, a pilot-plant for tannin extraction and glue manufacture, and a workshop.

#### CENTRAL FOOD TECHNOLOGICAL RESEARCH INSTITUTE

Set up under the auspices of the C.S.I.R., the Central Food Technological Research Institute is housed in the Cheluvamba Mansion in Mysore—a gift from the Mysore Government.

Work will be conducted in 10 sections: storage and preservation; food surveys and raw materials; dietetics and field studies; food information and statistics; food containers; food adulteration; food sanitation; food processing; food engineering, and bio-chemistry and nutrition.

#### CENTRAL DRUG RESEARCH INSTITUTE

Drug research is an integral part of India's health programme. The Central Drug Research Institute is being set up at Lucknow, with five main divisions dealing with chemistry, botany, pharmacology, bio-chemistry and microbiology and clinical science.

The 'Chattar Manzil' Palace, a gift from the U.P. Government, will house this institute. Remodelling of the building to suit the needs of the Institute is already under way.

#### CENTRAL ROAD RESEARCH INSTITUTE

Facilities for road research as undertaken in Western countries do not exist in India. Knowledge regarding materials and technique of road construction and its application to improvement of roads in this country is essential.

The proposed Central Road Research Institute will include in its programme of work: study of the technique of construction and maintenance of roads with due regard to the use of indigenous materials;

survey of Indian soils with the object of evolving cheap rural roads; investigation of problems of road safety; development of an improved type of rural vehicle which, while efficient in operation, would be less destructive to rural roads than the existing types.

The Institute is to be located in Delhi, and a site of about 70 acres near the Delhi-Mathura Road, about a mile beyond Okhla railway station, is being acquired for this purpose.

#### ELECTRO-CHEMICAL RESEARCH INSTITUTE

Research of an applied character with a view to enlarging the production capacity and efficiency of existing industries and fostering new industries based on Indian raw materials will be the main function of the Institute. Provision is also being made for basic and fundamental research.

To start with, there will be two main divisions—Electrolytic and the Electrothermic. In addition, it is proposed to set up ancillary laboratories consisting of analytical, chemical engineering, testing and standardisation and electronic sections.

#### CENTRAL BUILDING RESEARCH INSTITUTE

A Building Research Unit was set up at Roorkee in 1947 to deal with problems such as construction of low-cost houses and utilisation of cheap construction materials. It is proposed to extend the activities of this unit and establish a Central Building Research Station at Roorkee. Its functions will include: examination of building materials in common use and methods of applying them with a view to effecting economy and improvements; examination of new materials and processes; scientific diagnosis of difficulties and failure of materials in their application; and dissemination of information for the benefit of the building industry.