

PROGRESS OF RESEARCH IN NATIONAL LABORATORIES

AT the National Physical Laboratory in New Delhi, a precision Beta-Ray Spectrograph is now being built for studying the energy distribution of beta-radiations from radioactive substances. Many of the component parts, such as the power supply unit and linear amplifiers for simple and coincident counting, have already been assembled. These highly sensitive instruments are expected to record readings as small as a hundredth part of a second. The results of this study may find important application in the field of medicine where many radioactive substances are used for diagnostic and curative purposes.

The construction of a quartz clock which has been taken up will ultimately be controlled by an atomic clock providing a standard for the measurement of time which would be unaffected by known factors. For studies in optics, a number of optically plane and concave surfaces of substantial area, the largest about two feet in diameter, have been prepared. The reflecting surfaces are provided by extremely thin films of aluminium and other metals deposited by evaporation in vacuum.

Other investigations in the field of fundamental physics relate to the determination of nuclear magnetic moments by resonance of micro-waves and dispersion and absorption of ultrasonics in liquids.

In the sphere of applied physics, two important lines of investigation bearing on the preparation of carbon brushes and other carbon products, and separation of some rare earths from one another and study of their luminescence when used as activators in suitable phosphor are under way. These investigations are expected to find application in the preparation of luminous paints and gas mantles.

The National Chemical Laboratory at Poona is conducting experiments on the utilization of tobacco seed and safflower oils in the manufacture of paints and varnishes.

In the Inorganic Division, new and quick methods of estimating rare metals and minerals are being developed. Work has also

begun on the beneficiation of ores of precious metals.

Processes for the manufacture of citric acid, calcium gluconate and vitamin C have been developed in the Biochemistry Division. The economic implications and technical aspects of these processes are now being investigated with a view to making the processes available to industry at an early date.

In the Fuel Research Institute at Dhanbad, investigations on the subject of coal washing are in progress, and a cyclone type of washer has been designed. Another line of investigation is the possibility of separating fractions of coals with reduced ash and improved coking characteristics from high ash coals by controlled breakage and subsequent screening. This is expected to result in separation of vitrain from durain in coal.

The Central Glass and Ceramics Research Institute in Calcutta has evolved a good thermal insulating material from waste glass styled "Foam Glass"; this is light and porous, and its use in house construction should tend to reduce the effects of extreme heat and bitter cold. It is expected that the investigation will shortly reach a stage when commercial production can be begun.

The National Metallurgical Laboratory at Jamshedpur is evolving a process by which low-grade manganese ores can be converted into manganese sulphate for the production of electrolytic manganese dioxide. Work on the control of grain size in austenite steels is being continued. This should lead to better use being made of imported metals, such as nickel and chromium.

The Building Research Unit at Roorkee has been concentrating on low-cost houses and conducting a series of investigations on sun-dried clay roofing tiles, soil cement floors and wall plasters from mud. A survey of clays used in the making of bricks in various parts of the country with a view to determining the compressive strength of the bricks is in progress.

CENTRAL GLASS AND CERAMIC RESEARCH INSTITUTE

THE fourth in the chain of National Laboratories the Central Glass and Ceramic Research Institute is being rapidly fitted up and will soon be formally opened in Calcutta.

The Institute which is now working with a nucleus staff under a Joint Director, is already serving as the Central Bureau of technical in-

formation for the ceramic and glass industry in the country. A large number of requests for advice have been attended to and when the Institute starts functioning with full complement, it is hoped that it will serve as the main focus of research and development in ceramic and glass industry in India.
