SCIENTIFIC WORK OF THE SURVEY OF INDIA.

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The Great Trigonometrical Survey of India began in 1800 to provide a geodetic framework—

(*a*) to unify detached surveys,
(*b*) to determine earth dimensions.

Chains of triangulation with some astronomical fixings and a network of precise levelling based on tidal observations were extended over the country. The original objects were met and new problems arose. More detailed study of the earth's figure became necessary and today exists a framework of gravity survey. A magnetic survey was carried through after 1900. Tide tables for Indian Ocean ports are predicted and published annually.

In an industrially developing country framework of all kinds continues to require maintenance and amplification. Our geodetic framework forms a sound basis for irrigation and other projects and also for geophysical work, which contributes towards exploitation of India's natural resources.

A War Survey Research Institute has recently been formed which embraces the recent scientific work of the Geodetic Branch and is being expanded. The immediate objective is to serve the war effort—

(i) *directly*, by introducing new observational methods and instruments for military survey, special projections, tidal predictions, etc., as well as the training personnel in such matters;
(ii) *indirectly*, by developing in collaboration with other interested organisations, the geophysical search for minerals.

A second ulterior objective is borne in mind, whereby these immediate activities may be readily swung over to corresponding peace-time purposes.

On two occasions about 1935 when, at the invitation of the President, I attended meetings of the Geodetic Baltic Commission at Tallinn and at Helsinki, I met delegates of the U.S.S.R. I was impressed by their individual abilities and amazed—even to the point of doubt—at the *scale* of their claimed geophysical achievements. Any doubts that lingered have been completely dispelled by the recent course of the war in Russia (Sep., 1943). The importance of planned science is very strikingly proved.

The formation of a National Research Council would be welcomed by the Survey of India, particularly in relation to the ulterior objective which I have stated above; and I think the same would apply in the case of some other scientific departments. Benefit would arise from the counsel and support which the perfect National Research Council could afford. Such a Council must be so constituted as to command the confidence of all, with no political or private axes to grind! It should accordingly contain men of recognised scientific eminence and undoubted integrity, whose recommendations, deriving purely from the country's needs, could not lightly be disregarded. These recommendations, while taking cognisance of financial actualities, would be based on an enlightened appreciation of proper priorities; particularly at times of crisis, when many scientific matters assume especial importance, transcending that of financial fluctuations. They would lead to continuity from which comes real economy.

Research must keep pace. The Scientific Branch should develop its geophysical side, in collaboration with other interested bodies. It should maintain instrumental research—primarily directed towards its own proper ends—for which the M.I.O. might be associated with it. It could develop a Bureau of Standards of Length and Time (for which

it is considerably equipped) and fulfil some functions of a National Physical Laboratory (testing chronometers, barometers, binoculars, etc.). It should conduct research in all matters geonomical (geodetical and geophysical) taking a long-sighted view directed towards location of mineral resources and other national services.