

a scientific service on an organized basis such as will ensure its industries having the fullest assistance towards overcoming their difficulties. By this means it is hoped to increase both the quantity and quality of the output of the industries of the Dominion, and to ensure that their future prosperity will be established upon a sound scientific basis.

The extent to which the scientific services made available to industry have been developed will be gathered from the details of the reports following.

J. G. COATES,  
Minister in Charge,  
Department of Scientific and Industrial Research.

SIR,—

Department of Scientific and Industrial Research, Wellington.  
I have the honour to submit herewith the annual report of the Department for the year ended 31st March, 1928.

21st May, 1928.

I have, &c.

E. MARSDEN, Secretary.

The Right Hon. J. G. Coates, Minister in Charge of Scientific and Industrial Research.

## REPORT.

### RESEARCH COUNCIL.

The following members comprised the Council of Scientific and Industrial Research during the year:—

- Mr. George Shirtcliffe, O.B.E. (Chairman), Wellington.
- Professor Henry George Denham, M.A., D.Sc., Ph.D., Professor of Chemistry, Canterbury College, Christchurch.
- Mr. Quentin Donald, Featherston (Deputy Chairman).
- Professor John Malcolm, M.B., Ch.B., Professor of Physiology, University of Otago, Dunedin.
- Mr. Theodore Rigg, M.Sc., Assistant Director, Cawthron Institute, Nelson.
- Mr. Charles W. Rhodes, Manager of the New Zealand Mines Trust, Auckland.
- Mr. Hugh Vickerman, D.S.O., O.B.E., M.Sc., M.Inst.C.E., Wellington.
- Dr. E. Marsden (Secretary).

Leave of absence from the 1st April, 1927, to the 1st August, 1928, was granted to Mr. T. Rigg, who proceeded to the United States of America and Great Britain for a special study of the problem of mineral content of pastures investigation technique at Rowett Institute, Cambridge and Wisconsin. While abroad Mr. Rigg represented the Council of Scientific and Industrial Research at the Agricultural Research Conference, held in Great Britain, and at the Soil Science Congress, held at Washington, U.S.A.

Leave of absence was also granted to the Chairman, Mr. George Shirtcliffe, who left on a visit to Great Britain and Europe at the beginning of 1928.

During the absence abroad of the Chairman, Mr. Quentin Donald has acted as Chairman of the Council.

### MEETINGS.

Six meetings of the Council have been held in Wellington during the year, at two-monthly intervals.

### SCOPE OF THE DEPARTMENT.

In considering the financial cost of the Department for the year (total, £44,823) it must be remembered that the major portion of this sum, £30,606, is used in maintenance of Government scientific services. These services are as follows:—

- (1) Dominion Laboratory—Director, Dr. J. S. Maclaurin, Dominion Analyst.
- (2) Meteorological Office—Director, Dr. E. Kidson, Dominion Meteorologist.
- (3) Geological Survey Office—Director, Dr. J. Henderson.
- (4) Dominion Observatory—Dr. C. E. Adams, Dominion Astronomer and Seismologist.
- (5) Stone-testing Laboratory and Petrological Advisory Service—Dr. P. Marshall.

New expenditure indicated under "Grants for research" totalled £8,562, including a special statutory grant of £3,700 to Lincoln College, although a considerable portion of the commitments for research projects does not come to charge until the financial year 1928–29.

Before enumerating and describing the work of the Department along particular lines it may be well to preface some general remarks as to its objects and policy.

The main business of the Department is to accumulate, either by assembly or direct inquiry, scientific results of a character suitable for immediate application in support of industry, and to lay sure foundations for its further development. No one who knows anything about the subject nowadays disputes the contention that organized research, broadly speaking, is a paying proposition, although there may be a considerable lag between the expenditure and its profitable return. Individual researches may, and often do, lead to no practical advantage, whereas others realize a handsome profit out of all proportion to the cost.