

SOIL BUREAU

EROSION SURVEYS

An erosion survey of the northern half of the North Island was completed. The maps of the southern half are published and the text is in the press. Salient points of the northern survey are—

- (1) A large proportion (56 per cent.) of the land shows little evidence of erosion under present farming methods.
- (2) There is less slip and more sheet erosion than in the southern half.

SOIL SURVEYS

(a) *General Surveys*.—Only two maps of the North Island survey remain unpublished. These are now being printed. Further work has been undertaken in the South Island.

(b) *Provisional Surveys*.—A report on the soils and agriculture of Westland is in the press. Soil maps of Southland and parts of Marlborough are complete.

(c) *District Surveys*.—The following is the progress: *North Auckland*, practically finalized; *Hutt and Makara Counties*, soil map finalized; *Wairarapa Plains*, the plains west of Ruamahunga River are mapped, maps of the lower Wairarapa Valley were used to assist Lands and Survey and Agriculture Departments with drainage investigations; *plains and downlands of Canterbury*, soil map complete; *Green Island—Kaitangata district*, soil map prepared.

(d) *Detailed Surveys*.—*Whangarei County*, soil maps completed, report in preparation; *Taupo*, soil survey commenced; *Maniototo Plains*, soil survey made to assist Ministry of Works with irrigation plans.

SOIL CHEMISTRY

As in previous years, the bulk of the chemical work done in the Laboratory has been for soil surveys in progress.

Soil Phosphates.—The first experiments in New Zealand were made with the aid of the Nuclear Physics Section on the use of radioactive phosphate as a tracer in the utilization of phosphate by the plant. Radioactive material was processed in the Dominion Laboratory and supplied in the form of superphosphate. Results indicated that 70 per cent. to 80 per cent. of the phosphate taken up by the plants came from the fertilizer added. Work of this nature will be of inestimable value in New Zealand agriculture.

Soil Corrosion.—A number of service jobs on pipe-lines have been undertaken.

Biochemistry.—A number of soil deficiencies have been investigated.

SOIL PHYSICS

The requests from civil engineers for soil-testing services have continued to be numerous and the soil-mechanics work has again formed the major part of the year's activities.

Building-foundation Surveys and Earth Dams.—Sites for proposed hospital buildings in Christchurch, Rotorua, and Thames, and oil-storage-tank sites in the four main ports, have been examined. Tests have been carried out on soils being used for earth dams at Pukaki and Roxborough. Building-settlement investigations have been continued.

Agricultural Physics.—Work is continuing on the soil structure of cropping-lands that show signs of deterioration.