the survey is to map its soils. There are considerable areas of arable and easy pastoral land on which stock do not thrive, and the survey is undertaken to help to ascertain the cause.

Mr. Ongley will explore the district north of the Wairoa Subdivision, the field-work of which he has just completed, and west of the Gisborne Subdivision (Bulletin No. 21). It was intended to continue the detailed mapping south-westward from the Wairoa Subdivision, but the work of last season showed that an enormous thickness of Tertiary strata covered the possibly petroliferous rocks in this direction. The geologists of the Taranaki Oil Fields, Ltd., have explored part of the upper basin of the Wairoa, and have there discovered at least one favourable structure, so that the mapping of this area in more likely to yield results of value to the community than similar work in the Mohaka district.

Mr. Grange will continue the exploration of the volcanic zone of the North Island, and map the Tongariro-Ruapehu group of volcanoes. Sulphur deposits, though difficult of access, are known to exist on Tongariro, but the survey is extended principally to provide data for systematic vulcanological observations. Special attention will, as in the Rotorua Subdivision, be given to the hot springs and fumaroles of this region.

Mr. Fyfe will explore the district south of the Murchison Subdivision and east of the Reefton Subdivision (Bulletin No. 18). This difficult and mountainous area, in which are the sources of several of the larger tributaries of Buller River, includes the southern part of the Murchison intermontane basin. Alluvial gold has been worked for many years, coal is known to outcrop, and seepages of petroleum show that oil-bearing strata exist. This survey should also yield valuable data on the structure and sequence of the Tertiary rocks of this little-known part of New Zealand.

General.

The maps accompanying this report show the area that has been mapped as the result of twenty-three years' work. It amounts in all to 25,513 square miles—about a quarter of New Zealand. The volume of topographical mapping and geological investigation has always been less than the demand. Of late years the rate of progress has increased, chiefly because the areas examined have, as a whole, been more accessible than those surveyed twenty years ago.

It is essential, if the economic resources of New Zealand are to be utilized to the best advantage, that their amount and distribution be accurately known as soon as possible. Such exploration, though fundamentally necessary, cannot be expected to yield immediate results. One example of the value of long-stored facts may be quoted. At the present time the need for increased agricultural production is focusing attention on our soils. Here the geological maps, some of which have been published more than twenty years, will form the basis of the soil map, for, over wide areas, the composition of the subsoil is one of the most important factors in determining the value of the soil.

The attendance of the members of the staff has been very gratifying. For the year ended the 30th November, 1927, the length of the working year was shortened on the average by seventeen days owing to annual, sick, and special leave, but not including holidays. Records of overtime worked without pay are not available, but it is conservative to estimate it at three days a year. Thus the year for which salary is paid includes a net loss of time not exceeding fourteen working-days.

The late Mr. P. G. Morgan.

The death of Mr. P. G. Morgan, Director of the Geological Survey since 1911, must be recorded with regret. His demonstrated capacity as a geologist and his close personal contact with the many problems relating to the application of geological knowledge to practical use render his death a distinct loss to the mining industry of New Zealand.

SPECIAL REPORTS.

1. ST. BATHANS SUBDIVISION.

(By H. T. Ferrar.)

Introduction.

In conjunction with the soil survey of Central Otago, as mentioned in last year's annual report, tracts of country forming part of or immediately adjoining the irrigation areas were geologically examined. Part of the area covered by this year's soil-survey work lies within the Cromwell and the Queenstown subdivisions, the maps of which were published many years ago, and part is newly mapped. The new areas are adjacent to Cromwell Subdivision and cover the eastern half of Lower Wanaka Survey District, the western half of Lower Hawea Survey District, the whole of Tarras Survey District, the northern half of Cluden Survey District, and part of Coneburn Survey District. The additional area geologically surveyed is thus about 300 square miles in extent. The southern half of Cluden Survey District was surveyed during the previous season, so the completed Cluden and Tarras survey districts can now be provisionally included in the St. Bathans Subdivision.