

WAIHI GOLDFIELD.

During the years 1908-11 the Waihi district, together with a large area to the north, was examined in detail by Dr. J. M. Bell, at that time Director of this Survey, and Mr. Colin Fraser, formerly Mining Geologist. Their report (Geological Survey Bulletin No. 15), published in 1912, fully describes the Waihi district and mines. For various reasons a re-examination of the Waihi district and a revision of its geology were urgently required, and therefore, in November last, I began a resurvey of the Waihi Goldfield. In this work I was assisted by Mr. H. A. Ellis, A.O.S.M.

The principal object of the resurvey was to ascertain if geological reasoning would point to the presence or absence of ore-bodies either in depth or in areas laterally outside the country already explored by the mining companies. The re-examination has not yet been completed, but an interim report has lately been published in the *New Zealand Journal of Science and Technology*, and the preparation of a detailed report and of maps is well under way.

Important geological data have been obtained, and from them inferences favourable to the future not only of the Waihi mines, but also of several other parts of the Hauraki Goldfield, may be drawn. So far as Waihi is concerned, there seems to be a fairly strong probability that ore formed by "secondary enrichment" exists at depths greater than yet reached in the western part of the Waihi Mine, and perhaps also in the western section of the Grand Junction property. Similar ore may occur in depth in the lodes of the Rosemont-Silverton hills. New bodies of "primary" ore may possibly also be found by deeper exploration. Further, the principal ore-bodies are now known to be enclosed in flows of quartz-andesite, and not in an intrusive mass as supposed by Dr. Bell and Mr. Fraser. This view of the geological relations justifies the exploration of the quartz-andesites outside the area at present known to contain ore-bodies.

PALÆONTOLOGICAL WORK.

During the past year Mr. J. Marwick, M.A., Assistant Geologist and Palæontologist, has been engaged mainly in examining the Tertiary Mollusca of the Geological Survey collections. He has also examined some Cretaceous and older Mesozoic fossils, and has made many identifications for the field geologists.

Most of the fossil collections sent to England about 1913 have now been returned to New Zealand. Although arrangements for the examination of all the material by specialists could not be made, nevertheless a considerable portion has been studied by experts. Three valuable memoirs, by Mr. Henry Woods, the late Dr. Newell Arber, and Dr. Otto Wilckens respectively, have already been published; the manuscripts of two other reports have been received, and two collections are still in the hands of English scientists. Mr. F. Chapman, of the National Museum, Melbourne, having completed his work on the Foraminifera and Ostracoda of New Zealand, has returned the material, and has furnished a full and most valuable report.

PUBLICATIONS AND MANUSCRIPT REPORTS.

The only publications* issued by the Geological Survey during the year were the Fifteenth Annual Report, and Bulletin No. 23, entitled "The Geology and Mineral Resources of Western Southland," by Professor James Park, F.G.S., F.N.Z.Inst. In addition the following articles and reports by officers of the Survey have appeared in the *New Zealand Journal of Science and Technology* :—

"The Status of Areal Geological Survey Mapping in New Zealand." (Vol. 4, No. 5.)

By P. G. Morgan.

"Notes on the Geology of New Zealand." (Vol. 5, No. 1.) By P. G. Morgan.

"Preliminary Report on the Resurvey of the Waihi Goldfield." (Vol. 5, No. 2.) By P. G. Morgan.

"On the Geological Survey of the Whangarei and Bay of Islands Subdivision." (Vol. 4, No. 6.) By H. T. Ferrar.

The following reports by specialists have been received :—

"The Fossil Cirripedes of New Zealand," by T. H. Withers, F.G.S.

"Contributions to the Palæontology of the New Zealand Trias," by Otto Wilckens, Ph.D.

"The Cretaceous and Tertiary Foraminifera of New Zealand, with an Appendix on the Ostracoda," by F. Chapman, F.Z.S.

These memoirs, which are accompanied by illustrative plates and text-figures, will, it is hoped, be published at an early date.

A bulletin entitled "The Geology of the Mokau Subdivision," by J. Henderson and M. Ongley, is now in the press, and the manuscripts of several other areal bulletins are ready or nearly ready for printing. These are as follow :—

"The Geology and Mineral Resources of the Collingwood Subdivision," by M. Ongley and E. O. Macpherson.

"The Geology of the Whangarei - Bay of Islands Subdivision," by H. T. Ferrar and W. H. Cropp.

"The Geology of the Huntly-Kawhia Subdivision," by J. Henderson and L. I. Grange.

OFFICE-WORK, ETC.

The office-work for the year has been of the usual character. Two highly technical reports by experts have been edited. Information on many matters, some not of a geological nature, has been supplied to the Mines Department, to other Government Departments, and to members of the public. The cores of the diamond-drill bores sunk to prospect the coal-measures of the Hikurangi district have been reported on; samples of coal from seams some two miles south of Glenhope have

* The memoir by Dr. Otto Wilckens, mentioned under the heading of "Palæontological Work," was issued after the end of the year dealt with in this report.