The Champion Mine.—The workings of the Champion Mine, which is situated on the western slope of Mount Pakirarahi, are entirely in the younger volcanics—the acidic or mainly acidic agglomerates and tuffs which are all more or less silicified. Alluvial workings in the neighbourhood of the Champion Mine have in the past yielded considerable gold, and are still producing a relatively small amount of the precious metal. Some highly auriferous puggy material was mined from a fracture-plane in a mineralised zone in the upper part of the present mine-workings. The present proprietary company has its hopes centred on the mineralised zone, seemingly of considerable horizontal extension, in which the rich fracture occurred, and also on a remarkable ore-bearing pipe. Access to both these ore-deposits is afforded by an adit level.

The mineralised zone, which extends to 40 ft. in width, trends about east and west, and is disposed almost vertically. Some 8 chains east of the adit level and at a level 40 ft. lower, a mineralised zone cut in a prospecting drive is thought to be identical with that intersected in the main adit level. The highest gold-silver values in the mineralised zone in the adit level occur in small, puggy, gash seams, but the zone is said to carry gold-silver evenly disseminated throughout.

Free gold and pyrite, the latter probably auriferous, are especially visible in the neighbourhood of certain blackish inclusions of silicified carbonaceous material.

The ore pipe shows in horizontal cross-section irregular boundaries with dimensions approximately of 28 ft. by 18 ft. Its lower vertical limit has not yet been reached in the workings. The agglomerate in this pipe, though relatively fine-grained, is aparently coarser than in the mineralised zone, and has a rather earthy appearance. Quartz is more conspicuous here than in the zone, and appears in patches showing finely crystalline, drusy, or saccharoidal structures. Both free gold and auriferous pyrite occur here, as in the larger deposit, in connection with much-silicified carbonaceous material. The pipe, which carries higher values than the mineralised zone, often yields ore showing rather large, ragged particles of free gold. The mineralised pipe of the Champion bears in some ways a striking resemblance to the ore-bodies at the Bassick Mine in Colorado.

Work in the Town of Thames.

The work being conducted in and around the mines of the Town of Thames is being done with the utmost care. As far as possible all the workings beneath the surface are entered and examined, and the geological data thus obtained affixed to a plan of the mine to which the workings belong. This subterranean geology is compared with the surface geology located on a special map covering the area from the mouth of Tararu Creek to Hape Creek, and extending inland to the Lookout Rocks. This map, prepared by Mr. E. F. Adams, is on a scale of 5 chains to the inch, and shows contour intervals at every 100 ft.

The work at the Thames is not yet sufficiently advanced to report at length thereon. In general, however, I may say that it is hoped that such detailed investigations as we are conducting will throw much light on many obscure points in connection with the Thames Goldfield.

REPORTS OF FIELD OFFICERS AND SENIOR DRAUGHTSMAN.

Mr. P. G. Morgan, General Geologist.

Since the beginning of January, 1907, Mr. Morgan has been engaged in field and office work connected with the geological survey of the Mikonui Subdivision. From the 10th July to the 26th October, 1907, he also acted as Officer in Charge during my absence from New Zealand. Mr. Morgan reports as follows on his field and office work during the period under review:—

Narrative of Field-work in the Mikonui Subdivision.

At the beginning of January, 1907, my main camp was pitched near the granite gorge of the Hokitika River, at a point about twenty miles from Hokitika. From this camp as a base we had during December explored by means of flying camps a considerable area on the west side of the Hokitika. The survey of this area was completed early in January. We then temporarily camped on one of the spurs radiating from Mount Jumbletop, and made a connection with some work of the previous season which had been carried on from the Toaroha Valley.

On the 14th January we shifted our main camp to a spot near the junction of the Hokitika and Whitcombe rivers. Owing to these streams being quite unfordable anywhere near our camp, one of our first cares was to build a small flat-bottomed punt, which proved very serviceable, enabling us to cross the Hokitika and Whitcombe without trouble, except when they were in flood. Mr. James Ritchie, who, as mentioned in my last report, was still with me as field assistant, traversed most of the country within reach of the camp for some miles up the Whitcombe, and on the west side of the Hokitika. In particular he examined some very interesting outcrops of the Pounamu Formation on the western slopes of Mount Inframeta. From the Hokitika–Whitcombe junction camp I explored the headwaters of the Hokitika, crossing into its upper valley by way of Frew Saddle and ultimately reaching Mathias Pass (4,610 ft.) on the main divide. I also followed the Hokitika up-