

Further to the north-west beyond Marionburn, and on the eastern slopes of the Hawkdun Home Hills, some prospecting has been done, and a little gold obtained, principally from the gorge of Marionburn, but beyond this to near the source of the Manuherikia the beds are practically not prospected. At one point, near the head of the water-race, gold was found a few years ago, and a rush took place, principally from St. Bathans. After some work had been done, it was discovered that the gold was not sufficient to pay for working a deposit of drift situated as at this locality it was.

There can be no doubt that it is highly desirable that this line of quartz drift should be sufficiently prospected, which at the present time has not been done.

St. Bathans.

This is one of the most important mining localities in Central Otago. The material worked within the St. Bathans Basin is wholly quartz drift, the original surface-wash of the small creek running through it having been turned over and got rid of during the early days of the rush to this place.

The principal gold stratum lies towards, but not close to, the bottom of the deposit, and trends a little to the west of north, dipping at varying but moderate angles, except in the southern part to the west-south-west. The principal gold-bearing band has been worked from the surface to a depth scarcely now to be exactly determined, but considerably more than 100ft.

Mr. John Ewing's elevating plant raises the material to a height of 110ft. in three lifts of 46ft., 40ft., and 34ft. respectively, and at the bottom of his workings there seems to be no diminution in the quantity of gold amongst the drift. At the time of my visit a large slip had come in, which would take some considerable time to shift, the slip material having all to be elevated.

On three sides the basin is bounded by hard Palæozoic rock, but to the west the quartz drifts are followed by sandstone gravels of younger date—"Maori bottom." Towards the south end of the basin the breadth of exposure of the quartz drifts is much less than in the northern part.

The deposit at St. Bathans, amongst other deposits of a like character in the Manuherikia and Idaburn Valleys, has been described as the fan-like accumulations of material carried into an old lake by the streams that at first fed it and then eventually filled it up.

Mr. McKay is inclined to challenge this theory, and in a former report it has been pointed out by me that such a theory is inconsistent with the mode of occurrence of the leaf- and clay-beds associated with the quartz drifts of the St. Bathans Basin. Very clearly the whole series, including the sandstones of the "Maori bottom," have been deposited in a nearly horizontal position, and afterwards raised and tilted by some dynamical force, so as to acquire their present varying dip. It may be admitted that these deposits are of fresh-water origin, and that they have been laid down in one extensive lake, or a series of inland lakes, occupying the area of Central Otago, from Lake Wakatipu to the Kakanui Mountains, and from Lake Wanaka to Moa Flat, but this, or these, are in no sense to be confounded with what are commonly called the "old lake-basins" of Otago, which, though occupying portions of the same area, are of much more recent date, and partly filled with deposits that give no evidence of the disturbing influences that have affected the deposits in the older lake-basins. The limits of the older lake-basins can now no longer be traced. The evidence proving the existence of these is to be found in the deepest valleys and on the highest mountains of the district, and the whole topographical system of physical features under which they existed, and of which they formed a part, appears to have vanished. The obliteration of these former physical features, due to the causes that gave rise to those that succeeded, resulted in the upheaval of the now dominant mountain chains of Central Otago, carrying with them to their highest peaks part of the accumulations that formed on the older lake-bottoms, but also, at the same time, deeply involving other portions along their flank, either by an inversion or by actual fracture and faulting of the strata along certain lines. Thus were formed the independent lake-basins of Lake Wakatipu—formerly extending down the valley of the Kawarau to the junction of the Arrow and the site of the Kawarau Bridge—and the old Wanaka-Hawea lake-basin, extending south to Cromwell and Bannockburn, and ramifying up the Cardrona and Lindis Valleys. Thus, also, were formed the present valleys of the Manuherikia, and the Idaburn and Poolburn Valley, and the depression now forming the Maniototo Basin. Thus, within the area of the older, a new series of lake-basins were formed, several of which are now drained or largely filled up, and are thus spoken of as the "old lake-basins of Interior Otago," and, in this way somewhat confusing ideas respecting the elder of this double series may arise. Speaking of the newer series as the younger Pliocene lake-basins of Otago, the deposits in these are recognised from lacustrine deposits of earlier date by their not being tilted or displaced to different levels, as are the deposits belonging to the older series. It cannot be denied that a right apprehension of the facts relating to this double series of lakes should prove of the greatest use to those engaged in alluvial mining in Central Otago. The general facts have been clearly indicated in Mr. McKay's report, already referred to; but there is also no doubt that a close and careful survey will have to be instituted ere we can hope to reap all the benefits that a full knowledge of this subject may be expected to afford.

John Ewing's Claim.—This is by far the richest claim in the locality, and, strange to say, it ruined its former owners; and, when it was not considered to be of any great value, Mr. Ewing purchased it for £1,100, and spent a considerable amount in getting water and a proper plant to work it, and since then it has given excellent returns. He has obtained, since last winter, 1,000oz. of gold, which represents a value of £4,000, and he expects nearly as much more by the end of June, if not stopped by frost. Various mishaps in the way of slips of ground, and unexpected failures of portions of the plant which is used for the work, have thrown washing-up too far into the winter. Three elevators are now used, the total height elevated being 110ft. Six men employed.

Scandinavian Water-race Company.—Five men have had very poor returns, the total obtained (two years' work) being 320oz. This company combines the selling of water with the working of