

The vein is evidently valueless as a silver-lead proposition, but its gold-content deserves notice. An examination by a capable prospecting party is warranted, more particularly since the lode is stated by Cox, who examined it in 1876, to have a thickness of 10 in. in the old workings.* It should be mentioned in this connection that the ground held by the old Rangitoto Company is in private hands, and cannot be prospected without the owners' permission.

(2.) *Asbestos and Talc.*—Small amounts of asbestos of fairly good quality were found in pockets and veins in the Mount Inframeta and Mount Bowen serpentines. Extremely pure talc occurs in similar deposits, but a wide band of talcose rock which outcrops to the west of the serpentine sills on Mount Bowen is too impure ever to be of much value, even were the locality an accessible one.

(3.) *Building and Ornamental Stones, Clay, &c.*—The rocks of the Pounamu Formation are often ornamental, but are at present of little economic value, owing to the inaccessibility of the localities in which they occur. The granites of Mount Rangitoto and Purcell Ridge are of good quality, but there does not appear to be any likelihood at the present time of their being utilised as building or monumental stones.

Several of the clays which occur near Ross were examined during the past year, and samples taken for analysis. None, however, proved to be suitable for the manufacture of pottery, though the Upper Miocene blue clays are doubtless capable of making good bricks.

(4.) *Alluvial Gold.*—In the valley of the Mungo and in the Upper Hokitika and Whitcombe a few colours of gold can be obtained almost everywhere, but there are probably no really payable deposits. Good gold, however, can be obtained from the bed of the Upper Hokitika about two miles above the Mungo junction, and small payable beaches form from time to time in the lower Whitcombe and along the course of the Hokitika below the Whitcombe junction. In the Waitaha and Wanganui watersheds alluvial gold was found as the colour only. The only claim in which work was going on is that of the McLeod's Terrace Sluicing Company, on the west side of the Mikonui River. The washdirt of this claim resembles that of the Mont d'Or (near Ross), and gives good prospects, apparently over a considerable thickness, but the results obtained from the working of the claim have hitherto been disappointing.

Duffer Creek, eighteen miles south of Ross, is worked out, whilst a sluicing claim at the north end of Lake Ianthe, which has yielded gold to the value of £1,700, was abandoned as unprofitable a few years ago.

It is only in connection with the deep leads near Ross that there appears to be any probability of a successful mining revival within the Mikonui Subdivision. This point is enlarged upon in the detailed report now being prepared.

Water-power, River-gauging, &c.

Within the next fifty or one hundred years water-power will prove to be one of Westland's most valuable assets, and even now there are certain possibilities connected with the conversion of hydraulic energy into electricity in connection with power purposes and the manufacture of nitrates from atmospheric nitrogen.

From the Hokitika River above the Whitcombe junction a considerable amount of energy can be obtained, whilst the Whitcombe, a much larger stream, is capable of yielding at least 30,000-horse power. Before entering on any power project, however, it will be necessary to determine the winter flow, which may prove to be so scanty during periods of fine frosty weather as seriously to militate against the utility of any scheme that requires a constant supply of energy. Moreover, in the case of the Whitcombe, though water for a considerable scheme will never be lacking, development will be relatively expensive, and probably economically unprofitable.

Both the Waitaha and the Wanganui, the two principal rivers surveyed during the past season, are capable of furnishing large supplies of energy. The former river and its tributaries, it is estimated, can supply not less than 75,000-horse power, whilst the Wanganui and its branches are capable of furnishing at least double that amount. If there were any demand for power, some of the possible schemes could be easily and cheaply developed. Probably, however, it will not be economically advisable for several generations to come, if ever, to develop the power-potentialities of the main Wanganui.

The calculations of the horse-power mentioned have been based on a minimum winter flow estimated at one-half or less of the minimum summer flow. Our gaugings were all made in the latter part of the summer or in early winter, but though during cold fine weather the stream-volumes certainly diminish considerably, it is probably but seldom, and then only during short periods, that the minimum winter flow is less than that assumed. Certainly, during the past three seasons the rivers have not been noticed to fall much below the minimum summer level until the month of June is well advanced.

Office-work.

From the 12th June, 1907, until the 26th October I was engaged at the Head Office in preparing notes for a report on the Mikonui Subdivision, in reading the proofs of Bulletin No. 3 and other publications, whilst from the middle of July onwards I was also engaged in attending to the general correspondence of the office and other departmental matters during your temporary absence from the Dominion.

Again, from the 18th March of the present year until the end of May I was employed in preparing a detailed report on the Mikonui Subdivision, which is to be issued as Bulletin No. 6. The manuscript was practically completed before the end of May, and is now all in the hands of the printer. A considerable portion is in type, and the bulletin should be ready for publication before many months.

* "Report on Westland District," Geol. Surv. Rep. during 1874-76; Vol. ix, 1887, p. 87.