

Samples selected from the various exposures gave the following results on assay:—

Locality.	Gold. Gr.	Silver. Dwt. gr.	Copper. Per Cent.	Molybdenum. Per Cent.
1. Northerly outcrop, Mount Scarlett	1	5 1	0·27	0·06
2. Middle outcrop, Mount Scarlett	0·5	1 21	...	0·02
3. Southerly outcrop, Mount Scarlett	...	0 15	0·03	0·015

On the ridge between Sluice and Tangent creeks, at an elevation of 2,930 ft.,* a 2 ft. vein-formation is exposed, highly mineralised in places with pyrite and marcasite. A little zinc-blende is also present.

On the spur on the north side of the gorge above Specimen Creek, and again near the mouth of a small creek higher up the river, are exposures which are probably referable to one and the same vein-formation. In the former outcrop the vein has much the appearance of a pegmatite dyke. It is from 3 in. to 18 in. in width, and apparently carries no mineral. The creek exposure is somewhat similar in character. It is about 6 ft. wide, with large lenses of quartz, in places somewhat pyritised.

General Observations.—All the veins as yet examined on the northern side of the Little Wanganui River have a uniformly north-easterly strike, with generally a steep south-easterly dip. It is possible that the copper indications observed in the river-bed mark the southern extremity of a vein-formation, of which the Sluice Creek and Mount Scarlett outcrops are widely separated exposures. The latter outcrop is, however, the only one so far met with on the northern side of the river which offers economic possibilities.

On the southern side of the river the most promising outcrops are, as already stated, the Mount Radiant and New Anaconda reefs. It is probable that the outcrops in Piano Creek, and on the spurs to the north and south of the Mount Radiant reef, are referable to this formation. It is possible that the New Anaconda reef may be a further continuance at a lower level of the same formation, which would in this case have a strike-extension of over two miles. Connecting outcrops between the New Anaconda and Piano Creek outcrops have not so far been noted, but may yet be found.

Floaters of highly mineralised ore found in the bed of Copper Creek lead to the opinion that further examination of the slopes to the west of the waterfalls is warranted.

Practically nothing has been done in the way of opening up known outcrops, or in endeavouring to prove their continuity along the line of strike. So steep and densely wooded is the country that such work is extremely arduous, and could only be undertaken with the expenditure of considerable capital.

From a consideration of the results of assays of the various samples selected from the two main outcrops it will be seen that the ore in general is very low-grade, the copper-contents averaging less than 1 per cent. This percentage could, however, be readily brought up to a commercial standard by judicious hand-sorting. It must be pointed out also that these results must only be considered as tentative, since the process of sampling was rendered extremely difficult and the results somewhat unsatisfactory, owing to the undeveloped state of the properties. It is proposed later on to undertake a more exhaustive sampling on a larger scale, the results of which may prove more encouraging, and will be published in the final bulletin.

The New Anaconda is undoubtedly much the more promising of the two veins, owing to the comparative regularity of its values in the vein-material and to its continuity along the line of strike. In many ways it bears a striking resemblance to the veins of the great copperfield of Butte, Montana. Two of the samples, Nos. 2 and 4, from this vein have a copper-content exceeding 2·3 per cent., while the values in molybdenum, gold, and silver are not negligible. Owing to the specific gravities of chalcopyrite and molybdenite, the two principal minerals, differing but little, the separation of the two would appear to be difficult. Their markedly different physical characters, however, combined with the fact that they are not generally closely associated in the ore, lead to the opinion that a mechanical separation should not prove insurmountable. Analyses of samples Nos. 2 and 4 from the New Anaconda vein are as follows:—

	No. 2.	No. 4.
Silica (SiO ₂)	87·56	86·03
Alumina (Al ₂ O ₃)	1·10	0·84
Ferric oxide (Fe ₂ O ₃)	5·04	6·27
Lime (CaO)	0·10	0·10
Magnesia (MgO)	0·20	0·15
Alkalis (K ₂ O, Na ₂ O)	0·20	0·30
Cuprous sulphide (Cu ₂ S)	2·97	2·91
Molybdenite (MoS ₂)	0·08	0·25
Ferric sulphide (Fe ₂ S ₃)	2·75	3·15
	100·00	100·00
Copper	2·37	2·32
Molybdenum	0·05	0·15
Total sulphur	1·90	2·14

(2.) *Gold.*—So far no auriferous veins have been encountered by the Survey, but placer deposits of considerable richness, though of but limited extent, have been worked within the bounds of the subdivision. Such deposits were found in branches of Granite Creek in association with

* Barometric height.