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### 3. COPPER PROSPECT, LYONS RIVER

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#### SUMMARY

S. Lohrey of Somerset and others have been investigating a copper prospect, north of the Arthur River, near the Lyons River. By trenching, they have exposed a series of quartz veins, with associated pyrite and sparse chalcopyrite, contained in black slate. The narrow width of the veins and fairly low assays render this prospect unattractive.

## INTRODUCTION

Mr. S. Lohrey of Somerset is the holder of a Special Prospector's Licence of 500 acres covering an area south of the Arthur River in the vicinity of Blue Peak and the Lyons River. During the past year a party of up to eight men has been visiting the site, principally at week-ends, and investigating a series of quartz veins, mainly for their copper content.

A private timber road leads from the road joining Milabena and Preolenna near the most westerly of the Closer Settlement Blocks and crosses the Arthur River. About two miles beyond the Arthur Crossing, the Lyons River is bridged and half a mile further, up a very steep hill, the road ends near lease 68/61M, 80 acres, a gold prospect held by the Blue Peak Gold Mines N.L. and described by Jack (this volume, p. 23). From here, near a broken-down hut, a rough foot track  $1\frac{1}{2}$ -2 miles in length leads to the prospect.

The country south of the Arthur River is perhaps the least known in Tasmania. A heavy rainfall, producing thick myrtle forest containing patches of horizontal, Bauera and ti-tree, a lack of basalt soil and the barrier of the Arthur gorge have precluded land development. Surveys in recent years by the Forestry and Mines Departments and the bridging and road building by timber interests have added to the knowledge of the area and stimulated prospecting.

The profile of the area is that of a fairly even plain, 400-800 feet above sea level with few prominent ridges and deeply dissected by still youthful streams. The most prominent topographical feature is Blue Peak, the elevated southern end of a strike ridge near the Lyons River.

## GEOLOGY

The host rock of the quartz veins is black slate of the "Neasey Quartzites and Slates" (McNeil, 1961) showing banded bedding and well developed cleavage. The beds strike E-W and dip to the south at  $55^\circ$  while the cleavage is at  $30^\circ$  and dips to the NW at  $50^\circ$ - $60^\circ$ . Both the bedding and cleavage are fairly constant over the few hundred yards of the creek that has been prospected.

Boulders of an interesting rock, not seen in outcrop, occur on a small hill, SE of the prospect. This has been described as "an amphibolite and possibly a sheared and metasomatized representative of a basic tuff or lava".

## MINERALIZATION

Three small quartz veins have been exposed by limited workings in the bed of a creek. The lowest is at the base of a small waterfall where a trench 35 feet in length, at right angles to the creek, has been cut parallel to the cleavage of the slate. This revealed a quartz vein, also parallel to the cleavage both in strike and dip. The general width of the vein is one foot but in places it bulges to three feet. Plentiful pyrite and lesser chalcopyrite are associated with the quartz. The slate itself is also pyritic but it is considered that this pyrite is syngenetic and of a different generation from the mineralized quartz veins.

Samples were taken from the quartz and both the hangingwall and footwall slate at each end of the trench with the following results:—

	North East End			South West End		
	Cu	Au	Ag	Cu	Au	Ag
Footwall Slate	Tr.	Nil	Nil	Nil	Nil	Nil
Quartz	1.64%	Tr.	2.8 dwt./ton	1.01%	Tr.	2.2 dwt./ton
Hangingwall Slate	Tr.	Nil	Tr.	Nil	Nil	Nil

No nickel was found in any of the samples.

Eighty feet in elevation and several hundred feet in distance above this trench, small cuts have been put in on another vein, again parallel to the cleavage, which has the same strike and dip as that below. This vein is more irregular in size and varies in width from one inch to one foot. A sample of the quartz from this vein showed in assay: Cu, nil; Au, nil.

Between these two veins are several smaller ones, one of which has been opened by a small cut.

### CONCLUSIONS

It has been the hope of the syndicate that these veins will increase in width at depth and perhaps join up along the strike. There is no reason to expect any improvement in depth although local bulges and distensions may occur, just as there will be local pinching along both the strike and dip. All the veins seen were parallel to the cleavage and each other, and it is unrealistic then to consider a vein one foot in width and containing 1-2% Cu as an attractive prospect. It should also be stressed that similar types of copper mineralization in Precambrian rocks have been prospected and developed at many places in Tasmania (e.g., at the Pandora Mine near Frankford; at Barn Bluff; near Boat Harbour) without success.

### REFERENCE

- MCNEIL, R. D., 1961.—Geological reconnaissance of part of the Arthur River area. *Tech. Rep. Dep. Min. Tas.*, 5, 46-60.