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REPORT ON EXAMINATION
OF
LEWIS RIVER AREA

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Lewis River Area
L.E.S. 2/4/58

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To: Mr. G.F. Hadsneith

21st April, 1958.

REPORT ON EXAMINATION OF LEWIS RIVER AREA

Dates of Examination: 19th February to 26th February, 1958.
Geologist: R.G. Elms.
Bushman: R. Martin.
Man days in the Field: 16
Location of Camp: Lewis River.
Means of Transport & Supply: Helicopter.

General Topography of Area

The Lewis river is well entrenched in long angular bends along the approximate granite-tuff contact. The small tributaries of the Lewis River cut relatively deep, steep sided valleys in the tuff in a very short distance. Away from the river, the tuff forms a little dissected button grass plain. Granitic areas are characterised by a heavy timber cover.

Geological Investigation and Findings

Cambrian: The Dundas Group is represented in this area mainly by tuffs which show little variation. LE 1080 or LE 1088 are typical examples of the tuffs. They are characterised by a fine grained light grey matrix in which are set rounded subangular grains of quartz and felspar with smaller subangular mafic minerals.

Near the contact with the granite the tuffs seem to be more massive than elsewhere where bedding is more clearly exhibited.

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In places thin lenses of dark grey to black shale are interbedded with the tuff. These lenses range from two feet to $\frac{1}{2}$ an inch in thickness and are of small linear extent.

Post Cambrian Granite: Metamorphic Effects,

Associated Mineralisation

A series of samples LE 1081-1088 was collected to illustrate any metamorphic effects which may have resulted from the intrusion of the granite. This series was taken over an east-west distance of some 200 yards, approximately a $\frac{1}{4}$ mile NE of the camp site.

The samples LE 1081-1088 run east to west, from granite out into tuff.

The easternmost specimen LE 1081 is, for this area, a typical granite, exhibiting in a fine grained light grey matrix a slight banding of dark minerals (hornblende and biotite?) with large ($\frac{1}{2}$ ") rounded phenocrysts of quartz and pink felspar.

LE 1082 is a granite with a fine grained dark grey matrix with large rounded quartz phenocrysts and a large pink felspar phenocryst. A little disseminated pyrite is present. Slight shearing is apparent with mica (sericite?) being developed.

LE 1083 and LE 1084 are both granite showing signs of contamination by assimilated material.

LE 1083 is very similar to LE 1081 having a fine grained light grey matrix, large rounded clear quartz phenocrysts, with a concentration of dark minerals on planes of slight shearing.

This specimen has a xenolith some $\frac{1}{2}$ " in diameter, fine grained and dark grey in colour. It has a fringe of pink felspar

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and contains some fine disseminated pyrite.

LE 1084 has a fine grained light grey matrix, large ($\frac{1}{2}$ ") clear rounded quartz phenocrysts with numerous smaller mafic phenocrysts and occasional large pink feldspars. This specimen also contains a large ($1\frac{1}{2}$ ") fine grained dark grey xenolith which is partly assimilated.

LE 1082 may appear to be out of sequence. This is due to the fact that the granite-tuff contact has an indentation which results in this sample actually being closer to a tuff-granite contact than LE 1083. This is apparent on inspection of the sketch map showing the location of samples taken .

LE 1085-LE 1088 are all classified as tuffs, showing progressively diminishing granitisation effects.

Both LE 1085 and LE 1086 have fine grained light grey matrices, with small rounded quartz porphyroblasts, and smaller elongated mafics.

LE 1085 exhibits slight shearing.

LE 1087 is slightly iron stained and weakly sheared, having a darker matrix than either LE 1085 or LE 1086, but otherwise being similar.

LE 1088 appears to be a typical unaltered tuff exhibiting neither banding nor shearing. It has a fine grained light grey matrix with small quartz porphyroblasts and much smaller subangular mafic grains.

Examination of these specimens and their field relations indicates that the granite intruded the pre-existing rocks via a plane of weakness running in a general south to north direction, and from this plane of weakness assimilation

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and metamorphic effects proceeded laterally.

Evidence for this is provided particularly by the presence of xenoliths in LE 1083 and LE 1084 and by the reduction in size of quartz porphyroblasts in the tuff as distance from the granite increases.

It is reasonable to assume that the granite was the source of the widespread mineralisation which occurs over a NE-SW extent of 2 miles about the camp since granitic magmas are a known mineralising agency and also since the presence of pyrite was noted in two specimens LE 1082 and LE 1083.

It is probably that mineralisation is localized by shearing since shearing is evident in several mineralised specimens collected (LE 1089, LE 1078).

Three different types, or more likely expressions of the same type, of mineralisation were noted, and are exemplified by samples LE 1078, LE 1089 and LE 1067.

LE 1066 and LE 1078 typify the weakest stage of mineralisation. They are slightly iron stained tuffs with fine grained light grey matrices in which large rounded quartz grains and a few smaller feldspars occur. Evidence of shearing is present, also some iron stained cavities due to the leaching of pyrite (?).

The second stage of mineralisation is well shown by LE 1067, which is composed of iron stained white vein quartz with abundant pyrite, but with no other minerals apparent.

The extent of the mineralisation was small.

LE 1089 represents the third and most important stage of mineralisation, which was found only in the vicinity of a

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shallow prospecting shaft about $\frac{1}{2}$ mile SW of the Lewis River camp.

The ferruginous gossan was fairly extensive, some 30 yards along strike, and 10 yards in width. The mineralisation was more varied than hitherto, pyrite, chalcopyrite, siderite and manganese mineral (psilomelane or manganite?) being present with white quartz.

The shear on which the mineralisation is apparently sited dips and strikes in accord with the bedding of the tuffs, namely 45° to the west and 340° . That the mineralisation extends some little way in depth is evidenced by the amount of broken mineralised rock about the mouth of the shaft.

On assaying, LE 1089 gave the following results:

Copper 0.11%, manganese 11.6%.

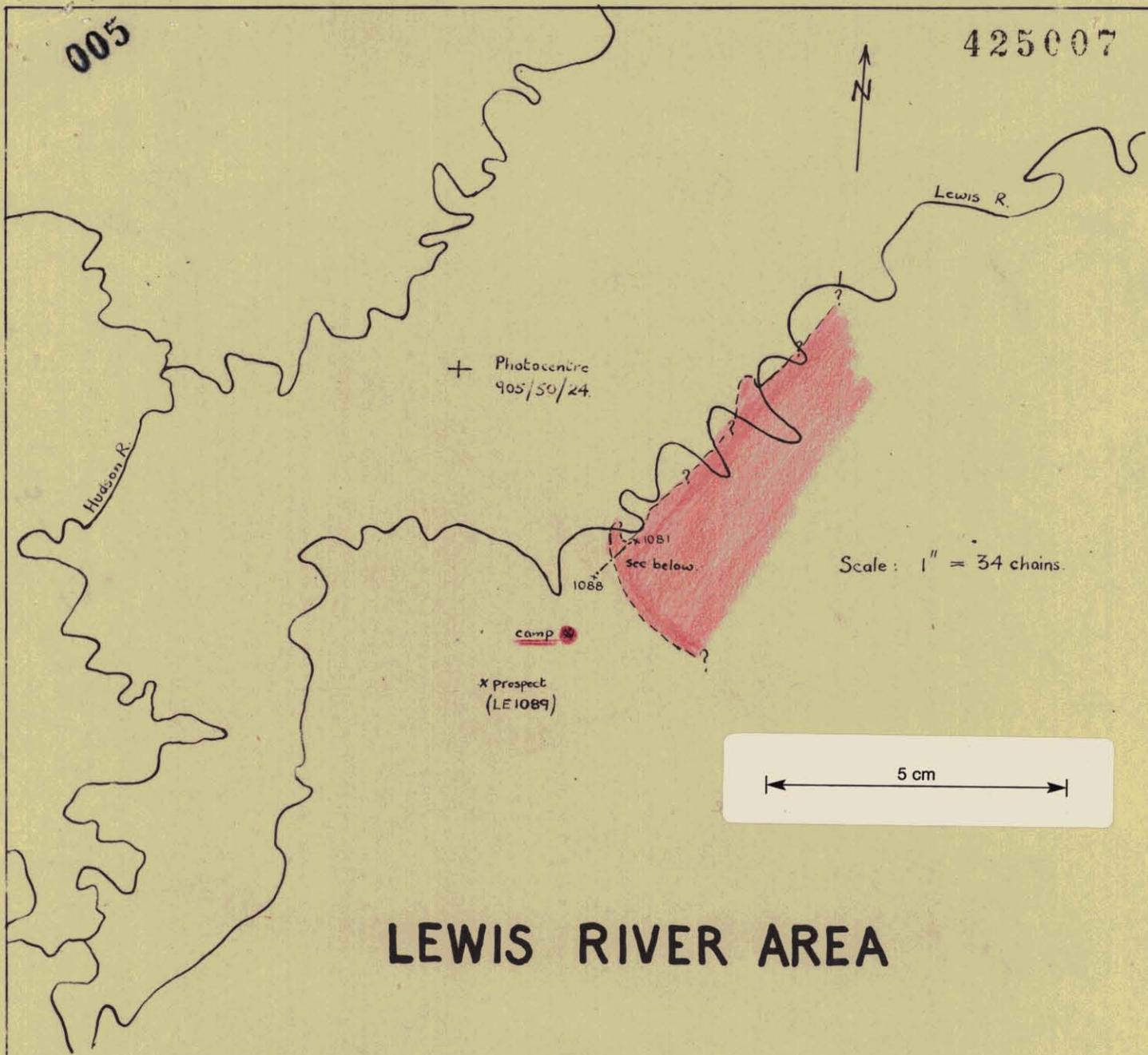
Conclusions

Mineralisation in the area is apparently connected with the granite, and localised by shears running in an approximate N-S direction. Only one prospect was found where surface indications were promising. Some weak copper mineralisation was noted, but geophysical results are needed before any recommendations can be made.

R. S. Elms

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LEWIS RIVER AREA

ENLARGED SKETCH TO SHOW POSITIONS OF SAMPLES LE 1081 TO LE 1088

