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REPORT
ON
SLAB MOUNTAIN
FAIRCHILD LAKE AREA, Y. T.
FOR
CYPRUS EXPLORATION LTD.

August, 1968

By
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FRONT FACE - UPPER CLIFF



SIDE VIEW - UPPER CLIFF



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ILLUSTRATIONS:

ENLARGED AERIAL PHOTO - (400 ft. = 1 inch).	(to accompany)
GEOLOGICAL OVERLAY.	(to accompany)
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SKETCH OF DRAG-FOLDING NATURE	(facing page 6)
FRONT FACE - UPPER CLIFF.	(in front)
SIDE VIEW - UPPER CLIFF.	(in front)

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SLAB MOUNTAIN
FAIRCHILD LAKE AREA, Y. T.

SUMMARY AND CONCLUSIONS:

A copper stained cliff, known as Slab Mountain, is located near the Bonnet Plume River in the Fairchild Lake area of the northern Yukon. The bedded rocks hosting copper mineralization, a band of thin bedded cherty and limey andesitic tuffs, lie sub-parallel to the cliff face. The band is 2,500 ft. thick; the portion containing appreciable copper sulfides is approximately 1,200 ft. thick, and exposed for 5,000 ft. of length. The copper sulfides are found chiefly along broken zones associated with drag folds, and these zones constitute perhaps 10% of the total volume. If they continue to the depth of the valley bottom, roughly 2,000 ft., they would make roughly 120,000,000 tons. Unfortunately, the grade in the better zones, as determined by 21 of the 30 chip samples cut, averages only 0.37% copper, and a trace of molybdenite. No further investigation is recommended.

REPORT ON
SLAB MOUNTAIN
BONNET PLUME AREA, Y. T.

INTRODUCTION:

Slab Mountain and vicinity were mapped, with the assistance of Carl and Keith Langlois, July 7 to 12 inclusive. The examination was to determine the nature and extent of the primary copper deposits which provide the conspicuous copper staining on the cliffs facing the Bonnet Plume River. The Area has undoubtedly attracted the attention of prospectors in the past in spite of the relatively remote location. However, the mapping and sampling reported herein probably constitute the most complete data, as no signs of previous work were found except for a picket in the peak.

LOCATION AND ACCESS:

The showings are within a mile or two of 65° N, 134° W, on a south-west facing cliff a half mile north of the Bonnet Plume River. The nearest fixed wing aircraft landing is at Fairchild Lake, about ten miles east of the mountain. The Bonnet Plume valley is broad, and locally well timbered.

The south-west face of the mountain contains most of the copper mineralization, and some of the miner-

alized areas could be reached only by experienced alpinists. However, a rope down a chimney facilitated access to the numerous sheep trails which traverse the face a few hundred feet below the peak. These trails can be followed, without mountaineering equipment being necessary, as long as one moved with care. Several gulleys, mostly filled with slide rock, extend from the base of the mountain up to the system of sheep trails. These, and the trails, give access to about half of the mountain face. The remainder can be inspected visually at the maximum range of about three hundred feet.

REGIONAL GEOLOGY:

Regional mapping by the Geological Survey does not cover the showing itself, but a large area commencing a mile or two to the north has been mapped at a 1 to 1,000,000 scale - G.S.C. Map 10, 1963. A northwest striking unit of lower palaeozoic carbonates, bounded by pre-cambrian phyllites, is shown underlying Slab Mountain. This interpretation may be valid as Slab Mountain itself is composed essentially of limey, distinctly bedded rocks, separated by a fault or unconformity from strongly schistose green and grey phyllites and dolomites which lie to the north. The beds in the area are predominantly steeply dipping, from vertical to about 60° southerly. The schistosity in the phyllites, however, dips gently to the north.

LOCAL GEOLOGY: (See accompanying maps)

The local stratigraphy is not defined, but it is assumed herein that the beds are predominantly right side up, i.e. southmost beds are topmost. The sequence mapped then is from north to south (bottom to top ?):

- (1) A several thousand foot thick horizon of tan to grey dolomites and argillites which extends to the tops of the ridges which are north of Slab Mountain.
- (2) Green phyllite and flagstone, one to two thousand feet thick, with schistosity dipping northerly, and bedding dipping southerly. A diorite sill or dyke outcrops mostly within this unit.
- (3) Fault zone and/or unconformity (perhaps pre-cambrian to cambrian contact).
- (4) Amygdaloidal dark green to black andesitic flows, with beds a few tens of feet thick, and sequence a few hundred feet thick, exposed only on the east flank of Slab Mountain.
- (5) Limestone and limey tuff, beds a few inches to a few feet thick, and sequence about one thousand feet thick, grey weathering and with a "clinkery" surface.
- (6) Transitional to the above are green to cream thin bedded cherty and limey andesitic tuffs, locally copper-stained

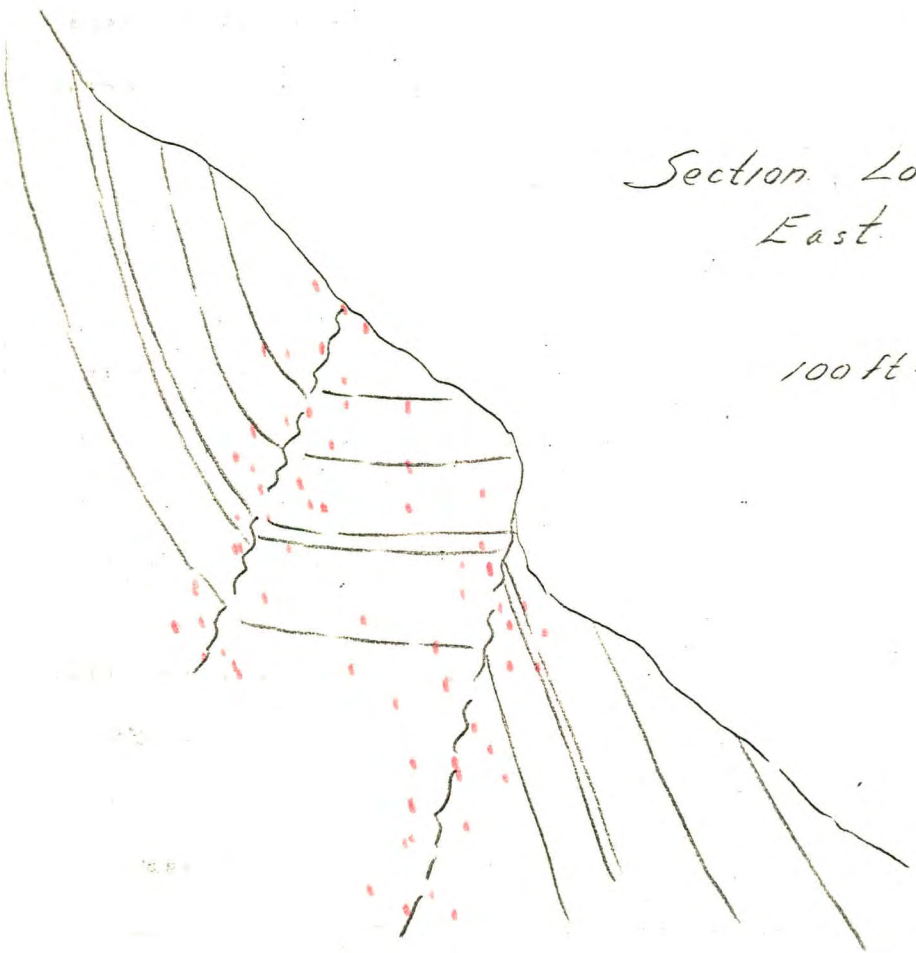
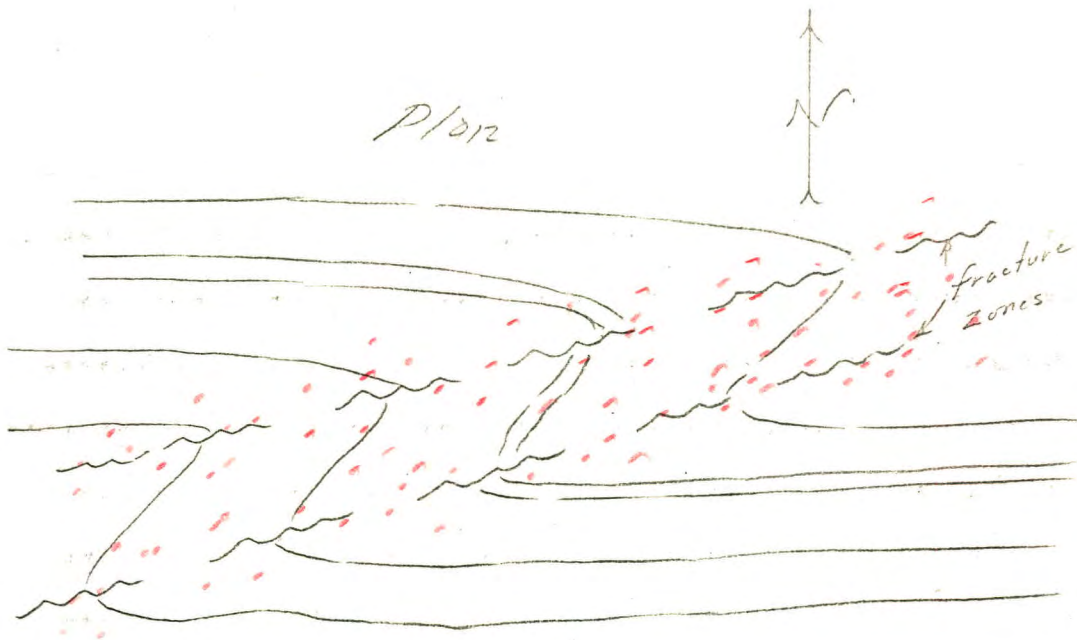
and host to most of the copper mineralization, thickness about 2,500 ft.

- (7) Transitional to the above are thin bedded argillites and quartzites, conchoidal fracturing, rusty brown weathering, thickness not known, but at least 3,000 ft.

The above described beds form a major Z shaped drag-fold with the continuing limbs striking about 115° and dipping in general steeply southerly, and the cross-limb striking almost north-south and dipping vertical to steep westerly. Minor drag-folds, in the same Z sense as the major drag-folds, are common. The folding has been so tight near the north-east axis that the rocks there, particularly the limestone and limey tuff unit, have brecciated. Fragments in the breccia zone are completely disoriented, and range in size from a few millimeters to several tens of feet in diameter.

The green phyllite and flagstone unit occupies a marked topographic depression between Slab Mountain itself and the more northerly dolomite ridges. The sparse outcrops of the phyllite are strongly schistose. The unit appears to transect the amygdaloidal volcanics. These data all lead to the conclusion that the phyllites harbor a strong northwesterly trending fault zone.

Fracture zones accompany the drag folded zones



Section Looking East.

100 ft = 1 in approx.

in the thin bedded cherty and limey andesitic tuff horizon (the copper-mineralized horizon). Although the difficult access does not permit complete enough inspection to be certain, the relation is believed to be about as sketched on the facing page. Some of the fracture zones can be seen to extend several hundred feet in strike and dip length. (The average west face slope is about 45° thus exposures are partly plan and partly section). The fractures themselves make a rubbly brecciated zone from a few feet to about twenty feet wide. A few of the more incompetent parts of these zones have been eroded to form caves, which are coated with copper stain, and which the mountain sheep obviously consider their home.

MINERALIZATION:

The sulfides found are chalcopyrite and pyrite, with traces of molybdenite and cobalt sulfides. The copper stain is chiefly malachite, with a little azurite locally, and in one area a trace of cobalt stain was found.

The mineralization definitely appears best grade in and near the fracture zones which are associated with the drag folds as described above. The fractured rock extending for 10 to 20 feet or so on each side of the rubble zone itself in places carries as much copper as

the rubble zone itself. Beyond this, the mineralization decreases to a grade of 0.1% or less copper. Fine grained quartz and feldspar ? heal many of the fractures.

The copper mineralization is by far the most abundant in the thin bedded cherty and limey andesitic tuffs. A few copper occurrences were found in the phyllites and in the dolomites, but they are far too small to be of interest.

SAMPLES AND ASSAYS:

Sampling was necessarily somewhat haphazard in location because of the difficult topography, and erratic mineralization. Nevertheless, the sampling is considered sufficiently diagnostic to indicate the average tenor of the copper mineralization within a factor of about 10%. The samples were all chip, and most were cut by Carl Langlois. Their location is shown on the overlay for enlarged aerial photograph.

No.	Width or Length ft.	% Cu	% MoS ₂	Remarks
6451	30	0.37		Partly along strike at top of cliff near old helicopter landing.
6452	30	0.76		
38976	30	0.15		Cross section 200 ft. west of above.
38977	50 approx.	0.33	0.01	Contiguous samples taken from east to west along a sheep trail below the upper cliff, and about two hundred feet below the ridge top, on S.W. face about center. The samples follow close to the strike of a fracture zone.
38978	50 "	0.20	0.01	
38979	50 "	0.78	0.01	
38980	50 "	0.50	Tr.	
38981	50 "	0.21	Tr.	
38982	50 "	0.31	Tr.	
38987	50 plus	0.42	Tr.	
38988	50 "	0.60	Tr.	
38989	50 "	0.50	Tr.	
38990	50 "	0.46	Tr.	
38991	50 "	0.17	Tr.	
38992	50 "	0.08	Tr.	
38999	50	Tr.	0.004	
39000	50	0.43	0.004	
38880	50	0.12	0.017	
38881	50	0.25	0.017	
38882	50	0.46	0.013	
38994	50	Tr.	0.009	A cross-section through a drag-folded and faulted zone about 400 ft. below the above.
38995	50	Tr.	0.009	
38996	50	Tr.	0.009	
38993	25	0.33	0.009	A malachite stained rubble zone in a cave on east center of the river face.
38883	50	0.10	0.013	As above and about 300 ft. west of the above - taken along strike of a rubble zone about 20 ft. thick.
38884	30	Tr.	0.009	
38997	50	0.52	0.009	A cross-section of a drag-folded and fractured area S.W. of the bottom of "The Slot".
38998	50	Tr.	0.013	
38984	50	0.04	0.03	On the north side of the peak, (i.e.) facing the camp, and taken sub-parallel to the bedding across the nose of a gentle drag-fold - contained erratic coarse molybdenite.
38985	50	0.03	0.20	
38986	50	0.15	Tr.	

Average of 21 best assays - 0.37% Cu - Trace MoS₂

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50' - Tr - 0.013
50' - 0.52 - 0.009

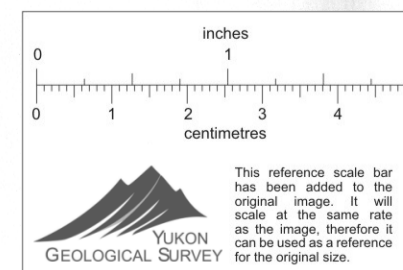
50' - 0.08 - Tr
50' - 0.17 - Tr
50' - 0.46 - Tr
50' - 0.50 - Tr
50' - 0.60 - Tr
30' - 0.15
50' - 0.42 - Tr
50' - 0.31 - Tr
30' - 0.27
30' - 0.76
50' - 0.21 - Tr
50' - 0.50 - Tr
50' - 0.78 - Tr
50' - 0.20 - 0.01
50' - 0.33 - 0.01

50' - Tr - 0.003
50' - Tr - 0.009
50' - Tr - 0.009

50' - 0.04 - 0.03
50' - 0.03 - 0.20
50' - 0.04 - 0.03

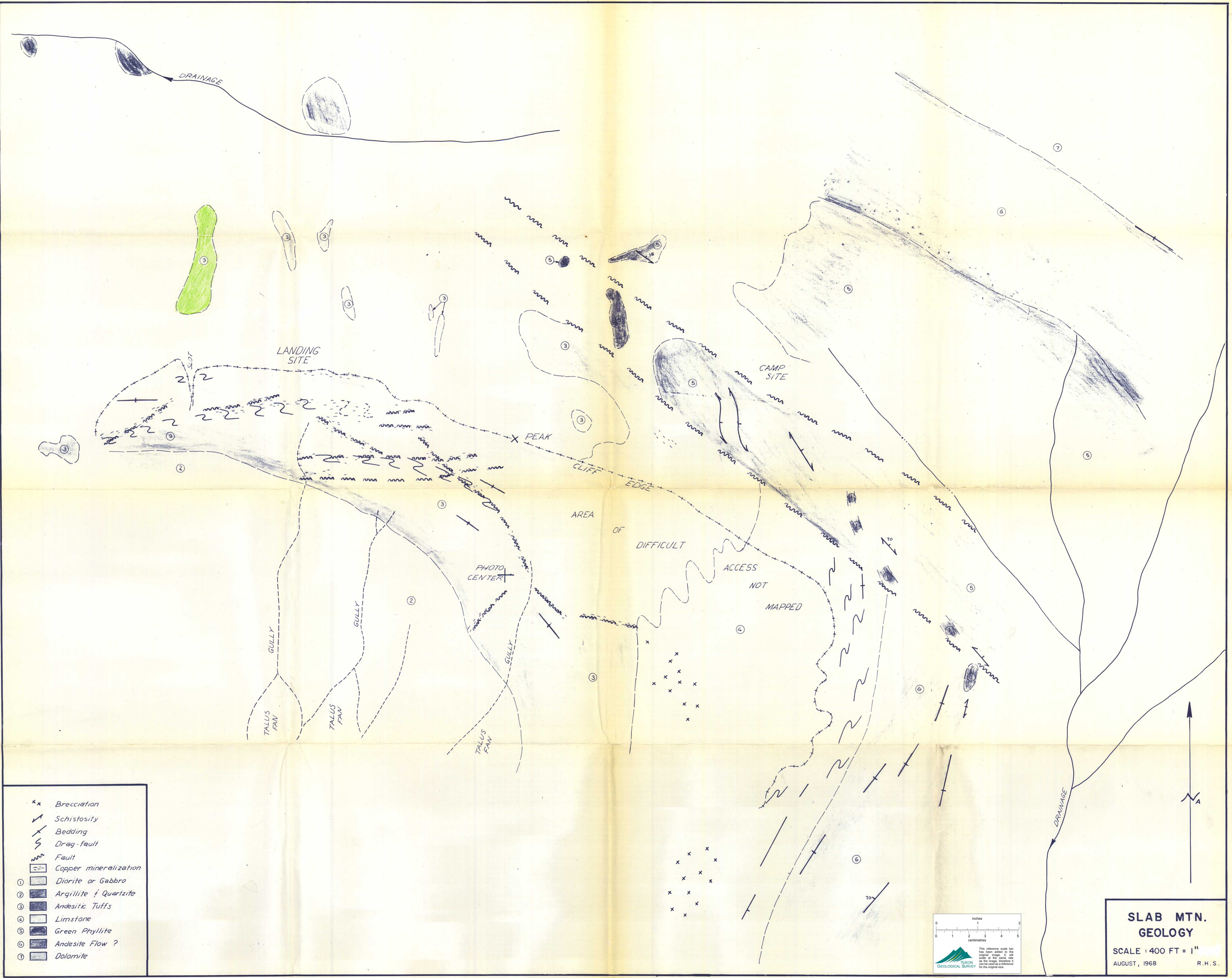
PHOTO
CENTRE

30' - Tr - 0.009
50' - 0.10 - 0.013
25' - 0.33 - 0.009

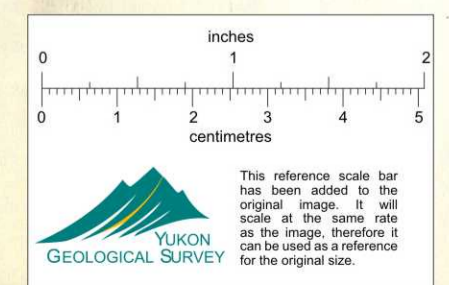


Note: Base is an enlarged aerial photograph, thus distances are distorted. Also length of samples are approximate.
Assays - Ft - % Cu - % MoS₂

SLAB MTN. ASSAYS
SCALE: 400 FT. = 1"
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- *x Brecciation
- ↗ Schistosity
- Bedding
- ⚡ Drag-fault
- Fault
- Copper mineralization
- ① Diorite or Gabbro
- ② Argillite & Quartzite
- ③ Andesitic Tuffs
- ④ Limestone
- ⑤ Green Phyllite
- ⑥ Andesite Flow ?
- ⑦ Dolomite



SLAB MTN. GEOLOGY
 SCALE : 400 FT = 1"
 AUGUST, 1968 R.H.S.