

GALORE CREEK MAP—AREA (104G/3W, 4E)

By A. Panteleyev

INTRODUCTION

Regional mapping in an area surrounding the Galore Creek copper deposits of Stikine Copper Limited was initiated in 1973 and concluded in 1975. Approximately 647 square kilometres (250 square miles) centred on a mineralized syenite complex was mapped at a scale of 1:31 680 (1 inch to ½ mile). The purpose of this mapping project is to describe the regional setting of the Galore Creek deposits, estimate resource potential in the map-area, and to assess the role and relative importance of intrusions, volcanic rocks, and structures (mainly breccias and faults) in localizing mineralized zones.

Rock specimens from 360 locations were collected and four fossil collections made. To date, 39 rocks (8 intrusive, 31 volcanic) have been analysed to determine major oxide and minor element contents. Twenty additional volcanic rocks will be analysed during 1976. Two new K-Ar ages have been determined in addition to the two reported earlier (*Geological Fieldwork*, 1974, p. 61).

GEOLOGY

Stratigraphy of Upper Triassic rocks has been mapped in detail. Bedded rocks have been divided into three major map units, all of regional extent (Fig. 13). Oldest rocks are pyroxene-bearing flows and flow breccias of basalt or basaltic andesite composition that form massive outcrops, commonly with indistinct bedding. Youngest rocks are well layered, lithic and crystal tuffs, tuffaceous sedimentary rocks, and subordinate flow rocks. Tuffs and interbedded tuffaceous sedimentary rocks have highly variable clast sizes ranging from boulder breccia to dust tuff with lapilli tuffs most prevalent. Tuffaceous rocks range in composition from pyroxene basalt to orthoclase crystal trachyte. Intercalated flows are basalt and, locally, pseudoleucite phonolites. The third map unit is discontinuous and is locally present between the two main map units. Rocks in this map unit are feldspar porphyry flows, flow breccias, and lenses of fine-grained sedimentary rocks and epiclastic rocks containing feldspar porphyry clasts.

Strata are folded into large, open structures that form a series of linked anticlines and synclines with east-west or northwesterly trending axes. A second generation of smaller upright isoclinal to box-like folds with north-northwesterly trending axes transect the larger structures. At least two zones up to 200 metres wide of sheared cataclastic rocks have been mapped for distances of 3 kilometres. Northwesterly and north-south-trending

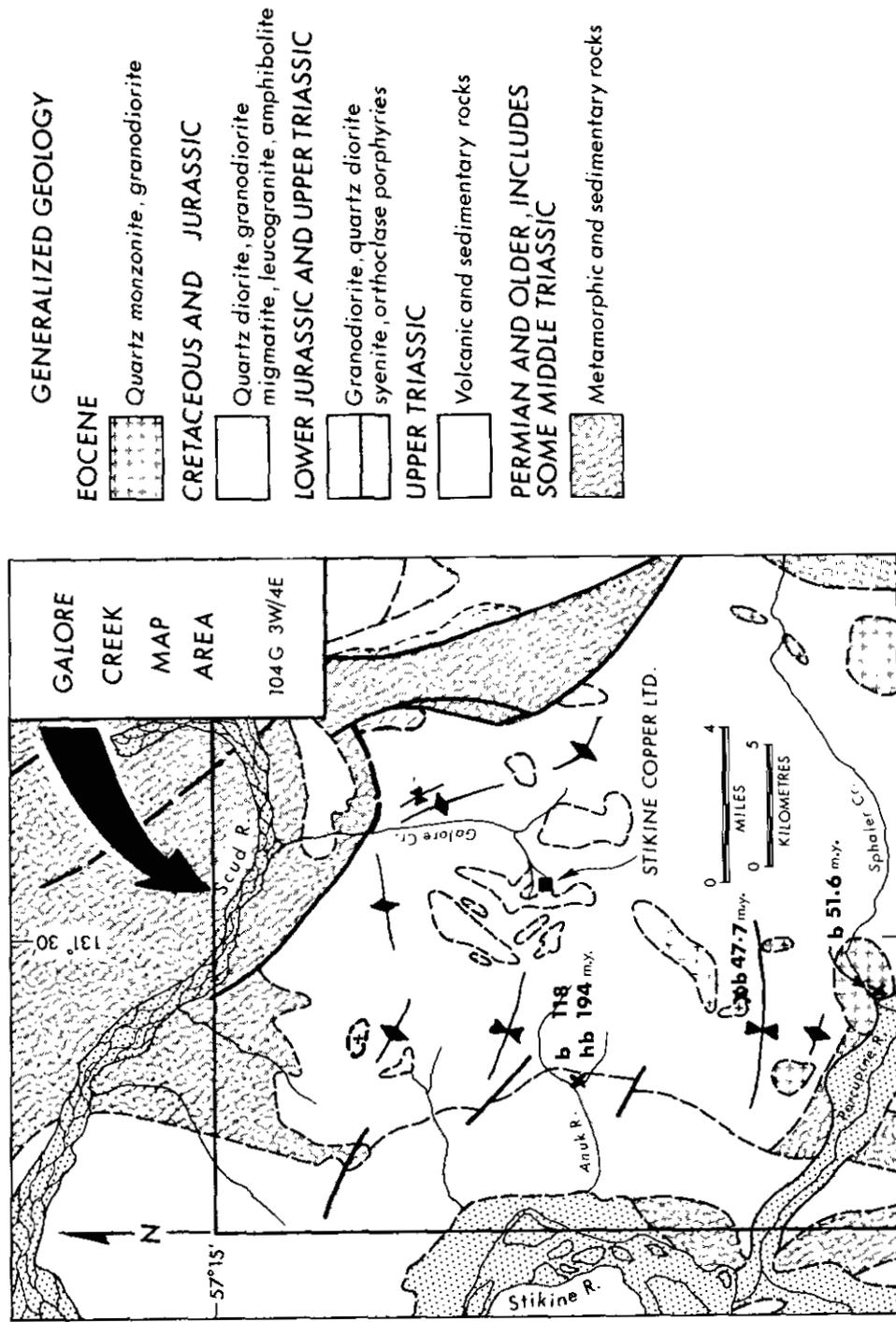


Figure 13. Generalized geology, Galore Creek map-area.

normal faults in the northern part of Galore Creek map-area and reverse faults in the east, define boundaries between Upper Triassic rocks and Middle Triassic sedimentary rocks and Paleozoic sedimentary and metamorphic rocks.

In Galore Creek basin, regional northwesterly stratigraphic and structural trends are disrupted by north-northeasterly trending breccia zones, syenite (orthoclase porphyry) intrusions, and tightly folded strata cut by numerous faults. Five major types of syenite intrusions are now recognized. The intrusions form a series of dykes, sheets, and at least two stocks, the smaller of which might be a volcanic neck. Breccias of many types are present; the most widespread is associated with dyke swarms and contains porphyritic syenite fragments in an andesite matrix mineralized with magnetite and rare sulphide minerals.

Two new K-Ar age determinations have been made. A 194 million year date was obtained from a hornblende collected from a quartz diorite phase of the Coast Plutonic Complex. This date provides a discordant pair of ages for this part of the Coast Plutonic Complex (hornblende 194 ± 5 m.y., biotite 118 ± 5 m.y., *Geological Fieldwork*, 1974, p. 61). A 47.7 ± 1.7 million year date from fine-grained biotite associated with pyritic mineralization in a granodiorite stock at Split Creek indicates that mineralization as well as intrusion of small barren quartz monzonite stocks (52.6 ± 1.6 m.y., *Geological Fieldwork*, 1974, p. 61) took place during Eocene time.

A simplified geological map of Galore Creek map-area is shown on Figure 13.