GEOLOGY OF THE FORREST KERR CREEK AREA, NORTHWESTERN BRITISH COLUMBIA (104B/15)

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KEYWORDS: Regional geology, Stikine assemblage, Stuhini Group, McLymont Creek, skarns, veins, massive sulphides, gold, base metals.

INTRODUCTION

This report summarizes the results of 1:50 000-scale mapping completed during the 1989 field season in the Forrest Kerr map area (104B/15). This is the second year of a 4-year program of regional mapping and mineral deposit modelling between the Iskut and Stikine rivers in northwestern British Columbia. In 1988 mapping was centred on Galore Creek and map sheets 104G/3 and 4 (Figure 1-13-1). The 1989 program extended previous mapping southeast to the Iskut River to delimit Paleozoic Stikine assemblage and Upper Triassic Stuhini Group stratigraphy, to assess the mineral potential of the area and update the mineral inventory database (MINFILE).

The 1989 map area is located about 15 kilometres northwest of Eskay Creek, 30 kilometres southeast of the Galore Creek porphyry copper deposit and about 20 kilometres

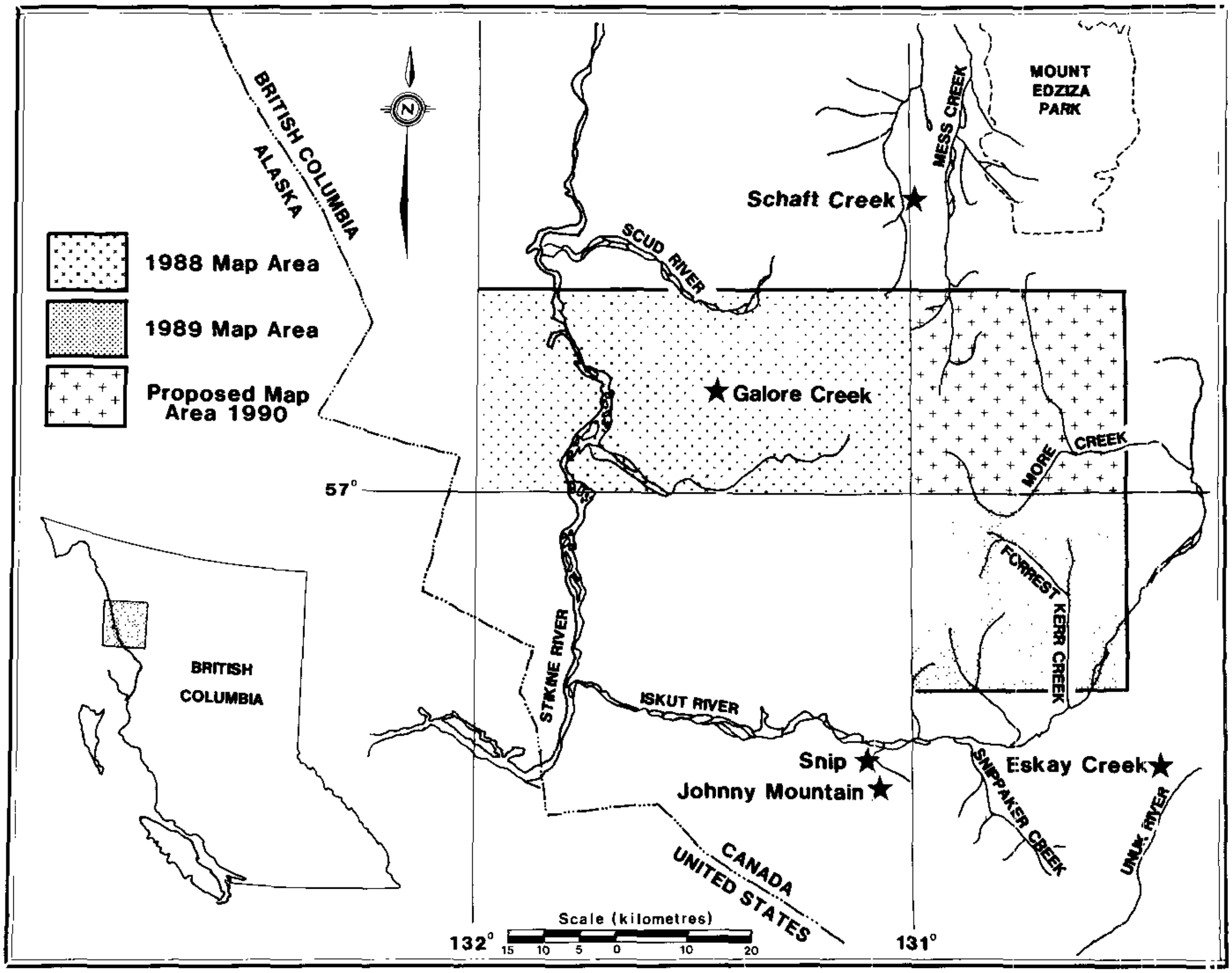

Figure 1-13-1. Location map showing the 1989 Forrest Kerr Creek map area, the 1988 Galore Creek map area and the proposed map area for 1990.

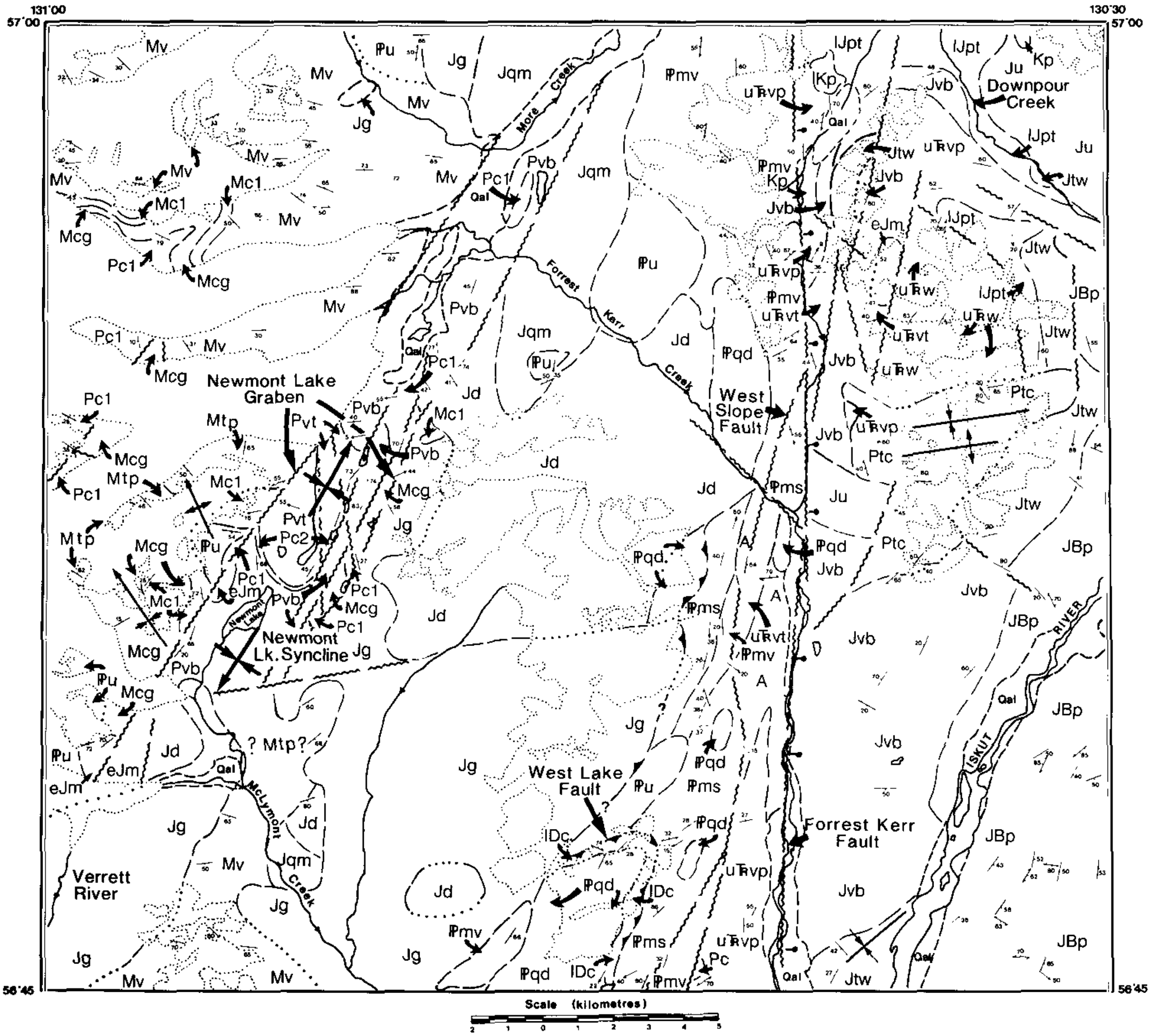

Figure 1-13-2. Geology map of the Forrest Kerr Creek map sheet 104B/15.

northeast of the Snip deposit and Johnny Mountain mine (Figure 1-13-1).

The topography of Forrest Kerr map area is characterized by deeply incised forested river valleys with an abundance of slide alder and devils club at lower elevations, and alpine areas with high peaks and ridges mantled by radiating glaciers and permanent snow fields. Permanent snow and ice cover about 20 per cent of the map area. Access is by fixed-wing aircraft from Smithers to the Forrest Kerr airstrip, or to the Bronson Creek airstrip on the Iskut River, and from there by helicopter.

REGIONAL GEOLOGY

The study area straddles the boundary between the Intermontane and Coast tectonic belts. Stikine Terrane (Stikinia) underlies the area and comprises a mid-Paleozoic to Mesozoic island arc succession which is overlapped by Middle to Late Jurassic sediments of the Bowser basin to the east.

Paleozoic volcanic and associated sedimentary rocks of the Stikine assemblage floor Stikinia. Mesozoic arc volcanism is represented in the Upper Triassic by Stuhini Group and in the Lower Jurassic by Hazelton Group volcanic and

LEGEND

QUATERNARY

- **Qal** — *TILL, ALLUVIUM*

STRATIFIED ROCKS

MIDDLE TO UPPER JURASSIC BOWSER LAKE GROUP

- **JBp** — *SILTSTONE, SANDSTONE, MINOR CONGLOMERATE*

JURASSIC

- **Ju** — *UNDIVIDED VOLCANICS AND SEDIMENTS*
- **Jtw** — *SILICEOUS WACKE, TUFF, CONGLOMERATE*
- **Jvb** — *PILLOW BASALT, BRECCIA FLOWS, SILICEOUS SEDIMENTS*
- **lJpt** — *SHALE, SANDSTONE, LESSER LIMESTONE, TUFF*

UPPER TRIASSIC STUHINI GROUP

- **uTRvt** — *MAROON AND GREEN EPICLASTICS, AUGITE AND PLAGIOCLASE-PHYRIC VOLCANIC BRECCIAS*
- **uTRvp** — *DARK GREEN PLAGIOCLASE-PHYRIC FLOWS*
- **uTRva** — *GREY-GREEN APHANITIC TUFF*
- **uTRw** — *TUFFACEOUS WACKE, ARGILLITE, LIMESTONE, CONGLOMERATE WITH LIMESTONE CLASTS, PLAGIOCLASE-PORPHYRITIC ANDESITE*

MIDDLE TRIASSIC

- **mTRs** — *CARBONACEOUS CALCAREOUS SILTSTONE*

PALEOZOIC STIKINE ASSEMBLAGE

- **Pu** — *UNDIVIDED METAVOLCANICS AND METASEDIMENTS*

WESTERN ASSEMBLAGE

PERMIAN

- **Pvt** — *FELSIC WELDED TUFF, VOLCANIC SANDSTONE AND SILTSTONE, RHYOLITE FLOWS*
- **Pc2** — *THIN-LAMINATED, GREY ALGAL LIMESTONE*
- **Pvb** — *INTERMEDIATE TUFF AND EPICLASTICS, MAROON LAHAR, BRECCIA FLOWS*
- **Pc1** — *MEDIUM-BEDDED BIOCLASTIC LIMESTONE WITH CHERTY INTERBEDS*

MISSISSIPPIAN

- **Mtp** — *SILTSTONE, SANDSTONE, TURBIDITES, LESSER LAPILLI TUFF*
- **Mcg** — *POLYMICTIC VOLCANIC CONGLOMERATE*
- **Mc1** — *INTERBEDDED SILICEOUS SILTSTONE AND LIMESTONE, THICK-BEDDED CRINOIDAL CALCARENITE*
- **Mv** — *PILLOW BASALT, HYALOCLASTITE, ASH-FLOW FELSIC TUFF*

EASTERN ASSEMBLAGE

PERMIAN

- **Ptc** — *INTERMEDIATE TO MAFIC META-TUFF, THIN-BEDDED LIMESTONE AND METASEDIMENTS*
- **Pc** — *MEDIUM-BEDDED BIOCLASTIC LIMESTONE*

PERMIAN AND OLDER

- **Pms** — *SILICEOUS TURBIDITES, PHYLLITES, LESSER CHERTY TUFFS*
- **Pmv** — *MAFIC TO FELSIC METAVOLCANICS, METASEDIMENTS, LIMESTONE LENSES*

LOWER DEVONIAN

- **lDc** — *LIMESTONE, SILICEOUS TUFF*

INTRUSIVE ROCKS

CRETACEOUS AND YOUNGER (?)

- **Kp** — *PLAGIOCLASE QUARTZ PORPHYRY*

JURASSIC

- **Jg** — *PINK HORNBLENDE BIOTITE GRANITE*
- **Jqm** — *QUARTZ MONZONITE*
- **Jd** — *HORNBLENDE DIORITE, HORNBLENDE QUARTZ DIORITE*

EARLY JURASSIC

- **eJm** — *HORNBLENDE-PLAGIOCLASE-PORPHYRITIC MONZONITE, SYENITE*

PALEOZOIC

- **Pqd** — *DEFORMED HORNBLENDE QUARTZ DIORITE*

UNKNOWN

- **A** — *ALTERED DIORITE*

sedimentary rocks. The Middle Jurassic Spatsizi and Bowser Lake groups record successor basin sedimentation. At least four episodes of plutonism affected this complex stratigraphy.

STRATIGRAPHY

PALEOZOIC STIKINE ASSEMBLAGE

The Stikine assemblage of northwestern British Columbia (Monger, 1977) includes Paleozoic rocks of Early to Middle Devonian, Mississippian and Permian age (Pitcher, 1960 Logan and Koyanagi, 1989; Anderson, 1989; Read *et al.* 1989). Paleozoic rocks in the map area are divisible into eastern and western assemblages (Figure 1-13-2) based on structural and metamorphic disparities. Stratigraphy in general can be correlated from one division to the other (Figure 1-13-3).

EASTERN ASSEMBLAGE (lDc, Pmv, Pms, Pc, Ptc)

The eastern assemblage occupies a north-trending belt west of the Forrest Kerr fault as well as small inliers east of the fault. Rocks in this belt young southwards. In the north is a metavolcanic package (Pmv) ranging from Middle Devonian to Early Mississippian age (Read *et al.*, 1989), overlain southward by a metasedimentary (Pms) and siliciclastic package of Early Permian age, capped by Permian platformal limestones (Pc). Early Permian meta-tuffs and interbedded limestones (Ptc) outcrop east of Forrest Kerr fault. Rocks of the eastern assemblage are penetratively deformed by at least two phases of deformation.

LOWER DEVONIAN LIMESTONE (lDc)

The oldest known unit in the Paleozoic assemblage comprises at least four coralline limestone members of Early to Middle Devonian age (Anderson, 1989; Read *et al.*, 1989). Interbedded with the limestone are pebble conglomerate, siliceous and carbonaceous shales and both mafic and felsic tuffs. The maximum total thickness is 400 metres. The succession is exposed in a narrow belt, 4.5 kilometres long, north of the Iskut River between McLymont and Forrest Kerr creeks, where it is intruded by Paleozoic(?) quartz diorite (Pqd) and thrust eastward (Figure 1-13-2). Lower Devonian limestone forms the hangingwall of West Lake fault. (Read *et al.*, 1989). These are the most penetratively deformed rocks in the map area.

PALEOZOIC METAVOLCANICS (Pmv)

Paleozoic metavolcanics are variably foliated to schistose, dependent upon the protolith. Mafic to intermediate flows are weakly foliated, purple to dark green and either massive or brecciated. Amygdaloidal plagioclase ± augite-phyric flows predominate. Mottled purple and green mafic to felsic lapilli tuffs are well foliated to phyllitic. Lapilli are flattened in the plane of foliation. Fine-grained crystal tuffs and tuffaceous sediments have been metamorphosed to chlorite schists and lesser quartz-sericite schists. Interbedded with these metavolcanics are subordinate phyllites, tuffaceous pyritic argillites and recrystallized limestone.

PALEOZOIC METASEDIMENTS (Pms)

The metasedimentary unit comprises grey to light green phyllitic siltstone, graphitic argillite, siliceous phyllite and thin lenses of dark brown weathering limestone. Pale green and white siliceous turbidite couplets, comprised of 2 to 5-centimetre siltstone beds intercalated with 1-centimetre beds of fine sandstone, form a distinctive unit at least 200 metres thick. This unit is correlative with Brown and Gunning's (1989) "siliceous unit" mapped to the north at the Scud River. Apparently high(?) in the stratigraphy are vari-coloured, weakly foliated siliceous siltstones and ribbon cherts.

PERMIAN CARBONATES (Pc)

Early Permian (Artinskian to Sakmarian; Read *et al.*, 1989) limestone is exposed at the southern edge of the map area adjacent to the West Slope fault. The limestone is a massive, white to buff, sparsely crinoidal calcarenite which locally is completely recrystallized to coarse calcite.

PERMIAN META-TUFFS AND LESSER CARBONATES (Ptc)

This metavolcanic unit is exposed east of the bend in Forrest Kerr Creek. The unit is folded and foliated and comprised of interbedded chloritic tuffs, tuffaceous and siliceous siltstones and numerous thin recrystallized Early Permian limestones.

WESTERN ASSEMBLAGE (Mv, Mc1, Mcg, Mtp, Pc1, Pvb, Pc2, Pvt)

The western assemblage is well exposed north of the Iskut icefield and Newmont Lake and separated from the eastern assemblage by a Jurassic composite plutonic body. Mississippian reefal limestone (Mc) and underlying pillowed basalt (Mv) are the oldest known rocks. A polymictic volcanic conglomerate (Mcg) separates Mississippian limestone from Lower Permian (R.G. Anderson, personnel communication, 1989) limestones (Pc1). Intermediate volcanics (Pvb), a medial limestone (Pc2) and felsic tuffs (Pvt) comprise the uppermost sections. The western assemblage rocks are not penetratively deformed, not metamorphosed and the limestones are rarely recrystallized; at the time of mapping they were thought to be younger than the eastern assemblage.

MISSISSIPPIAN VOLCANICS (Mv)

Mississippian and older(?) mafic to felsic volcanics occur in the northwestern and southwestern corners of the map area and comprise a southwest-dipping homoclinal sequence of pillow lavas, flow breccia, ash-flow tuffs and stratified tuffs and epiclastics which are conservatively estimated to exceed 2000 metres in thickness. The upper contact is conformable with mid-Late Mississippian limestone (M.J. Orchard, personal communication, 1989). The lower contact was not defined. Interbedded hyaloclastite and pillowed flows are texturally distinctive and volumetrically exceed massive sheet-flows of basalt in the northwest corner of the map. Flows vary texturally from aphanitic to porphyritic and are commonly amygdaloidal. Plagioclase-phyric flows are more common than augite-plagioclase porphyries. Basaltic andesite flows are characterized by scoriaceous fragments. In detail, amygdules are distributed parallel to borders of clasts and are often concentrically zoned about the clasts. Hyaloclastite debris flows contain sparse pillows. Massive flows have brecciated tops and bottoms. Light purple to pink dacite flow breccias are spatially related to ash-flow and welded tuffs in the northwest corner of the map area. These flows and tuffs contain very angular lapilli averaging 1 to 10 centimetres across and pinkish grey porphyritic feldspar, often in clusters of three to four crystals. The irregular distribution of quartz, epidote and chlorite amygdules indicates propylitic alteration rather than regional greenschist metamorphism.

Fragmental rocks are dominated by heterolithic lapilli tuffs. Dark green to grey, angular to subrounded, densely amygdaloidal fragments are diagnostic of tuffs interbedded with pillowed flows and scoriaceous hyaloclastites. Dominantly green, orange-weathering ash-flow and welded lapilli tuffs are a distinctive unit. Lapilli are pale grey, pink and purple aphyric lithic and crystal fragments. These felsic tuffs are spatially related to dacitic and rhyolitic rocks exposed north of the headwaters of Forrest Kerr Creek. A third variety consists of thin, planar-bedded siliceous dust tuffs. These are interbedded with graded and crossbedded crystal and lapilli volcaniclastics.

This volcanic succession is interpreted to represent submarine volcanism from a seamount (pillows and hyaloclastite) with atoll-fringing reefs (reefal limestone Mc) which, over time, became emergent (ash-flow and welded ash-flow tuffs) and evolved from basalt through dacite to rhyolite.

MISSISSIPPIAN CARBONATE (Mc)

Late Mississippian reefal limestone, reef-flank carbonates and cherty siltstones overlie hyaloclastites in the northwest corner of the map area (Figure 1-13-2). West of Newmont Lake the base is faulted. At Round Lake (about 20 kilometres northwest) the limestone consists of two distinct members separated by a wedge of chert and phyllitic volcaniclastic rocks (Monger, 1970; Logan and Koyanagi, 1989). In the northwest corner of the map sheet these same lithologies are recognized, but their relationships are complicated by faulting and swarms of east-trending dikes. The lower limestone is a bioclastic calcarenite with characteristic coarse (up to 5-centimetre diameter) crinoid columns. Carbonates interpreted to be coralline reef mounds, slope-front block breccias and graded reef-flank deposits interbedded with siliceous siltstones comprise an aggregate thickness of 50 metres at most. Farther west less than 200 metres of thick-bedded, grey crinoidal calcarenite with interbeds of amorphous chert are exposed on strike. This limestone contains small crinoidal stems and fossil fragments, is locally fetid and resembles the upper limestone member exposed at Round Lake. Both limestone members are conformably overlain by a coarsening-upward sequence of siliceous siltstones and volcanic conglomerate.

MISSISSIPPIAN(?) CONGLOMERATE AND SILTSTONE (Mcg)

At least 300 metres of cherty siltstone and maroon polymictic volcanic conglomerate overly Mississippian limestone in the northwest corner of the study area and west of Newmont Lake. Dark grey and black cherty siltstones and interbedded bioclastic limestone shale-out up section, followed by thinly laminated rusty weathering cherty siltstones which, in turn, are conformably overlain by maroon conglomerates. Dark purple and green pyroxene-porphyritic and hornblende-plagioclase-porphyritic andesites, scoriaceous basalt and grey fossiliferous limestone clasts form up to 70 per cent of the rock in a plagioclase crystal rich tuffaceous matrix. In general the conglomerates are massive to thickly bedded making it difficult to determine bedding attitudes. Angular blocks of limestone up to several metres across are common. A tentative fossil identification from one of these blocks is probably Permian but possibly Mississippian (E.W. Bamber, personal communication, 1989). Near the top of the conglomerate, angular limestone clasts increase in abundance near the Permian limestone contact. From this relationship the conglomerate was formerly interpreted to be post-Permian and overturned. Mesoscopically it resembles the basal Triassic conglomerate located to the west, above Forrest Kerr Creek (Read *et al.*, 1989). Bedding-top directions and conformable contacts indicate that the conglomerate is upright and actually either Late Mississippian or Early Permian in age. It has tentatively been interpreted to represent Monger's (1977) post-Mississippian pre-Permian profound unconformity.

MISSISSIPPIAN TUFFS AND EPILCLASTICS (Mtp)

This unit is exposed on nunataks northwest of Newmont Lake. A second outcrop area between McLymont Creek and Newmont Lake is tentatively included. The age of these clastics and tuffs is uncertain; the interbedded tuffs and epiclastics resemble Mississippian epiclastics to the north. The unit comprises a well-bedded succession of distal(?) turbidites consisting of fine siliceous siltstone and carbonaceous siltstone, interbedded sandstone and polymictic conglomerate. Fining-upward sequences are common. Lapilli tuff is interbedded and thick accumulations of coarse breccias and lahar attest to periodic volcanic influxes. The succession southeast of Newmont Lake consists of well-indurated, commonly bleached and pyritic, finely layered siltstones and conglomerates which are hornfelsed by adjacent intrusions. Unit Mtp is thought to represent a basinward facies equivalent of the coarse conglomerate of unit Mcg.

PERMIAN LIMESTONE (Pc1)

Lower Permian (Artinskian; M.J. Orchard, personnel communication, 1989) limestone is best exposed on nunataks along the western edge of the map area and in fault-bound slivers on the eastern side of the Newmont Lake graben. In contrast with the greater than 1000 metres of platformal carbonates present at the Scud River (45 kilometres north) less than 200 metres are present here.

The limestone comprises primarily massive to thin-bedded grey bioclastic calcarenite and lesser buff silty dolomitic units. Thin-bedded sections are interbedded with black to yellowish buff amorphous silica beds up to 20 centimetres thick and comprising as much as 50 per cent of the outcrop. These layers are diagenetic(?) silicified fossil-rich horizons. Solitary corals, foraminifera, bryozoan, crinoids and various brachiopods are locally abundant. Limonitic and hematitic limestones are coincident with fault structures and indicate fluid flow and attendant alteration. This alteration is selective and occurs predominantly in the massive limestones and dolomitic mudstones.

PERMIAN VOLCANICS AND VOLCANIC BRECCIAS (Pvb)

A Permian intermediate volcanic unit outcrops within the northeast-trending Newmont Lake graben. It is a distinctive purple to maroon colour and comprises thick breccia flows, lahars, tuffs and lesser mudstones and wackes. These volcanics are fresh in appearance and resemble Jurassic Hazelton Group rocks, their intercalation with limestone members is an important distinction (Anderson, 1989).

The flows are purple, plagioclase and hornblende-porphyritic andesites. They are locally amygdaloidal and generally contain 30 to 40 per cent euhedral white plagioclase and 15 per cent chloritic acicular hornblende crystals. Breccia and massive flows averaging 5 metres in thickness are interbedded with well-graded interflow epiclastics west of Newmont Lake. East of Newmont Lake are light green to pink, block and lapilli tuffs with lesser plagioclase crystal tuff. Maroon lahar and well-bedded graded conglomerates are exposed north of Forrest Kerr Creek.

This calcalkaline volcanic package, coarse "proximal facies" breccia flows, and variable oxidizing states suggest a transgressive submarine to subareal volcanic centre.

PERMIAN ALGAL LIMESTONE (Pc2)

This limestone is a good marker which can be traced around the Newmont Lake syncline. North of the lake 95 metres thickness is exposed. The limestone pinches along strike and on the east limb is only 20 metres thick. It is dark grey to black and finely laminated, weathering buff and is locally fetid. Pisolite-rich beds and cuspate stacked concave algal structures are common. The upper sections are selectively silicified.

The fine laminations are interpreted to be cryptalgal laminations (Aiken, 1967) indicative of algal mats and an intertidal zone of deposition for the limestone. The algal limestone unit is overlain conformably by well-bedded tuffaceous epiclastics and a thick package of welded tuffs.

PERMIAN VOLCANICS (Pvt)

The core of the Newmont Lake syncline contains a basal package of maroon, shallow-water conglomerates, siltstones, lapilli and plagioclase crystal tuffs. Discontinuous thinly bedded siliceous limestones, up to 5 metres thick, are interspersed throughout. This basal package is overlain by more than 100 metres of brownish grey massive to thick-bedded welded ash tuffs. The tuffs exhibit good eutaxitic flow laminae and are often columnar jointed. Air-fall ash tuffs are well stratified and contain 5 to 10 per cent angular lithic lapilli. Flow-banded rhyolites and breccias occur high in the section.

MIDDLE TRIASSIC (mTRs)

Middle Triassic(?) rocks are restricted to small discontinuous fault-bounded exposures in the centre of the Newmont Lake syncline (Figure 1-13-2). Unit mTRs consists of black carbonaceous, locally calcareous, silty shales and argillites which contain bivalves of presumed Middle Triassic age. These rocks are similar to Middle Triassic rocks mapped in 1988 above the South Scud River (Logan and Koyanagi, 1989). North of Newmont Lake the rocks weather recessively and are less siliceous but contain characteristic rounded to elliptical concretions.

Upper Triassic Stuhini Group

Upper Triassic Stuhini Group rocks lie between the West Slope and Forrest Kerr faults south of Forrest Kerr Creek and east of the Kerr fault in the northeast corner of the map area (Figure 1-13-2). A generalized stratigraphy following that of Read *et al.* (1989), consists of a lowermost metasedimentary succession (uTrw), a medial metavolcanic succession (uTrva, uTrvp) and an overlying tuffaceous metasedimentary succession (uTrvt). Contacts between units are faulted or poorly exposed and, as a result, thicknesses and overall stratigraphic relationships are uncertain (Figure 1-13-3).

East of the Forrest Kerr fault Unit uTrw consists of a thick package of fine-grained volcaniclastics and sediments. Green to grey massive volcanic wackes and arenites, and interbedded black siltstones and argillites predominate, with lesser limestone and limy conglomerates. Massive to thickly bedded volcanic sandstones and poorly sorted lithic wackes contain up to 80 per cent plagioclase, the remaining 10 to 30 per cent being 2 to 4-millimetre pyroxene grains and lithic clasts of plagioclase pyroxene porphyry. Plagioclase crystal tuff, with lapilli to 5 centimetres, are intercalated with the wackes. These volcaniclastics are interbedded with thin planar-bedded to crudely crossbedded (locally) carbonaceous rusty weathering argillites. The fine-grained sediments contain fossiliferous limy horizons with abundant brachiopods intercalated with lesser limy conglomeratic beds.

At the south end of the map, east of the West Slope fault, a maroon volcanic conglomerate containing limestone clasts structurally underlies Lower Permian limestone (Figure 1-13-2). It has been interpreted by Read *et al.* (1989) to mark the base of the Stuhini Group.

Massive light grey to dark green aphanitic lapilli tuff and andesite breccia (uTrva) is a minor though distinctive unit intercalated with plagioclase porphyry flows of Unit uTrvp. The tuff is massive to stratified with monolithic scoriaceous to aphyric andesite lapilli. Read *et al.* (1989) suggested thicknesses of a few hundred to less than a thousand metres.

Green, and lesser maroon, crowded to sparsely plagioclase-porphyritic andesite breccia and flows (uTrvp) underlie the area immediately west and east of the Forrest Kerr fault. Euhedral plagioclase ranges to 5 millimetres in length and comprises 30 per cent of the rock. Alteration is characteristically hematite and chlorite with variable epidote, quartz and calcite as patches and veinlets.

Maroon to dark green tuffs and monolithic augite ± plagioclase-phyric fragmentals (uTrvt) are best exposed within the Forrest Kerr fault zone, north of the bend in Forrest Kerr Creek. Lapilli tuffs with varicoloured porphyritic volcanic and lesser scoriaceous fragments are interbedded with purple to maroon and green well-bedded, locally graded plagioclase crystal-ash tuffs and fine epiclastics. The tuffs are massive to weakly stratified. Coarse breccias and block tuffs of augite porphyry occur near the top(?) of the succession. Associated conglomerates and reworked volcaniclastics are comprised of angular to rounded, green pyroxene porphyry clasts in a pyroxene-rich matrix.

Unnamed Lower To Middle Jurassic Rocks

Unnamed Lower and Middle Jurassic rocks overlie Upper Triassic Stuhini Group rocks east of the Forrest Kerr fault. A generalized stratigraphy consists of: a sedimentary package of interbedded shales and siltstones, lesser limestones and tuffs (lJpt); followed by pillowed basalts, hyaloclastite and interflow siliceous sediments (Jvb); and finally tuffs, siliceous wackes and conglomerate (Jtw).

The inherent complications of volcanic facies changes over short distances and the lack of fossil dates precludes assigning these rocks to either the Hazelton or the Spatsizi Group.

Lower Jurassic Shales and Siltstones (lJpt)

At least 1000 metres of interbedded shale and siltstone outcrop in the valley floor of "Downpour" Creek and extend to More Creek north of the map area (Figure 1-13-2). The shales are fissile; siltstones and thin sandstone beds contain abundant carbonaceous wood fragments. Sandstones grade into thick-bedded granule conglomerates containing intermediate volcanic, sedimentary and limestone clasts. Fossils from interbedded limestone horizons located north of the map area indicate an Early Jurassic (late Toarcian) age (Read *et al.*, 1989). This sedimentary succession is intruded by 2 to 3-metre sills and dikes of pyroxene and plagioclase-phyric diorite (Jdi) thought to represent feeders to the overlying basalts. East of the Forrest Kerr fault, at the northern edge of the map area, Read *et al.* (1989) show felsic tuffs and rhyolite flows correlative with the Mount Dilworth formation of Alldrick *et al.* (1989). These rocks are restricted to this one locale.

Jurassic Pillow Basalt and Flow Breccia (Jvb)

Middle(?) Jurassic pillow and flow-breccia basalts underlie a large area between Forrest Kerr Creek and the Iskut River south of the bend in Forrest Kerr Creek (Figure 1-13-2). Smaller fault-bounded slices extend north beyond the map margin to More Creek. In the north they conformably overlie shales and siltstones of Unit lJpt.

The pillows average 30 to 100 centimetres across, are well preserved and commonly indicate facing directions. Outcrops weather dark brown to orange. Flow breccias are interbedded with the pillows and locally scour and disrupt interflow sediments. The basalt is dense, medium grey to green, locally amygdaloidal and made up of fine-grained vitreous plagioclase crystals with rare pyroxene phenocrysts and abundant disseminated pyrite. Pillows and hyaloclastite flow-breccias comprise more than 90 per cent of this unit.

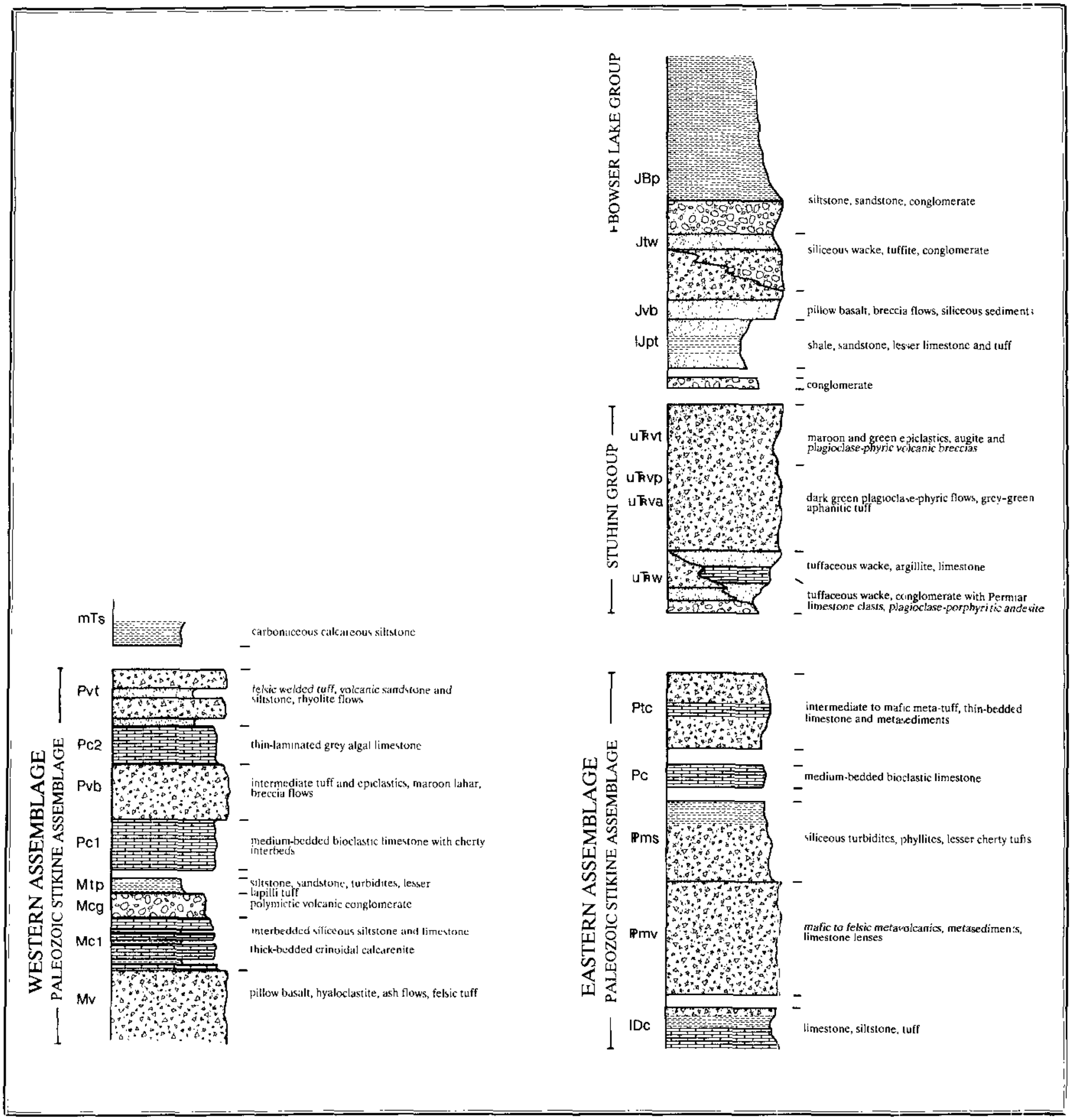

Figure 1-13-3. Schematic stratigraphic sections for the eastern and western portions in the map area.

White and grey siliceous argillites or tuffs and pyritic siltstones are interbedded with the basalts. Sills or feeders(?) to these flows are dioritic to gabbroic with characteristic euhedral felty plagioclase textures and an interstitial pyroxene-rich groundmass.

Grey and khaki siliceous siltstones, conglomerates and tuffs (Jtw) overlie and interfinger with the pillow basalts.

JURASSIC TUFF AND WACKE (Jtw)

This unit outcrops at the southern edge of the map area between Iskut River and Forrest Kerr Creek, northwest of the Iskut River 18 kilometres upstream from its confluence with Forrest Kerr Creek, and as a fault-bounded wedge east of the Forrest Kerr fault near the northern edge of the map area (Figure 1-13-2).

These rocks are characteristically drab, olive to grey in colour, unlike the maroon and dark green Upper Triassic Stuhini Group, and commonly fractured and brecciated. Dark green and grey siliceous siltstones and pyritic cherts are crackle fractured and brecciated *in situ*, forming subangular to angular centimetre-scale fragments. Tuffaceous wackes are carbonaceous and variably sheared. Interbedded with tuffaceous arenites are sedimentary conglomerates containing clasts of chert, black siltstone and intermediate to felsic volcanics. Volcaniclastics are characteristically brownish grey lapilli and crystal tuffs comprised of euhedral plagioclase and scoriaceous green and grey fragments. The contact with the Middle Jurassic Bowser Lake Group is conformable.

MIDDLE JURASSIC BOWSER LAKE GROUP (JBp)

Bowser Lake Group sediments outcrop on the eastern edge of the map area along the flanks of the Iskut River valley. South of the Iskut River, planar-bedded shale and locally crossbedded sandstone couplets are interbedded with local granule conglomerate. The conglomerate contains quartz and siltstone clasts in a limonitic sandy feldspathic matrix. Argillites have a well-developed pencil cleavage and locally host pressure solution quartz veinlets. These grey shales and siltstones are late Middle Jurassic (Callovian) age and are correlated with the Ashman Formation of the Bowser Lake Group (Read *et al.*, 1989). West of the Iskut River the lithologies consist of mainly fine to medium-grained sandstones containing 10 to 15 per cent detrital quartz, and fine siltstones.

INTRUSIVE ROCKS

Intrusive rocks underlie one third of the map area. They are chiefly restricted to a north-trending belt 10 kilometres wide, in the centre of the map. Wheeler *et. al.*, (1988) interpret this composite plutonic belt to be Jurassic. An early Jurassic U-Pb date has been obtained from a porphyritic granite south of the map area (R.G. Anderson, personal communication, 1989). A Paleozoic intrusive suite has been recognized by Read *et al.* (1989) on the eastern margin, but the belt as a whole is thought to be Jurassic or younger. A preliminary plutonic chronology based on mineralogy, textural and intrusive relationships follows. This will be refined by isotopic dating currently in progress.

PALEOZOIC(?) SUITE

HORNBLENDE QUARTZ DIORITE/TONALITE (Pqd)

This unit outcrops as discrete bodies, elongate north-south and situated west of Forrest Kerr Creek. The rock is heterogeneous due to abundant xenoliths of pyroxene and/or plagioclase-porphyritic phases and younger felsic intrusive breccias. Locally the diorite is foliated and deformed. Parts of the intrusion contain well-rounded to irregular shaped inclusions from 2 to 100 centimetres across. These are always more mafic, finer grained felty textured amphibolites and comprise up to 65 per cent (by volume) of the intrusion.

The diorite is massive, medium grained and contains about 20 per cent quartz; plagioclase occurs as glomeroporphyritic patches and makes up the bulk of the feldspar content. Hornblende also occurs as glomeroporphyritic patches to 15 per cent.

The quartz diorite intruded Paleozoic rocks in post-Early Permian to pre-Middle Triassic time (Read *et al.*, 1989).

EARLY(?) JURASSIC SUITE

PLAGIOCLASE PORPHYRITIC MONZONITE (eJm)

Dikes, sills and plugs of plagioclase-hornblende-porphyritic monzonite are restricted to the Newmont Lake graben. They are characterized by a hematitic groundmass, commonly purple to grey with pink subhedral to euhedral plagioclase (up to 50 per cent) and hornblende crystals. Trachytic textures are common.

POTASSIUM FELDSPAR MEGACRYSTIC GRANITE

A hornblende biotite potassium feldspar megacrystic granite outcrops between McLymont and Forrest Kerr creeks north of the Iskut River. A U-Pb zircon date of 191 to 195 Ma (Anderson and Bevier, 1990) indicates this body to be the same age as the Texas Creek pluton of Grove (1986).

MIDDLE JURASSIC SUITE

DIORITE (Jdi)

Coarse-grained diorite stocks and sills are spatially associated with Unit Jvb and outcrop within the Forrest Kerr fault zone. Plagioclase crystals are euhedral to subhedral acicular clots which impart a distinctive felty interlocking texture. Euhedral plagioclase to 50 per cent, pyroxene, and up to 1 per cent pyrite disseminations comprise these subvolcanic intrusions, which may represent feeders to the pillow basalts (Jvb).

JURASSIC SUITE

DIORITE (Jd), QUARTZ MONZONITE (Jqm), BIOTITE GRANITE (Jg)

Composite Jurassic intrusions comprise a batholithic body extending north from McLymont Creek to north of Forrest Kerr Creek. Three separate mappable phases have been recognized; diorite (Jd), quartz monzonite (Jqm), and biotite granite (Jg) (Figure 1-13-2).

The most mafic phase (Jd) occurs in the north. It is a heterogeneous mix of porphyritic to massive hornblende diorite with more mafic hornblendite phases. Hornblende is chloritic and comprises more than 40 per cent of the rock, quartz is less than 5 per cent, but variable to quartz diorite proportions. The remainder is subhedral plagioclase. Intrusive breccias, gneissic sills and pendants of metavolcanic and metasedimentary rocks are common. Contacts with Unit Jqm are gradational over short distances of complex intrusive mixing which commonly exhibit conflicting intrusive relationships. North of Forrest Kerr Creek a 9 square kilometre zone of metamorphosed Paleozoic rocks (Pu) separates Units Jd and Jqm.

The intermediate phase (Jqm) outcrops at the northern end of the belt on both sides of More Creek. It is composed of coarse to medium-grained hornblende quartz monzodiorite to monzonite. Hornblende averages 20 per cent, as 5 millimetre crystal laths and poikilitic clots; biotite, where present, is fine grained and less than 5 per cent. Quartz averages 10 to 15 per cent. Feldspars comprise the remainder, in a 60:40 ratio of plagioclase to potassium feldspar. The rocks are cut by flat-lying sill-like bodies and swarms of dark green diabase dikes. Contacts with the younger granite are sharp.

The youngest intrusive phase is a quartz-rich granitoid suite comprised principally of biotite granite (Jg) which occupies the southern half of the intrusive belt. A second body is centred on the Verrett River southwest of McLymont Creek. Granite intrudes all other igneous rocks in the map area as dikes and forms the anastomosing matrix of intrusive breccias. The granite is coarse to medium grained and deeply weathered producing a sandy to rubbly outcrop surface. It is pink on fresh surfaces and contains about 30 to 40 per cent quartz and 5 to 7 per cent biotite, the remainder being pink euhedral feldspars. Less commonly hornblende is the mafic mineral. The granite varies from equigranular to "quartz-eye" porphyritic. Coarse-grained quartz-rich phases (up to 50 per cent quartz) are spatially related to fault structures. These pegmatitic phases occur north of McLymont Creek at its headwaters and east of the Newmont Lake syncline. They characteristically weather hematitic.

QUARTZ FELDSPAR PORPHYRY (Kp)

Small plugs and dikes of quartz feldspar porphyry are intruded along north-trending faults in Forrest Kerr Creek valley north to the headwaters of "Downpour" Creek. The rocks contain finely disseminated pyrite and outcrops are oxidized to yellow and red colours easily visible from a distance. These rocks extend north onto the Telegraph sheet (104G) where Souther (1972) grouped them with late Cretaceous to early Tertiary felsic bodies.

ALTERED DIORITE (A)

Massive, silicified and propylitically altered intrusive rocks are exposed along the western slopes of Forrest Kerr Creek, south of the main bend. They are distributed along major north-northeasterly fault structures west of the Forrest Kerr fault. Primary textures and mineralogy have been obliterated. The rocks are aphanitic, vitreous to dull green and thoroughly fractured. Pyrite is ubiquitous as disseminations and in quartz-carbonate veinlets. The rocks are cliff formers which weather white to light green; Read *et al.* (1989) included them in Unit Jfp, Jurassic feldspar porphyry.

STRUCTURE

Five structural domains are apparent from a preliminary examination of the structural data. All five are fault bounded.

Domain I includes the area west of the Newmont Lake graben. Strata include Mississippian volcanics, limestones and coarse clastics with lesser Permian limestones (Stikine "western" assemblage) and comprise for the most part southwest-dipping and facing (?) homoclinal panels. A large-scale northwest-trending anticlinal-synclinal pair is interpreted west of Newmont Lake.

Domain II is confined to the northeast-trending Newmont Lake graben, west of the composite plutonic body, and is characterized by a large upright, open northeasterly trending, doubly plunging syncline in Permian volcanics and limestone. Left-lateral motion along the bounding faults has interleaved stratigraphy and resulted in transtensional faulting and fracturing in a north-south direction. The syncline is cored by Upper (?) Permian limestone and volcanic rocks.

Domain III is west of the Forrest Kerr fault in the "eastern" Stikine assemblage and is characterized by a moderate west-northwest-dipping schistosity and tight recumbent folds that are overprinted by a gently southwest-plunging crenulation with its axial plane dipping steeply southeast.

Domain IV is restricted to the Permian outlier where large, upright, tight, east-trending folds occur in thin-bedded tuffaceous siltstone and limestone.

Domain V, east of the Forrest Kerr fault, includes Mesozoic rocks from Stuhini Group to Bowser Lake Group. Large-scale folds are generally open, upright, northwesterly trending and isoclinal in volcanic rocks, to more tightly chevron folded in sediments.

FAULTS

Regional faults cross the map area and control the distribution of lithostratigraphic packages. Fault trends are mainly northeast to north; northwesterly faults are less significant structurally, but are important controls for mineralization.

The northeast-trending Newmont Lake graben is 3 kilometres-wide. The eastern side is comprised of a network of parallel fault structures which separate various Jurassic intrusive phases from Permian limestones, volcaniclastics and clastics. The western fault is a single, strong, 040°-trending structure separating Mississippian from Permian strata. Overall apparent movement across the graben is left lateral. North and northeasterly trending faults crosscut this structure. Both left and right lateral senses of motion are evident along these steep faults, with offsets of no more than tens of metres.

Read *et al.* (1989) have recognized folded regional-scale faults. Deformation of the West Lake, West Slope and Kerr Bend (not shown) faults occurred during the Middle to Late Jurassic and is characterized by low-angle easterly directed movement.

The West Lake fault dips moderately to the west. Hangingwall rocks, Unit lDc in the south and Unit Pqd in the north, have been thrust eastward with respect to the Early Permian footwall.

The West Slope fault is moderately steep and easterly dipping. Upper Triassic Stuhini Group volcanics and sediments are exposed in the down-dropped footwall with Paleozoic metasediments and metavolcanics occupying the hangingwall. The fault is marked by a wide limonitic alteration zone along its length.

The Forrest Kerr fault is a northeasterly trending, vertical to steep easterly dipping normal fault. It separates metamorphosed and deformed Paleozoic strata on the west from Lower to Middle Jurassic rocks on the east. Read *et al.*

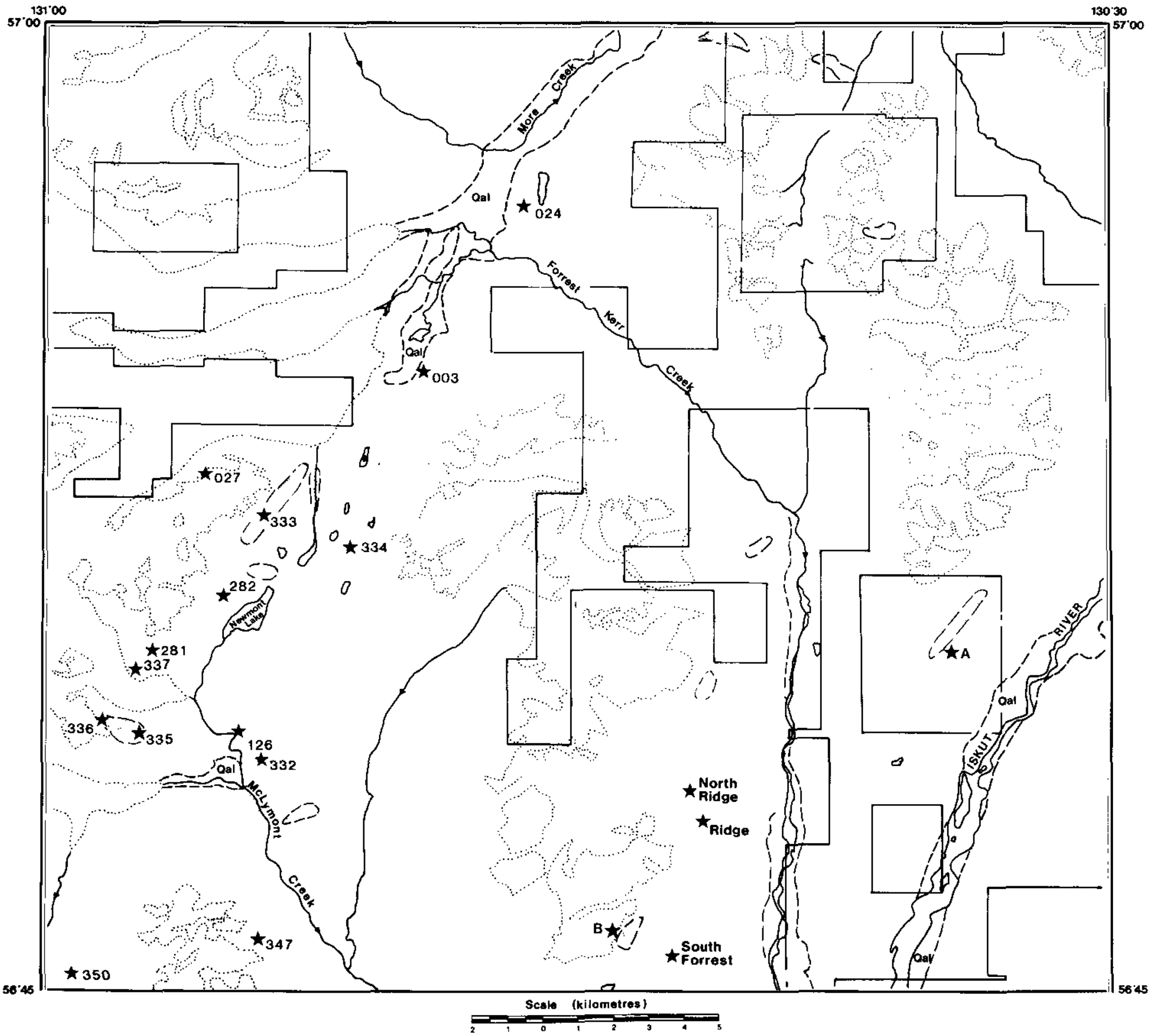

Figure 1-13-4. MINFILE locations, mineral occurrences and gossanous zones (shaded) in the Forrest Kerr Creek map area 104B/15 (*see* Table 1-13-1 for descriptions of MINFILE occurrences).

(1989) suggests a minimum of 2 kilometres east-side-down and 2.5 kilometres of left-lateral oblique-slip motion. Movement along these major structures has continued into the Miocene (Souther, 1972).

EXPLORATION ACTIVITY

The map area is located at the northwest end of the Stewart–Sulphurets–Iskut gold belt, 15 kilometres northwest of Eskay Creek. It is completely staked, including sections of the Iskut icefield. Exploration activity was accelerated after the release of assay results from Eskay Creek.

Gulf International Minerals Limited completed diamond drilling (approximately 7000 metres), geophysics and surface mapping on its Northwest skarn mineral zone. Kestrel Resources Limited carried out soil and rock geochemical sampling, prospecting and trenching on vein mineralization on its Tic, Arc and Mon claims. Pamicon Development Limited cut lines, mapped and sampled its Ridge and South Forrest mineral zones on the Forrest claims. Cominco Ltd. carried out prospecting, boulder tracking, and a geophysical program (UTEM and magnetometer) to locate the source of more than 200 massive sulphide boulders on its Fore More claims, located 10 kilometres north of the headwaters of Forrest Kerr Creek on NTS sheet 104G/2.

MINERAL PROSPECTS

MINFILE lists 14 mineral occurrences in the map area (Table 1-13-1). Figure 1-13-4 shows their distribution, including two new mineral showings located during our work. A direct relationship is evident between epigenetic mineral occurrences and northeast-trending regional structures. Mineralization can be divided into the following categories:

- gold-copper-iron skarns;
- mesothermal copper-gold-silver-bearing quartz veins;
- stratabound massive sulphides.

GOLD-COPPER-IRON SKARNS

Newmont Mining Corporation of Canada Limited first assessed the copper potential of these skarns in the early 1970s but it was not until 1987 that the potential for gold enrichment was discovered by Gulf International Minerals Limited. On its McLymont Creek property, the Northwest zone (MINFILE 104B 281) contains stratabound skarn mineralization hosted by up to 200 metres of thin to medium-bedded siltstones, chert, sandstone, marble and minor conglomerate of Mississippian age (Unit Mtp). Mineralization is developed in marble horizons and along contacts between tuffaceous sandstones and marble where faults and fractures have provided permeability for the ore solutions. Several mineralized zones are semiconformable with bedding and extend outward from a central northeast-trending structure (the 040° western-bounding fault of the Newmont Lake graben).

Sulphides include pyrite, chalcopyrite, sphalerite and galena with a gangue of barite, calcite, gypsum, coarse-grained magnetite and specular hematite. The best gold mineralization is associated with coarse euhedral pyrite (E.W. Grove, personnel communication, 1989). The 1989 drilling has tested the zone for 300 metres along strike and 200 metres below the surface.

Strong structure, proximity to intrusive bodies and chemically reactive hostrocks have all contributed to localizing this deposit.

MESOTHERMAL COPPER-GOLD-SILVER-QUARTZ VEINS

Early exploration on the McLymont property (MINFILE 104B 126) focused on testing precious metal veins. Two types of veins were recognized. The first are an early quartz-pyrite-chalcopyrite vein set that trends 120° to 140° (Camp zone). The veins and attendent potassic alteration selvages fill fractures in quartz-rich granite. Mineralization comprises minor sphalerite, galena and free gold (Grove, 1987). The second vein type consists of northwest or northeast-trending en echelon vein swarms that postdate the earlier quartz veins. The veins are ankerite-quartz-pyrite replacement veins which contain sparse chalcopyrite and local gold values.

The Forrest claims extend approximately 10 kilometres north from the Iskut River along the west side of Forrest Kerr Creek. They cover 11 mineral occurrences concentrated in three areas; South Forrest, Ridge and North Ridge. Mineralization consists of quartz stockworks and veins which trend either 135/70NE or 360/90, hosted by Stikine assemblage rocks (Eastern assemblage) close to the contact with Jurassic granitic rocks. Plagioclase-porphyritic diorite intrusions (Pqd) are spatially related to veining in the Ridge area. Mineralization consists of gold and silver-bearing quartz-chalcopyrite veins with or without malachite, azurite, arsenopyrite, galena, bornite and hematite.

STRATABOUND MASSIVE SULPHIDES

Stratabound pyritic horizons, associated with dacitic(?) pyroclastics or altered hyaloclastite horizons outcrop discontinuously within cherty siltstones and black carbonaceous argillites in a thick succession of basic pillow and breccia flows north of the Iskut River, 12 kilometres upstream from the mouth of Forrest Kerr Creek (A, Figure 1-13-4). Massive fine-grained pyrite and pyrrhotite occur as bedding-parallel layers several centimetres thick and as disseminations. Rusty limonitic gossans and the white-weathering felsic rocks can be traced along the ridge for 1500 metres. Samples have been submitted for assay and geochemical analysis. The stratigraphic similarities to Eskay Creek warrant follow-up.

Foliation-parallel massive pyrite zones occur in pyritic felsic volcaniclastic rocks 6 kilometres northwest of the confluence of Forrest Kerr Creek and the Iskut River (B, Figure 1-13-4). Mineralization lies stratigraphically below Lower Devonian limestone within a package of tuffaceous sediments and pyritic felsic sills. Preliminary analytical data show no elevated base or precious metal values.

Polymetallic massive sulphide float occurs on Cominco's Fore More claims. The claims are situated outside the map area, on the south tributary of More Creek (NTS 104G/2) about 10 kilometres north of the headwaters of Forrest Kerr Creek. More than 200 massive sulphide boulders have been found in glacial outwash gravels. They are chiefly fine-grained massive sulphides containing, in order of abundance, pyrite, sphalerite, galena, barite, chalcopyrite and, locally, silver minerals. Texturally the mineralization varies from massive to layered. Less common are limestone boulders with crosscutting massive pyrite mineralization. A thin bedded fossilliferous limestone boulder shows preferential replacement by massive sulphides along bedding planes. This limestone contains probable algal laminations or stromatoporoid *Favosites* sp. of Late Ordovician to Middle Devonian age (B.S. Norford, personal communication, 1989). Stream sediment sampling (RGS, 1988) detected no geochemical anomalies in streams draining the area containing these massive sulphide boulders.

MINERAL POTENTIAL

Deposit models applicable to the geological setting and known mineral occurrences in the map area indicate favourable potential for the following:

(1) **Precious metal bearing skarn mineralization** occurs at the McLymont Creek prospect and Ken showing. Mississippian and Permian limestones are abundant in the western part of the map area but significant mineralization is confined to thin-bedded limy horizons and only where these rocks are cut by northeasterly trending structures.

TABLE 1-13-1. MINFILE OCCURRENCES IN THE FORREST KERR CREEK MAP AREA 104B/15.

MINFILE No.	NAME	COMMODITY	DEPOSIT TYPE	DESCRIPTION
104B 003	Don, Don 12, Don 40	Cu, Ag, Au	SKARN	Skarn mineralization occurs near the contact between Permian limestone and a Jurassic(?) diorite intrusion; mineralization includes disseminated pyrite, chalcopyrite and tetrahedrite.
104B 024	Mag	Fe, Cu	SKARN	Skarn mineralization occurs near the contact between Permian limestone and a Jurassic diorite intrusion; mineralization consists of massive magnetite with minor pyrite and chalcopyrite.
104B 027	Ken, Dirk, Glacier, Rope	Au, Cu	SKARN	Limy beds within a Permian volcanic/sedimentary package of rocks contains gold-bearing skarn mineralization consisting of garnet, epidote, magnetite, chalcopyrite, pyrite and possibly tetrahedrite; grab samples returned assay values to 33.7 grams per tonne gold.
104B 126	McLymont, Camp	Au, Ag, Cu	VEIN	Northwest-trending pyrite-chalcopyrite-quartz-carbonate-barite veins hosted by a quartz-rich granite.
104B 281	Northwest, Warrior 4	Au, Ag, Cu, Ba	SKARN	Mineralized zones consisting of barite, calcite, gypsum, coarse-grained magnetite, hematite, pyrite, chalcopyrite, sphalerite and galena occur as stratabound bands within chert layers and along bedding contacts between marble and chert; hostrocks are of probable Mississippian or Permian age.
104B 282	Gab 9, Gab 7, Warrior 7	Au, Ag, Cu	SHEAR/FAULT	A northeast-trending fault structure hosts gold-bearing sulphide and oxide material; 1988 diamond drilling reports indicate 900 metres in five holes.
104B 332	NE McLymont	Au, Ag	VEIN	Narrow auriferous quartz-pyrite veins cut a granitic intrusion; narrow rusty limonitic dikes of granite cut Permian and Mississippian stratified rocks; hornfelsed siltstone pendants within the granite body contain massive and disseminated pyrite and some sphalerite.
104B 333	Gab NW	Au	SKARN	Mineralization consisting of tetrahedrite, malachite and barite occurs along a northeast-trending fault thought to be an extension of the McLymont Northwest zone (MINFILE 104B 281); ten diamond-drill holes totalling about 900 metres returned best assay value of 4.78 grams per tonne gold over an interval of 2.5 metres.
104B 334	Cuba, Gab 8	Ag, Pb, Zn, Ba, Cu	SKARN	Mineralization consisting of silver, sphalerite, galena and barite is found within a northeast-trending fault that cuts Permian limestone; seven best samples from two copper-barite areas returned values averaging 1023.0 grams per tonne silver.
104B 335	Gab 12, SW	Ag, Zn, Pb, Cu, As, Au	VEIN	Mineralization consisting of magnetite, chalcopyrite, galena and sphalerite is associated with a northeast-trending fault crosscutting sediments of probable Permian and Mississippian age; gold mineralization occurs within iron-carbonate veins and pods mineralized with pyrite and coarse-grained magnetite; assay samples from a 1988 diamond-drill hole intersection returned values grading 77.14 grams per tonne gold over 60.0 centimetres.
104B 336	Gab 11, SE	Au, As, Fe, Cu, Ag	SHEAR/FAULT	Massive fine-grained pyrite occurs within sedimentary rocks of Permian and Mississippian age; a grab sample from a pyritized zone returned values of 23.5 grams per tonne gold and 116.9 grams per tonne silver.
104B 337	Gab 12 NE	Au	SHEAR/FAULT	A northeast-trending fault within Permian and Mississippian sedimentary rocks contains massive and disseminated magnetite, chalcopyrite, sphalerite and galena; grab samples from a gossanous zone contain values as high as 26.7 grams per tonne gold.
104B 347	Egg, Verjoy, Ret 7	Au	VEIN	Quartz-barite veins infilling shear or fracture systems are mineralized with pyrite, chalcopyrite, galena, hematite, magnetite and malachite; gold values are low but silver, cobalt and copper values are above background; massive pyrite veins to 5.0 centimetres width contain chalcopyrite, hematite and magnetite.
104B 350	Adrian	Au, Ag, Cu, Pb, Zn	VEIN	Quartz veins hosted by quartz-rich granite returned gold values ranging from 2.7 to 30.0 grams per tonne.
	North Ridge, Ridge, South Forrest	Au, Ag, Cu, Pb, Zn	VEIN	Mineralization consists of gold and silver-bearing chalcopyrite-quartz stockwork veins and shears with one or more of the following: malachite/azurite, arsenopyrite, galena, bornite, and hematite; these mineralized veins are hosted within Eastern assemblage rocks of the Paleozoic Stikine assemblage.

(2) **Stratabound mineralization** occurs in Paleozoic and Jurassic strata as the following:
   (a) Polymetallic massive sulphide mineralization occurs north of the map area on the Fore More claims and pyritic volcanic horizons are intercalated within the Lower Devonian limestone section. The Paleozoic Stikine assemblage rocks are a potential exploration target for volcanogenic massive sulphide deposits. The Devonian mafic and felsic metavolcanic package appears to have the highest potential.
   (b) Middle(?) Jurassic basaltic and dacitic submarine volcanic strata underlie the eastern and southeastern parts of the map. This stratigraphy resembles the geological setting of the Eskay Creek gold prospect. Mineral potential is high.
(3) **Mesothermal quartz veins** and stockworks located adjacent to the Newmont Lake graben and West Slope fault warrant further exploration.

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