



DESCRIPTIVE NOTES

The map-area is occupied by ranges of Coast and Hazelton Mountains. Relief averages 5,000 to 6,000 feet but reaches 8,600 feet in the Seven Sisters range. Dense coastal vegetation clothes the valley bottoms and lower mountain slopes but thins out near timber-line at about 5,000 feet elevation.

The sedimentary and volcanic rocks in the east and northeast comprise 15,000 to 20,000 feet of strata ranging in age from late Palaeozoic possibly into early Cretaceous. The granitic and dioritic rocks in the west and southwest intrude the bedded rocks.

Palaeozoic rocks, approximately 2,000 feet thick, occur as small pendants in the granitic rocks or as narrow lenses along the flanks of eastward extending tongues of Coast Intrusions. A lower series (1) is overlain by a crystalline limestone (2) containing fossils of Permian age.

At least 1,000 feet of limestone boulder conglomerate, greywacke, and chert (3), believed to be of Triassic age, rests unconformably above 2 without marked angular discordance.

Volcanic and minor sedimentary rocks, referable to Middle Jurassic strata of the Hazelton group, follow 3 in conformable succession. These comprise a lower division (4), about 3,000 feet thick, of coarse andesitic breccia, green andesite, and intercalated greywacke and argillite that, along Skeena River north of Usk, contains schistose and hornfelsic facies and an upper division (5) that includes 4,000 feet of red, green, and purple porphyritic and amygdaloidal andesitic flows with minor basalt, rhyolite, and dacite. The upper division is lithologically similar to the volcanic rocks lying conformably above the Middle Jurassic (Bajocian) sedimentary strata in Whitesail Lake map-area (Geol. Surv., Canada, Paper 52-21).

Lying above these volcanic rocks (4 and 5) with marked angular discordance is a series of marine and continental sedimentary rocks (6) of Upper Jurassic age that may include some Lower Cretaceous strata. The lower beds of the sequence are marine argillites and waterlain tuffs that contain ammonites, pelecypods, brachiopods, and bellerophones belonging to the Oxfordian stage of the Upper Jurassic epoch. These beds grade upward through greywacke and argillite into conglomerate. Poorly preserved plant remains, some of which may be of Lower Cretaceous age, occur in the finer beds. A 3,000-foot section of part of these rocks near Oliver Creek, has eight separate conglomerate beds containing boulders, cobbles, and pebbles of the earlier red and green flows; some granitic rocks, greywacke, and argillite. On Maroon Mountain one of the conglomerate beds is 250 feet thick, but most such beds are much thinner. Development of the conglomerate-greywacke facies apparently conformable with the underlying marine beds indicates some minor movement during this period. Total thickness of unit 6 is probably 6,000 feet.

Granitic and dioritic rocks of the Coast Intrusions (7) cut all the above volcanic and sedimentary rocks. The main contact trends northwest in an extremely irregular manner, with apophyses extending eastward and north-eastward from 5 to 15 miles. Each of these apophyses forms the core of a breached anticline with the oldest sedimentary and volcanic rocks appearing along the flanks of the intrusion. Metamorphism of the older rocks is confined to a narrow zone adjacent to the contact. Alteration is most intense against the main body of the intrusions where quartz-biotite schist and hornblende-quartz-plagioclase gneiss have been developed.

The batholithic rocks range in composition from gabbro to granite, diorite and granodiorite being most abundant.

Pyroxene-quartz diorite occurs in one of the eastward extending apophyses that is concentrically zoned with respect to its contacts. A border phase of pyroxene-quartz diorite grades inward through granodiorite and quartz monzonite to a central granophyric phase. Locally the central phase forms intrusive and replacement dykes that cut the outer phases and extend into the country rock.

The central parts of the main batholithic mass consist of biotite granodiorite-quartz monzonite, which may not all be of the same age. Near the main contacts there is a zone of complex mixed rocks in which hornblende is the dominant mafic mineral. Biotite granodiorite of the central part of the batholith is gradational with hornblende granodiorite and, nearer the contact, hornblende pseudo-diorite is gradational with country rock. Intermediate between these two phases is a zone of migmatite. Transition between the different phases is commonly gradational but locally pseudo-diorite and migmatite are in sharp intrusive contact with relatively unmetamorphosed wall-rock.

Dykes are abundant in the area and cut both bedded and plutonic rocks. Dykes ranging in composition from granite to diorite occur in aureoles around the larger intrusive bodies. Lamprophyre dykes occur in swarms and are predominantly hornblende and biotite-hornblende lamprophyre. Aplite dykes occur with the lamprophyre swarms or near the margins of the main batholith. They are predominantly granite aplite or albite granite aplite. Basalt dykes also occur with the lamprophyre swarms and are augite basalt and hornblende basalt. Commonly dykes have exercised structural control on the localization of mineral deposits.

Mineral deposits of the area consist mainly of gold, silver, copper, lead, zinc, tungsten, and minor molybdenum and quartz veins in the bedded rocks or nearby granitic rocks. The veins have been emplaced in fissures, shear zones, and along the walls of dykes. Some are important for one mineral only but others contain significant amounts of several minerals.

Gold is the main metal at the Omineca Gold Quartz, Columario, and Globe properties. At the Bell-Grotto, gold and silver occur as tellurides associated with copper. Other veins on the property contain mainly galena and sphalerite. On Kitselas Mountain and in the vicinity of Usk gold is associated with chalcocite and bornite. Veins and small replacements of bornite, chalcocite, and chalcopyrite occur on Bornite Range. Galena and sphalerite are the main minerals on the Silver Plate and Windfall claims and on several properties at the head of Legate and Chindemash Creeks. The Bear vein on Maroon Mountain contains gold associated with galena, sphalerite, and pyrrhotite. Deposits of massive pyrrhotite with minor chalcopyrite and sphalerite occur on the Seven Sisters. Scheelite is present in quartz veins in the granitic mass extending from Mount Knauss to Shannon Creek and in the veins on the Omineca Gold Quartz property. Molybdenite is present in some of the veins on the property of Nicholson Creek Mining Corporation near Usk and in a pegmatitic phase of the granitic rocks on Mount Thornhill.

Douglas, Lorne, Fiddler, Chindemash, and Kleanza Creeks have yielded placer gold in the past, the first two being the most important.

Some of the Palaeozoic limestone beds are sufficiently pure for utilization and A. E. Barr of Prince Rupert has opened a quarry on one such deposit near Shames. Production of 50 tons per day is shipped to the Columbia Cellulose plant at Prince Rupert.

Pleistocene and Recent outwash and stream deposits, 500 feet thick, cover the Kitimat-Kitsumkalum Valley. A series of terraces have been cut in these deposits by the Skeena River at Terrace. South of Terrace the broad, flat surface of these deposits is used for the airport, and at Kitimat they underlie the area of the township. A thin layer of soil at the top of these deposits is used to some extent for cultivation. Below this soil layer excellent deposits of sand and gravel are available for railroad ballast, road metal, and construction purposes. At Kitimat a hill of well sorted and stratified stream sands and gravels, has proved an excellent source for road and construction fill and material for brick manufacture. Some of the clay beds in these deposits may be suitable for brick manufacture.

A deposit of marl containing 95 per cent calcium carbonate occurs near Ritchie flag station north of Pacific.

- LEGEND
- QUATERNARY
PLEISTOCENE AND RECENT
8 Sand, gravel, clay, alluvium
- CRETACEOUS (?) OR LATER
UPPER CRETACEOUS (?) OR LATER
COAST INTRUSIONS
7 Granodiorite, quartz diorite, diorite, quartz monzonite, granite, gabbro
- JURASSIC AND (?) CRETACEOUS
UPPER JURASSIC AND (?) LOWER CRETACEOUS
6 Greywacke, conglomerate, argillite, tuff
- JURASSIC
MIDDLE JURASSIC
5 Andesite, basalt, rhyolite, dacite
- 4 Andesite, breccia, tuff, greywacke, argillite
- TRIASSIC (?)
3 Limestone boulder conglomerate, greywacke, banded volcanic sandstone, chert
- CARBONIFEROUS (?) AND PERMIAN
2 White crystalline limestone
- 1 Greenstone, shale, argillaceous limestone, limestone
- Geological boundary (defined, approximate)
Bedding (inclined, vertical)
Schistosity (inclined, dip unknown)
Fault (defined, approximate)
Anticlinal axis (defined, approximate)
Synclinal axis (defined, approximate)
Glacial striae
Fossil locality (leaves, shells) (P) (F)
Mineral property 7

- INDEX TO MINING PROPERTIES AND MINERAL OCCURRENCES
- Silver Cup and Silver Plate group... Silver, lead, zinc, copper
 - Windfall group... Silver, lead, zinc
 - Seven Sisters group... Silver, lead, zinc
 - Buccaneer of the North claim... Marl (CaCO₃)
 - Dry Hill Placer group... Gold
 - Dorreen Gold Mine... Gold, silver, lead, zinc
 - Bear claim... Gold, silver, lead, zinc
 - Belway and Rex claims... Silver, gold
 - Martin group... Gold, silver, arsenic
 - Portland claims... Gold, silver
 - Motherlode claim... Gold, silver, copper, zinc
 - Gold Dome group... Tungsten, lead, zinc
 - Bell-Grotto group... Gold, silver, copper, lead
 - A-B group... Gold, silver, lead
 - Nicholson Creek Mining Corp... Copper, gold, silver
 - Emma group... Copper, silver
 - Lucky Luke Mine... Copper, silver, gold
 - Nugget group... Copper, gold, silver
 - Columario Mine... Gold, silver
 - Galena group... Copper, gold, silver
 - Zona May group... Gold, silver, lead, zinc, copper
 - Frisco group... Silver, copper
 - M and M claims... Silver, lead, copper
 - Silver Crown group... Silver, copper, gold
 - Wells group... Copper
 - Peerless group... Copper
 - Omineca Gold Quartz Mine... Gold
 - Globe Claim... Gold, silver, copper
 - A. E. Barr property... Limestone

Notes: Many properties in the area have been inactive for at least 20 years. Trails are overgrown and workings caved. The above is a partial list. For a full description of the properties of the area see G. S. C. Memoirs 205 and 212.

- Geology by S. Duffell, 1953-1955, and J. G. Souther, 1953, 1954
- Main highway 10
- Other roads 10
- Trail 10
- District boundary 10
- Height in feet above mean sea-level 4633

Approximate magnetic declination, 27° 51' East

Cartography by the Geological Cartography Unit, 1957

Air photographs covering this map-area may be obtained through the National Air Photographic Library Topographical Survey, Ottawa, Ontario



MAP 11-1956
TERRACE
COAST DISTRICT
BRITISH COLUMBIA

Scale: One Inch to Four Miles = $\frac{1}{253,440}$ Miles

MAP 11-1956
TERRACE
BRITISH COLUMBIA
SHEET 103 I (East Half)

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