CANADA

DEPARTMENT OF MINES AND RESOURCES

MINES AND GEOLOGY BRANCH

BUREAU OF GEOLOGY AND TOPOGRAPHY

LEGEND

CENOZOIC

TERTIARY

POST-EOCENE

10 — *Basalt; minor andesite, agglomerate and tuff*

EOCENE OR OLIGOCENE

9 — *Sandstone, conglomerate*

EOCENE (?)

8 — *Rhyolite*

7 — *Chiefly granite and diorite*

CRETACEOUS OR TERTIARY

UPPER CRETACEOUS OR YOUNGER

6 — *Sandstone, greywacke, argillite; minor quartzite, conglomerate, and andesite*

MESOZOIC

JURASSIC OR CRETACEOUS

4 — *Andesite, andesite breccia, rhyolite;* **4a**, *argillite, conglomerate*

JURASSIC

3 — *Andesite, rhyolite, and related tuffs; minor argillite*

2 — *Argillite, argillaceous quartzite, quartzite, limestone, tuff*

1 — *Andesite, agglomerate, water-laid tuff; minor basalt and rhyolite*

HAZELTON GROUP

MESOZOIC

5a–5e — **5a**, *undivided volcanic rocks, chiefly equivalent to* **1**; **5b**, *andesite, tuff, argillite, sandstone, and limestone (probably pre-Jurassic);* **5c**, *fossiliferous tuffs;* **5d**, *rhyolite;* **5e**, *rhyolite, arkose, minor granite*

A — *Granite. Older than* **4**; *age relations to* **1**, **2**, *and* **3**, *unknown*

Heavily drift-covered area

Bedding (inclined)

Fossil locality (F)

Mine or prospect •

MINES AND PROSPECTS

Debenture	1	Mineral Hill	15
Cronin	2	Lakeview	16
Hyland Basin	3	Newman Peninsula	17
Lamarr	4	MacDonald Island	18
Reiseter Creek	5	Richfield Topley	19
Rainbow	6	Three Star	20
Lorrain	7	Gold	21
Silver Pick	8	Golden Eagle	22
Home	9	Evergreen	23
Cimbria	10	Jack-rabbit	24
Babine Gold	11	Joker	25
Dome Mountain	12	Success	26
Deep Creek	13	Peacock	27
Cassiar Crown and Last Chance	14	Gold Brick	28
		Owen Lake	29
		Grubstake	30

Road well travelled

Road not well travelled

Trail

Church

School

Post Office

District boundary

Range boundary

Primary triangulation station

Marsh

Glacier

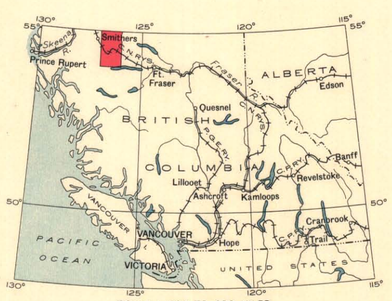
Contours (interval 500 feet)

Contours (position approximate)

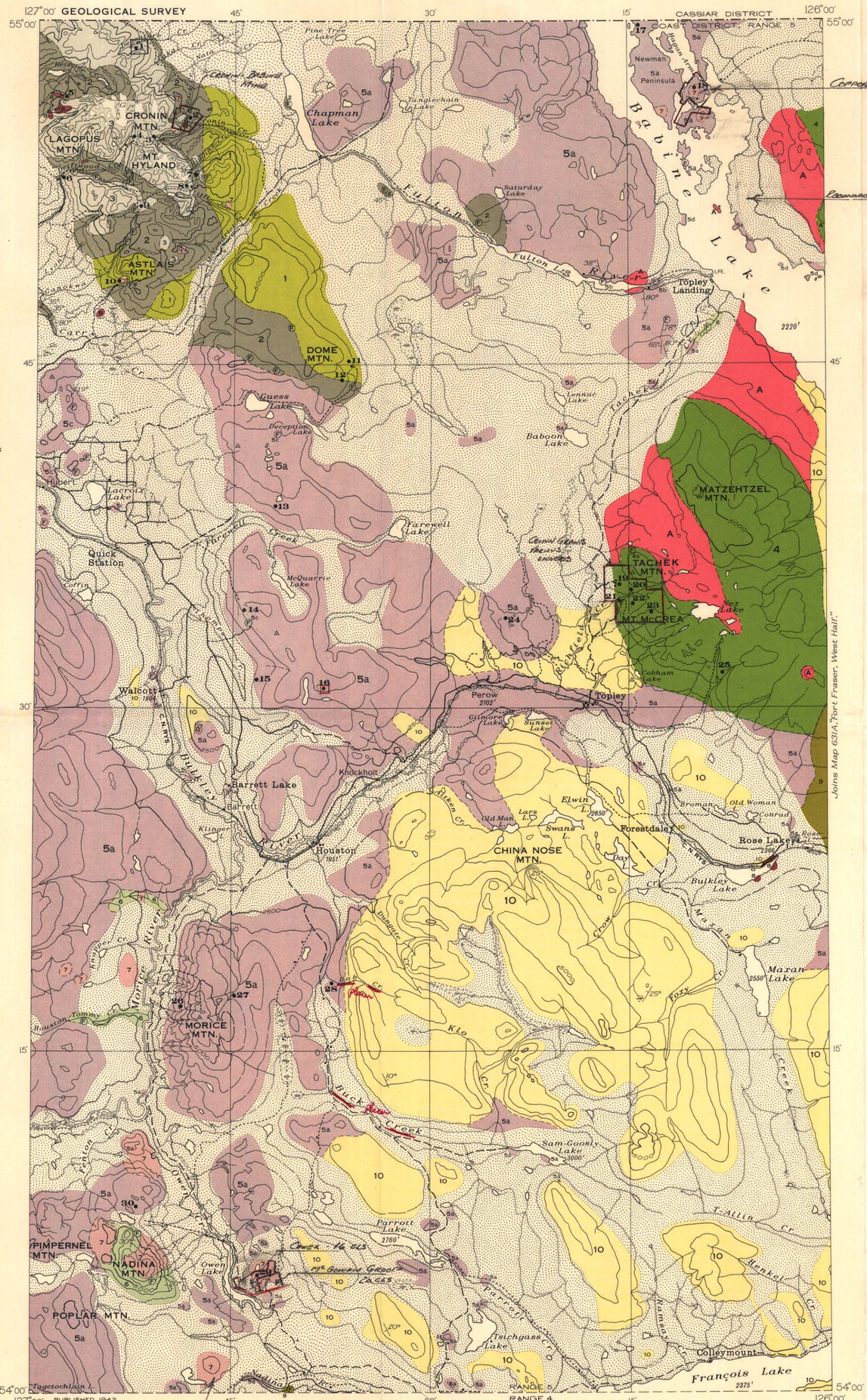
Height in feet above Mean sea-level 2375'

Geology by G. Hanson, 1924; T.C. Phemister, 1928; A.H. Lang, 1929, 1938, 1939.

Base-map prepared by the Topographical Survey, from Federal Government map published in 1936. Cartography by the Drafting and Reproducing Division, 1942.



SCALE, 1 INCH TO 200 MILES



PUBLISHED, 1942.

INTERESTING TO DATE

MAP 671A

HOUSTON

COAST DISTRICT

BRITISH COLUMBIA

Scale, ~~253,440~~ or 1 Inch to 4 Miles

Miles 4 0 4 8 12

Approximate magnetic declination, 29°30' East.

822255

DESCRIPTIVE NOTES

Bedrock is well exposed above timberline, at about 6,000 feet, and in cliffs and canyons. Elsewhere it is largely concealed by glacial and stream deposits, these being thickest along valley bottoms and in wide terraces flanking the principal valleys.

The rocks of the Hazelton Group can be subdivided, with certainty, only in the Babine Mountains in the northwest corner of the map-area. Here they have an estimated thickness of 8,000 feet and have been divided into a lower, volcanic division (1), a middle, sedimentary division (2), and an upper, volcanic division (3). The upper part of the lower division contains fossiliferous, water-lain tuffs. Its contact with overlying beds of the middle division is gradational and is chosen arbitrarily at the first horizon where argillaceous and quartzitic strata become abundant. The middle division contains marine fossils in its lower strata and plant remains in its upper beds. Marine fossils collected from this division in the canyon of Ganokwa Creek are definitely Middle Jurassic; other, numerous collections made from this and other division of the Hazelton Group could be classed only as Jurassic or as probably Jurassic. Sedimentary beds that may represent the middle division occur in Bulkley Valley, near Walcott, but neither the rocks themselves nor the fossils they contain are sufficiently distinctive to warrant a definite correlation. Elsewhere, in the greater part of the map-area, the detrital sedimentary rocks of the middle division have not been observed and appear to have thinned out around the borders of Babine Mountains. Their absence has made it impossible to separate the upper and lower volcanic divisions which, in consequence, have been grouped together (5a). Most of these undivided rocks are andesitic and probably represent the lower volcanic division, but rhyolites on Morice Mountain and on the hills between that mountain and Owen Lake may represent the upper division, in which rhyolitic flows and tuffs are more common.

Certain rock bodies (5b to 5e), too small to map separately, have been grouped with the undivided volcanic rocks (5a) with which they are associated. Sedimentary beds (5b) form the canyon below the falls at the outlet of Fulton Lake and are exposed at one point on the shore of that lake. These sediments contain fossils of probable Triassic or late Palaeozoic age. Fossiliferous tuffs (5c) at several localities in the northwestern part of the area appear most likely to represent the upper part of the lower volcanic division. Outcrops of pinkish-buff rhyolite (5d) at Babine Lake are aligned so as to suggest that they may be parts of a large dyke or sill, in which case they are probably younger than Hazelton Group. A few exposures (5e) at Babine Lake are of a complex consisting of granite, rhyolite, and arkose and angular conglomerate derived from the granite.

No contacts of the granite and rocks typical of the Hazelton Group are exposed, so that it is not known whether the granite is of pre-Hazelton or post-Hazelton age or whether the overlying volcanic rocks (4) may not be a part of the Hazelton Group. To the east, in the adjoining Fort Fraser map-area (West Half), large bodies of granite, lithologically and structurally similar to the granite of Houston area, are found intruding formations of Carboniferous or Permian age. At Tachek Mountain a thin group of sedimentary strata (4a) lies unconformably upon the granite and conformably below the volcanic rocks (4). It provided a collection of fossil plants comprising the genus *Otozamites* and sterile specimens of an unidentified matoniaceous fern. Similar forms are characteristic of the Jurassic, but some species have a wide range extending from Upper Triassic into Cretaceous time. The volcanic rocks (4) bear some lithological resemblance to the upper volcanic division of the Hazelton Group but, in general, are fresher and less deformed.

A thick succession of fairly flat-lying sedimentary strata forms a large part of Nadina Mountain, and smaller bodies of similar rocks occur in other parts of the area. An unconformity with the underlying Hazelton rocks was seen at one point but at most places the contact between the two groups is obscured by drift. Fossil plants from these beds have been determined as definitely post-Lower Cretaceous and probably Upper Cretaceous.

The sedimentary rocks of Nadina Mountain are intruded by a large granite stock (7) probably of Tertiary age. Other stocks of granite and diorite that cut only the Hazelton rocks are believed to be contemporaneous, or nearly so, with the granite at Nadina Mountain. Rhyolite dykes and small, irregular, intrusive bodies, the larger of which have been mapped (8), are thought to be related to, and of about the same age as, the granite stocks. Small bodies of sedimentary rocks (9) contain fossil leaves identified as Upper Eocene or Oligocene and in the adjoining Fort Fraser map-area (West Half) similar fossiliferous strata are interbedded with rhyolite flows of like composition to the intrusive rocks (8) of the Houston area, and support the view that the latter are of Tertiary age.

The southeastern part of the map-area is covered largely by basaltic flows and related lavas and tuffs (10). Some of these rocks lie horizontally and others dip at low angles. On China Nose Mountain they reach a thickness of over 1,500 feet, one of the greatest accumulations of late Tertiary volcanic rocks reported in the province. No fossils were found in the rocks of this group, but they are similar in composition and structural relationships to lavas that are widespread in the interior of the province and that, in places, overlie sedimentary rocks of Oligocene or Miocene age.

With the exception of small deposits of placer gold on Bob and Buck Creeks the mineral occurrences of the map-area are veins and replacement bodies containing silver, gold, copper, lead and zinc. The principal ore minerals: tetrahedrite, galena, sphalerite, pyrite, and chalcopyrite occur in varying proportions and generally in a quartz gangue. As a rule, the silver content of the ores is high and the gold content is too low to be of independent interest, but some deposits contain enough gold to be classed as gold prospects. Several properties have been explored by extensive underground workings and diamond drilling, chiefly during the years 1920 to 1930. The only lode production has resulted from shipments of small lots of sorted ore, several properties operating under these conditions in recent years.

The lode deposits occur in Hazelton rocks; in the volcanic group (4); and in small intrusive bodies. No significant mineralization has been found associated with the granite batholith in the northeastern part of the map-area. The definite association of many mineral deposits with the small intrusive bodies (7, 8) suggests that all or most of them were formed in Tertiary time, and that the vicinity of the intrusions constitutes favourable prospecting ground. All but one of the mines and prospects in the Babine Mountains are close to the boundary between the middle (2) and upper (3) divisions of the Hazelton Group. The rocks near this boundary may, in consequence, be regarded as the most favourable in that part of the map-area. The rocks least likely to contain metalliferous deposits of consequence are the Tertiary volcanic rocks (10).