DEPARTMENT OF MINES AND RESOURCES MINES AND GEOLOGY BRANCH

LEGEND Alluvium Chiefly basalt and andesite; breccia and tuff Conglomerate, sandstone JURASSIC AND (OR) YOUNGER Granite Granodiorite Diorite, gabbro TRIASSIC (?) WOLFE CREEK FORMATION: andesite and basalt; breccia and tuff; minor sediments TRIASSIC HENRY FORMATION: black argillite, tuff, impure limestone HEDLEY FORMATION: limestone, quartzite, cherty quartzite, argillite, conglomerate; breccia, tuff SUNNYSIDE FORMATION: limestone REDTOP FORMATION: limestone, cherty quartzite,

Area of continuous overburden. Geological boundary (defined, approximate, assumed) Fault (defined, approximate) Glacial striæ. Fossil locality..... Mine tunnel.. Road well travelled Road not well travelled...... Power transmission line..... Power transmission line along road Land District boundary..... Indian Reserve boundary..... Stream (position approximate)..... Intermittent stream----Sand bar..... Contours (interval 100 feet) = 5000= Contours (position approximate).....

siliceous argillite; tuff, some breccia

INDEPENDENCE FORMATION: chert, chert breccia,

BRADSHAW FORMATION: black argillite, tuff,

quartzite, breccia; some andesite and limestone

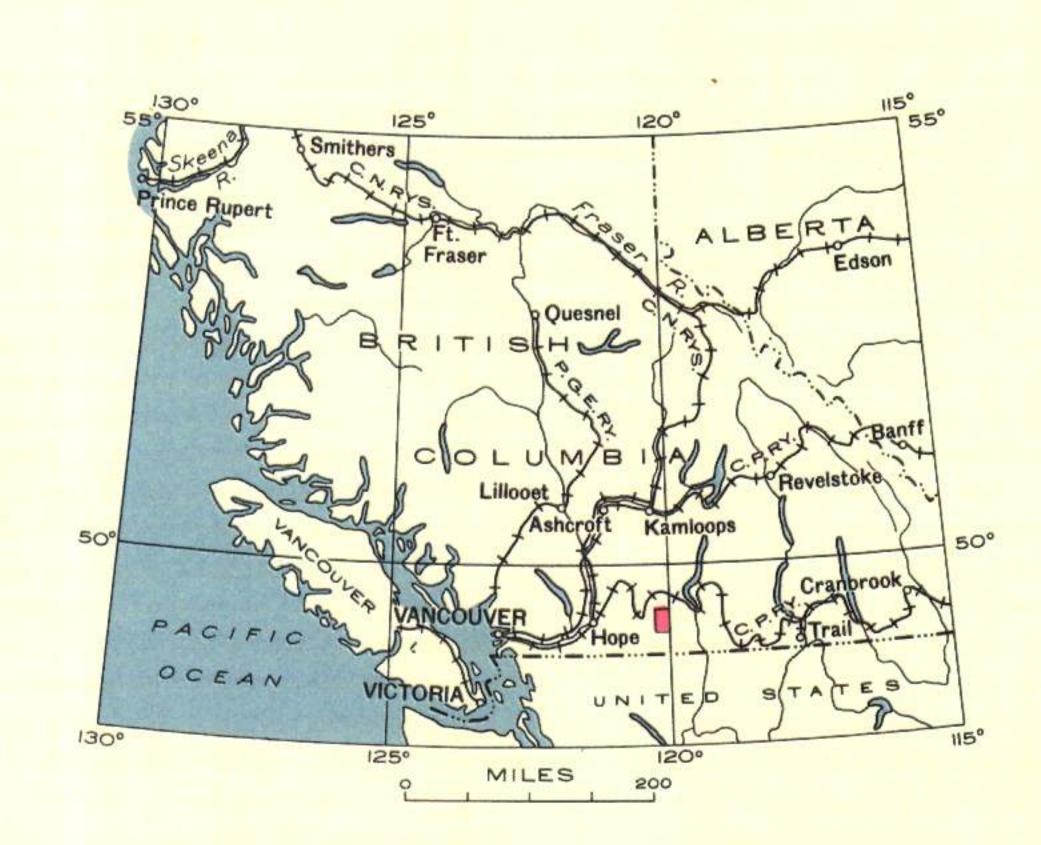
cherty quartzite, cherty argillite; basalt and andesite

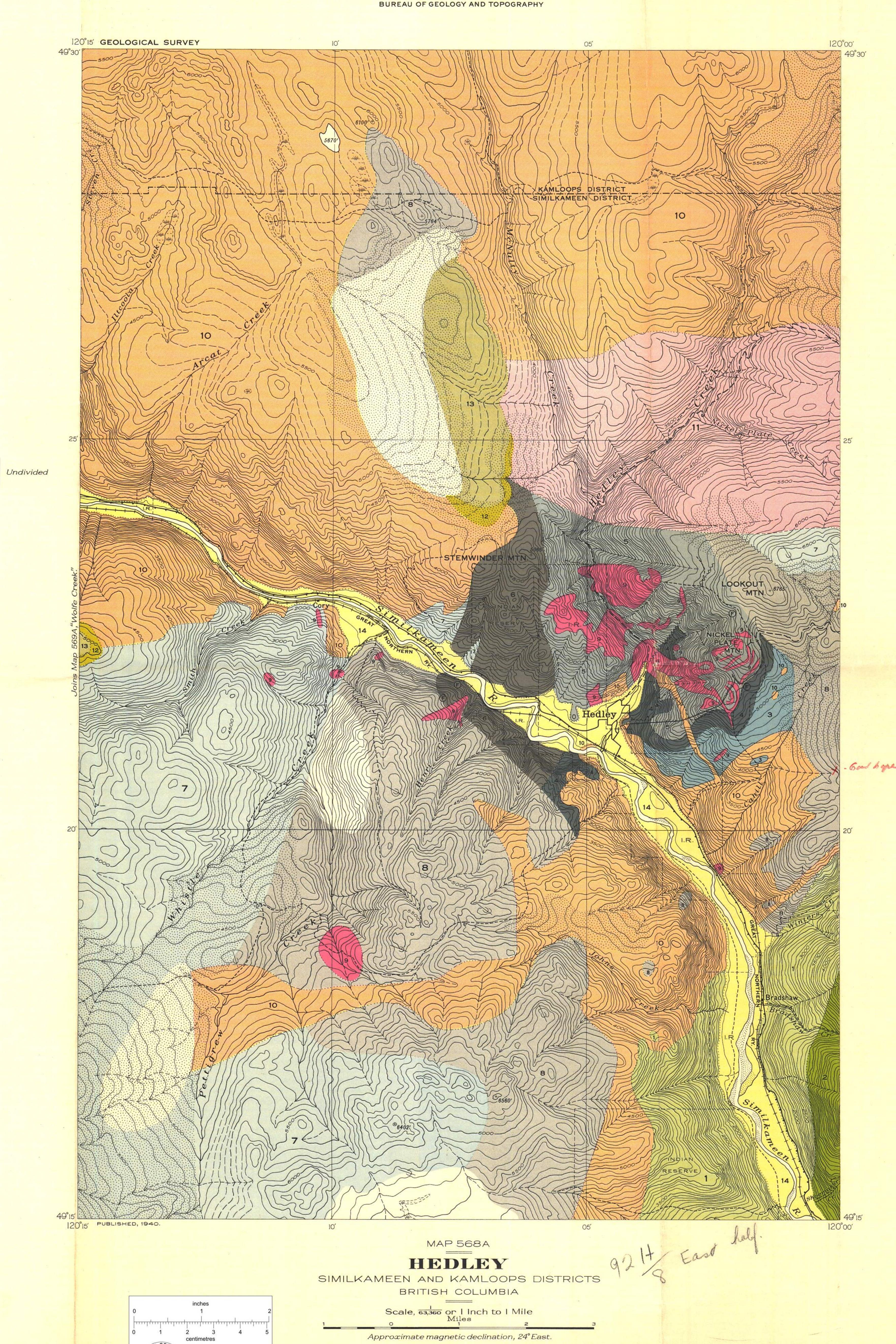
TRIASSIC AND (OR) OLDER

flows and breccias

Geology by H. S. Bostock, 1926-1930; and by D. A. McNaughton, 1937.

Base-map prepared by the Topographical Survey, 1937, from maps supplied by the British Columbia Department of Lands. Cartography by the Drafting and Reproducing Division, 1940.





as the image, therefore it can be used as a reference

DESCRIPTIVE NOTES

The gold deposits of Nickel Plate mountain commenced production in 1904. For several years thereafter they included, in the Nickel Plate mine, the single largest gold producer in Canada. Total gold production to 1927 was valued at over \$11,500,000. Silver and arsenic were also recovered. In recent years the Nickel Plate and Hedley Mascot mines have each produced between 20,000 and 30,000 ounces of gold.

The Nickel Plate mountain deposits have been generally described as of the contact-metamorphic type. The ore occurs mainly in sediments near the contacts of gabbro and diorite. Gold values are associated chiefly with abundant arsenopyrite and to a lesser extent with other sulphides of which chalcopyrite and pyrrhotite are most conspicuous. The gangue consists mainly of metamorphic, lime-silicate minerals including garnet, pyroxene, amphibole and a little axinite. The position, shape, and size of the ore bodies are controlled partly by structural features. Partly too, calcareous argillite and quartzite have proved more susceptible to mineralization than other strata. The producing ore bodies and most of the prospects are associated with bodies of diorite and gabbro strongly suggesting that they owe their origin to them but similar deposits are associated with granodiorite and veins carrying similar minerals cut granodiorite dykes. Areas containing diorite and gabbro bodies are believed to offer most promise but the areas adjacent to the granodiorite should not be ignored. Gold prospects having the same minerals have been found in Mesozoic strata along the borders of Similkameen valley. Mineral deposits were also noted in the vicinity of the mouth of Whistle creek; near the diorite stock on the east fork of Whistle creek; in the sediments on both sides of the granodiorite south of Johns creek; and in areas of Mesozoic strata north of Winters creek. The areas of undivided Mesozoic formations southwest of Hedley, between Henry creek and the granodiorite, and the area on the west side of the upper part of Hedley creek contain strata similar to those of the Hedley formation which have proved receptive to mineralization.

An area of Mesozoic and earlier stratified rocks extends from east of Okanagan valley west to Princeton. It is cut by intrusives and partly covered by Tertiary rocks but as a whole forms a nearly continuous belt. It is divisible into four irregular segments each composed of a group of rocks that on the whole is younger than that forming the adjoining segment to the east of it. Gneissic rocks of Palaeozoic age lie along Okanagan valley and form the easternmost segment. To the west of this, between the Okanagan and Similkameen valleys near the International Boundary is a segment occupied by a group of rocks of late Palaeozoic age. To the west of this and extending northwesterly along Similkameen valley to Winters creek in the present maparea, is a third segment underlain by a group of several closely folded formations forming a complex synclinal structure. A fossiliferous Permian limestone near Blind creek is believed to be the lowest member of this group on the east side of the structure; on the west side the lowest members are the Bradshaw and Independence formations. Some fossils of doubtfully Mesozoic age were found in the Independence formation. The strata of this third segment are thus believed to be either of Permian age or Permian and younger. To the westward of these rocks is the fourth segment occupied by another group of formations including the Redtop, Sunnyside, Hedley, Henry and Wolfe Creek formations. The rocks of this, the fourth segment are separated from those of the third segment by faults and bodies of intrusive rocks lying along a northeast line passing through Winters creek. Triassic fossils have been found in the Hedley and Henry formations of this group and all the strata are presumably Triassic or younger. They are closely folded but dip mainly west while the Bradshaw and Independence formations and those directly east of them dip mainly east so that the line through Winters creek seemingly follows the axis of a large broken anticline the eastern limb of which has been lifted up relatively to the western limb.

The formations of the third segment, with the exception of the Bradshaw and Barslow formations which may be the same, contain a great deal of chert and cherty quartzite. This is true of even those members mainly composed of greenstones. Most of the chert beds are bounded by irregular, undulating surfaces and are separated by thin beds of argillite. There is relatively little fine-grained tuffaceous material among them and most of the volcanic rocks of this group of formations are greenstones consisting of flows and of flow breccias in which the matrix shows flow structures and the fragments are conspicuous. A few massive limestone lenses or patches of limestone breccia are among them. The Bradshaw formation contains much argillite and fine tuff and little chert. Its beds are bounded by even surfaces and in general it resembles the formations to the west but it definitely underlies the Independence formation. To the west of the anticline in the fourth segment, fine tuffaceous and argillaceous material is present in all the formations and all except the Wolfe Creek formation contain calcareous beds. The sediments characteristically are evenly and thinly bedded. The volcanic rocks as a whole appear to be slightly more acid and feldspathic than those to the east and much tuff and coarse fragmental material is present. In the breccias flow structure is not a common feature and the fragments are often difficult to distinguish. The formations of the fourth segment are not so closely folded as the strata to the east.

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