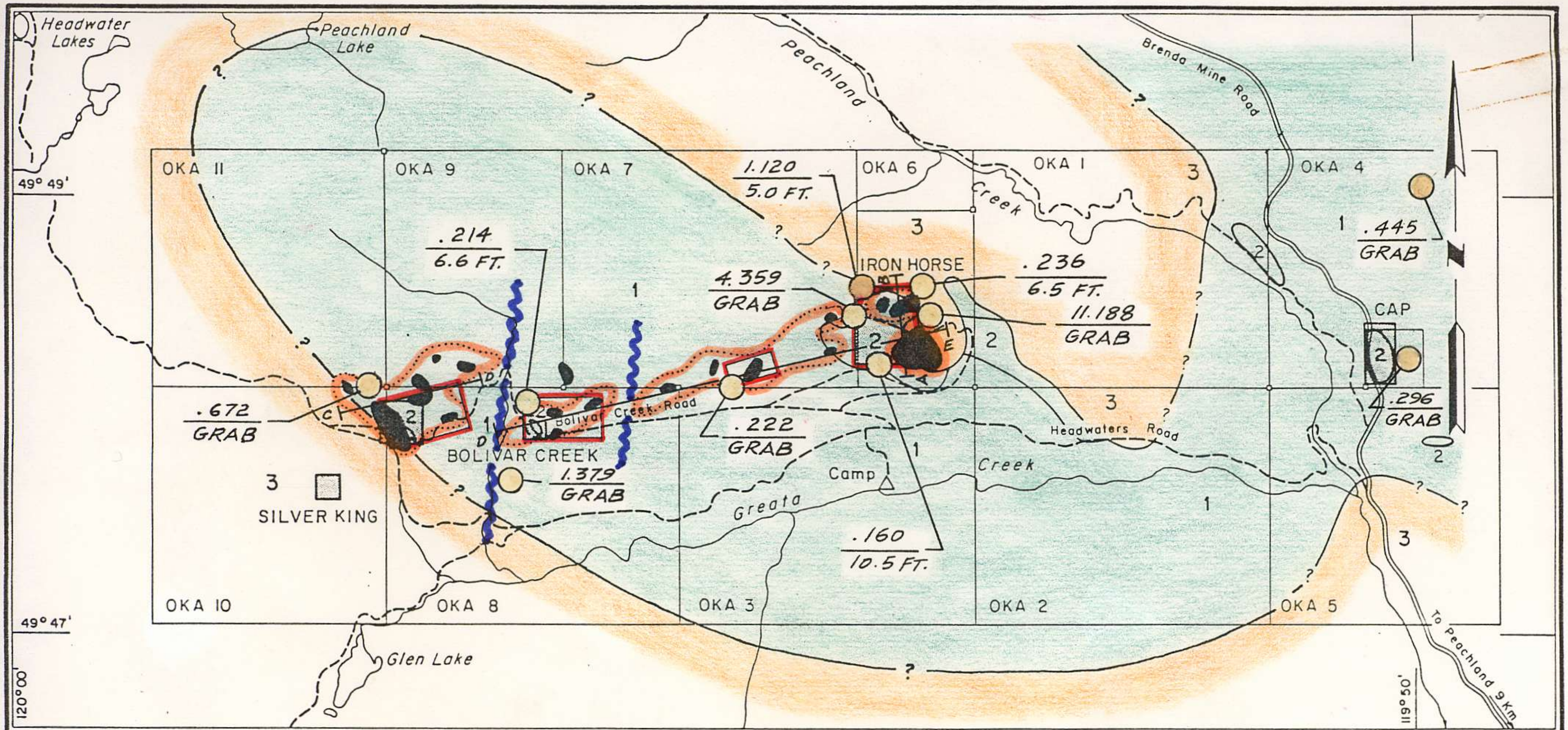

LEGEND

3	Cretaceous	Nelson granodiorite
2	Upper Triassic	Nicola Group limestone and skarn
1	Upper Triassic	Nicola Group argillite, sandstone, greenstone
	Mineral Occurrence	
	Soil Geochemical Anomaly Au ≥50 ppb	
	Soil Geochemical Anomaly Au ≥20 ppb	

1987 Trench Area

Gold showing: oz./ton Au / sample length

Inferred fault

C—D *Schematic section line*

861419

FAIRFIELD MINERALS LTD.

GEOLOGY AND GEOCHEMICAL ANOMALIES

OKA PROPERTY

SOUTH OKANAGAN AREA

N.T.S. 82E/13W

OSOYOOS MINING DIVISION, B.C.

Scale 1 : 50,000

1000 0 1000 2000

Scale in Metres

FEBRUARY 1987

FIGURE 4

stones, wackes and minor impersistent grit and chert pebble conglomerate horizons, as well as massive to conglomeratic reefal limestone beds that locally exceed 75 metres in thickness. One limestone-rich unit, the "Sunnyside limestone", is traceable discontinuously for several kilometres along strike between Hedley township and the Nickel Plate mine (Camsell, 1910; Bostock, 1930, 1940a). The siltstones and thick, massive limestone beds east of Ashnola Hill* (Figure 2-10-1) represent a southern extension of the shallow marine facies of the Hedley sequence.

The Hedley sequence passes stratigraphically upwards into the 700 to 1200-metre-thick Whistle Creek sequence (Figures 2-10-2 and 2-10-3). This forms a generally westerly dipping, west-facing succession that mainly underlies the western portion of the district although small, downfaulted outliers of the sequence are present east of Hedley township and in the vicinity of Lookout Mountain (Figure 2-10-1). It contains tuffaceous siltstones and rare argillites in its lower portion, but higher in the succession is characterized by bedded to massive ash and lapilli tuffs with minor volcanic breccia.

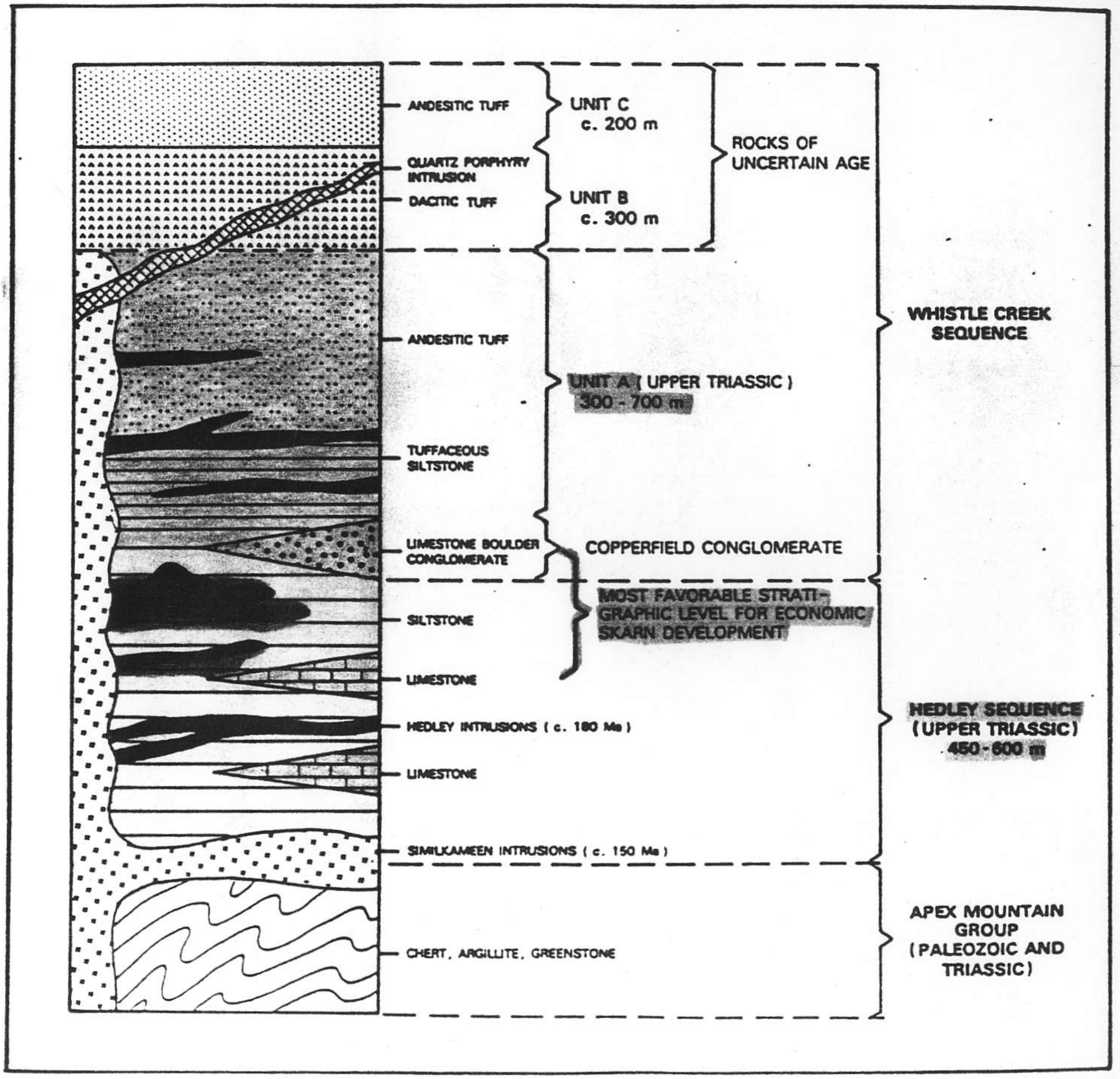

Figure 2-10-2. Schematic section illustrating the stratigraphy of the Hedley area.

* Ashnola Hill is an unofficial name given to the hill surmounted by the British Columbia Telephone Company microwave tower.

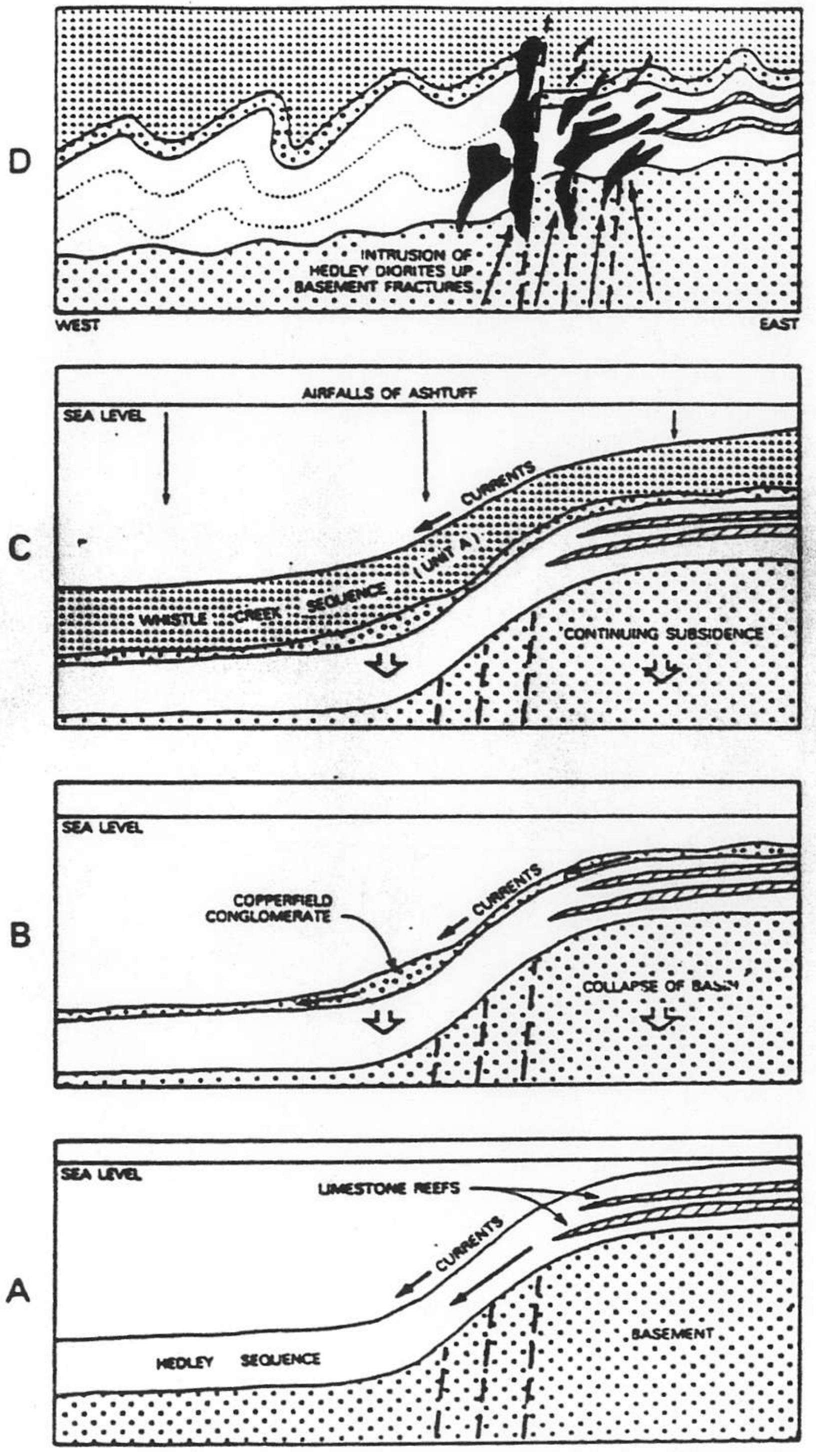

Figure 2-10-4. Postulated geological history of the Hedley area.

A — Upper Triassic (Carnian-Norian): Deposition of the Hedley sequence down a westerly inclined, basement-controlled basin margin. Shallow marine facies in the east, deeper water facies in the west.

B — Upper Triassic: Earth movements due to collapse of basin leads to the formation of the Copperfield conglomerate as a widespread gravity slide deposit.

C — Upper Triassic: Airfalls of andesitic ash tuffs result in the deposition of Unit A of the Whistle Creek sequence.

D — Mid-Jurassic: Reactivation of the basement flexure is accompanied by melting in the basement. These melts move upwards into the deforming cover rocks, resulting in the dioritic Hedley intrusions.

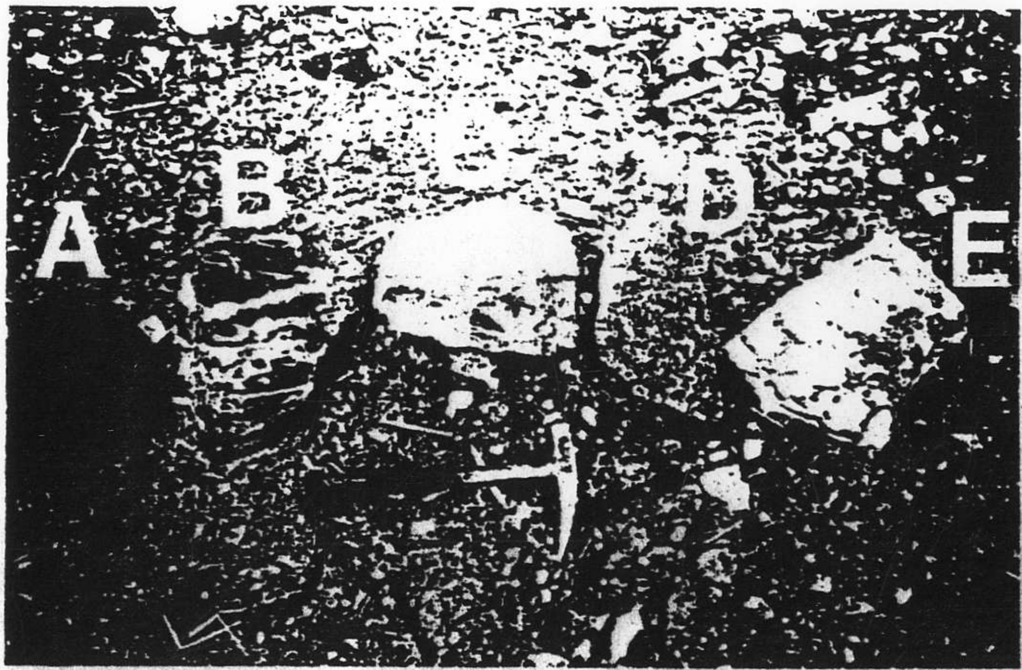

Plate 2-10-4. Samples illustrating the various mineralogical zones associated with the skarn alteration at the French mine (*see* Figure 2-10-5).

A (Zone 5) — dark, massive biotite hornfels.

B (Zone 5) — biotite hornfels cut by thin veinlets of green clinopyroxene and minor amphibole.

C (Zone 3) — massive, light to dark green clinopyroxene with minor amphibole.

D (Zone 2) — massive, dark brown coarse-grained garnetite with minor clinopyroxene.

E (Zone 1) — "Pinto Formation" — intensely skarn-altered limestone conglomerate comprising white, coarsely crystalline marble clasts within a dark brown garnetite matrix.

The innermost core (Zone 1, Figure 2-10-5) generally lies adjacent to a carbonate-rich bed; it comprises coarse crystalline carbonate intergrown with minor amounts of coarse brown garnet, quartz and some sulphides and may also contain wollastonite and some rare axinite. Zone 2 is characteristically pinkish brown in colour and garnet rich (Plate 2-10-4). It contains both massive garnetite and isolated clusters of euhedral, coarse brown garnet intergrown with lesser amounts of clinopyroxene, quartz and sporadic sulphides. Rare scapolite may also be present. In thin section the euhedral garnets (possibly andradite) display sector twinning, some growth zonation and are distinctly birefringent (low order grey coloured) under crossed polars.

Zone 3 is green coloured and clinopyroxene rich (Plate 2-10-4). It contains abundant fine to coarse-grained clinopyroxene crystals intergrown with variable amounts of quartz. Scattered garnet may be present, but in thin section garnets are seen to be partially altered to clinozoisite while some pyroxenes are replacing earlier amphibole crystals. In some outcrops, this zone is separable into an inner dark green, probably iron-rich diopsidic subzone and an outer lighter green, probably iron-poor diopsidic subzone (Subzones 3A and 3B respectively, Figure 2-10-5).

Zone 4 is generally no more than a few centimetres thick, and may even be absent (Figure 2-10-5). It is typically dark green and characterized by abundant tremolite-actinolite, with sporadic sulphides. In thin section the amphibole is seen to locally replace and pseudomorph earlier biotite.

The outermost alteration zone (Zone 5, Figure 2-10-5) is variable in thickness and may have an irregular, diffuse contact with the unaltered country rock. This biotite-hornfels zone is characteristically dark brown coloured, siliceous, massive and fine grained (Plate 2-10-4). In thin section it is seen to comprise an intimate intergrowth of very small, decussate biotite and quartz crystals with minor epidote, clinozoisite and sulphides. The outermost biotite hornfels zone is commonly cut by a network of thin, light green-coloured veinlets of diopside and minor amphibole that represent Zones 3 and 4-type alteration (Figure 2-10-5). These pyroxene-rich veinlets can be irregular, but in many outcrops they show a preferential orientation following pre-existing microfractures (Plate 2-10-4). In areas of poor exposure this distinctive diopsidic veining is a useful indicator of nearby skarn alteration and possible mineralization, and consequently its presence could indicate areas worthwhile for prospecting.

DESCRIPTIONS OF SOME GOLD PROPERTIES

The geology, mineralization and alteration at the Nickel Plate and Hedley Mascot mines have been documented by Camsell (1910), Warren and Cummings (1936), Billingsley and Hume (1941), Dolmage and Brown (1945), Lee (1951) and more recently by Simpson and Ray (1986). The skarn-related mineralization at the property is stratabound and has selectively followed several favourable sedimentary horizons within a well-bedded succession of calcareous and tuffaceous siltstones and limestones in the upper part of the Hedley sequence (Figure 2-10-2). This gently dipping succession was intruded and hornfelsed by swarms of flat-lying diorite sills and some vertical dykes; both the intrusions and adjacent sediments were subsequently overprinted by skarn alteration. The gold-bearing sulphide horizons tend to be found near the outer margins of the exoskarn, close to the contact between skarn-altered