On the OUTLAW property, 4 diamond drill holes were completed. These holes were aimed at a large clay alteration zone associated with anomalous gold, arsenic, antimony and barium values previously identified in trenching. The clay alteration is thought to be evidence for an epithermal gold system where the alteration surrounds a central vein stockwork. The object was to define the vertical variation in gold and trace element values. The intense clay alteration caused numerous problems in drilling and resulted in poor recovery. The best intersection was 8.3 grams/tonne gold over 0.95 meters in hole 0-5, while hole 0-2 had several intersections of 2-4 grams/tonne gold over 1 to 3 meters. If the gold and the alteration are associated with the diorite, then there is potential for a significant deposit. Further drilling is recommended to test this hypothesis.

The RAM-TUT-TOT property was tested by 4 diamond drill holes totalling 674 meters. Three different targets were explored in rock types that are the same as those found on the GOLDEN BEAR property. The first target was a manto deposit at the top of the limestone. The upper section of the limestone is intensely silicified and contains good multilithic tectonic breccias. The silica-rich fluids have come up along a fault zone (feeder zone) and ponded below the overlying siltstone package. Anomalous gold values, up to 7 grams/tonne, have been obtained on surface. In 2 holes drilled into the manto, an increase in the thickness of silicification is evident. The two intersections obtained were 1 gram/tonne gold over 1.6 meters and 2.38 grams/tonne gold over 1.58 meters. Anomalous silver values (3-130 ppm) also occurred in the silicified zone. Surface trenching and mapping in the area indicate the potential for a deposit of significant size.

The other two targets were fault zones with abundant scorodite at surface. Grab and trench samples were very encouraging. The fault zone on TOT had an intersection of

3.81 grams/tonne gold over 2.26 meters with an associated arsenic anomaly of 500-1100 ppm over 4.79 meters.

Further diamond drilling is recommended on this property to delineate mineralization and alteration.

On the SLAM property, there is a large area of highly fractured, silicified limestone. A small portion of this altered rock has anomalous values of arsenic, antimony, mercury and gold. Of two diamond drill holes, only one was completed to depth due to drilling problems. The completed hole is believed to have strayed off course as it failed to intersect the same geology that was projected from surface. Two more drill holes are recommended to test this target.

The SLAM property adjoins the GOLDEN BEAR to the east and will be within 5 kilometers of the proposed all weather access road.

On the BANDIT property, trenching and bulk sampling identified a portion of the Ram Reef that has values in the range of 2 - 6.7 grams/tonne gold over widths varying from 10 centimeters to 1 meter. The host rock on the property is the Pre-Upper Triassic Siltstone Unit which overlies the Limestone Unit. At the top of the Limestone Unit the vein system may be more productive where regionally there is extensive alteration and structural preparation. The area is recommended for drilling next year.

Exploration work completed by Chevron since 1981 and by North American Metals since 1986 has shown that the area around Tatsamenie Lake and Bearskin Lake (Muddy Lake) has considerable potential. The intensity and extent of hydrothermal alteration and mineralization is indicative of either a very large system or a number of smaller systems that could have produced several deposits. The style of mineralization, the structural setting and the geology are similar to those of the Mother Lode gold deposits in California.

INTERPRETED STRATIGRAPHIC SECTION- STIKINE ASSEMBLAGE

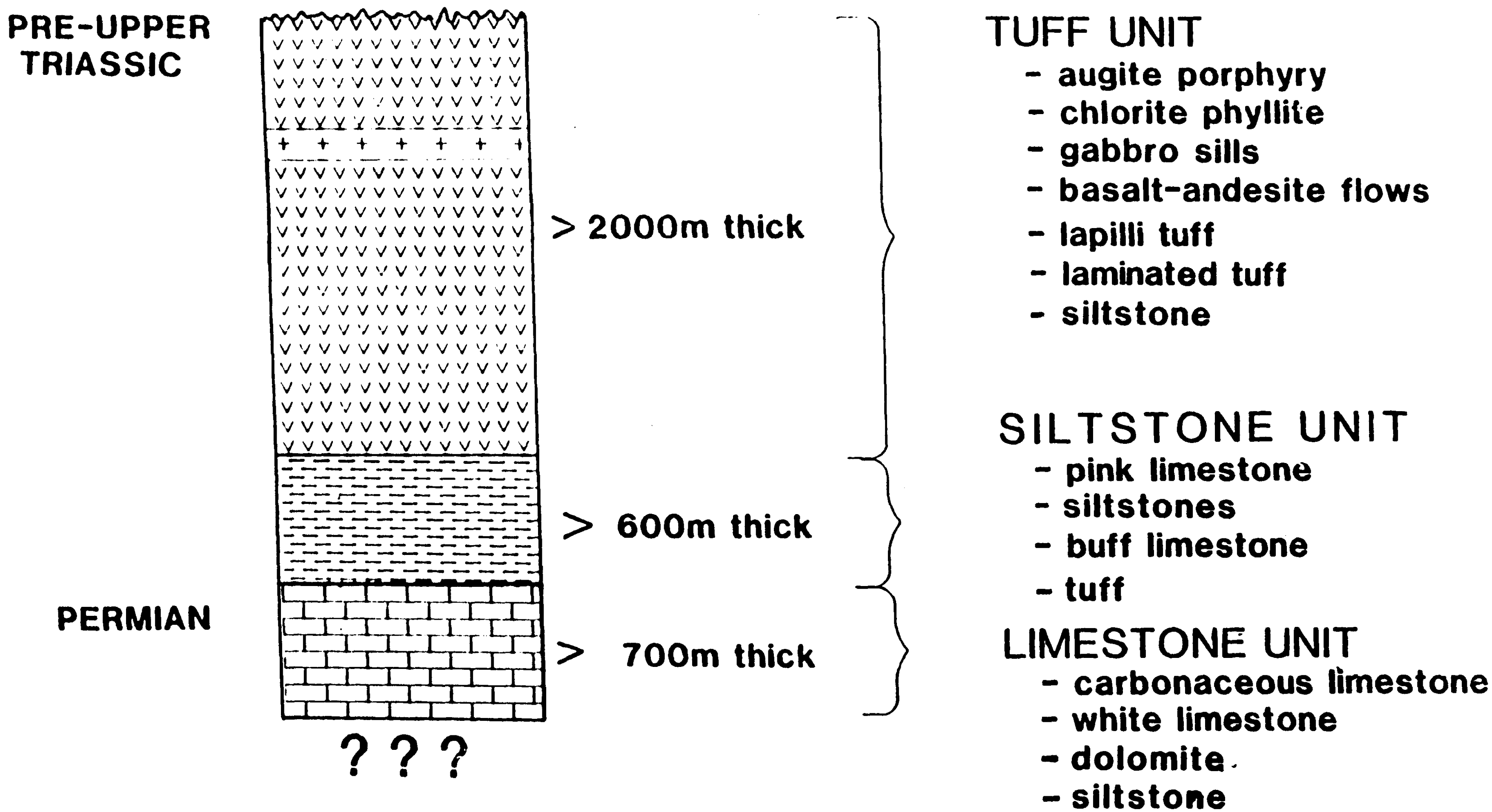

FIG. 4

(carbonaceous siltstone) to marine bank (carbonate) to distal volcanic (fine grained mafic tuffs). This was not a gradual change as all the units appear interbedded with one another in varying proportions depending on the location of the section.

Much of the carbonaceous siltstone has a high silica content; however, it is not certain whether this silica is primary or hydrothermal. Some carbonaceous siltstone samples bear a resemblance to a crudely formed ribbon chert sequence. Pyrite is common in most rocks in the Siltstone Unit, usually disseminated up to several percent; it is often coarse (> 2 mm) and euhedral giving the impression of diagenetic pyrite.

The top of the Siltstone Unit represents the cessation of large scale carbonate deposition and the onset of extensive mafic volcaniclastic deposition. Both the bottom and top of the Siltstone Unit are gradual contacts over tens of meters. At the bottom of the Siltstone Unit the Limestone Unit becomes progressively more interbedded with Siltstone Unit lithologies. At the top of the Siltstone Unit there is an increasing amounts of mafic tuffs until the section becomes almost all mafic tuff and is assigned to the overlying unit.

<u>Tuff Unit</u> - This unit represents the advance of mafic volcanism until it becomes the dominating rock type in the stratigraphy. Included in this unit are lapilli tuff, banded tuff, crystal tuff, chloritic phyllite, siltstone and gabbro. Original textures in these rocks are usually obscured, especially in outcrop, because of extensive greenschist metamorphism. The growth of chlorite and epidote is pervasive in most of the fine grained matrix of these rocks; in spite of such alteration, bedding textures and outlines of lapilli are occasionally well preserved. Remnant textures are

best seen in drill core and sedimentary features such as cross-bedding, slump folding and graded bedding have been identified during diamond drilling on the GOLDEN BEAR. No definite original volcanic flow textures such as pillows, vesicular flow tops or columnar jointing have been identified; however, many examples of volcaniclastic textures have been noted, especially heterolithic lapilli fragments, layering and crystal fragments.

The most common rock type in the Tuff Unit is a fine to medium grained (0.1 to 1 mm), dark green tuff with little apparent banding or clastic textures. This lack of texture makes it difficult to determine bedding orientation of units. The lapilli tuff is common throughout the Tuff Unit. This rock has lapilli size clasts (2 to 50 mm) in a fine grained dark green matrix. The clasts are often amygdaloidal volcanics with calcite and minor chalcopyrite amygdules predominating.

Banded tuffs were mainly recognized in drill core. These rocks ranged in colour from light to dark green and the bands are marked by changes in grain size or colour. When the bands are 2 to 6 mm in thickness, the rock is called a laminated tuff. Good sedimentary features are rare in the banded tuffs, indicating little or no epiclastic reworking after deposition.

Dark gray to black, weakly calcareous, fine grained ($<$ 0.2 mm) and often pyritic siltstones are found interbedded with the tuffs. These siltstones contain several percent euhedral disseminated pyrite as well as pyrite stringers and blebs. Often these rocks are pervasively siliceous; it is not clear if the silica is related to hydrothermal processes. Due to the apparent lack of alteration in the enclosing tuffs, the present interpretation is that the silica is a syngenetic or diagenetic feature of the siltstones. In some drill core, the siltstones exhibit well preserved sedimentary features including graded bedding, cross-bedding, flame structures and slump folds.

The chloritic phyllite is coloured in various shades of green, is very fine grained and well foliated. Locally the metamorphic grain size is almost coarse enough to warrant the term schist. It is not certain if the chloritic phyllite is derived from a distinctive lithology or is a product of extensive shear strain. Another rock type of uncertain nature is the crystal tuff (feldspar porphyry?). This rock type has been identified in both outcrop and drill core and is composed of variably altered feldspar laths in a fine grained chlorite matrix. A few examples of possible broken feldspar fragments and possible lapilli clasts have led to the tentative identification of this unit as a crystal tuff. Other examples of this rock type show apparent plutonic textures; further study is needed. The intensive greenschist overprinting on these rocks makes identification of subtle igneous textures difficult even using petrographic study.

Triassic

This Age includes the Stuhini Group, Sinwa Formation and a foliated diorite. The Stuhini Group is a predominantly volcanic package of andesite, basalt and agglomerate. A sedimentary unit called the King Salmon Formation is recognized as a mixed group of sediments deposited synchronously with the Stuhini volcanics. Distinction between the King Salmon Formation and other Stuhini Group rocks is difficult in many parts of the map area. The Stuhini Group rocks usually exhibit rapid lateral changes in thickness and lithology with local unconformities common.

The GOLDEN BEAR hydrothermal system has a number of characteristics typical of gold-silver mesothermal deposits (Lindgren, 1933). The alteration suite consists of quartz, dolomite, ankerite, sericite and kaolinite. The mineralization suite is pyrite, gold with minor arsenopyrite and tetrahedrite. In the mineralized tuffaceous rock, the pyrite is massive. The style of mineralization and alteration that occurs on the GOLDEN BEAR, is associated with a 15 kilometer fault and is typical of gold deposits in the Motherlode Belt, California (Boyle, 1979 and Clark, 1970). This type of deposit has some spectacular mineralization and consistent gold values. The GOLDEN BEAR does not have any typical characteristics of epithermal deposits such as alunite, adularia and colloform banding and cockscomb structures.

There have been multiple generations of quartz and carbonate alteration on the GOLDEN BEAR. The localization of quartz-carbonate alteration is fault-controlled on the claims. Altered zones occur as linear trends along the strike of faults and intensity of alteration decreases as the hydrothermal system weakens away from the faults. The alteration mineral assemblage is host rock dependent; quartz, dolomite and calcite are typical of limestones while dolomite, ankerite and fuchsite with minor quartz (listwanite assemblage) are typical of mafic volcanic rocks. The extent of alteration away from fault structures is also host rock dependent. Areas of limestone are extensively altered over widths of hundreds of meters while areas of tuff are usually not altered more than 20 to 30 meters from a fault. The bulk of the alteration appears to be a regional carbonatization phenomenon which affects all rocks as young as Jurassic age. Current interpretation favours alteration by low salinity and CO_2 -rich metamorphic waters expelled through the stratigraphy along major deep-seated fault conduits. Superimposed on this carbonatization process is a silicification event which has primarily affected the carbonates. This process has led to the formation of large areas of silicified carbonate (up to 1 km^2). The source of this silica is uncertain; it may be derived from the carbonatization of tuffs.

Cross-cutting the last phases of dolomitization and silicification on the GOLDEN BEAR are calcite replacements. These replacements occur as pervasive sparry calcite, millimeter wide stringers and large crystal lined tubular caverns. These caverns appear to be conduits up to 5 meters in diameter, lined with coarse calcite crystals up to 20 centimeters in length. Most of the large conduits have been observed near faults in Fleece Bowl and Troy Bowl.

Within these large areas of carbonatization and silicification, which are regional in extent, are more restricted gold-bearing zones. The GOLDEN BEAR mineralization consists of pyrite, pyrrhotite, arsenopyrite and tetrahedrite with minor galena, sphalerite, chalcopyrite and tellurides (J. Heyse, 1984). Some native gold occurs as grains and fracture fillings in the 1 to 50 micron size range. Over half of the gold occurs as submicron size grains with unknown mineralogy. Interpretations as to the relationship between the gold and sulphide mineralization are varied. It has been suggested that the gold has been remobilized from the original iron sulphides and deposited along the edges and cracks of pyrite and arsenopyrite crystals which have undergone a complex tectonic history (J. Heyse, 1984). A second possibility is that the gold was deposited later than the pyrite with disseminated submicron size sulphides. Some of this material has been remobilized as the coarser native gold along fractures. The age of gold mineralization is uncertain; age dating of hydrothermal sericite from the BEAR Main Zone has produced an age of 177 ± 5 Ma (J. Armstrong, personal communication, 1984). It is not known if the dated sericite correlates directly with the gold mineralizing event. The fluid inclusion studies have suggested that the hydrothermal fluids were low in salinity, 1 to 3% NaCl, and of low temperature , 180°C (J. O'Brient, B. Bodner, 1984).

The model for the GOLDEN BEAR mineralization requires the following features:

(1) Major fault
(2) Suitable structural trap
(3) Heat pump (Jurassic intrusions and/or porphyry copper deposit)
(4) Triassic volcanic rocks

These generalized features can now be made more specific for the GOLDEN BEAR mineralization. A major fault is required to channel the hydrothermal fluids both laterally and vertically. The Bear Fault and West Wall Fault are both major zones which have slivers of limestone, tuff, ultramafics and diorite along their length. The diversity of lithologies and the presence of fault slivers support the hypothesis that it is a major fault system and does tap deeper segments of the crust.

Hydrothermal fluids, either from intrusions or from local hot spots, will be able to move up and along these fault zones. The association between gold deposits and porphyry copper mineralization can be clearly documented. For example, in Chile, the Silica gold deposit is found 1000 meters vertically above the large porphyry copper deposit, El Salvador. This type of setting can be applied to the GOLDEN BEAR where there are numerous low grade porphyry copper deposits nearby. The hydrothermal system which created the porphyry copper deposits could also have caused the gold deposit at GOLDEN BEAR. In the Tatsamenie area, the Jurassic intrusions contained abundant volatiles as they were crystallizing. In the case of the RAM-TUT claims, the Jurassic diorite was albitized. The albitization process takes place in the weaning stages of magmatic crystallization when the volatiles alter the crystallized portion of the intrusion. The date of this albitization event is 171 ± 5 Ma (Hewgill, 1985), close to the sericite dated from the BEAR mineralization (177 Ma).

The host rocks are important both stratigraphically and structurally. Stratigraphically, the Triassic volcanics appear to be significant when considering gold deposits on a provincial scale as they may be the source for the gold. Structurally, the host rock, if it is not originally porous or permeable, will require some modification by brittle deformation. There are certain aspects that would make one set of fault systems more amenable to creating a more favourable host. They include rocks of varying competence, favourable geochemistry and porosity. Regionally, there may have been a number of feeder zones which have brought fluids up through the brittle limestone. In some cases, faults such as the West Wall Fault and Bear Fault have broken the contact between the Siltstone and Limestone Units. In other cases the contact has not been broken and the silica rich fluids have replaced the upper layers of the Limestone Unit to form a manto style deposit (e.g. RAM TUT).

After completion of the underground work at GOLDEN BEAR, it is clear that the hydrothermal fluids have travelled along the Bear Fault (a major fault system) and deposited the BEAR Main Zone at a change in strike and dip (structural trap) of the fault zone. The change in strike and dip is extremely well illustrated when structural contours are made of the fault plane (Hulstein, pers. comm. 1987). It is interesting to note that the bulk of the consistent high grade mineralization in the BEAR Main Zone is directly associated with this change in strike and dip and occurs just above the roll in the fault (Fig. 5). Once the fault becomes more regular in strike and dip, the grade is less predictable. The style of mineralization becomes more

GOLDEN BEA MAIN ZONE
IDEALIZED CROSS-SECTION SHOWING MINERALIZATION
(LOOKING NORTH)

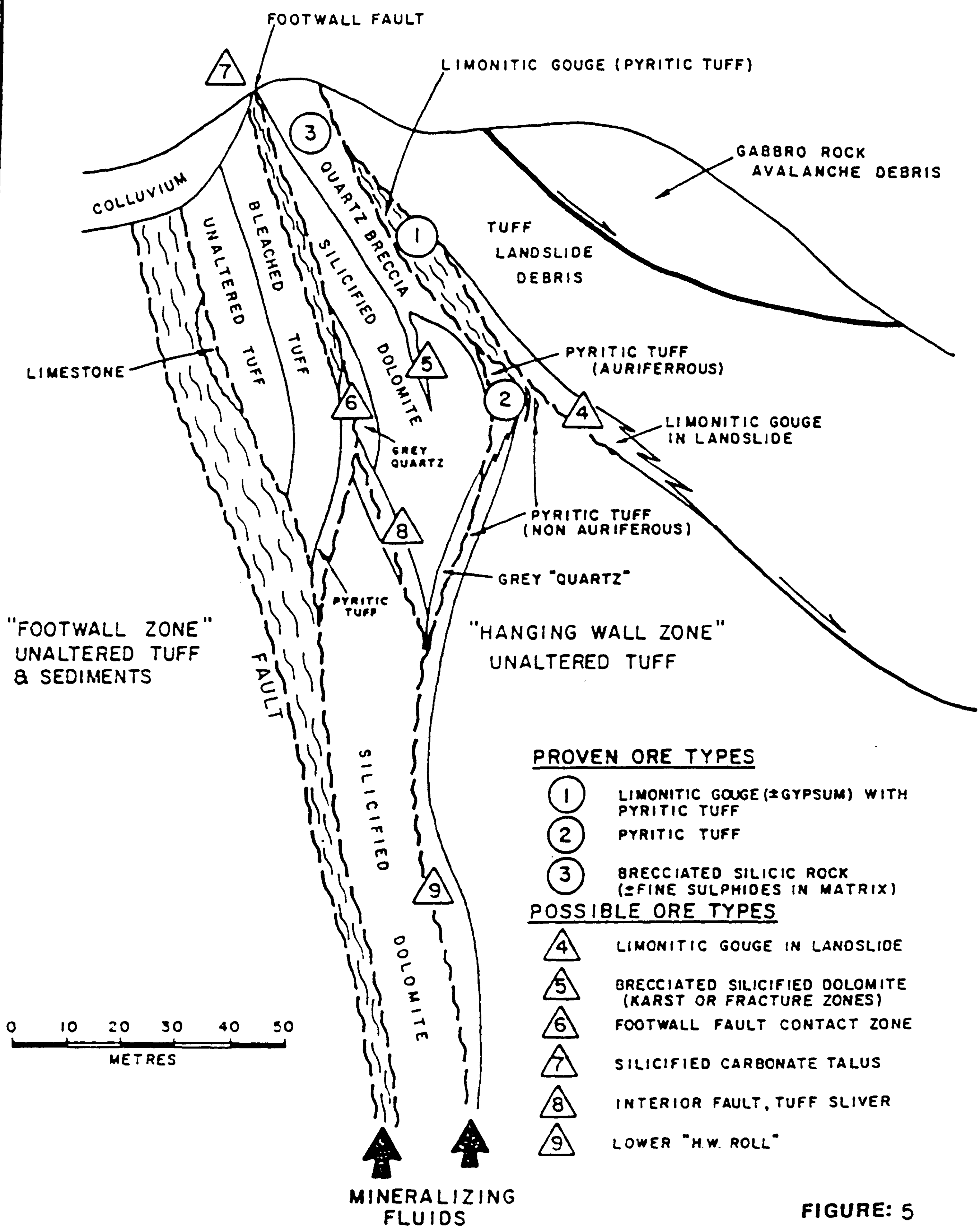

FIGURE: 5

typical of other gold deposits with respect to the difficulty in connecting drill hole intersections to make ore shoots. The ability to predict changes in strike and dip will be essential in finding another large deposit in the area.

PROPERTY GEOLOGY AND MINERALIZATION

The geology of each property will be discussed based upon the information from the 1987 drill core and surface mapping from 1981 to 1987.

MISTY-NIE

The MISTY-NIE claims are underlain by the Pre-Upper Triassic assemblage as shown on Figure 3. Detailed geological maps (Fig. 6ab, 7) covers the MISTY-NIE claims and includes the 1987 drill holes.

Pre-Upper Triassic

The stratigraphic column (Fig. 4) of the Stikine Assemblage is represented on the claims. The basal Limestone Unit occurs only as fault slivers along the West Wall Fault. These fault bounded slivers are predominantly unaltered. The limestone is generally equigranular and appears to have recrystallized. The limestone was intersected by hole N-38 and it was not possible to identify where in the stratigraphic column it came from.

The Siltstone Unit was intersected in the majority of the holes. It is represented by well bedded, graphitic mudstones to siltstones that exhibit soft sediment deformation. Soft sediment breccias were also observed in many of the holes. The fragments appear to have been silicified and the matrix is primarily composed of graphite. The silicification in the intraformational breccia and in parts of the siltstone is both pervasive and along banding.

Foliated Diorite

The foliated diorite is classified as Triassic by Souther (1971). It is generally medium grained, equigranular and has a weak to strong foliation. In most cases on the NIE claims, it is in fault contact with the Tuff Unit; however, on the GOLDEN BEAR property to the south, it has an intrusive contact with the Tuff Unit.

Non-Foliated Diorite

Souther (1971) has classified the non-foliated diorite as Jurassic. On the NIE group it is represented by a series of feldspar porphyry dykes, which have come up along the West Wall Fault. These dykes are probably related to the large body of Jurassic diorite that outcrops on Misty Mountain, just to the west of the NIE Claims.

In many of the drill holes, the intersected dykes were generally dark gray when least altered. The dykes are usually porphyritic with 80 - 90% feldspar, 5 - 10% mafics and 5 - 10% quartz. In the most intensely altered sections, the feldspar was totally clay altered with a green to white colour and the mafic content decreased to less than 5%. Away from the fault, the dykes are pinkish in colour and were originally thought to be syenitic. However, thin sections have shown the composition to be dioritic. The dykes have preferentially intruded the siltstones along the West Wall Fault.

From the best showing on the NIE Claims, a sample of the dyke was dated by Schroeter (1987) yielding an age of 156 Ma. These dykes are presumed to be part of the later phase of the Jurassic diorite intrusion (Schroeter, 1987). If the Jurassic intrusions are the heat pump which created the hydrothermal system to form the mineralization in this area (GOLDEN BEAR), then that system survived for approximately 50 Ma (from 154 to 205 Ma). These dates, based on K-Ar dating of sericite in the diorites, were obtained from samples collected by Chevron and Schroeter (1987).

Level Mountain Basalts

These basalts are located on the upper plateau of the NIE Claims and are remnants of flows from the Hearts Peak and Level Mountain volcano. Originally a large portion of the area was probably covered by these basalt flows. Surface mapping located a few outcrops of columnar-jointed, vesicular basalts. Today a number of the cinder cones are still visible on Hearts Peak.

Mineralization

The gold mineralization discovered to date is associated with sulphides (primarily pyrite) along the West Wall Fault. In most cases, the surface grab samples assayed from 10 grams/tonne to 61 grams/tonne gold. The highest value was then trenched with resultant assays of 10 grams/tonne gold over 0.6 meters and 20 grams/tonne gold over 0.3 meters. This zone was intersected at depth in holes N-1 and N-3 and along strike in holes N-4 and N-6. Drill holes placed below the trench and below all of the showings produced no highly anomalous gold values.

A second fault, the Ultramafic Fault, is the locus of a series of grab samples from various locations along strike ranging in value from 3.4 to 8.6 grams/tonne gold. These samples are also rich in sulphides.

The style of mineralization expected on the MISTY-NIE Claims is similar to that on the GOLDEN BEAR property and is described earlier in this report. The mineralization on the MISTY-NIE has been interpreted as an indication that the fault is still fertile and has allowed mineralization to leak from depth. Although much of the area is covered by glacial moraines and ice, extensive sampling has ascertained that the deposit does not outcrop at surface. Regional alteration and the strong hydrothermal system at GOLDEN

BEAR are indicative of a very large system or several smaller systems. The size or extent of the system is conveyed by the widespread alteration (silicification) of the upper layers of the limestone. One key to finding the ore grade mineralization is to locate the feeder zone of the fluid. On the MISTY-NIE Claims, the West Wall Fault has been clearly identified as the feeder zone. Now it is essential to locate a structural trap similar to GOLDEN BEAR where the gold has been deposited.

OUTLAW

The OUTLAW Claims, illustrated in Figure 3, are underlain by Pre-Upper Triassic rocks, Stuhini volcanics, a Jurassic diorite and the Sloko Group volcanics. The geological map for the OUTLAW claim block (Figure 7) contains the following units:

Pre-Upper Triassic Unit
Stuhini Group
Takwahoni Formation
Biotite-hornblende Diorite
Sloko Group

"Pre-Upper Triassic" (?)

Although this unit is mapped by Souther (1971) as Pre-Upper Triassic, it could be interpreted as a hornfelsed portion of the Takwahoni Formation. Regional traverses by the author have located other areas of clearly Takwahoni Formation which have been contact metamorphosed by the Jurassic volcanic rocks. In some places the sediments can be traced from areas of low metamorphism through contact metamorphism and into the intrusion. The outcrops on the OUTLAW Claims are not the same as any of the stratigraphic sections that occur in the Pre-Upper Triassic. This section would have to be a completely different unit that has not been seen before. The relatively thinner layering is more indicative of the younger rock sequences.