

HOWELL CREEK (FLATHEAD)

[MI 82GSE 037,048]

On July 30 and 31, I visited Phelps Dodge's Howell Creek (Flathead) property located 30 km southeast of Fernie. Fox Geological is carrying out the work (as they have done since 1984) under the supervision of Project Geologist, **Rob Cameron**. At the time of my visit Rob was awaiting the arrival of a drill, delayed by unseasonably poor weather this summer. For the first time, Rob and his crew were conducting detailed geological mapping and sampling. Past exploration work had relied on geochemistry. Previously reverse circulation (25 holes totaling 8762 feet) and diamond drilling (7 holes totaling 3594 feet) had been completed in 1988 and 1989 respectively on Grid A and E. The Twenty-Nine Mile Creek and Howell Creek prospects are located in a geological unique area (i.e. part of Flathead Graben) closely related to structural styles to the south in Montana. Cretaceous intrusions (100Ma) comprising alkalic stocks, dykes, and sills, intrude strata including Proterozoic Purcell Group clastics, Paleozoic carbonate and clastic rocks, Mesozoic clastic sequences and coal, and Tertiary fault scarp breccias - all in areas restricted to areas of Tertiary faults.

The character of the intrusive complex is postulated to be that of a large, hypabyssal subvolcanic center (a' la Cripple Creek, Colorado). The company is using Bonhas's 1988 schematic model for an alkalic gold deposit as a guide. The main difference is that the Howell Creek area is hosted by clastic rocks rather than coeval volcanic tuffs and epiclastic material, diatreme tuffs, and fall back breccias. Central to the property is a large porphyry syenite stock at the head waters of Twenty-Nine Mile Creek containing a well developed quartz stockwork with auriferous pyrite, flourite, and molybdenite (Grid E). Distal to the stock are carbonate replacements (Howell Grid A), Base metal mantos (Howell Grid A) and auriferous breccias and diatremes (Howell Grid E) all developed in wall rocks that including Precambrian (Purcell Group, Roosville Fmn.) siltlites, quartzites and Paleozoic (Flathead, Elko, and Rundle Group Formations) carbonates. Intrusive rocks vary from alkali feldspar syenite to nepheline syenite. Accessory minerals include albite melanite, aegirine augite, aegirine, analcite analcite and nepheline. Nepheline-bearing intrusions usually form sills having tinguatic textures (see photos). Alteration includes widespread pyritization and carbonatization of the intrusions, silicification and argillization of wallrocks, and vein stockworks of quartz, adularia-quartz, and barite-flourite..

Soil sampling has outlined a large composite gold, arsenic, antimony and base metal soil anomaly on the south slopes of Twenty-Nine Mile Creek (Grid B). The area coincides with the trace of Flathead Formation quartz arenites and shales. Ten reverse circulation drill holes returned anomalous gold, lead, zinc and silver assays. Flourite is locally abundant. Further diamond drilling is planned for August.

On **Grid A**, Upper Cretaceous black shales of the Alberta Group are overridden by a slice of disrupted Proterozoic clastics, Flathead Formation quartz arenite, Elko Formation carbonates, Devonian Fairholme Formation limestones and irregular plugs, dykes, and sills of clay-altered pyritic syenite. Widespread soil and rock samples contain anomalous gold contents (e.g. rock samples up to 1,970 pb Au). One of the best assays obtained by a Placer Dome drill program yielded 190 feet of 1.23 gpt Au. The bulk of the 1993 drilling program is targeted for Grid A.

On **Grid E**, a gold (along with arsenic, silver, antimony, and base metals) soil anomaly with dimensions of over one kilometre by two kilometres has been outlined. Rock types include pyritized and silicified siltstones of the Kintla, Formation and pyritic, flourite bearing, molybdenite-bearing, stockwork in syenite. Further drilling is planned for August.

The 1993 drilling program is estimated at 6000 ft. the distribution (occurrence) of the gold is not well known/understood (i.e. assumed to be associated with the pyrite). With respect to the Cripple Creek model, there has been no testing for tellurides on the Howell Creek and Flathead Properties, to date. The ultimate target is a large (>10 million tonnes), bulk mineable leachable gold deposit with a grade in excess of 1 gpt.

The FLATHEAD property adjoins the Howell Creek property on the east, and partially overlaps the old Sage Creek coal licenses. The model for exploration is the same with some extremely high grade float samples up to 524 gpt Au being found. helps Dodge has applied to construct a road to the claims to test, anomalies by drilling. There may be an environmental concern here (i.e. ex-Sage Creek coal scenario).

TGS COMMENT; This area/project represents a relatively new/unique occurrence type (viza vis Deposit Models) for gold. The best analogies include: Gilt Edge, Zortman Landusky, Montana Tunnels and Golden Sunlight (epithermal cum failed moly porphyry at depth) deposits in Montana and the Cripple Creek Au-Te deposits in Colorada. The best references are located in American Publications.

[Ref: Schroeter Monthly Report, Aug'88]

HOWELL CREEK

1. LOOKING EAST DOWN TWENTY NINE MILE CREEK, HOWELL CREEK





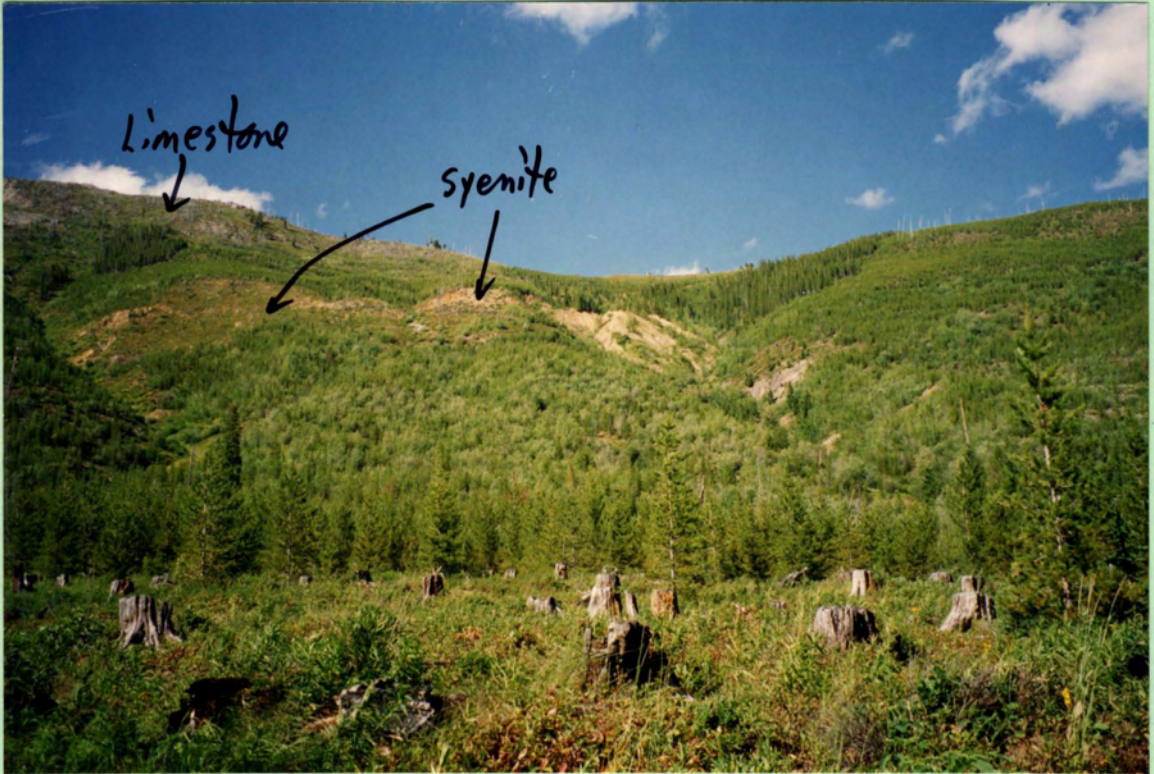
2. LOOKING EAST DOWN TWENTY NINE MILE CREEK, HOWELL CREEK



3. LOOKING SOUTH EAST TOWARD GRID B HOWELL CREEK

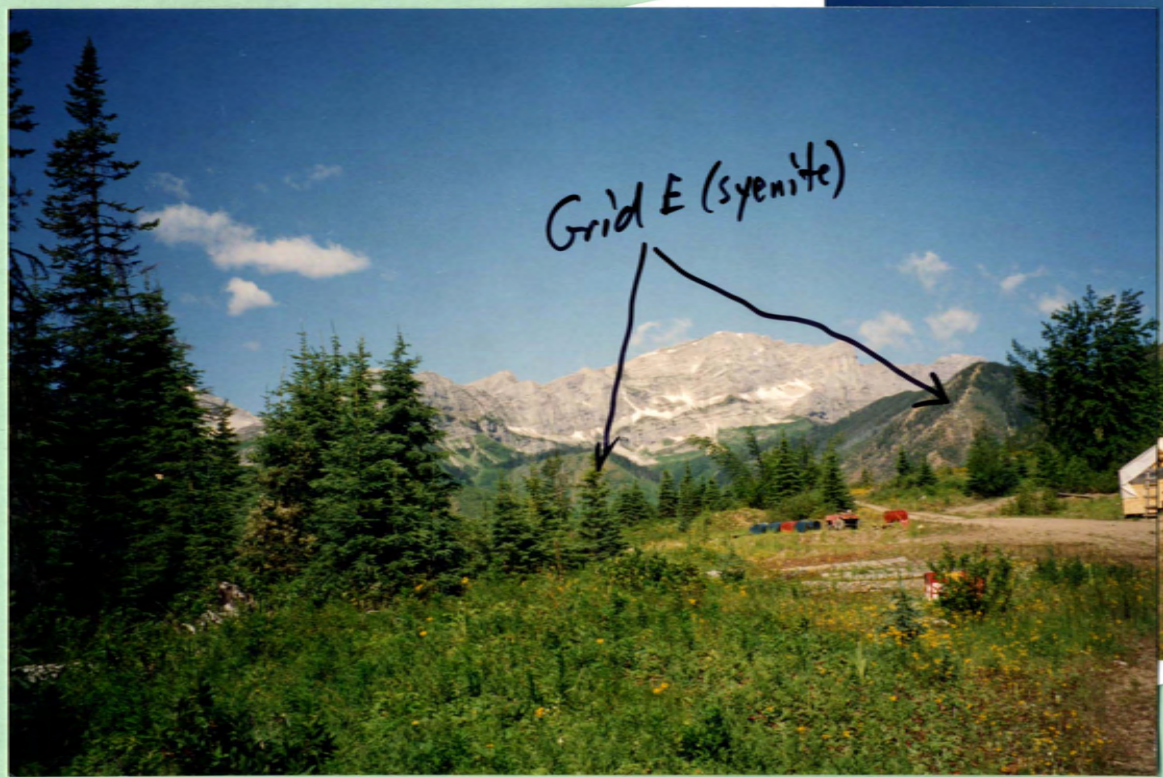


4. LOOKING NORTH TOWARDS GRID A, HOWELL CREEK



5. LOOKING NORTH TOWARDS GRID A, HOWELL CREEL

6. LOOKING S. TOWARDS GRID B FROM GRID A, HOWELL CREEK
Now up twenty nine mile creek,
Howell Creek.

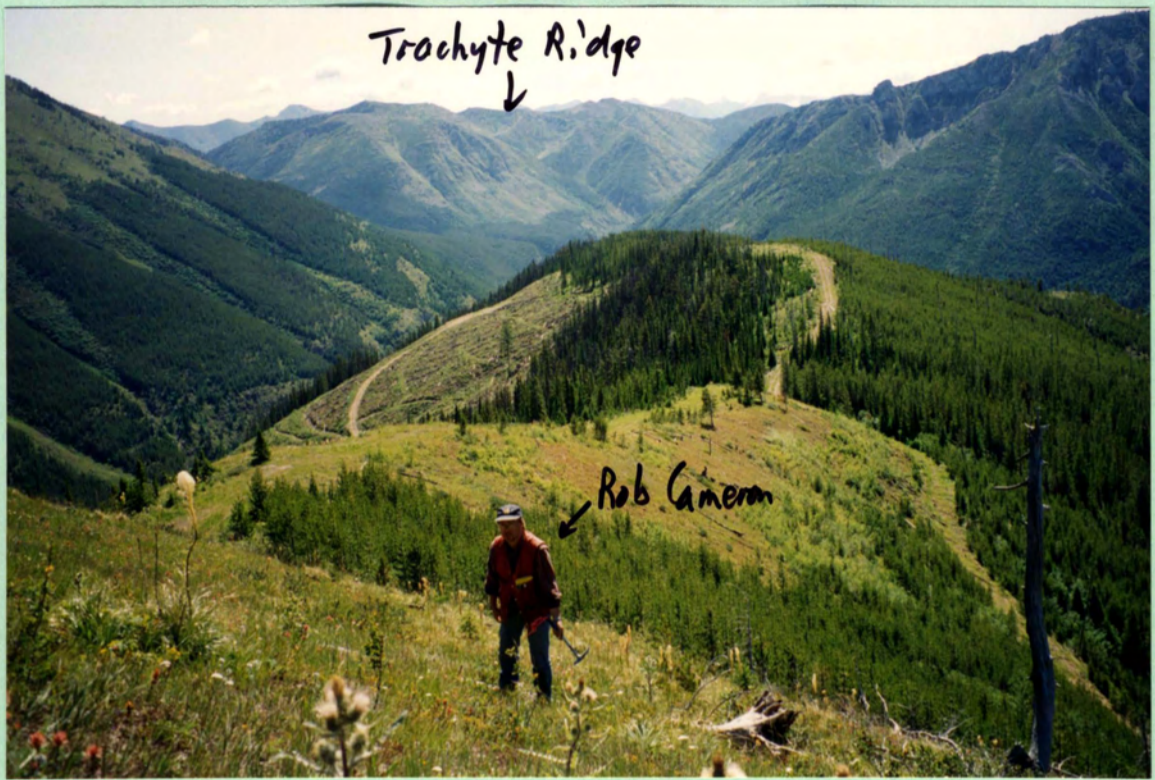




7. ROB CAMERON, PROJECT GEOLOGIST, SAWING ROCKS IN CAMP, HOWELL CREEK



8. LOOKING S. TOWARDS GRID B FROM GRID A RIDGE, HOWELL CREEK



9. LOOKING E. TOWARDS TRACHYTE RIDGE (FLATHEAD CLS.), HOWELL CREEK HILLS OF MONTANA, USA IN DISTANT BACKGROUND



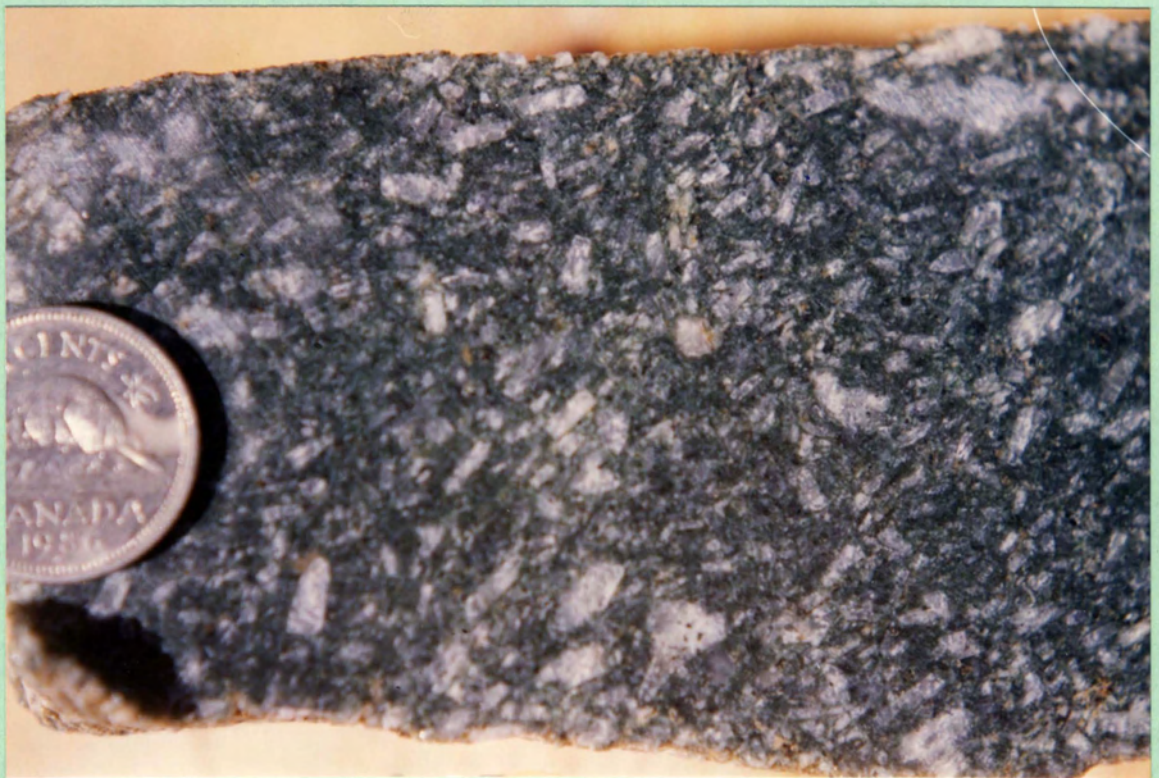
10. LOOKING SE DOWN NORTH FORK OF HOWELL CREEK (NORTH SIDE OF GRID A RIDGE TO RIGHT).



11. LOOKING SE DOWN NORTH FORK OF HOWELL CREEK (NORTH SIDE RIDGE OF GRID A).



12. SYENITIC INTRUSION BRECCIA WITH FRAGMENTS OF LIMESTONE, GRID A,
HOWELL CREEK



13. GREEN, COARSE PORPHYRITIC SYENITE WITH AEGIRINE AND AEGIRINE_AUGITE
HOWELL CREEK



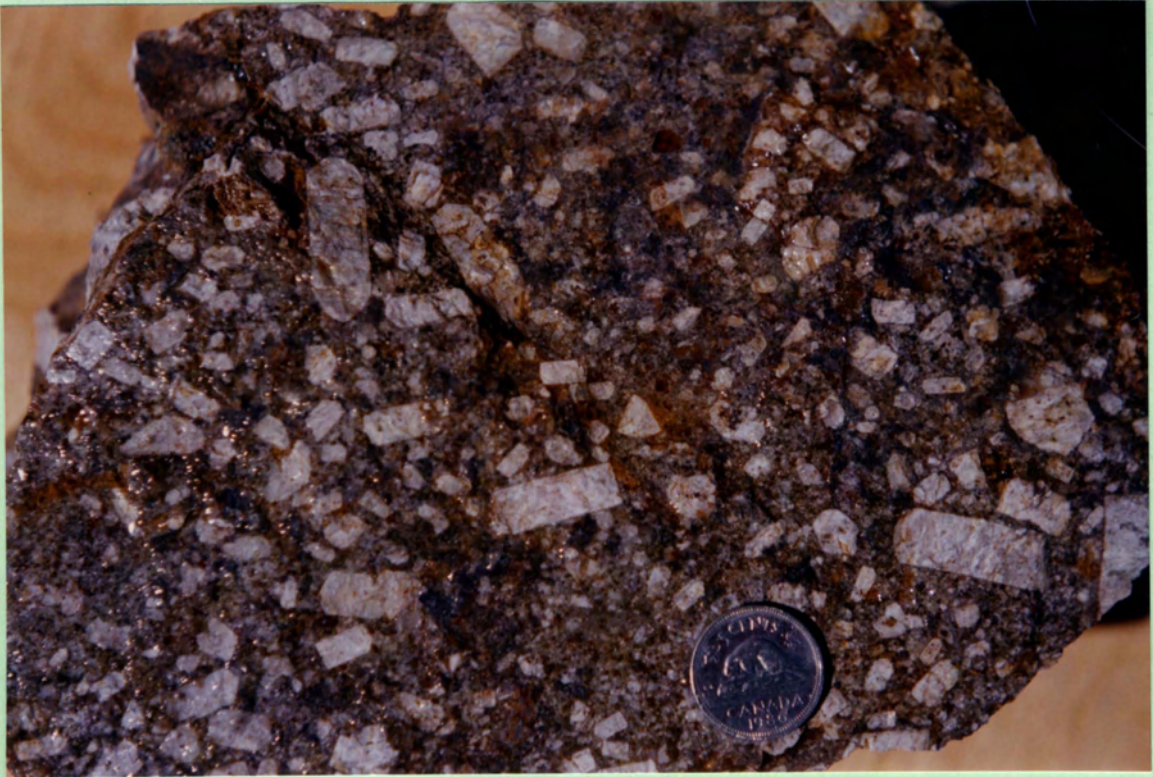
14. GREEN, COARSE GRAINED PORPHYRITIC SYENITE WITH AEGIRINE AND AEGIRINE - AUGITE HOWELL CREEK



15. GREEN MEDIUM PORPHYRITIC TINGUAITE (PHONOLITE), HOWELL CREEK



16. FOID SYENITE - GREEN WITH ORANGE PSEUDOLEUCITE(?)), HOWELL CREEK



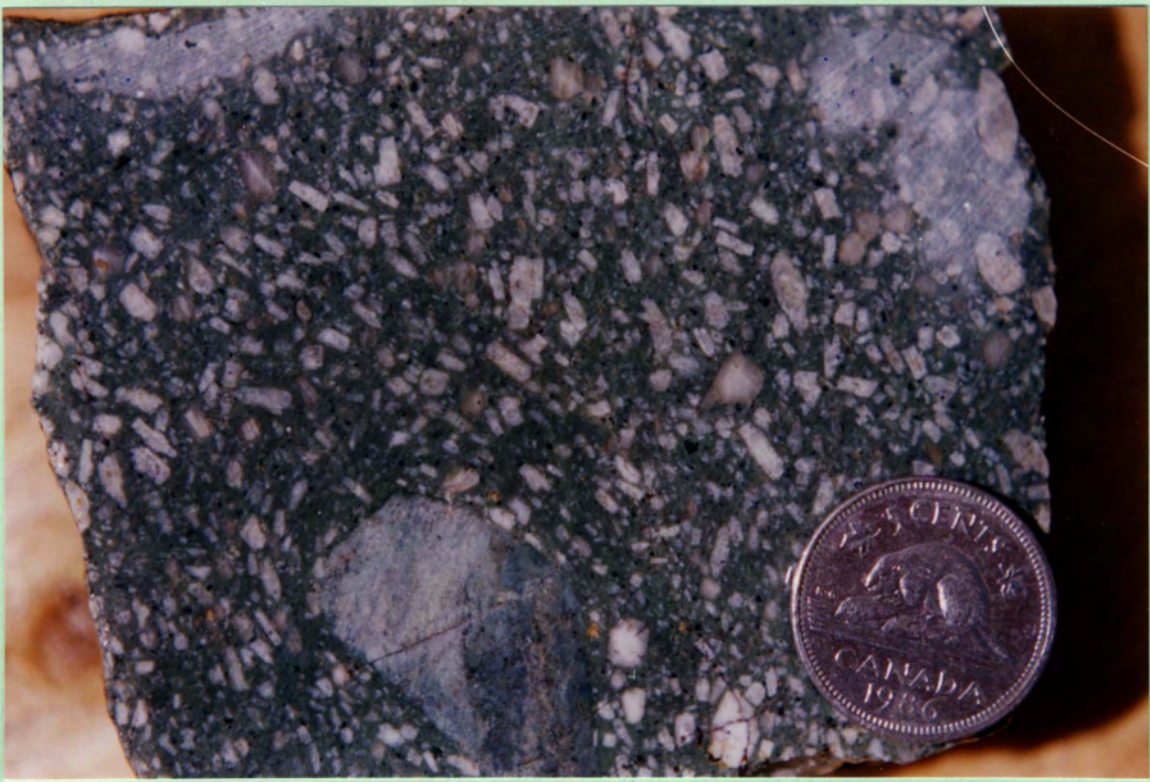
17. SYENITE - GREY GROUNDMASS WITH TWO FELDSPARS (GREY AND PINK) DACITE, HOWELL CREEK LENZUIN'S-
Legun's



18. QUARTZ VEIN STOCKWORK IN MICROSYENITE, HOWELL CREEK



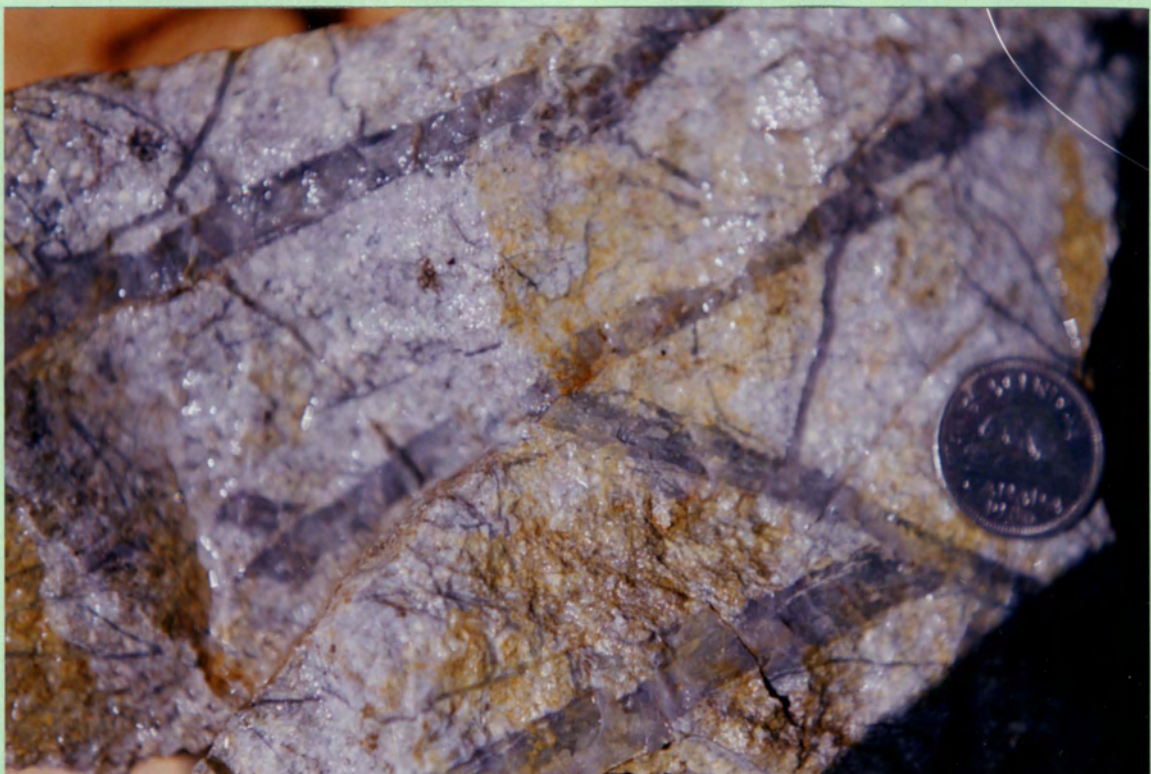
19. INTRUSIVE BRECCIA WITH GREY LIMESTONE CLASTS, HOWELL CREEK



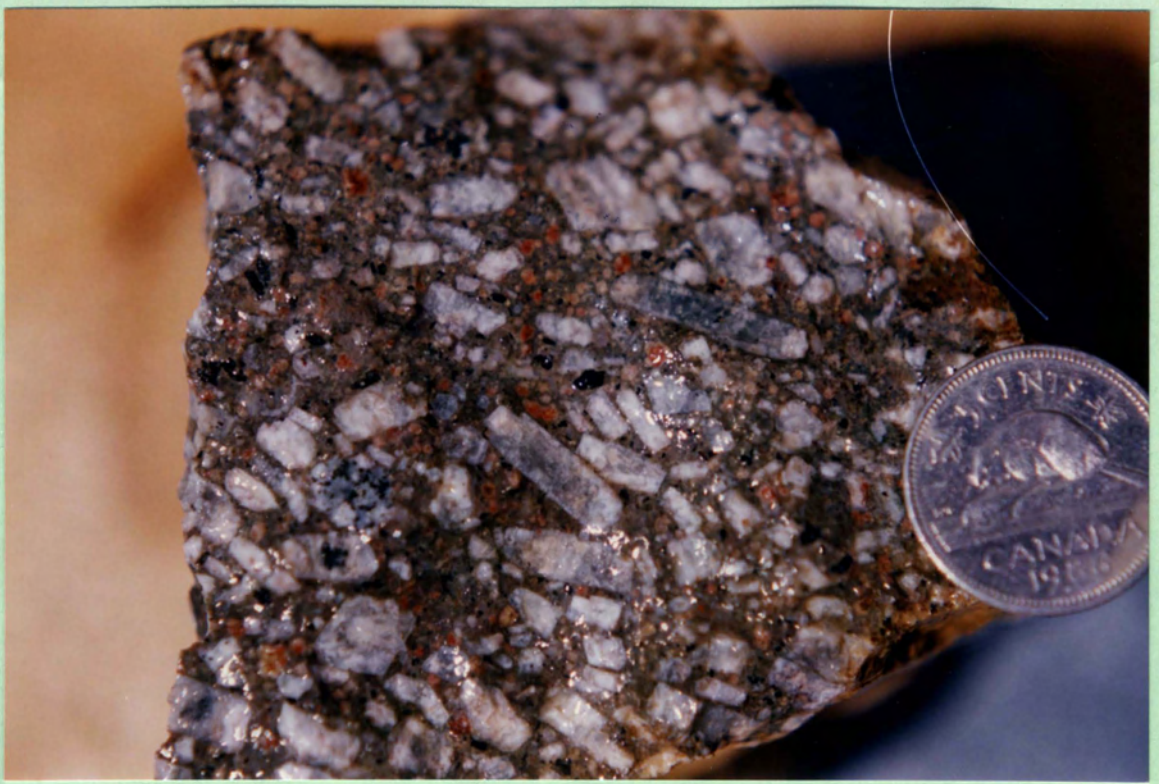
20. GREEN FOID SYENITE WITH SILTSTONE XENOLITH, HOWELL CREEK



21. FLATHEAD, GRID B, MAGNETITE -PYRITE IN PINK TO GREEN SYENITE, HOWELL CREEK



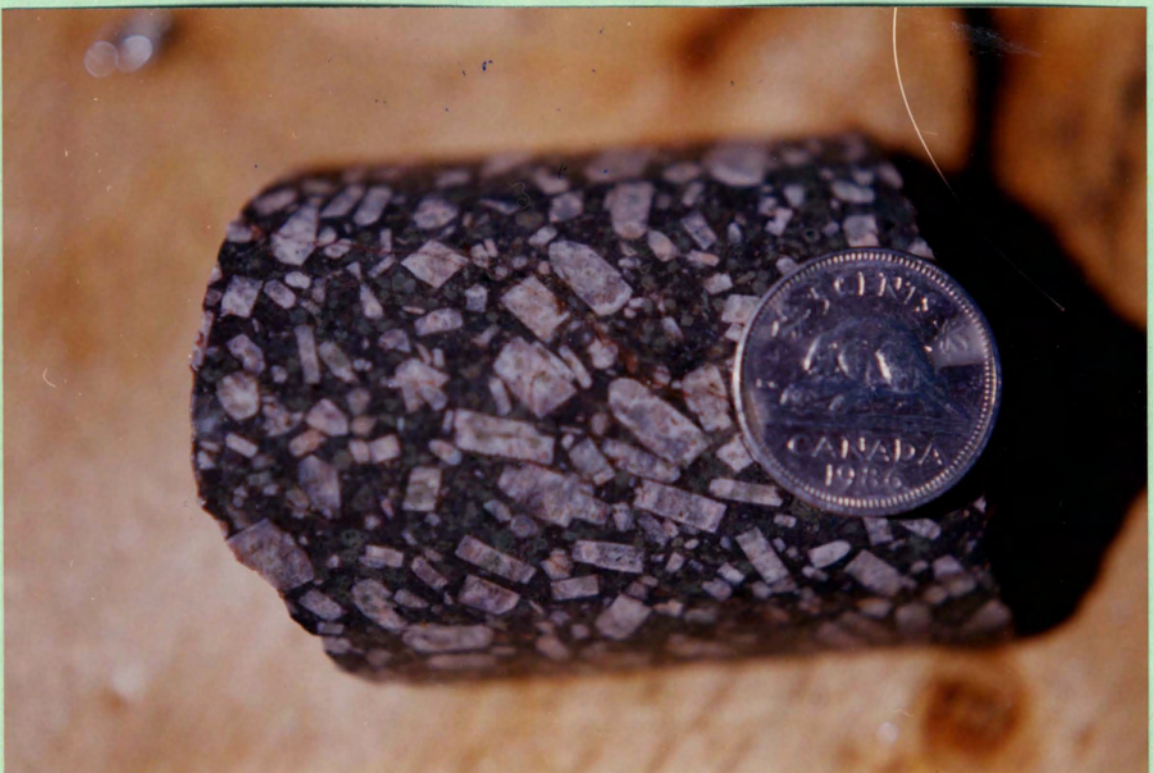
22. MICROSYENITE WITH QUARTZ VEIN STOCKWORK, HOWELL CREEK



23. GREEN FOID IN GROUNDMASS SYENITE, HOWELL CREEK



24. SILICIFIED (BLEACHED) LIMESTONE, HOWELL CREEK



25. PORPHYRITE SYENITE WITH 1 mm EQUANT RED FOIDS (ANALCITE?) HOWELL CREEK



26. GREY MICROSYENITE



27. PYRITE PLUS PURPLE FLUORITE IN BRECCIATED PHILLIPS FMN., HOWELL CREEK



28. PITTED FOID SYENITE, GREEN WITH GREY PITS, HOWELL CREEK



29. SILICIFIED LIMESTONE WITH PYRITE SELVAGES ALONG QUARTZ VEINLETS, HOWELL CREEK