861479

PLACER DEVELOPMENT LIMITED

December 15, 1986

Vancouver Petrographics Ltd.
8887 Nash Street
Fort Langley, B.C.
VOX 1J0

Dear Sir,

I enclose a total of 34 rock chip samples which I would like to have prepared into thin and polished thin sections, as is indicated on the attached list.

I would appreciate it if you would section the samples as soon as possible and return them, with the bill, to myself at Placer Development Limited.

Yours truly,

PLACER DEVELOPMENT LIMITED

R.H. Pinsent

RHP/stm
12.15.86
Enc.

1600 - 1055 Dunsmuir Street, Vancouver, B.C. (604) 682-7082 Telex 04-55181
Mailing Address P. O. Box 49330, Bentall Postal Station, Vancouver, B.C., Canada V7X 1P1

Thin and Polished Thin Sections (1986)

DDH	FOOTAGE	FIELD DESCRIPTION
2	29.5	Basalt (altered)
3	53.8	Basalt (altered)
3	86.5	Pyroxenite (porphyritic)
3	112	Shonkinite
12	6.0*	Syenite
12	13.5*	Syenite
12	16.5*	Shonkinite (magnetic)
12	42.5	Trachyte
12	63.8	Dacite (altered)
14	13.0	Basalt
14	25.6	Basalt
14	79.0	Basalt (feldspathized)
14	132.5	Syenite
15	154.0	Syenite (silicified)
15	161.0*	Syenite (silicified)
17	14.0	Pyroxenite
17	140.5	Pyroxenite
18	75.1	Pyroxenite
20	17.4	Syenite
20	33.1	Syenite
20	47.2	Augite Syenite
21	30.5	Rhyolite
24	34.6	Gabbro
25	94.5	Shonkinite
26	183.3	Andesite
26	285.6	Syenite
27	8.0	Diorite
27	35.3	Pyroxenite
27	207.4	Dacite
27	236.0	Rhyolite
29	20.7	Dacite
31	12.9	Andesite
31	177.0	Pyroxenite (argillized)
	FCOC	Pyroxenite

* Polished Thin Section

Total 30 Thin Sections
4 Polished Thin Sections

V-217

Thin and Polished Thin Sections (1986)

DDH	FOOTAGE
2	29.5
3	53.8
3	86.5
3	112
12	6.0*
12	13.5*
12	16.5*
12	42.5
12	63.8
14	13.0
14	25.6
14	79.0
14	132.5
15	154.0
15	161.0*
17	14.0
17	140.5
18	75.1
20	17.4
20	33.1
20	47.2
21	30.5
24	34.6
25	94.5
26	183.3
26	285.6
27	8.0
27	35.3
27	207.4
27	236.0
29	20.7
31	12.9
31	177.0
	FCOC

* Polished Thin Section

Total 30 Thin Sections
4 Polished Thin Sections

—> Placer.

Harris
EXPLORATION SERVICES

MINERALOGY AND GEOCHEMISTRY

534 ELLIS STREET, NORTH VANCOUVER, B.C., CANADA V7H 2G6 TELEPHONE (604) 929-5867

Job #86-76

Report for: Richard Lonsdale,
Longreach Resources
206-744 West Hastings St.,
Vancouver, B.C.

January 7th, 1987

Samples:

6 rock samples and 2 crushed assay rejects were submitted for petrographic study, with special reference to the mode of occurrence of Pt.

The rock samples were prepared as thin sections and the small cut-off pieces (corresponding to the portions mounted) were analyzed for Pt. Those slides indicated as having significantly elevated Pt contents were completed as polished thin sections to enable observation of the opaque mineralogy.

The crushed reject samples were carefully reduced in size (avoiding excessive production of fines) until they passed 100 mesh. They were then subjected to heavy liquid separation at S.G. 2.95 to obtain heavy concentrates. The latter, which should include the liberated portion of the contained Pt, were further split into magnetic (iron oxide) and non-magnetic (sulfide and heavy silicate) fractions. The total heavies constituted approximately 7% by weight in the case of Sample 26501, and 2% in Sample 26554.

The non-magnetic fractions were analyzed for Pt and portions mounted on glass slides for preparation as polished thin sections. The magnetic fractions in both cases were too small for chemical analysis (0.5 g). This is sufficient, however, to mount for microscopic observation should this be merited.

A cross-reference of sample numbers, slide numbers and preparation type, together with analytical results, is given below:

Sample	Chemical Analyses (ppb) Pt	Pd	Au	Slide No.	Preparation Type
Hole 18-117 ft.	50	36		86-368X	Thin section
18-118 ft.	100	88		369X	Polished thin section
18-128.5 ft	240	620		370X	Polished thin section
18-130.5 ft.	280	580		371X	Polished thin section
Grab: Maple Leaf Main Pit	6000	5400		372X	Polished thin section
Buffalo, Upper Trench	50	36		373X	Thin section
Assay 26501: Non-magnetic heavies	11350	16300	6800	399X	Polished thin section
Assay 26554: Non-magnetic heavies	16100	10250	8900	400X	Polished thin section

Summary:

The rocks of this suite appear to represent various degrees of modification of an ultramafic pyroxenite by what is probably a late magmatic or pneumatolytic/ hydrothermal alkali-rich residual differentiate.

The latter gives rise, by late-stage crystallization in primary pore spaces and by localized assimilation and replacement of the earlier-formed ultramafic host, to a specialized mineral assemblage dominated by K-feldspar and plagioclase. Other constituents which are often prominent in this altered facies (which can perhaps be considered analagous to the development of greisen in a granitic pluton) are biotite or chlorite,garnet, apatite, sphene, carbonate and sulfides.

The sample from the Buffalo showing exhibits the most minor development of the alkalic assemblage. It is an aggregate of fresh clinopyroxene (and accessory hornblende) in which feldspars are confined to scattered, tiny, interstitial pockets.

The samples from DDH 18 at 130.5 ft, 117 ft and 118 ft show progrssively more development of the alkalic phase as micro-scale fracture-controlled and irregular/ patchy segregations. The pyroxene marginal to these felsic spots and streaks, and as inclusions within them, shows more or less intense alteration to green biotite or chlorite with garnet.

In the slide from DDH 18 at 128.5 ft the felsic phase is dominant, pervading and assimilating the pyroxenite host which survives mainly as scattered, strongly altered remnants.

The sample from Maple Leaf Pit represents an extreme case in which virtually none of the ultnamafic phase survives, and the rock has the mineralogy and texture of a monzonite intrusive.

The present suite is rather too small to enable definitive comment on the distribution of the P.G.E. (platinum group elements). It would appear that the copper sulfide mineralization is definitely associated with the alkalic alteration. This may also be true of the P.G.E; however the present study does not permit the assumption that the P.G.E. necessarily follow copper mineralization on a one to one basis.

It is noteworthy that the samples having the highest P.G.E contents (the Maple Leaf grab sample and the concentrates from assay samples 26501 and 26554) appear to be characterized by chalcopyrite without bornite.

This sulfide assemblage (chalcopyrite ± bornite, with essentially no pyrrhotite or pyrite) is clearly not of the type which generally acts as a carrier to Pt in the ultramafic environment. The present brief study yields only limited information as to the mode of occurrence of the P.G.E., although the recognition of a discrete Pt mineral in the form of an arsenide (probably sperrylite) is a definite advance in knowledge.

The presence of garnet and K-feldspar in a pyroxenitic rock may be indicative of affinities with the variety malignite. The name shonkinite appears inappropriate (at least on the evidence of the present samples) as no olivine is seen.

J.F. Harris

J.F. Harris Ph.D.

PHOTOMICROGRAPHS

The first four photomicrographs illustrate features of the mineralogy of the non-magnetic heavy concentrate from assay sample 26554.

The remainder are from sample DDH 18-118 ft. and illustrate features of a felsic segregation with sulfides, the pyroxenite host and the contact alteration between the two phases. These features are typical of those displayed in various proportions in the other samples from DDH 18 and the Maple Leaf material.

Sample	Neg. No.	
Heavy conc. 26554	77-1A	Reflected light. Scale 1 cm = 0.04 mm. Central white grain is sperrylite, $PtAs_2$. Yellow grains are chalcopyrite, some showing partial oxidation to limonite (grey).
	77-3A	Reflected light. Scale 1 cm = 0.04 mm. Central irregular-shaped, bright cream-coloured grain is electrum.
	77-5A	Reflected light. Scale 1 cm = 0.04 mm. Creamy white grain (upper left) is pyrite: note colour difference from sperrylite (in 77-1A) and presence of polishing scratches (i.e. not so hard as sperrylite). Composite grain (lower centre) is of tetrahedrite (light grey) chalcopyrite (appears more orange-coloured than the other chalcopyrite grains, presumably because of tarnishing or incipient alteration) and digenite (dark blue).
	77-6A	Reflected light. Scale 1 cm = 0.04 mm. Light grey grain, composite with chalcopyrite (right centre) is tetrahedrite. Darker grey material intergrown with some of the chalcopyrite grains is iron oxide, and darkest grey (barely distinguishable from background) is silicates.
DDH 18-118'	77-7A	Reflected light. Scale 1 cm = 0.17 mm. Bornite (brownish pink, upper right) with intergrown chalcopyrite (yellow) within a felsic segregation. Matrix is K-feldspar (mottled grey) with concentration of apatite and garnet (higher relief, euhedral grains) adjacent to the sulfides.
	77-8A	Cross-polarized transmitted light. 1 cm = 0.17 mm. Same field as 7A. Opaque sulfides are black. K-spar is mottled light grey. Apatite is even bluish greys (centre bottom) and garnet shows zoned partial anisotropism (striped/angular greys to black: centre left and as fringe to sulfides, lower right centre).

77-10A Reflected light. Scale 1 cm = 0.17 mm.
Similar subject to 7A. Here main area of sulfide is largely chalcopyrite (though some pinkish bornite rimming and as interstitial pockets in silicate matrix). Well-developed fringe of garnet (high relief grey, with cracks) around the chalcopyrite area.

77-11A Plane-polarized transmitted light. Scale 1 cm = 0.17 mm.
Same field as 10A. Clearly shows fringe of garnet (pale brown) and concentration of apatite (colourless high relief prismatic grains) with interstitial sulfides (black). Area at top left is of altered pyroxene (now greenish chlorite/biotite) with intergrown fine-grained garnet (high relief). Note that garnet fringe around main sulfide area (bottom right) shows euhedral faces against the sulfide i.e. it could represent the coating to a vug subsequently infilled by sulfide.

77-12A Cross-polarized transmitted light. Scale 1 cm = 0.17 mm.
Same field as 10A, 11A. Certain features described for the previous photos are more clearly displayed. The light-coloured matrix to the apatite grains is K-feldspar.

77-13A Plane-polarized transmitted light. Scale 1 cm = 0.17 mm.
Area of fresh pyroxenite away from the felsic segregation. Green and yellowish euhedral grains are clinopyroxene. Dark olive-green (right) is hornblende. Small white prisms are apatite, black is magnetite. Brownish clouded light-coloured interstitial pocket (left centre) is K-feldspar.

77-14A Plane-polarized transmitted light. Scale 1 cm = 0.17 mm.
Shows alteration of pyroxene at edge of felsic segregation. Pyroxene (green, right half of photo) changes to secondary biotite (strongly cleaved, brownish; e.g. bottom left - centre, with intergrown fine-grained garnet). Felsic segregation (left) is K-feldspar, apatite and garnet with disseminated sulfides.

77-15A Cross-polarized transmitted light. Scale 1 cm = 0.17 mm.
Same field as 14A.

Non-magnetic heavy mineral concentrates from assay rejects 26501, 26554. (Slides 86-399X, 400X)

Estimated mode

Chalcopyrite	87
Tetrahedrite	trace
Pyrite	trace
Limonitic oxides	1
Malachite	3
Non-opaque minerals	9

The concentrates consist dominantly of liberated particles of chalcopyrite.

Malachite occurs mainly as free grains and occasionally as composites with chalcopyrite and silicates. Minor limonitic oxides occur mainly as composites with chalcopyrite and sometimes as free grains.

The non-opaque minerals appear to be dominantly apatite with lesser feldspars and minor garnet.

Tetrahedrite and pyrite are seen in trace amounts (estimated 0.2%), both as free grains and intergrown with chalcopyrite. The pyrite is sometimes partially altered to limonite.

The sparsely scattered, tiny, creamy-white to white grains appear the only likely candidates for the source of Pt in these concentrates. Seven such grains (of slightly varying appearance and associations) were marked in slide 86-400X and checked for composition by scanning electron micro-analysis. All but one proved to be simply pyrite. The seventh - a 60 micron euhedral, well-polished grain - proved to be a platinum arsenide, probably sperrylite. An irregular-shaped 70 micron grain of *gold was also identified in this slide. No further grains of these, or other, precious metal phases were found despite extensive scrutiny.

One might feel that in material analysing 16,000 ppb (16 ppm), discrete Pt mineral grains should be more evident. A simple arithmetic approximation shows, however, that this is not the case. Counting indicates that the areal density of the grain dispersion on the slide averages about 20 grains per sq. mm. The total area is about 720 sq. mm, so the slide contains about 14,400 grains. In terms of numbers of grains, the analysis represents a frequency of 16 grains of Pt per 1,000,000 grains - i.e. 1 grain in 65.000. Thus one can be counted rather fortunate to have located even one grain of $PtAs_2$ in the 14,000 making up the slide.

In comparison with the other samples studied in this suite, two features of the mineralogy of these concentrates are noteworthy. These are the apparent total lack of bornite as an associate of the chalcopyrite, and the strong predominance of apatite and apparent absence of pyroxene among the non-opaque constituents.

* Actually the Ag-rich variety, electrum.

Sample DDH 18-117 ft. (Slide 86-368X)

Estimated mode

Clinopyroxene	58
Hornblende	6
Biotite	10
K-feldspar	3
Plagioclase	7
Garnet	6
Apatite	2
Sphene	2
Epidote	trace
Carbonate	1
Magnetite	5
Sulfides	trace

This rock is made up dominantly of a compact aggregate of stubby, euhedral, prismatic grains of a pleochroic (pale green-yellowish) clinopyroxene in the size range 0.5 - 3.0mm.

A strongly pleochroic (straw-coloured to dark olive green) hornblende is a minor intergrown constituent, generally anhedral and in interstitial relation to the pyroxene.

Plagioclase, as well-twinned masses or fine granular aggregates, together with pockets of K-feldspar, fill the angular interstices between pyroxene grains.

The rock shows patchy, lighter-coloured areas of modified mineralogy, probably representing segregations of late magmatic/deuteric origin. In these areas pyroxene is partially or wholly replaced by a green biotite (sometimes with traces of epidote) and the feldspathic constituents are relatively more abundant. Also there is prominent development of irregular masses of a brownish anisotropic garnet. This forms discrete segregations and also occurs intimately intergrown with the feldspars and the green biotite.

Accessory minerals in this rock are notably abundant. They consist of apatite (as euhedral individuals), sphene as rather coarse anhedral masses, and magnetite as clusters of euhedral grains to 1.0mm in size, sometimes with inclusions or fracture fillings of the matrix minerals.

The above accessories, and also the garnet, occur throughout, in interstitial relation to the pyroxene, but are markedly more abundant in the lighter-coloured, pyroxene-poor segregations.

Traces of fine-grained sulfides are seen, mainly in general association with the clusters of magnetite.

The rock is cut by a few hair-line veinlets of carbonate.

Sample DDH 18-118 ft. (Slide 86-369X)

Estimated mode

Clinopyroxene	44
Hornblende	6
Biotite) Chlorite)	3
Plagioclase	12
K-feldspar	13
Carbonate	6
Garnet	4
Apatite	3
Sphene	2
Epidote	1
Magnetite	2
Chalcopyrite	2
Bornite	2

This is a very similar type of rock to the previous sample, but with a larger, more discrete segregation of the leucocratic, pyroxene-poor phase. This latter forms a prominent, roughly equidimensional patch, 15 X 15mm in size, within the dark green, 'normal' pyroxenite matrix.

The pyroxenite is an aggregate of individual subhedral to euhedral grains of green clinopyroxene, 0.5 - 4.0mm in size. The angular interstices between pyroxene grains are filled sometimes by dark olive-green hornblende, and sometimes by feldspars and carbonate. Accessories such as apatite, sphene and magnetite complete the interstitial phase.

Magnetite, minor apatite and sphene also occur as droplet-like inclusions within pyroxene crystals.

The central light-coloured segregation is somposed largely of coarse-grained plagioclase and pethitic K-spar, with extensive pockets of fine-grained carbonate. The same brownish anisotropic garnet as seen in the previous sample forms irregular patches, occasional growth-zoned subhedra, and areas of intimate intergrowth with the other constituents. Epidote, as small granules and euhedra, is a minor but noticeable component of this assemblage.

The pyroxene marginal to the leucocratic segregation shows partial or complete alteration to green biotite and/or chlorite. Individual grains of altered pyroxene, now pseudomorphed by biotite with intergrown garnet, sometimes with epidote and carbonate, are seen as islands within the segregation.

Concentrated clusters of apatite and sphene occur within the segregation but magnetite appears impoverished compared with the pyroxenite phase.

Sulfides are notably confined to the leucocratic segregation. They consist of simple intergrowths of chalcopyrite and bornite in various proportions, as relatively coarse patches up to several mm in size, and also as fine-grained intergrowths, especially with garnet, apatite and sphene. The coarse patches sometimes show what appear to be overgrowths of growth-zoned garnet.

A few late carbonate veinlets and replacement zones cross-cut the pyroxenite and the contained felsic segregation.

Sample DDH 18-128.5 ft. (Slide 86-370X)

Estimated mode

Pyroxene	20
Hornblende	3
Chlorite	12
Carbonate	10
Garnet	18
Plagioclase	12
K-feldspar	16
Apatite	4
Sphene	1
Epidote	1
Chalcopyrite	3
Bornite	trace

This is a rock of similar mineralogy to the previous samples but appears to represent a more pervasive development of the leucocratic phase seen previously as more or less discrete segregations.

In this sample the latter phase is actually the dominant one. Pyroxene survives locally as areas of rather coarse anhedral aggregate (texturally distinct from the interlocking euhedra of the previous samples). For the most part it is host to intimate intergrowths of garnet, chlorite and feldspars, and in much of the rock has been totally assimilated and replaced by these minerals.

The bulk of the rock consists of a heterogenous intergrowth of plagioclase, K-feldspar and carbonate with abundant clusters of apatite, clumps of garnet, and scattered, coarse, anhedral sphene. Remnants of pyroxene grains are recognizable, now totally altered to chlorite, garnet and minor epidote. The plagioclase is partly in the form of granular, vug-like pockets of well-formed, water-clear crystals.

The garnet in this rock is strongly growth-zoned, and includes two distinct varieties (sometimes in zonal intergrowth). One is the pale brown anisotropic form seen in the previous slides, and the other is a darker brown isotropic form (melanite).

Sulfides occur as randomly scattered, irregular-shaped grains. They are largely chalcopyrite. The sulfide grains or clumps are commonly mantled by growth-zoned garnet.

Magnetite appears to be absent.

Carbonate locally forms irregular cross-cutting veinlets, and there are a few diffuse zones of micro-brecciation/granulation.

Sample DDH 18-130.5 ft. (Slide 86-371X)

Estimated mode

Pyroxene	59
Hornblende	5
K-feldspar	5
Plagioclase	3
Apatite	3
Sphene	1
Carbonate	12
Garnet	4
Chlorite	1
Magnetite	5
Hematite	trace
Chalcopyrite	1
Bornite	1

This sample is mainly a normal, homogenous, pyroxenite.

It consists dominantly of an interlocking aggregate of subhedral, green clinopyroxene of grain size 0.5 - 3.0mm. This contains the usual minor porportion of intergrown hornblende and a finely dispersed interstitial phase of feldspars and carbonate. Locally it contains minor amounts of intergrown brown garnet.

Disseminated magnetite, as subhedral equant grains 0.05 - 0.3mm in size, locally clumped and as coalescent networks, is rather abundant. Apatite is a common associate. The magnetite occasionally shows a partial alteration to hematite.

The slide contains a central zone of fracturing and alteration distinguished by carbonate veining and an enrichment in the interstitial/accessory components, and by the development of irregular patches of growth-zoned garnet. The pyroxene marginal to this zone shows partial alteration to chlorite.

Sulfides are developed within (and are confined to) the central altered zone. They consist of intimately intergrown chalcopyrite and bornite, often impregnating granular clusters of apatite, sphene, garnet and garnetized pyroxene. Garnet commonly appears to form rims or contact/reaction zones to sulfide grains.

Magnetite is absent from the actual zone of alteration and sulfide development, but shows a strong build-up adjacent to it.

The rock is also rather extensively cut by irregular veinlets and pockets of a fibrous-textured carbonate which are unaccompanied by the sulfide-garnet alteration.

Grab Sample: Maple Leaf Main Pit (Slide 86-372X)

Estimated mode

Plagioclase	20
Felsite (?)	16
K-feldspar	30
Sericite	trace
Sphene	3
Apatite	1
Chlorite	18
Chalcopyrite	8
Limonite	2
Malachite	2

This is a rock of significantly different type from the previous samples in the suite.

It is composed dominantly of feldspars, partly in the form of coarse prismatic K-spar euhedra (prominently apparent on the surface of the stained slabs). The K-spar is intimately intergrown with plagioclase (generally rather fine-grained) and with patches composed of chlorite intimately intergrown with a low birefringent mineral of uncertain nature (possibly feldspar) and with fine-grained sphene and leucoxene. These chloritic masses often have more or less well-defined prismatic outlines and are probably altered mafics (pyroxenes?).

A microgranular/felsitic phase (possibly the same as is intergrown with the chlorite) forms patches and networks throughout the coarser feldspar aggregate.

Sphene is a common accessory, as disseminated euhedra of typical lozenge-shaped form. Apatite is much less abundant than in previous samples and magnetite is apparently absent.

Garnet, which is a distinctive component of the feldspathic alteration/segregation phase in the previous samples, also appears to be lacking, as does carbonate.

The feldspars show rare localized patches of weak sericitic alteration.

The slide contains a segregation of sulfides at one end. These are essentially monomineralic chalcopyrite. The coarse patch of chalcopyrite is traversed by veinlets and interstitial pockets of what appears to be microgranular albite and by limonite. Chalcopyrite also occurs as fine-grained disseminations throughout the slide, commonly showing strong rim alteration to limonite.

Malachite is seen as scattered amall flecks and impregnations.

No mineral phase was found to explain the high Pt analysis (6,000 ppb).

Grab Sample: Buffalo Upper Trench (Slide 86-373X)

PYROXENITE

Estimated mode

Pyroxene	80
Hornblende	9
Plagioclase	2
K-feldspar	1
Apatite	1
Sphene	2
Magnetite	5

This is a fresh pyroxenite consisting essentially of a compact aggregate of subhedral to anhedral, stubby, prismatic grains of clinopyroxene, 0.5 - 3.0mm in size. The pyroxene is a pale green pleochroic variety, sometimes with colourless cores.

Strongly pleochroic, straw-coloured to dark olive-green hornblende forms irregular intergrown patches and random flecks through the pyroxene aggregate.

Non-mafic constituents are minor. They consist of anhedral plagioclase and K-feldspar filling small interstitial pockets.

Magnetite is the most abundant accessory, as disseminated subhedral grains in mainly intergranular relation to the pyroxene matrix. These are often clumped and occasionally coalesce to form networks partially outlining pyroxene grains.

Sphene, as scattered, rather large anhedral grains, and apatite as tiny euhedra are both commonly associated with the magnetite.

Pt. Blonde Drilling 1986

1) Note: Progression:
Pyroxenite ⇒ Shonkinite
⇒ Augite Syenite ⇒ Syenite
shows decrease in augite.

2) Note: Syenite occurs as late dykes: felsic rocks generally intrude more mafic.

3) Note: equigranular, non-flow banded, augite syenite commonly granulated & cut by zones of cataclasis
Shear felspars = ground up
in matrix rock flow
[illegible].
Flow banded rocks much less cataclastically deformed?
– possibly more plastic to start with.

6) Note: best pyrite content commonly coarse blebs in mafic - poor syenite dykes.

best chalcopyrite content commonly in pyroxenite or pyroxenite inclusions in syenite

7) Note
System quartz poor except for rare alteration zones
- principal alteration
= sericitization of anorthite
= chloritization of feldspar + pyroxene
= Kspar veining in association with syenite
= Calcite veining
→ carbonitization
= Hematitization along fractures → in groundmass
= Minor epidote → clay alteration of feldspar. —

4) Note: Locally pyroxenite
=> feldspathic pyroxenite
=> gabbro
though increase in
plagioclase! — rocks
commonly altered to
biotite, chlorite, "fresh(?) plag."

above suite commonly
contains fine-grained
pyroxenite or basalt(?)
with large poikilitic
augite phenocrysts.

above intermixed as
inclusions in altered
zones in augite syenite

5) Note: Mafic syenites
"digest" pyroxenite,
mafic-poor syenite
intrudes pyroxenite