LITHOGEOCHEMICAL REPORT

ON THE

VANANDA PROPERTY

TEXADA ISLAND

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VANCOUVER, B.C.

NTS 92F/10 & 15

Latitude: 49° 45' North
Longitude: 124° 32' West

NANAIMO MINING DIVISION

for

CONSOLIDATED VAN ANDA GOLD LIMITED
Suite 1100 – 475 Howe Street,
Vancouver, British Columbia
V6C 2B3

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28th October, 2003

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1.0 Summary

In the late 1980s, Consolidated Van Anda Gold Limited (operating under the name of Vananda Gold Limited) owned a large block of tenures on Texada Island. The tenured area included four relatively-small past-producing "Cu" and "Cu-Au" skarn deposits (Marble Bay (092F270), Little Billie (092F105), Cornell (092F112) and Copper Queen (092F271)), near Vananda; four, large past-producing "Fe" skarn (magnetite) deposits (Paxton (092F107), Prescott (092F106), Yellow Kid (092F258) and Lake (092F259)) near Gillies Bay, and several other less developed prospects.

Vananda Gold Limited optioned the property to Freeport McMoRan Gold Corp. in 1988 and the latter spent over $1.3 million over three years in exploring the area. Its primary objective was the discovery of precious-metal enriched sulphide zones peripheral to the "Fe" skarn deposits near Gillies Bay. However, it did some drilling around the "Cu" and "Cu-Au" skarn deposits near Vananda, and added to the known resource at the Little Billie Mine.

At the time, it was generally believed that all the Texada skarn deposits were related to "island-type intrusions", such as the Gillies Bay stock (178 ma) and that they were formed during a single, Jurassic, event. However, that is now known to be unlikely as Ray and Webster (1997) have shown that the Little Billie stock, which controls the mineralization in the Little Billie mine, is Cretaceous (120 ma) in age. The age of the fluid that generated the sulphide-rich "Cu-skarn" (Marble Bay, Copper Queen) deposits is less certain but most likely Cretaceous.

The present lithogeochemical study addresses a number of geological questions. Sixteen drill-core samples from five different igneous rock units were examined petrographically and submitted to the TeckCominco Ltd. Exploration Research Laboratory, in Vancouver, for whole-rock and trace element analysis. The geochemical results were examined for internal consistency and were compared with published data for related rocks found elsewhere in the Insular Belt of the Cordillera.

One sample, from the bottom of diamond drill hole T89-8, clearly shows that the hole cored through to the base of the Quatsino Formation and penetrated basalt at the top of the Karmutsen Formation.

Five samples of dark-green andesite, selected from dykes that cut limestone near the Little Billie and Copper Queen skarn deposits, belong to a single population and are similar in composition to Bonanza Formation volcanic rocks on Vancouver Island. Three samples of Cornell mafic-diorite were found to be broadly similar in composition to other mafic-diorite bodies in the Vananda area, including those at Marble Bay, Cemetery and Florence. They are extremely mafic but are most likely derived from the same magma as the Bonanza dykes and the Gillies stock.

Three samples of "feldspar-porphyry diorite" (FPD), collected from dykes peripheral to the Little Billie stock, and four samples of "biotite-rich quartz diorite" (BQD), obtained

from the stock itself (Forster and Cranswick, 1989), are indistinguishable in terms of chemical composition. Together, they show that the Little Billie stock is far richer in silica than either the Cornell mafic-diorite or the Gillies stock.

The "Cu" and "Cu-Au" skarn deposits (Marble Bay, Copper Queen, Little Billie etc.) in the Vananda area formed close to a major, near-vertical, fault (Marble Bay Fault). The geological setting is similar to that of the "Big Gossan" skarn deposit at Ertsberg, West Papua, which is strongly, vertically and laterally zoned. The Vananda deposits may have formed near the top of a similar hydrothermal system. If so, they should have considerable mineral potential, at depth.

2.0 Introduction

2.1 General Statement

The Vananda skarn deposits have had a long history of exploration and development, most recently by Freeport McMoRan in the mid-late 1980s and Vananda Gold Limited in the early 1990s. Their work, which included drilling on and off the currently defined property are described by Forster (1989a, b, 1993) and Forster and Cranswick (1989).

The current lithogeochemical program was completed using samples collected from core stacked near Consolidated Van Anda Gold's core-shack, beside the Ideal/Holnam limestone quarry on the west side of Texada Island. The samples were collected during a property visit conducted between 20th and 23rd January, 2003.

2.2 Location and Access

The Vananda property encompasses the small coastal community of Vananda, on Texada Island. It is at latitude 49° 45' north, 124° 33' west (NTS 092F 10 & 15) on the west side of Malaspina Strait, approximately 120 kilometres to the northwest of Vancouver and 10 kilometres due south of Powell River, British Columbia (Figure 1).

There is a scheduled ferry service from Powell River to Blubber Bay, at the north end of the Island and the property area is well served for roads. There is also an air strip near the community of Gillies Bay that provides services to the Lower Mainland and Vancouver Island. Texada Island has produced minerals for over a hundred years. The four small, high-grade, "Cu" and "Cu-Au" skarn deposits on the Vananda property (Marble Bay, Cornell, Copper Queen, Little Billie) produced between 1896 and 1929. There after, the four "Fe" skarn deposits in the vicinity of Gillies Bay (Prescott, Yellow Kid, Paxton and Lake) produced magnetite between 1952 and 1970. At the same time, there has been almost continuous limestone production from several large and small quarries (Lafarge, Ideal, Imperial, etc.) since 1911. The limestone producers currently have both shallow and deep-water load-out facilities.

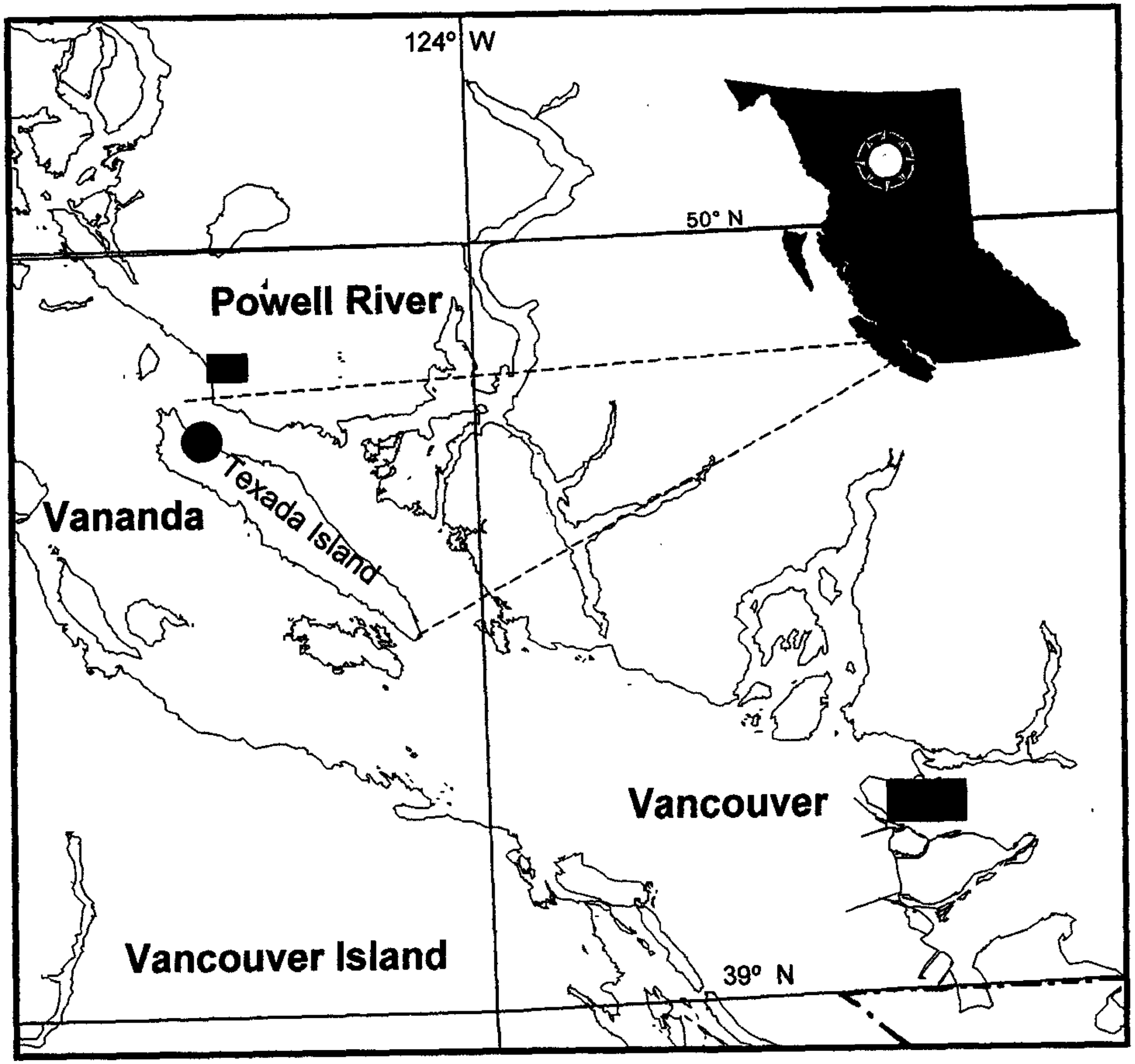

Figure 1: Regional Location Map, Vananda Property.

2.3 Topography, Vegetation and Climate

The north half of Texada Island has moderate, hummocky, topography that has locally been severely modified through quarrying and other human activity. The Vananda property area ranges from sea level to a maximum elevation of approximately 200 metres. It straddles a northwesterly trending fault zone that is locally marked by linear scarps and depressions. The soil cover is generally thin, except in well defined valleys, and undisturbed ground is generally lightly to densely-forested. The climate is temperate. There are short periods of snow-fall in the winter but most of the precipitation occurs as rain, which is particularly abundant in the fall and winter. The island receives approximately 75 centimetres of rain a year.

2.4 Claim Disposition

The Vananda property has been substantially reduced in size since the late 1980s. As it now stands, it covers an area of approximately 500 hectares, immediate south and west of Sturt Bay. It consists of the eight located mineral claims, two mining leases and twenty two crown granted mineral claims listed in Table 1 and shown in Figure 2. The tenures are owned by Consolidated Van Anda Gold Limited. They are grouped with the Bat 1-4 claims owned by Mr. Stanley L. Beale.

3.0 Geology

The geology of the north end of Texada Island area is well described by McConnell (1914) and Webster and Ray (1990a, b), and by numerous company geologists but, most notably, by Peatfield (1987) and Bradford (1989).

Simply put, Texada Island is underlain by an incomplete section through Wrangellia Terrane. The central portion of the Island is underlain by a thick package of basalts that are indistinguishable from those of the Karmutsen Formation on Vancouver Island. These rocks over-lie a small exposure of arc-related volcanic and sedimentary rock (analogous to the Sicker Group found on Vancouver Island) at the very south end of the Island, and are conformably overlain by a thick package of remarkably clean, recrystallized limestone. This unit, which is similar to the Quatsino Formation on Vancouver Island, has been eroded way over much of the Island but remains as a relatively flat-lying, fault disrupted, slab at its north end.

There are no Bonanza Formation equivalent volcanic rocks overlying the limestone on Texada Island. However, the basalt and limestone appear to be cut by Bonanza-age and composition equivalent dykes and intrusions. The Gillies stock, which generated the "Fe" skarn deposits at Paxton, Prescott, Lake and Yellow Kid has produced a zircon U/Pb age of 178 ma. It is a typical member of the "Island Intrusion" suite, as defined from work on Vancouver Island.

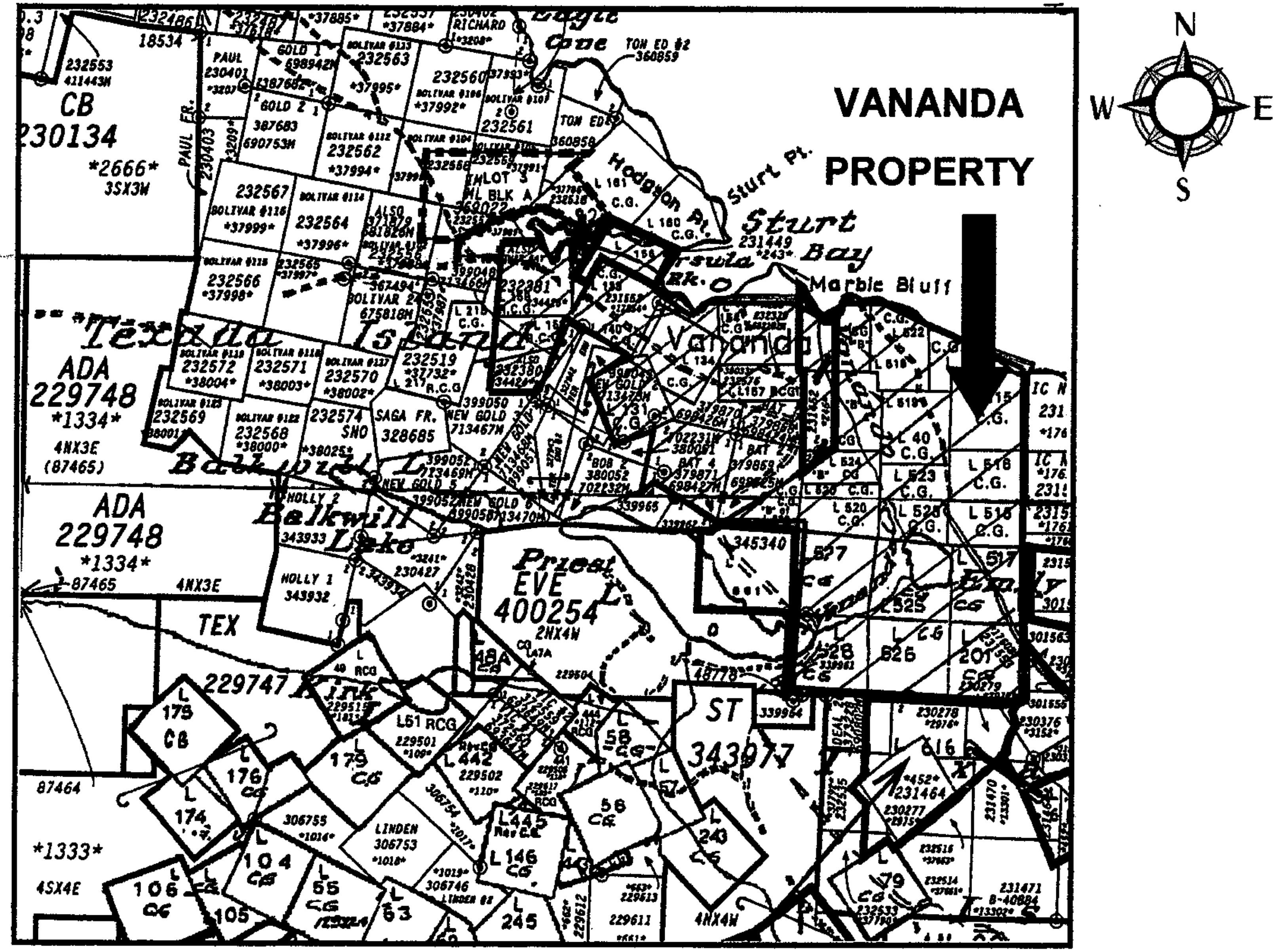

Figure 2: Claim Location Map 92F/10 & 15

1.0 km

TABLE 1
LIST OF MINERAL TENURES

LEASE NAME	TENURE #	SIZE (Hectares)	ANNIVERSARY
243 (Cinnabar)	231449	14.16	June 4th, 2004
246 (Vananda)	231452	19.59	July 30th, 2004

CROWN GRANTED MINERAL CLAIMS

NAME	LOT#	GRANT #	SIZE (Hectares)
Copper Queen	40	22632H	19.68
Volunteer	131	9976E	18.26
Europe	133		20.88
Great Copper Chief	134	99761E	17.13
Toothpick Fr.	140	99761E	0.67
Marble Bay	154	190401M	16.67
McLeod #6	518	60968M	19.19
McLeod #7 (B)	519	60968M	20.12
McLeod #2 Fr.	522	54531M	15.05
McLeod #8	520	54526M	11.87
Lap #1 Fr.	523	54525M	16.6
Lap #5	527	54521M	20.89
Lap #3 Fr.	525	54523M	20.83
Lap #8 Fr. (B)	530	60968M	7.59
McLeod #3	515	54530M	20.85
McLeod #4	516	54529M	20.78
McLeod #5	517	54528M	20.88
McLeod #1 Fr.	521	54532M	13.52
Lap #4	526	54522M	20.86
Lap #6	528	54520M	20.9
Cornell	201	22633H	20.9
Lap #2 Fr. (B)	524	60968M	9.62

MINERAL TENURES

CLAIM NAME	TENURE #	AREA	ANNIVERSARY**
Sturt Bay #1	232380	1 unit	11th August 03
Sturt Bay #2	232381	1 unit	11th August 03
True Fr.	231552	1 unit	11th August 03
Marble Bay Fr. #2	232379	1 unit	11th August 03
Bat #1*	379868	1 unit	11th August 03
Bat #2*	379869	1 unit	11th August 03
Bat #3*	379870	1 unit	11th August 03
Bat #4*	379871	1 unit	11th August 03

* Tenures owned by Mr. S. L. Beale

** Date prior to this report

4.0 Lithogeochemistry

The current program, which examines the lithogeochemisty of the principal igneous rocks in the area, is designed to answer specific questions regarding their nature and affinity.

The sixteen NQ drill-core samples listed in Table 2 and described in Appendix I were selected for analysis based on their apparent homogeneity and freshness. Samples approximately 100 mm in length were sent to the TeckCominco Research Laboratory, in Vancouver, for processing. They were crushed and milled to 90% less than 2mm grain-size (10 mesh) and a 250 gram split was then pulverized to 90% less than 150 mesh using a chrome steel ring mill. The powder was fused with lithium borate and the resulting disc was subjected to X-ray fluorescence analysis for the principal rock forming elements (including total iron). This methodology allows for a detection limit of 0.01% for each element. The ferrous iron content of the rock was determined by wet chemistry, using potassium dichromate. The "wholerock" analyses are listed in Table 3.

The samples were also analyzed for the "wholerock add-on" package of elements (Rb, Sr, Y, Zr, and Nb) most commonly used in rock-type discrimination diagrams. The results were obtained from a compressed powder pellet using X-ray fluorescence. The process provides a 5 ppm detection limit for each of the elements. The results are listed in Table 4.

The samples come from diamond drill core from nine holes drilled over a six year period. Two samples (T84-1-209, T84-4-150) were selected from holes drilled in the Cornell area in 1984. Four (T88-1-31, T88-1-394, T88-4-357, T88-4-375) samples come from holes drilled in the Little Billie area in 1988, and the remaining ten, of which nine (T89-8-625, T89-9-235, T89-9-236, T89-9-351, T89-10-170, T89-13-294, T89-16-459, T89-16-507 and T89-16-552) come from the Little Billie area and one (T89-12-166) comes from the Cornell area, are from holes drilled in 1989. Sample T89-9-236D is a duplicate of T89-9-236 submitted to assess reproducibility. Note that sample T88-4-357 is mislabeled as "T88-4-375B" in Tables 3 and 4; however it is plotted under its correct number. Drill site locations are shown in Figure 3. There are local inconsistencies between some of the drill logs (where available) and the sample labels, possibly caused through weathering and disturbance of the boxes (T89-9-235 and T89-13-294). However, the lithologies are readily recognizable and this does not invalidate the project.

The samples were chosen to provide representative analyses of the principal magmatic rock-types found in the Vananda area. They include a single sample of probable Karmutsen basalt (T89-8-625); three samples of mafic-diorite from the Cornell stock (T84-1-209, T84-4-150 and T89-12-166); five mafic dyke samples (T89-9-235, T89-10-170, T89-13-294, T89-16-459 and T89-507) of probable Bonanza Formation age; three samples collected from feldspar porphyry dykes (FPD) associated with the Little Billie stock (T88-4-375, T88-1-31 and T89-9-236) and four samples of the stock itself (T88-1-394, T88-4-375, T89-9-351 and T89-16-552). The samples reflect three periods of

TABLE 2

LIST OF CORE SAMPLES ANALYZED

T89-8: 621.8-627.0 (EOH): [T89-8-625]: Box 107: Karmutsen Basalt.

T84-1: @209 ft.: [T84-1-209]: Box 9: Mafic Intrusion: Cornell Stock
T84-4: @150 ft.: [T84-4-150]: Box 6: Mafic Intrusion: Cornell Stock
T89-12: @165.8m: [T89-12-166]: Mafic Intrusion: Cornell Stock

T88-1: 393-395 (EOH): [T88-1-394]: Box 70: Little Billie Stock: BQD
T88-4: 371-375.8 (375m): [T88-4-375]: Box 65: Little Billie Stock: BQD
T88-4: 354.4-359.9 (359m): [T88-4-357]: Box 62: Little Billie Stock: FPD*
T88-1: 30.5-35.7 (31m): [T88-1-31]: Box 6: Little Billie Stock FPD
T89-9: 349-351.6 (EOH): [T89-9-351]: Box 64: Little Billie Stock: BQD
T89-9: 232.6-237.5 (236.4m): [T89-9-236]: Box 43: Little Billie: FPD/BQD
*T89-9: 232.6-237.5 (236.4m): [T89-9-236B]: Box 43: Little Billie: FPD/BQD***
T89-16: 548.2-553.2 (552m): [T89-16-552]: Box xx: Little Billie Stock: BQD

T89-9: 232.6-237.5 (235m): [T89-9-235]: Box 43: Mafic Dyke***
T89-10: 168.8-174.5 (170m): [T89-10-170]: Box 30: Mafic Dyke
T89-13: 291.8-297.2 (294m): [T89-13-294]: Box 53: Mafic Dyke***
T89-16: 453.6-459.5 (459m): [T89-16-459]: Box 82: Mafic Dyke
T89-16: 503.6-509.2 (507m): [T89-16-507]: Box 91: Mafic Dyke

* Sample mislabeled as T88-4-375B in Tables 2 and 3 but plotted under its correct number in the relevant figures.
**Duplicate sample submitted as a control on the analysis. It is not plotted.
*** Possible labeling inconsistency due to weathering of core boxes.

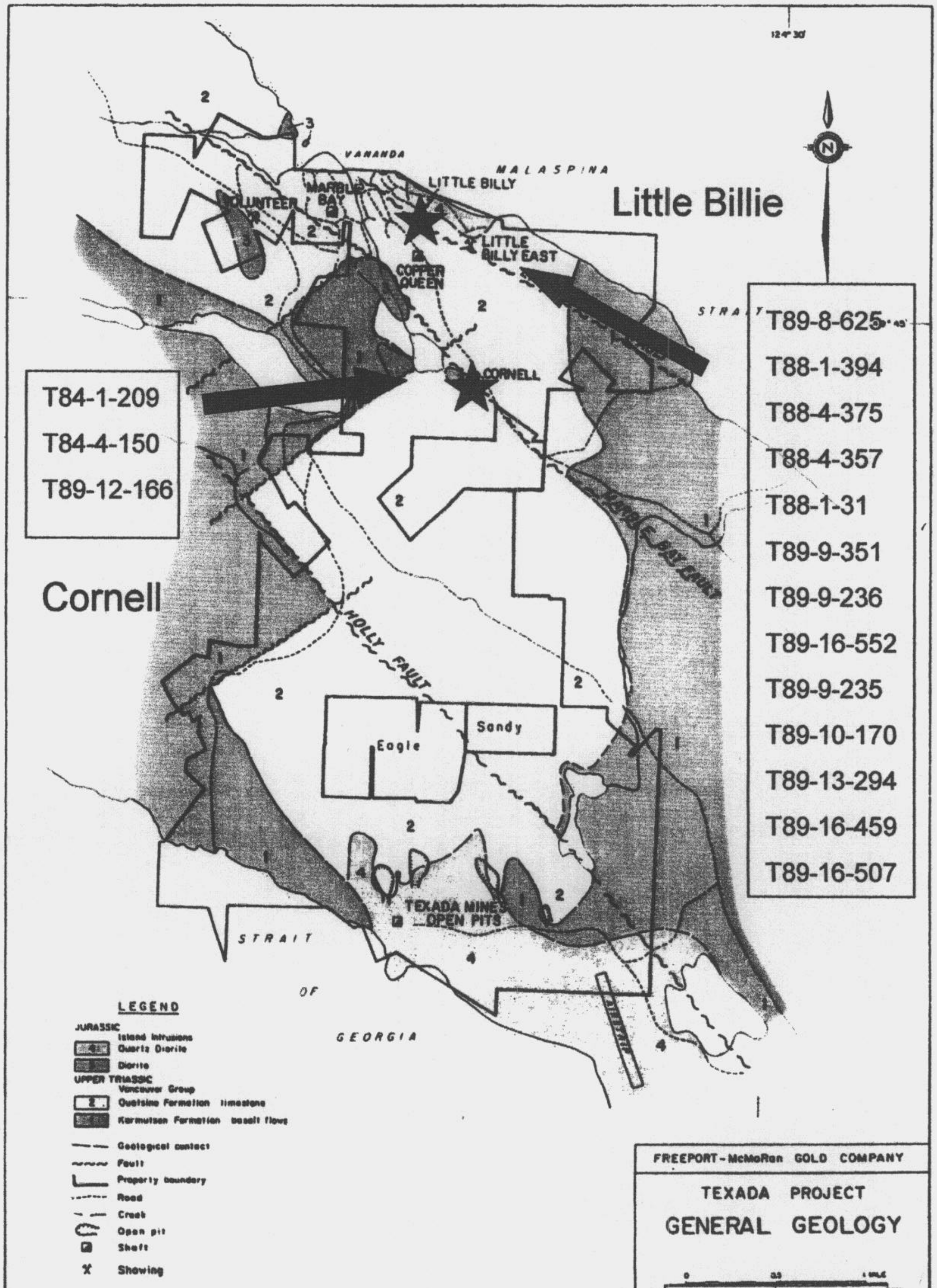

Figure 3: General geology and Vananda property (circa 1990) map showing the approximate location of the drill sites and samples analyzed.

TABLE 3

WHOLEROCK MAJOR ELEMENT ANALYSES OF VANANDA AREA ROCKS

Elements	SiO2	TiO2	Al2O3	Fe2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	Ba	LOI	Total
Units	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Method	XRF1	XRF1	XRF1	XRF1	TIT	XRF1	XRF1	XRF1	XRF1	XRF1	XRF1	XRF1		Sum
Lab.	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com
Sample #														
Karmutsen (?)														
T89-8-625	48.54	1.87	14.46	2.64	7.42	0.14	7.92	9.44	3.23	0.31	0.17	0.01	3.40	99.55
Cornell Stock														
T84-1-209	47.74	1.09	14.36	5.09	5.74	0.20	7.34	11.27	2.94	0.79	0.23	0.05	2.61	99.45
T84-4-150	43.45	1.44	14.92	6.96	5.48	0.18	8.64	12.77	2.29	0.80	0.62	0.03	2.07	99.65
T89-12-166	44.22	1.69	14.76	5.70	5.63	0.20	8.18	11.98	2.01	1.27	0.72	0.05	3.05	99.46
Mafic Dykes														
T89-9-235	55.72	0.77	18.67	3.56	3.17	0.12	3.42	7.71	3.02	0.68	0.15	0.04	2.58	99.61
T89-10-170	51.52	0.76	17.75	3.15	3.89	0.11	4.23	8.73	2.95	0.70	0.11	0.02	5.62	99.54
T89-13-294	52.97	0.70	18.57	3.26	4.65	0.11	3.49	7.46	4.11	0.37	0.18	0.02	3.65	99.54
T89-16-459	60.95	0.54	17.14	3.14	2.78	0.10	1.87	5.48	4.80	1.14	0.17	0.06	1.33	99.50
T89-16-507	61.41	0.55	17.37	2.55	3.27	0.10	1.88	5.46	4.51	1.22	0.18	0.05	0.97	99.52
Little Billie Stock														
(BQD)														
T88-1-394	68.16	0.36	15.19	1.58	2.01	0.05	1.38	3.67	4.26	1.99	0.10	0.07	0.84	99.66
T88-4-375	67.70	0.37	15.36	1.23	2.21	0.05	1.48	3.59	4.30	1.96	0.10	0.07	1.39	99.81
T89-9-351	68.47	0.37	15.21	2.45	1.24	0.05	1.29	3.56	4.23	2.03	0.10	0.07	0.60	99.67
T89-16-552	67.94	0.38	15.34	2.04	1.69	0.05	1.36	3.50	4.34	1.87	0.09	0.07	0.91	99.58
(FPD)														
T88-4-375B*	69.27	0.34	14.78	1.81	1.49	0.05	1.33	3.36	3.97	2.35	0.09	0.07	0.91	99.82
T88-1-31	68.40	0.28	15.15	2.09	1.06	0.05	0.93	3.53	4.26	2.69	0.10	0.08	0.98	99.60
T89-9-236	68.01	0.37	15.25	1.63	1.92	0.05	1.50	3.44	4.11	1.90	0.10	0.06	1.33	99.67
T89-9-236D**	67.93	0.36	15.15	2.08	1.48	0.05	1.52	3.42	4.03	1.91	0.10	0.06	1.56	99.65

TABLE 4

MINOR ELEMENT ANALYSES OF VANANDA ROCKS

Elements	Rb	Sr	Y	Zr	Nb
Units	ppm	ppm	ppm	ppm	ppm
Method	XRF2	XRF2	XRF2	XRF2	XRF2
Lab.	Com	Com	Com	Com	Com
Sample #					
Karmutsen (?)					
T89-8-625	24	477	15	118	<5
Cornell Stock					
T84-1-209	19	607	27	99	<5
T84-4-150	24	638	26	66	<5
T89-12-166	29	653	27	90	<5
Mafic Dykes					
T89-9-235	28	483	25	113	<5
T89-10-170	22	562	17	103	<5
T89-13-294	22	509	11	79	<5
T89-16-459	31	540	15	138	<5
T89-16-507	26	566	33	141	8
Little Billie Stock					
(BQD)					
T88-1-394	40	334	7	124	<5
T88-4-375	57	361	18	123	8
T89-9-351	47	334	22	134	<5
T89-16-552	50	370	14	136	11
(FPD)					
T88-4-375B*	54	327	30	127	<5
T88-1-31	92	573	17	122	6
T89-9-236	43	332	14	129	<5
T89-9-236D**	43	320	21	132	<5

Geochemical Data

* Sample T89-4-357 in text (mislabelled)
** Duplicate sample and analysis
XRF1 = Fused disc - X-ray fluorescence
XRF2 = Pressed pellett - X-ray fluorescence
Ba = Fused disc analysis for XRF calibration. Values should be used with caution
COM = TeckCominco Research Laboratory
FeO by acid digestion and titration.

igneous activity (Triassic, Jurassic and Cretaceous) and they are grouped to illustrate similarities and differences within the igneous events.

4.1 Triassic: Karmutsen Formation

Sample T89-8-625 is from the bottom of a hole that was drilled to determine the depth of Quatsino Formation limestone in the Copper Queen area, west of the Little Billie stock. The hole was stopped in what appeared to be a basalt flow but could have been a mafic dyke. The two rock types have markedly different chemical compositions and the sample was analyzed to see which was more likely.

The Karmutsen Formation comprises a 4.5 to 6.2 km thick slab of more-or-less homogenous, possibly plume-related, flood basalt that erupted over an area that now includes Vancouver Island, the Queen Charlotte Island and much of Southeastern Alaska over a 5 million year period, between 230 ma and 225 ma (Barker et al., 1989; Lassiter et. al. 1995). It is a geological anomaly in Cordilleran geology and it has been studied in considerable detail. Several workers, including Barker et al. (1989) and Lassiter et al. (1995) have characterized the composition of the magma. Between them, they present major and trace element analyses for 51 samples. However, several are altered, have lost their original composition and are not suitable for lithogeochemical studies. They have not been included.

For the present study, published Karmutsen basalt analyses were screened according to the methodology proposed by de Rosen-Spence (1976) and de Rosen-Spence and Sinclair (1987) to identify the "least altered" samples. These authors studied element distribution trends in modern, unaltered, volcanic rock and established the upper and lower ranges of sodium, potassium, magnesium, calcium and silica (etc.) content to be expected in relatively fresh ancient rock. They then produced a series of discrimination diagrams to help eliminate those rocks that, through excessive alteration, fall outside the acceptable range. The diagrams include plots of CaO% versus MgO%; MgO% versus SiO2% and Na2O% versus SiO2%. Only 26 of the samples analyzed by Barker et al. (1989) and Lassiter et al. (1995) pass all three tests. These samples, and a few others from Panteleyev and Koyanagi (1993) and Muller et al. (1974), are used to define the range of composition of "relatively unaltered" Karmutsen basalt.

The composition of sample T89-8-625 is shown in Tables 3 and 4 and is indicated by a solid spot on Figures 4, 5, 6, and 7. The Vananda sample is nearly indistinguishable from the "relatively unaltered" Karmutsen cluster on each of the figures, which were selected to show that the similarity extends to a large number of elements. Figure 4 is a standard "AFM" (Na2O+K2O v FeOT v MgO) plot after Irvine and Baragar (1971) that shows that the Vananda sample is compositionally similar to the Karmutsen cluster, and that it is derived from a tholeiitic magma. Figure 5 is a "TAS" ("total alkalis v silica") diagram that confirms that the samples under discussion are composed of basalt. Figure 6 is a "MFAl" (MgO v FeOt v Al2O3) diagram after Pearce et al. (1977) that shows that the samples are remarkably limited in compositional range and that they were likely formed in an "Oceanic" environment. Figure 7 is a trace element discrimination diagram (Ti/100 v Y*3 v Zr) after Pearce and Cann (1973) that shows that most of the Karmutsen basalts lie on the boundary between those found in an ocean floor environment (B) and a within-plate environment (D). Other element combinations, not plotted, reinforce the similarity between the published analyses and the Vananda sample.

In each case, the Vananda sample plots either within or slightly peripheral to the Karmutsen population cluster, and in each case it is well removed from the Bonanza Formation cluster (see below). The results show that the Vananda sample is slightly enriched in MgO compared with the overall Karmutsen population cluster; however, this is not unexpected as Lassiter et al. (1995) found increased levels of MgO and decreased levels of TiO2 at the top of the volcanic pile.

4.2 Jurassic: Mafic Intrusions

Although there are no Bonanza Formation volcanic rocks on Texada Island, there is some suggestion that they may once have capped the limestone. Mapping by Glover (1989), Bradford (1989) and Webster and Ray (1990a, b), among others, shows that there are at least three plutonic rock units that could have been emplaced during development of the Bonanza "island arc" on Vancouver Island. They include the Gillies stock (U/Pb age-dated at 175 ma), the Cornell and related mafic diorite intrusions (U/Pb age-dated at 178 ma) and the ubiquitous but undated dark-green, fine-grained mafic dykes.

The latter include samples T89-9-235, T89-10-170, T89-13-294, T89-16-459 and T89-16-507 which come from dykes that cut limestone in the Vananda area. They were collected to determine whether they belong to a single magmatic population and, if so, whether they can be tied to the Bonanza magmatic event.

The Bonanza Formation formed in an "island arc" environment and produced an abundance of fragmental rocks as well as flows. The Bonanza volcanic rock suite includes andesites, dacites and rhyolites, as well as basalts. The magma should be compositionally very different from that of the Karmutsen Formation basalt.

The chemistry of the Bonanza Formation has not been studied as extensively as that of the Karmutsen; however, Panteleyev and Koyanagi (1993) provide analyses for 27 samples from the Pemberton Hills area on Vancouver Island. Of these, only seven were found to be "relatively unaltered" according to the criteria laid out by de Rosen-Spence (1976) and de Rosen-Spence and Sinclair (1987). Debari et al. (1999) provide an addition seven analyses from Bonanza strata in the Alberni Inlet area.

In 1999, Debari et al. conducted a major review of Jurassic plutonic rocks in the Alberni Inlet – Barklay Sound area, on Vancouver Island, and concluded that there was a strong genetic link between the West Coast Crystalline Complex, which they feel is the root of the Bonanza arc, the Island Intrusion suite and the Bonanza volcanic rocks. They believe that all three belong to an "island arc" complex that operated between 190 and approximately 186 ma.

Table 3 and 4 show the chemical composition of the five fine-grained mafic dykes from the Vananda property and Figures 8, 9, 10, and 11 show their compositions, as solid spots, plotted with those of "relatively unaltered" Bonanza samples. The figures presented are the same as those used to display the Karmutsen data. Figure 8 shows that the dykes are appreciably richer in sodium and potassium than the Karmutsen samples, and that they are calc-alkaline in composition. Figure 9 shows that the dykes range from basaltic-andesite to andesite in composition and Figure 10 shows that both the dykes and the volcanic rocks correctly cluster within the field ascribed to "orogenic" rocks. The minor element plot, Figure 11, also shows that the rocks are calc-alkaline in composition (B, C). The data show that the dykes belong to a single lithogeochemical population that may be derived from a Bonanza-related magma source.

There are numerous small mafic intrusions in the Vananda area. They occur as dykes, stocks and possibly also tectonically disaggregated blocks. They are of particular interest as they are, spatially and possibly genetically, associated with the "Cu" and "Cu-Au" skarns in the Vananda area. Three samples, T89-8-150, T89-12-166 and T84-1-209, were collected from the Cornell stock to establish similarities and/or differences with other mafic intrusions in the area, with the above dykes, and with the Gillies stock.

Ray and Webster (1997), studied the chemistry of the mafic diorite intrusions in considerable detail and grouped them with other "Cu-skarn producing" intrusions found elsewhere in the province. They provide analyses for 12 mafic diorite samples from eight intrusions (Capsheaf (1), Cemetery (1), Cornell (2), Dickhead (2), Florence (2), Loyal (2), Marble (1) and Paris (1)), as well as eleven analyses for the Gillies stock, including nine collected near the Yellow Kid iron-deposit and two collected near the Texada Iron mine.

Coarse plutonic rock chemistry is more difficult to interpret than volcanic rock chemistry as it is more difficult to obtain a representative sample and be sure that it reflects the true composition of the magma. This is particularly true for coarse-grained diorites, which may be affected by build up of gravity-settled cumulate minerals (olivine, pyroxene and/or amphibole). In addition, many of the small mafic intrusions in the Vananda area are deformed and hydrothermally altered and their present compositions may not reflect that of the original intrusion.

The compositions of the three Cornell samples (T89-8-150, T89-12-166 and T84-1-209) are shown in Tables 3 and 4 and are illustrated graphically with those of Ray and Webster (1997) mentioned above. The plots also provide information on the Gillies stock and the mafic dykes discussed in the proceeding section.

The Vananda mafic diorites are predictably variable in composition and a few are clearly altered. The sample from Marble Bay appears to be is too rich in CaO and too low in SiO2 and Na2O. However, the main trends observed in the population are probably primary. Figures 12, 13 and 14 show the major element contents of the mafic diorites, the mafic dykes and the Gillies stock are consistent with their belonging to a single extended population. Figure 12 shows that the rocks are predominantly calc-alkaline; although some of the mafic intrusions (including the Cornell stock) plot as tholeiitic. The figure also shows that the mafic intrusions are richer in iron than the mafic dykes and that the Gillies stock is at the alkali enriched (more chemically evolved) end of the population trend. Figure 13 shows that the mafic intrusions are low in silica and similar to basalt in composition. The mafic dykes are variable but more andesitic, and the Gillies stock is trachyandesitic in composition. Similarly, Figure 14 shows that the aluminium content of the rocks progressively increases from the mafic intrusions, through the mafic dykes towards the Gillies stock. The figure also indicates that some of the mafic intrusions (including the Cornell stock) plot in fields more appropriate for oceanic than orogenic rocks. In this regard, they are clearly anomalous.

Most of the trace element data in Table 4 shows a similar arrangement in which the mafic dyke compositions are intermediate between those of the mafic intrusions and the Gillies stock. Figure 15 indicates that the overall population is that of "volcanic arc granite" and that there is a trend towards rubidium enrichment in the Gillies stock. The arrangement in Figure 16 is, however, slightly different. It shows that the mafic dykes and Gillies stock have similar amounts of zirconium, niobium and yttrium and that the mafic intrusions are relatively depleted in zirconium. Unlike the former, which plot in the correct field for volcanic arc basalt, they plot in fields more usually associated with ocean ridge basalt.

The three rock types discussed above are broadly similar in mineralogy. They are composed of different proportions of two types of feldspar (orthoclase and plagioclase), two types of pyroxene (orthopyroxene and clinopyroxene), amphibole, quartz and other trace minerals. Their chemistry reflects the proportions of each in the rock and it is possible, knowing the chemistry and the composition of "ideal" end-member minerals to back-calculate and obtain the "normative" proportions of the principal minerals present.

Figure 17 shows that the three rock units were composed of feldspar and pyroxene (now largely altered to amphibole), with lesser to trace amounts of quartz. The mafic dykes either contain the same amount of quartz as the Gillies stock, or less. However, they invariably contain more than the mafic intrusions which are remarkably deficient in silica. Similarly, Figure 18 shows that the principal variable in the mafic intrusions is the amount of clinopyroxene (now largely amphibole) relative to feldspar present in the rock. The less feldspathic mafic intrusions (including the Cornell) may contain cumulate pyroxene and/or amphibole.

The data show that the Jurassic-aged intrusions in the Vananda area are most likely derived from a common, Bonanza-related magma source. The coarse-grained mafic diorite intrusions may have formed from an early, highly-mafic phase of the magma or from a more normal phase that became enriched in pyroxene or amphibole. The latter may be more likely. The mafic dykes are composed of fairly typical Bonanza andesite, and the Gillies stock is a more evolved, more siliceous and feldspathic end member.

4.3 Cretaceous: Felsic Intrusions

Three samples, T88-4-357 (T88-4-375B in Tables 3 and 4), T88-1-31 and T89-9-236, were collected from "feldspar porphyry diorite" (FPD) dykes that intersect limestone close to the Little Billie stock to determine if they are compositionally different, or just a textural variant, of the main Little Billie stock. On inspection, only one of the "feldspar porphyry diorite" samples (T88-1-31) was found to be strongly porphyritic. The other "FPD" samples are texturally fairly similar to the main stock. Sample T89-9-236B (Tables 2, 3, 4) is a duplicate sample submitted as a control on the geochemical analysis. The results show good correlation between the two sets of analyses.

At the same time, four samples (T88-1-394, T88-4-375, T89-9-351 and T89-16-552) of normal, equigranular, biotite-rich quartz diorite (BQD) were collected to determine the composition of the main body of the Little Billie stock.

The compositions of the "feldspar porphyry diorite" and "biotite-rich quartz diorite" samples described above are shown in Tables 3 and 4, and are illustrated graphically, along with 13 other samples from the Little Billie stock analyzed by Ray and Webster (1997). The "biotite-rich quartz diorite" is relatively coarse-grained and the same caveats regarding interpreting the lithogeochemical data apply as previously discussed. However, the obvious homogeneity of the rock suggests that it is a true magma composition. There is no significant difference in composition between the "feldspar porphyry diorite" and the "biotite-rich quartz diorite" and they are plotted with the same symbol.

Figures 19 to 22 illustrate the composition of the Little Billie stock using the same diagrams used previously to describe the Jurassic mafic intrusions (discussed above). Although there are broad similarities between the Jurassic and Cretaceous data sets, there is very little overlap and there are significant differences.

Figure 19 shows that the Little Billie stock is calc-alkaline and richer in alkalis than Gillies stock, and it contains less iron. Figure 20 indicates that it is silica-rich and dacitic to rhyolitic in composition, as opposed to trachyandesitic. It is also richer in aluminium (Figure 21). However, Figure 22 shows that it contains less rubidium than the Gillies stock.

The results show that the main Little Billie stock is remarkably homogenous and there are no significant compositional differences between the "feldspar porphyry diorite" and "biotite-rich quartz diorite" phases. The difference appears to be textural

4.4 Oxidation State

Figure 23 shows the Fe2O3/(Fe2O3+Feo) ratio of the various samples discussed above plotted against their silica contents. The figure shows that (with the exception of two mafic intrusion samples, from Capsheaf and Cornell) all the analyzed samples plot within a relatively narrow range from 0.3 to 0.7. The Vananda intrusions are significantly more oxidized than the Toronto stock (0.18) at Hedley (Ray and Webster, 1997) and they do not qualify as "reduced granites". However, they have a similar oxidation state to intrusions such as Big Gossan, at Ertsberg in West Papua, that have generated more-oxidized "Au" and "Cu-Au" skarn deposits (Meinert, 2000).

5.0 Discussion

The Little Billie, Marble Bay, Copper Queen and other "Cu" and "Cu-Au" skarn deposits in the Vananda area are most likely part of a widespread, "oxidized", intrusion-related, hydrothermal system that formed on the east side of Texada Island in the Cretaceous. The size of the system has yet to be determined; however, based on similar deposits found elsewhere, it could be considerable. The Big Gossan (1997 reserves of 37.4 Mt, grading 2.69% Cu, 1.02 g/t Au, and 16 g/t Ag) and McCoy (15.6 Mt, grading 1.44 g/t Au, along with 30 430 t grading 14.6 g/t previously mined), are extremely large and gold-rich Meinert (2000).

Oxidized "Cu-Au" skarn deposits are described by Meinert (2000). He shows that (1) that they have high garnet to pyroxene ratios, (2) the garnets and pyroxenes have relatively low iron contents near the axis of fluid flow, (3) they have low total sulphide content and commonly contain more pyrite than pyrrhotite, chalcopyrite, and lesser amounts of sphalerite and galena, and (4) they commonly have their highest gold grades with later, retrograde, alteration zones characterized by abundant potassium feldspar and quartz, rather than with primary, pro-grade, garnet and pyroxene. Some of the higher-grade gold zones may appear transitional to epithermal styles of mineralization.

The Big Gossan deposit is an example of the deposit type. It formed from fluids derived from a granodioritic (Ertsberg Intrusion) dyke complex that intruded relatively pure limestone (Waripi Formation) along a major, near-vertical fault (Big Gossan Fault). The main sulphide deposits formed as subhorizontal lenses at the "marble-line" immediately above the principal zone of skarn development. Some of the best gold values were found in hydrothermal breccia pipes near the top of the system. Figures 24 and 25 illustrate some of these features (Meinert, 2000).

The skarn formed at Big Gossan is mineralogically and chemically zoned. Meinert (2000) shows that pyroxenes are light in colour and calcium rich near intrusion contacts, and darker and greener in more distal parts of the system, where they are richer in iron. Similarly, garnet is commonly red near intrusion contacts and grades to brown and green in more distal regions. He also notes a systematic decrease in iron content in the whole system as it was traced to depth. The sulphide bodies are also zoned. Molybdenum is enriched at depth and along the main axis of fluid flow up the fault, and copper, gold, silver, lead and zinc increase upwards and outwards. Meinert (2000) describes a sub-economic pyrrhotitic cap immediately above the main chalcopyrite-rich sulphide bodies.

Very little mineralogical and chemical work has been done on the Texada skarns; however, Webster and Ray (1997) did find differences between the Cretaceous skarn found at Little Billie and the Jurassic skarn found at Gillies Bay. In particular, they contrast the presence of wollastonite in the gold-rich "Cu" skarns at Florence-Security and the "Cu-Au" skarn at Little Billie with its apparent absence in the nearby Fe-skarns, and suggest that there must have been important differences in the compositions of the fluids that formed them. They speculate that the Vananda area fluids contained more silica, and less iron and carbon dioxide.

Webster and Ray (1997) also provide preliminary electron microprobe data to show that the pyroxenes in the Little Billie skarn contain less iron and manganese than those from around the Paxton and Texada Iron deposits. Similar data for the Marble Bay and other deposits may help characterize the source of the mineralizing fluid there.

This study, and other work on the geology of Texada Island since the last major exploration program took place, suggest that the Little Billie stock and/or other Cretaceous-age intrusions may be responsible for the "Cu" and "Cu-Au" skarn deposits in the Vananda Camp. This is consistent with mineralization occurring well after the development of the Marble Bay fault and it helping to control fluid flow. The apparent level of erosion at Vananda (predominantly marble) is consistent with the known deposits being relatively high in a structurally controlled and chemically zoned system and the possibly retrograde gold-rich siliceous breccia encountered in trench FS-87-2 in the Florence-Security area may indicate proximity to the top of the system. Similarly, the sulphide-rich bodies at Marble Bay and Copper Queen, which are near-vertical, structurally controlled, pipes may be slightly deeper and closer to the main zone of sulphide deposition. They may root into sub-horizontal suphide bodies similar to those that follow the axis of intrusion at Big Gossan. The data suggest that the Vananda mineralized system is likely to be zoned and there may be considerable mineral potential, in the form of sub-horizontal sulphide-lenses, at depth.

6.0 Conclusions

The analytical work undertaken in this program provides considerable insight into the geological evolution of the igneous rocks in the Vananda area. It shows:

1) DDH T89-8 drilled through the limestone cover into the top of the Karmutsen Formation.

2) The dark-green to black, fine-grained, mafic dykes intersected in the drilling at Little Billie and elsewhere belong to a single population. They are similar in composition to Bonanza Formation basalts and andesites found on Vancouver Island and they probably fed a, now eroded, volcanic arc. Many fill fractures that run parallel to the Marble Bay Fault and it seems highly probable that the fault was active in Bonanza time.

3) The coarse-grained mafic diorite bodies spatially associated with the "Cu-Au" skarn deposits in the Vananda area are similar in composition to the mafic dykes and the Gillies stock; however, they show far more compositional variation. They may come from an early (particularly mafic) phase of the same magma, or they may have formed through cumulate (pyroxene/amphibole) enrichment in the magma. The mafic diorites contain very little free quartz. The Gillies stock is more siliceous and evolved. It is a more typical "Island Intrusion".

4) There is little compositional difference between the Feldspar Porphyry Diorite (FPD) and Biotite-rich quartz diorite (BQD). They are silica-rich "tonalites" (Webster and Ray, 1990) with a dacitic to rhyolitic chemical composition.

5) The intrusions are moderately oxidized and the "Cu" and "Cu-Au" skarns in the Vananda area resemble "oxidized gold-skarns" described by Meinert (2000).

6) Although it is by no means proven, it seems likely that the "Cu-Au" (Little Billie), "Cu" (Marble Bay and Copper Queen) and the mixed skarn deposits (Cornell, Florence-Security) are derived from silica-rich Cretaceous fluids produced by the Little Billie and/or related stocks.

7) The gold-bearing siliceous breccia exposed in trench FS-87-2 may be a retrograde hydrothermal pipe formed above the main zone of sulphide mineralization.

The lithogeochemical programme has succeeded in characterizing the intrusions in the Vanada area and established an igneous framework for future exploration. It suggests that the skarn mineralization in the Florence-Security area is most likely derived from Cretaceous fluids from the Little Billie stock or some other, silica-rich, intrusion.

The Vananda and Big Gossan deposits both formed in major, vertical, fault zones and it is likely that the former will (like the latter) be zoned to depth. It is possible that the Marble Bay and Copper Queen ore-shoots, along with those at Florence-Security and elsewhere, are rooted in, sub-horizontal, deposits formed near the base of the limestone.

7.0 Recommendations

The Vananda "Cu" and "Cu-Au" skarn deposits formed from silica-rich fluid derived from a nearby intrusion. They may be part of a vertically zoned hydrothermal system and the presence of gold-bearing siliceous breccia at the Florence-Security provides encouragement that the known deposits are relatively high in the system. It is important to establish whether this as-yet relatively untested part of the property is zoned to depth.

1) Diamond-drill the Florence-Security area and trace the known skarn showings to depth.

2) Examine the diamond drill core and study the compositions of the pyroxenes and garnets to determine whether they are iron-rich or poor. This may require microprobe analyses.

3) Consider using fluid inclusion analysis to determine if the fluids that formed the sulphide deposits are primary (prograde) or secondary (retrograde). The latter may have greater potential for gold mineralization.

In the long run, it may be advisable to diamond-drill several other deep holes in the vicinity of the Marble Bay and Copper Queen deposits to improve our understanding of the orientation of the base of the limestone.

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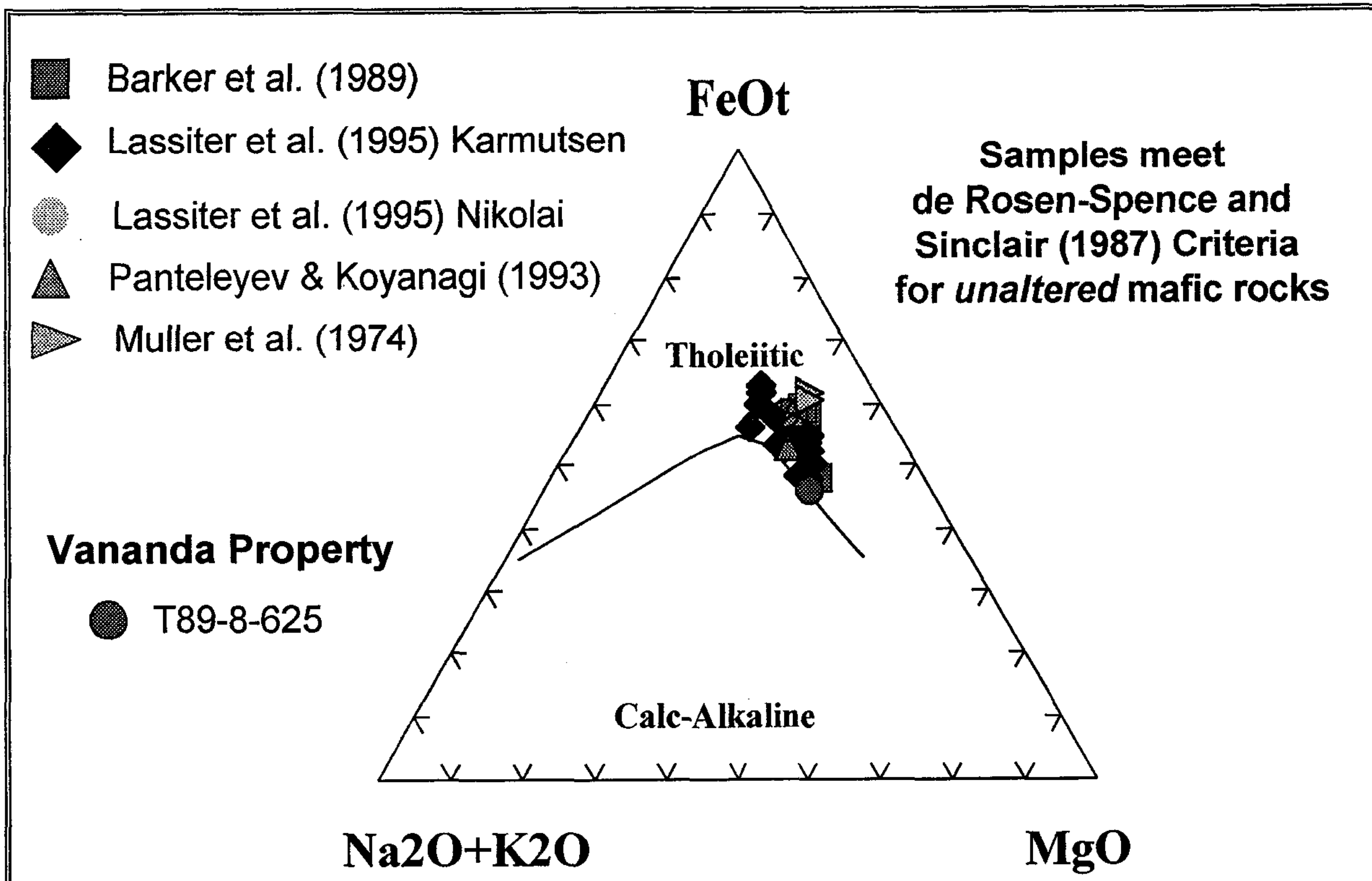
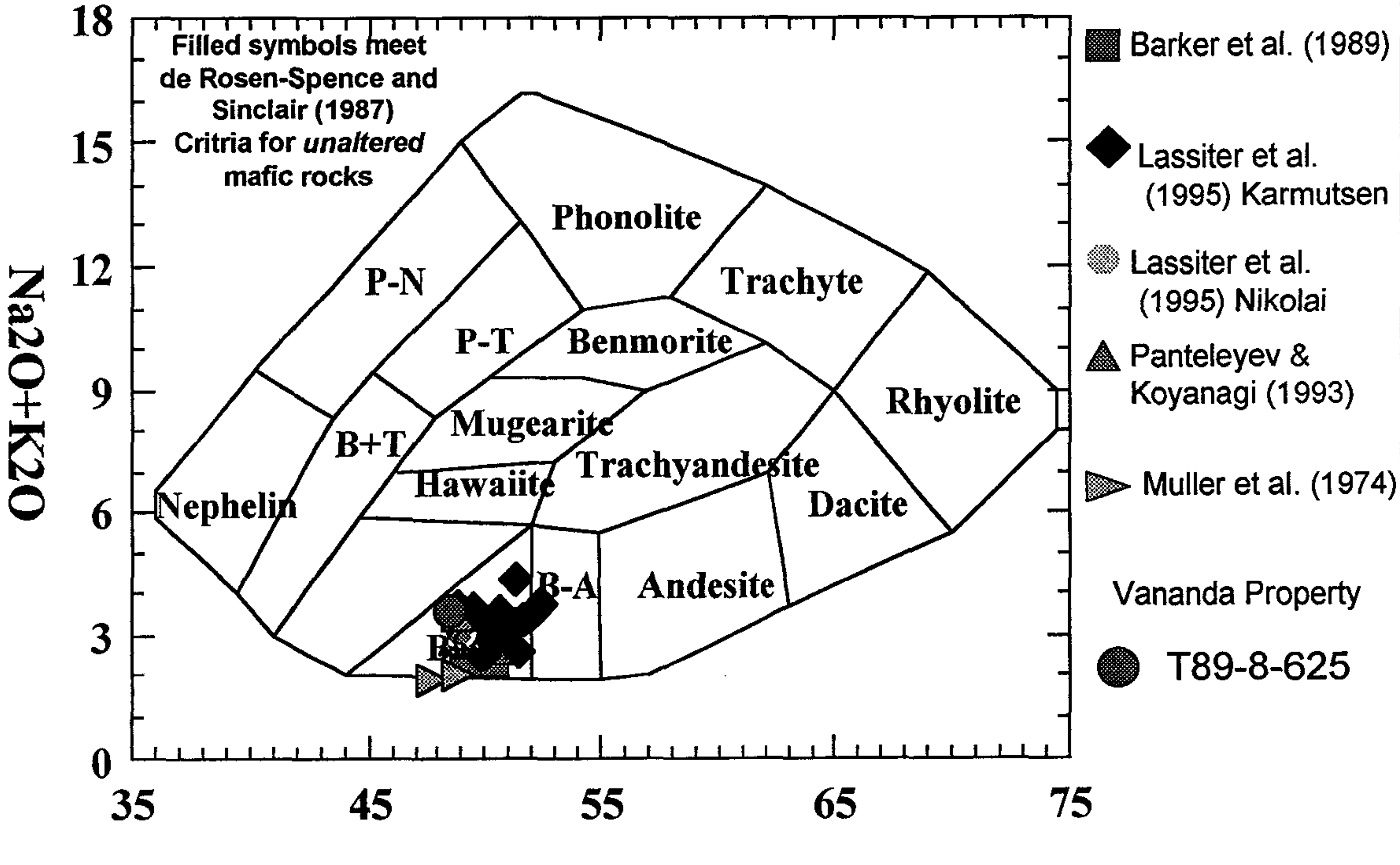


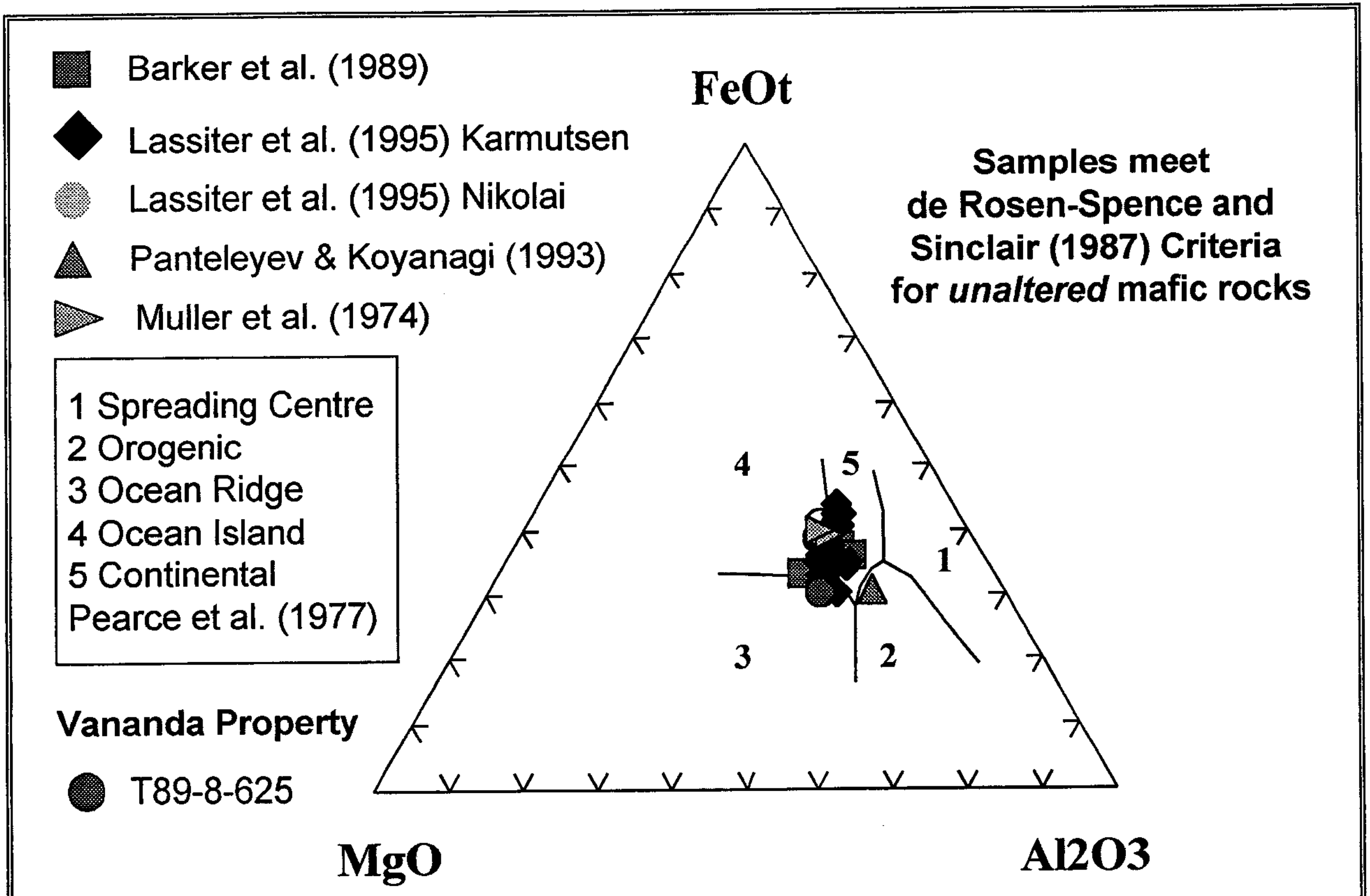
Na2O+K2O-FeO(total)-MgO plot for Karmutsen and Nikolai formation samples from Vancouver Island and Alaska.

Figure 4



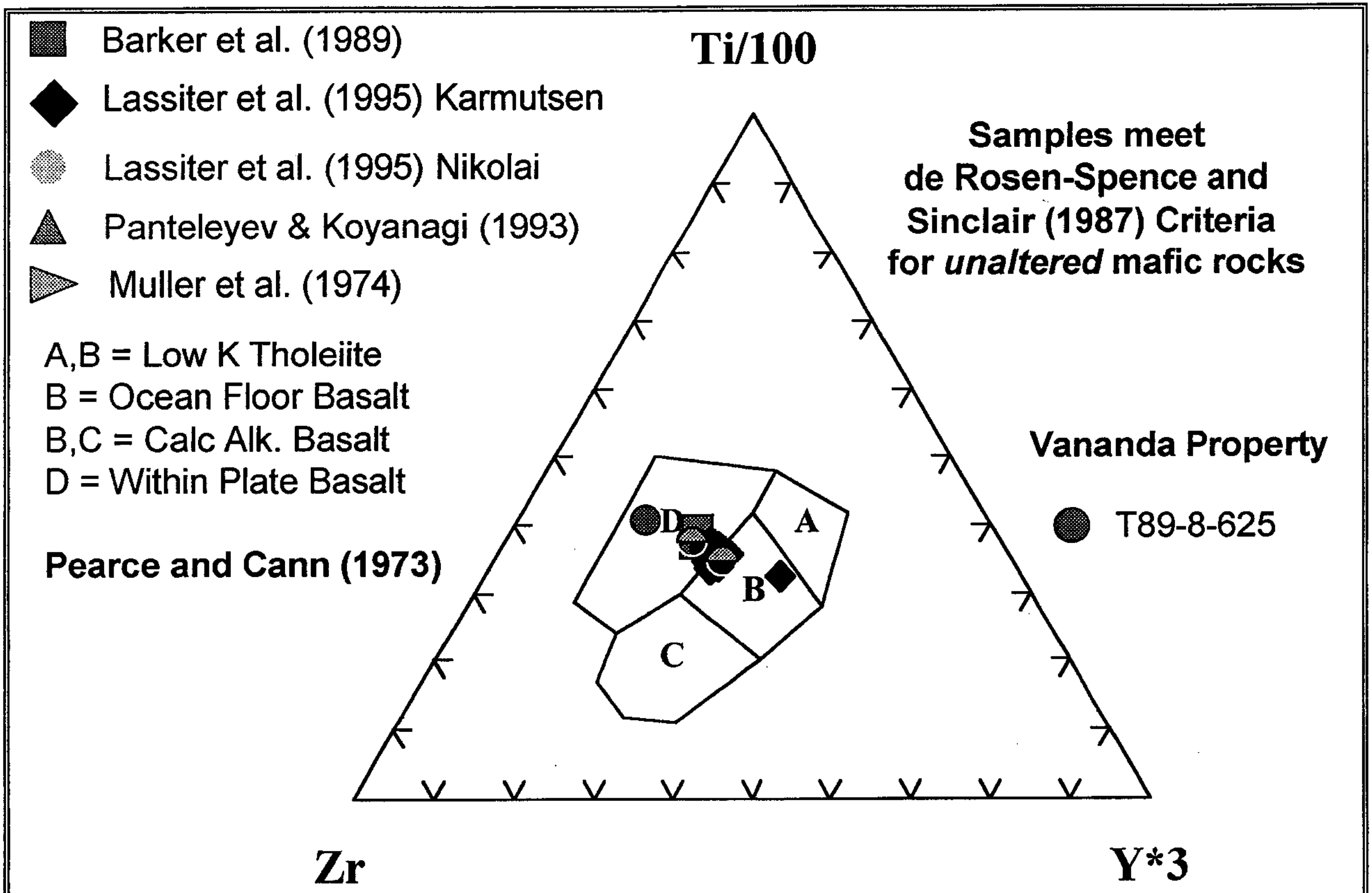
Na2O + K2O v SiO2 Discrimination plot for Karmutsen volcanic rocks from the Vananda area, Texada Island

Figure 5



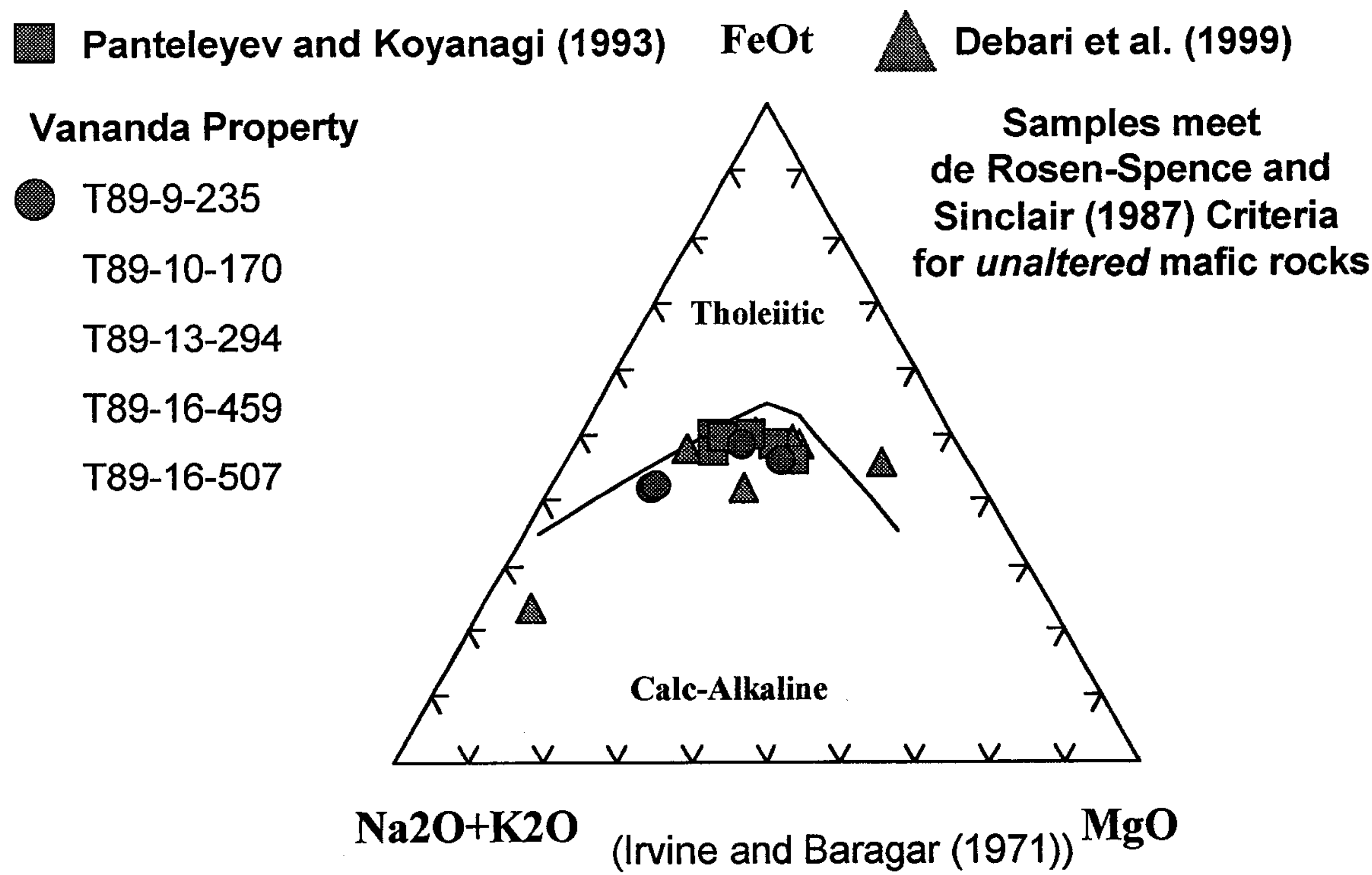
Mgo-FeO(total)-Al2O3 plot for Karmutsen/Nikolai formation samples from Vancouver Island and Alaska.

Figure 6



Ti/100 v Y*3 v Zr plot for Karmutsen and Nikolai formation samples from Vancouver Island and Alaska.

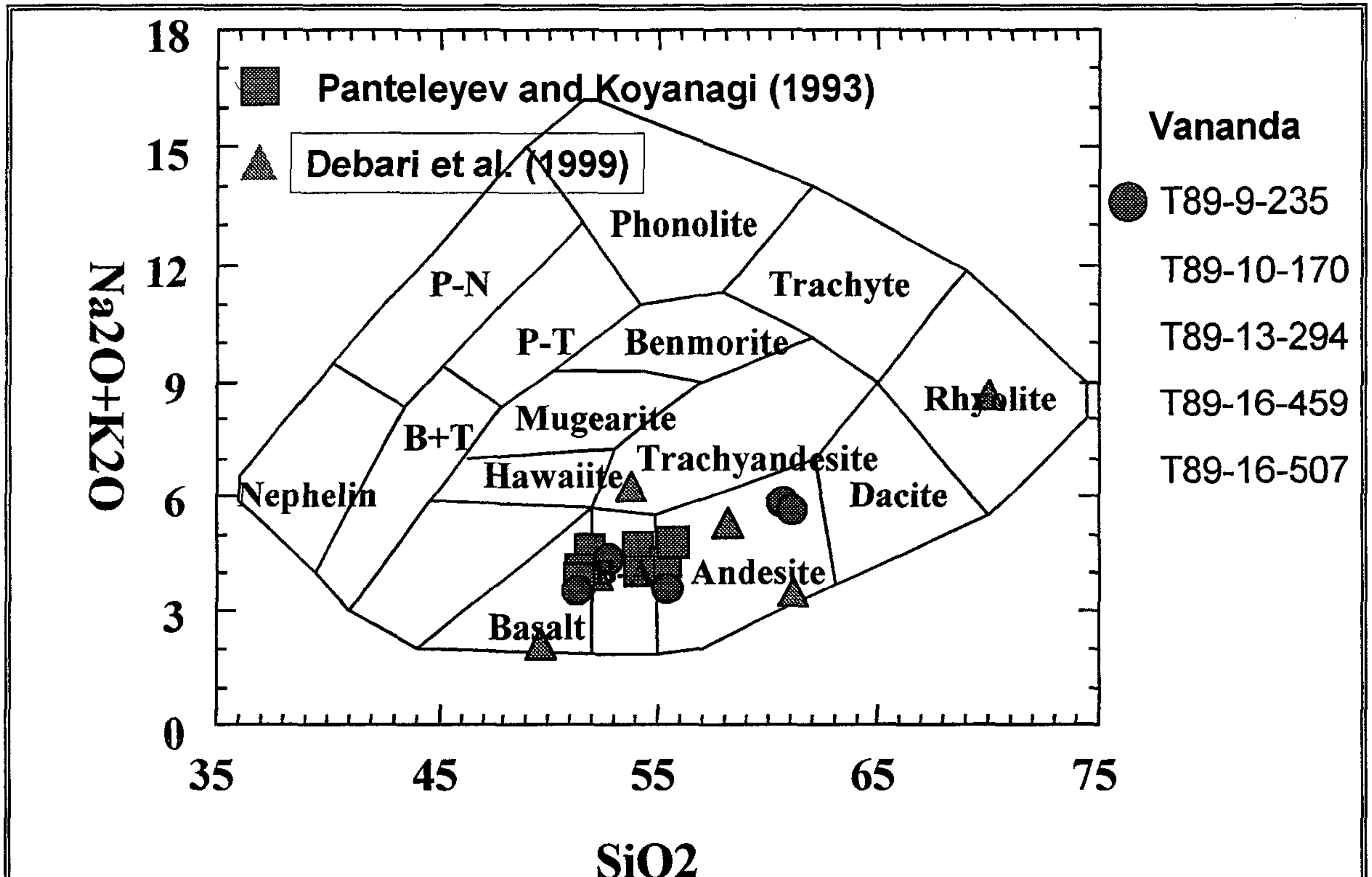
Figure 7



Na2O+K2O-FeO(total)-MgO plot for Bonanza formation and equivalent samples from Vancouver Island.

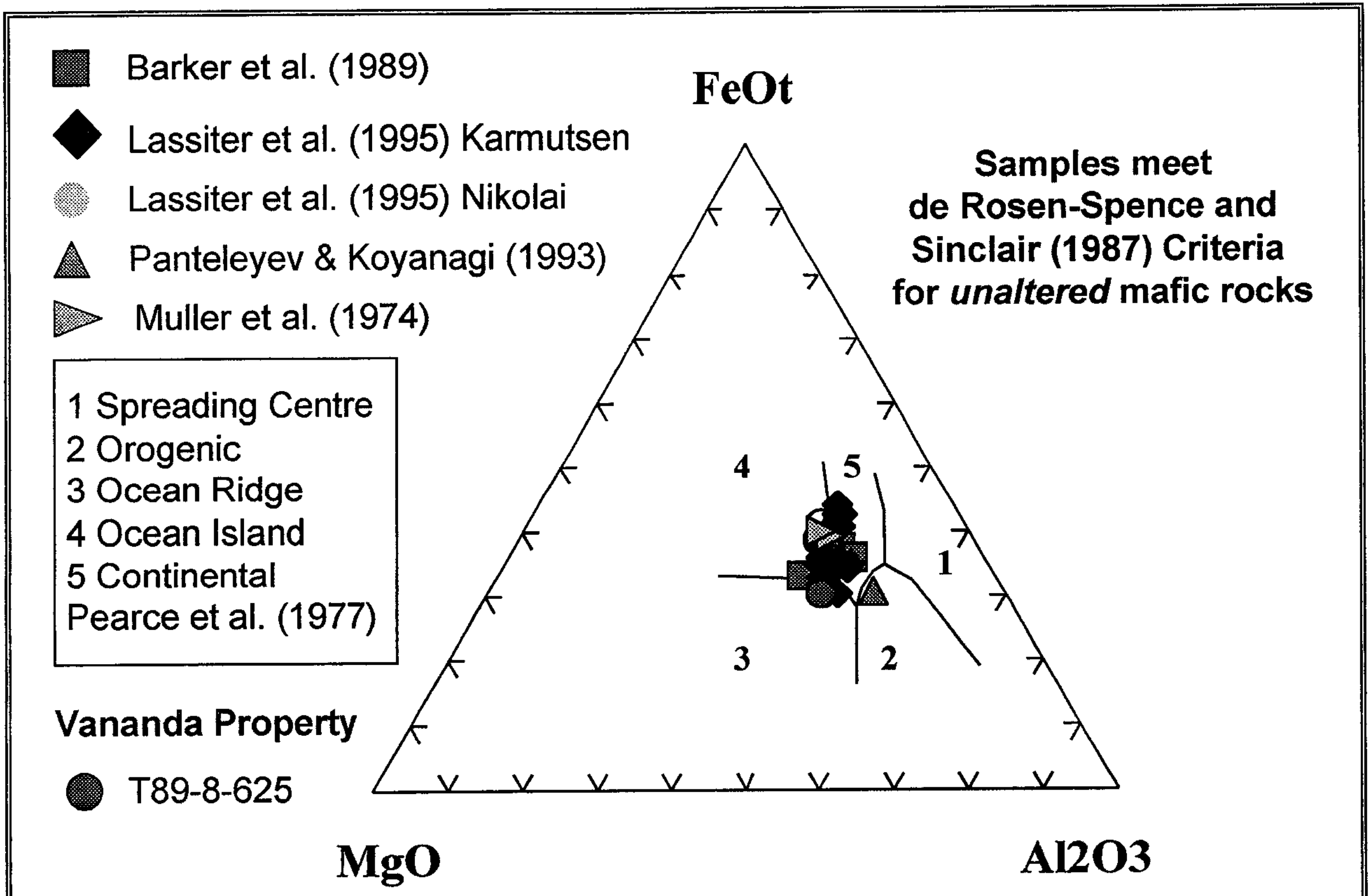
Figure 8

C C C



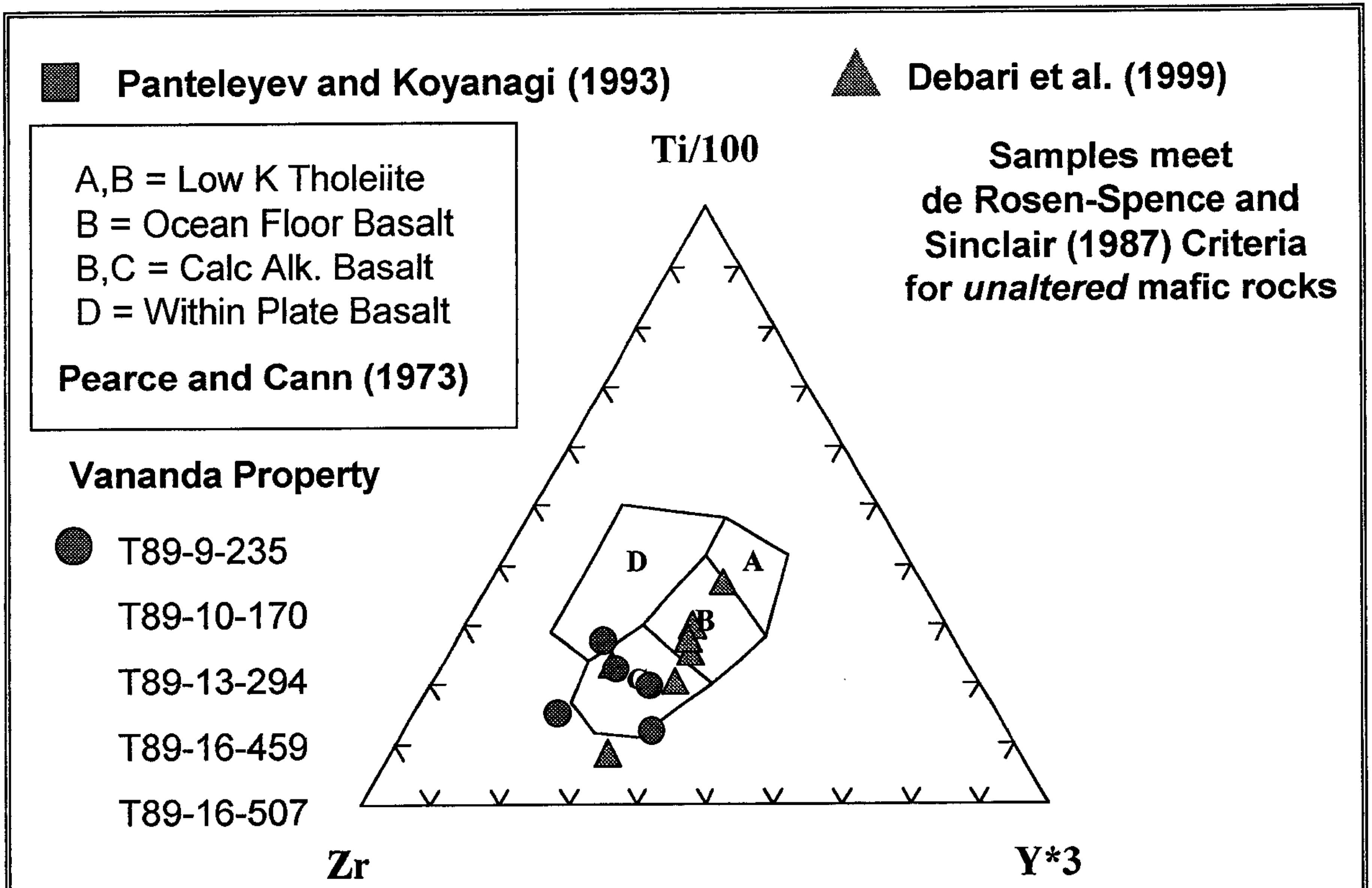
Na2O + K2O v SiO2 Discrimination plot for Bonanza formation equivalent rocks from the Vananda area, Texada Island

Figure 9



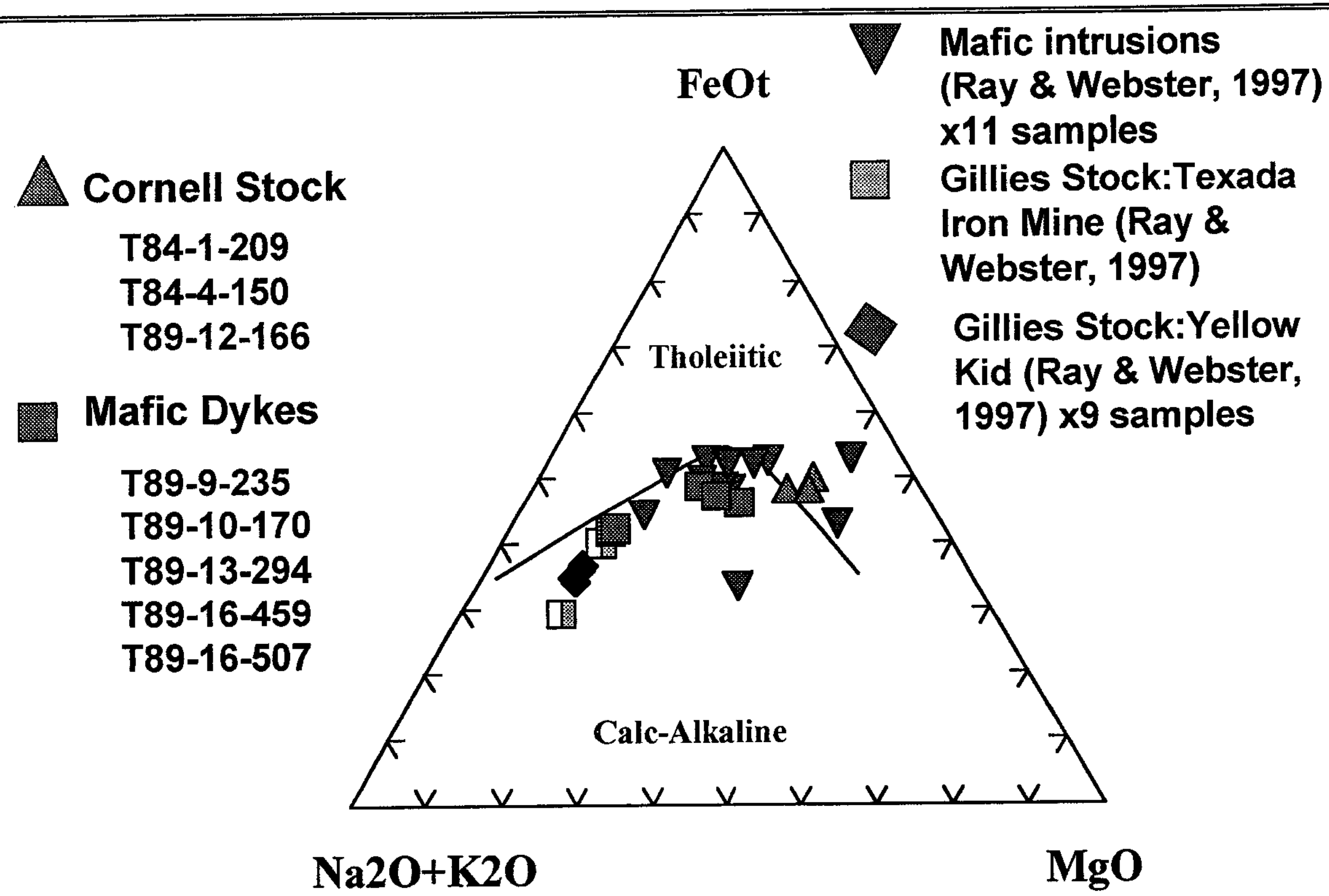
Mgo-FeO(total)-Al2O3 plot for Karmutsen/Nikolai formation samples from Vancouver Island and Alaska.

Figure 10



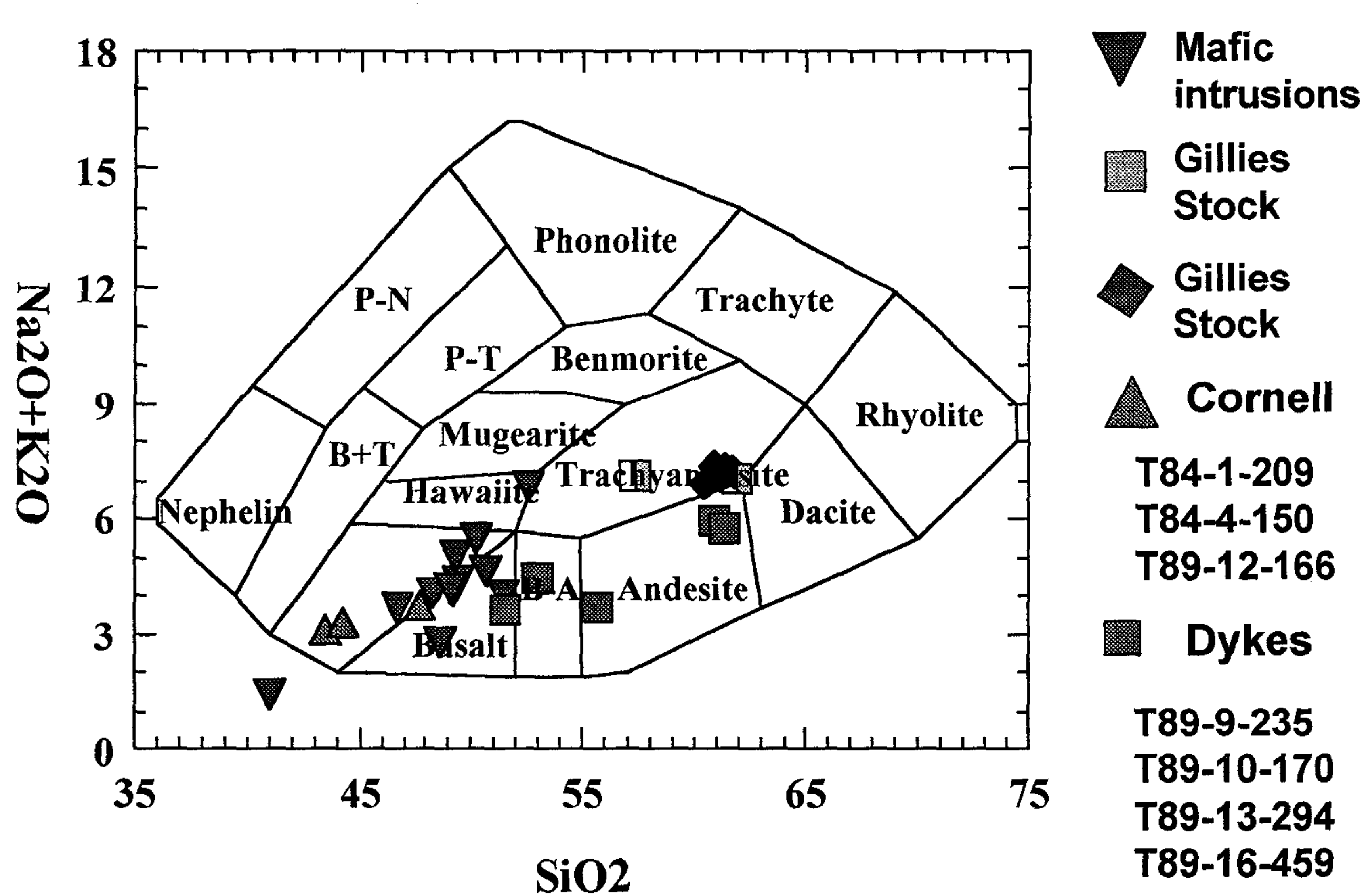
Ti/100 v Y*3 v Zr plot for Bonanza formation and equivalent samples from Vancouver Island

Figure 11



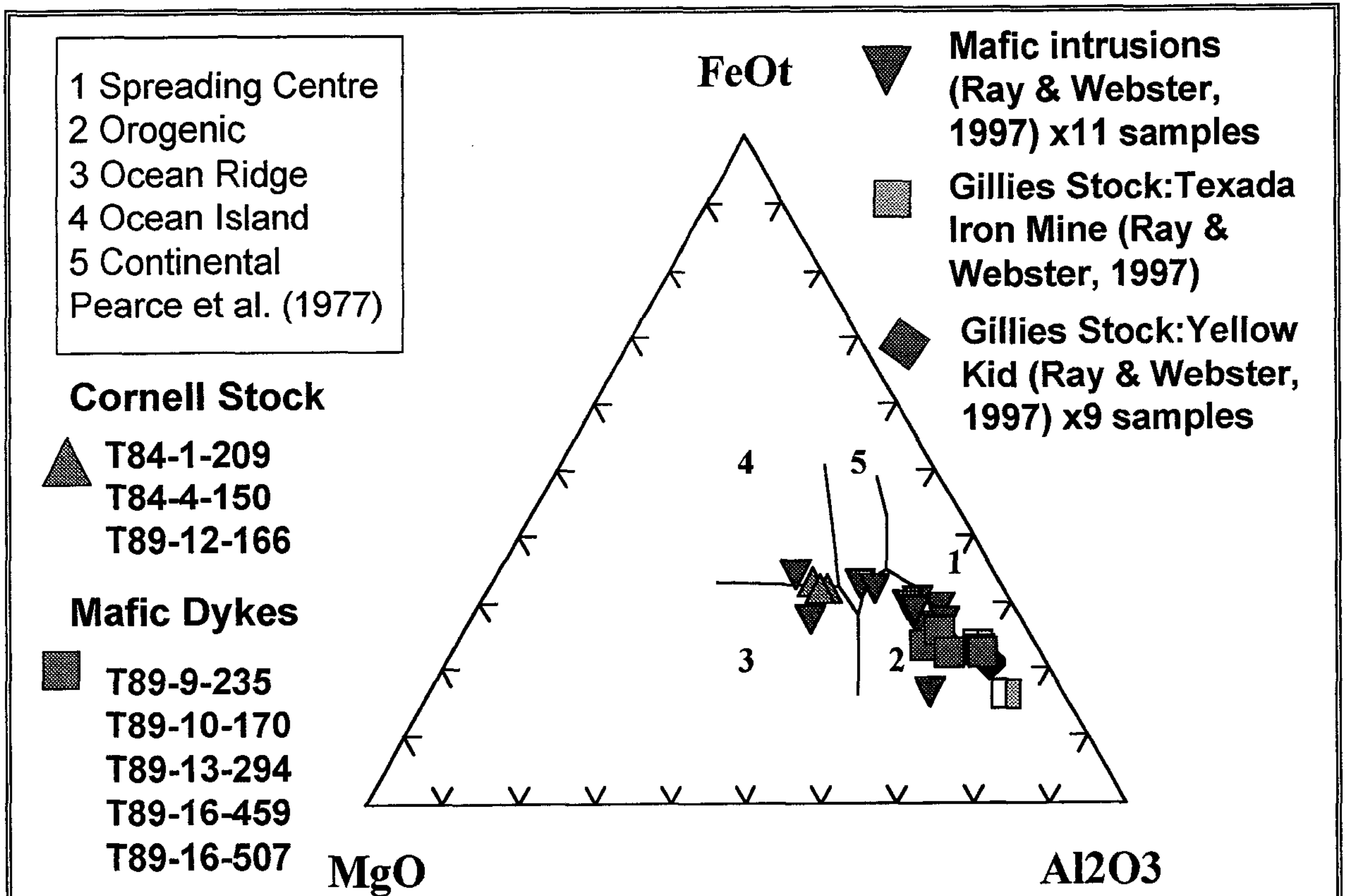
Na2O+K2O-FeO(total)-MgO plot for coarse-grained mafic and equivalent samples from the Vananda area, Texada Island.

Figure 12



Na2O + K2O v SiO2 Discrimination plot for coarse-grained mafic intrusions and related dykes from the Vananda area, Texada Island

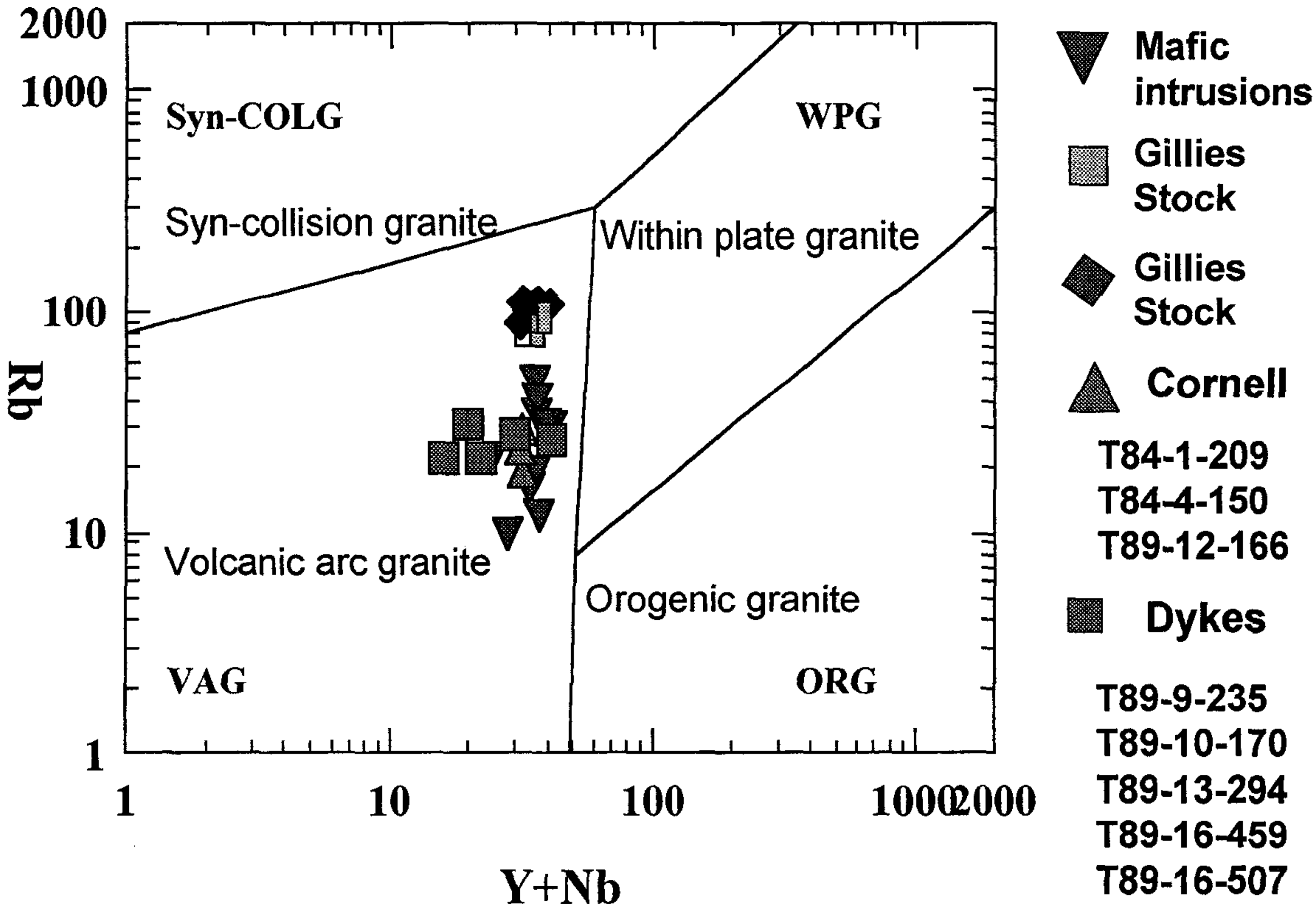
Figure 13



Mgo-FeO(total)-Al2O3 plot for coarse-grained mafic intrusions and related dykes from the Vananda area, Texada Island.

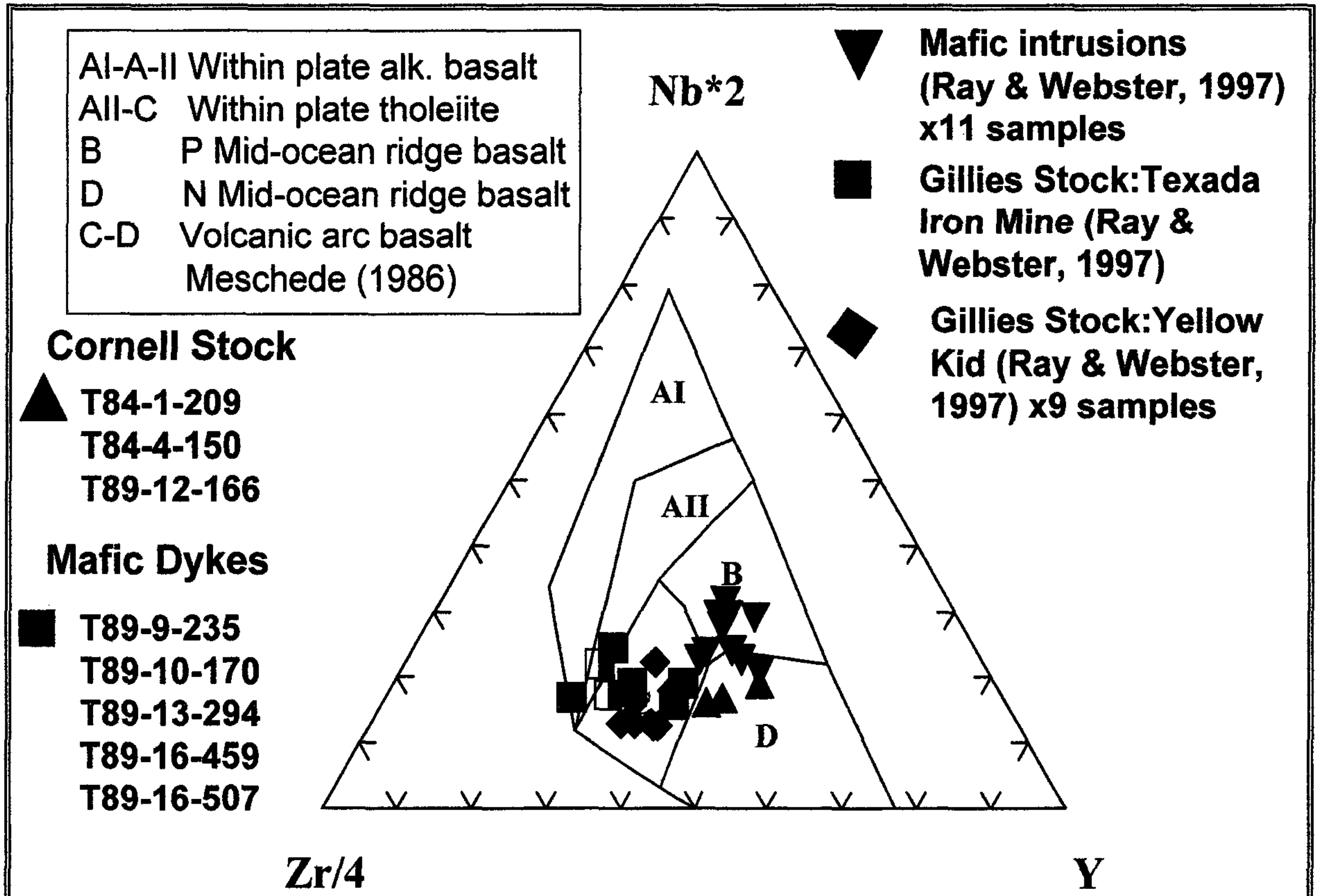
Figure 14

C C C



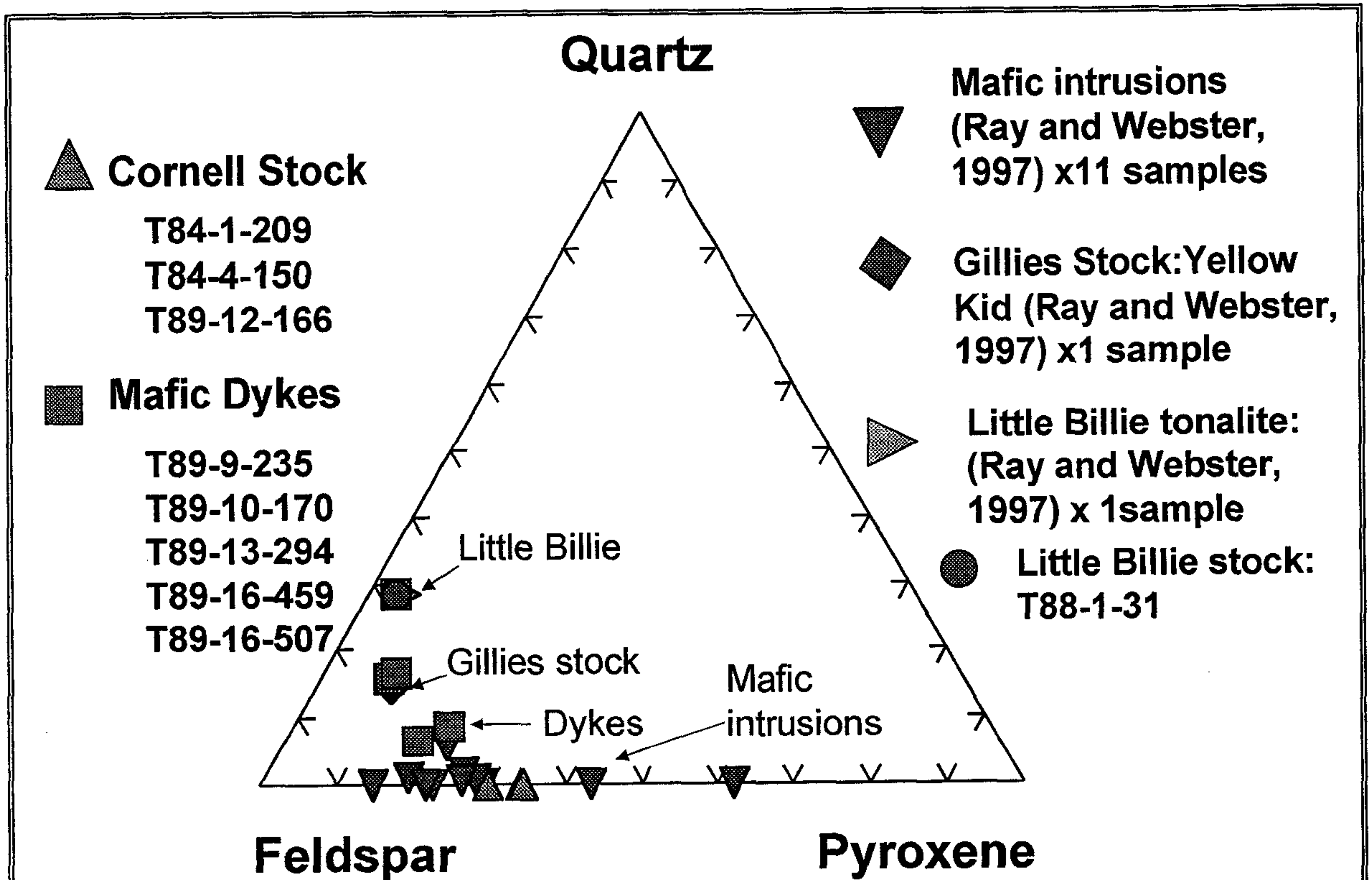
Rb v Y + Nb plot for coarse-grained mafic intrusion and related dykes from the Vananda area, Texada Island.

Figure 15



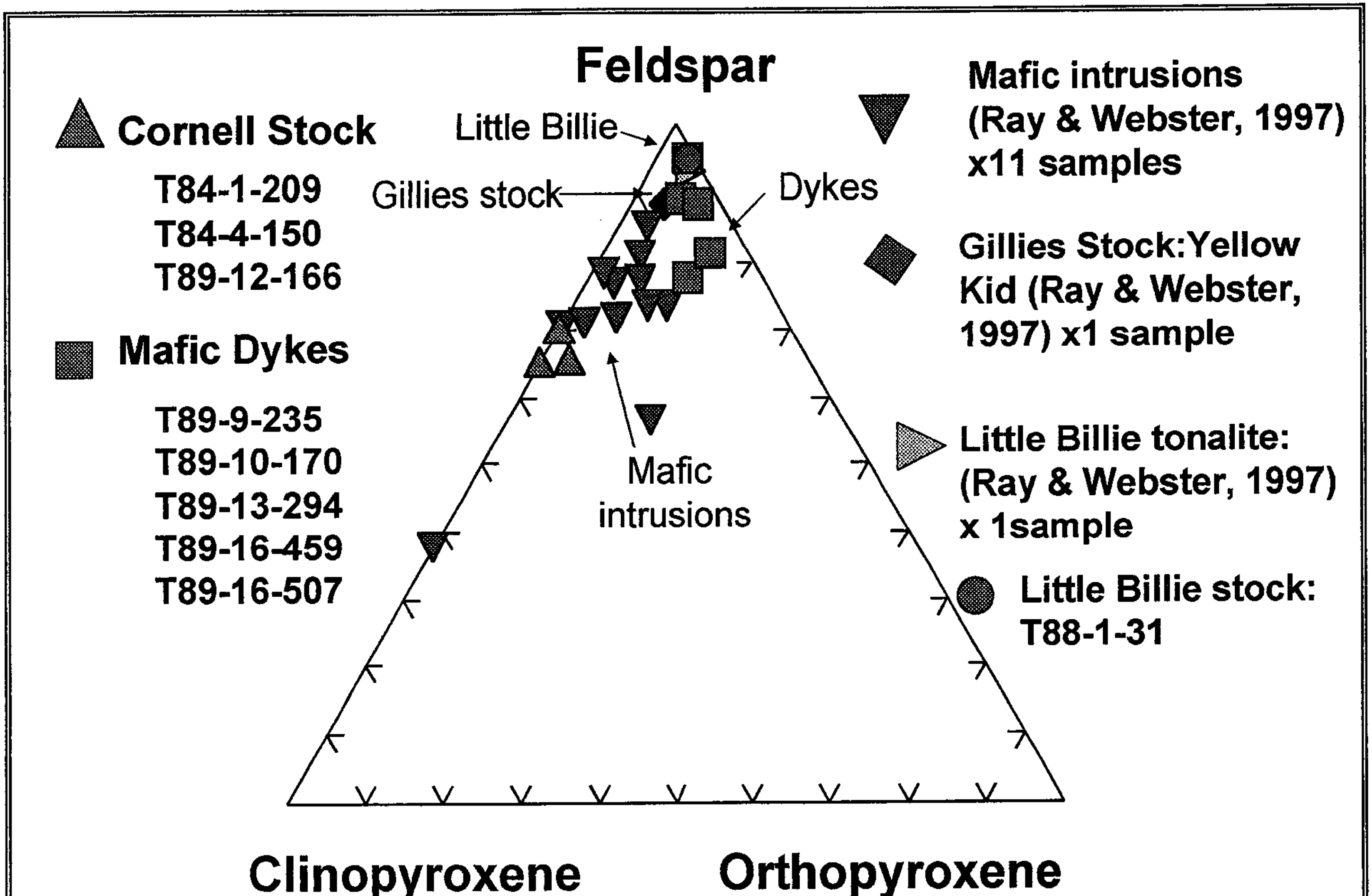
Zr/4 v Nbx2 v Y plot for coarse-grained mafic intrusions from the Vananda area, Texada Island

Figure 16



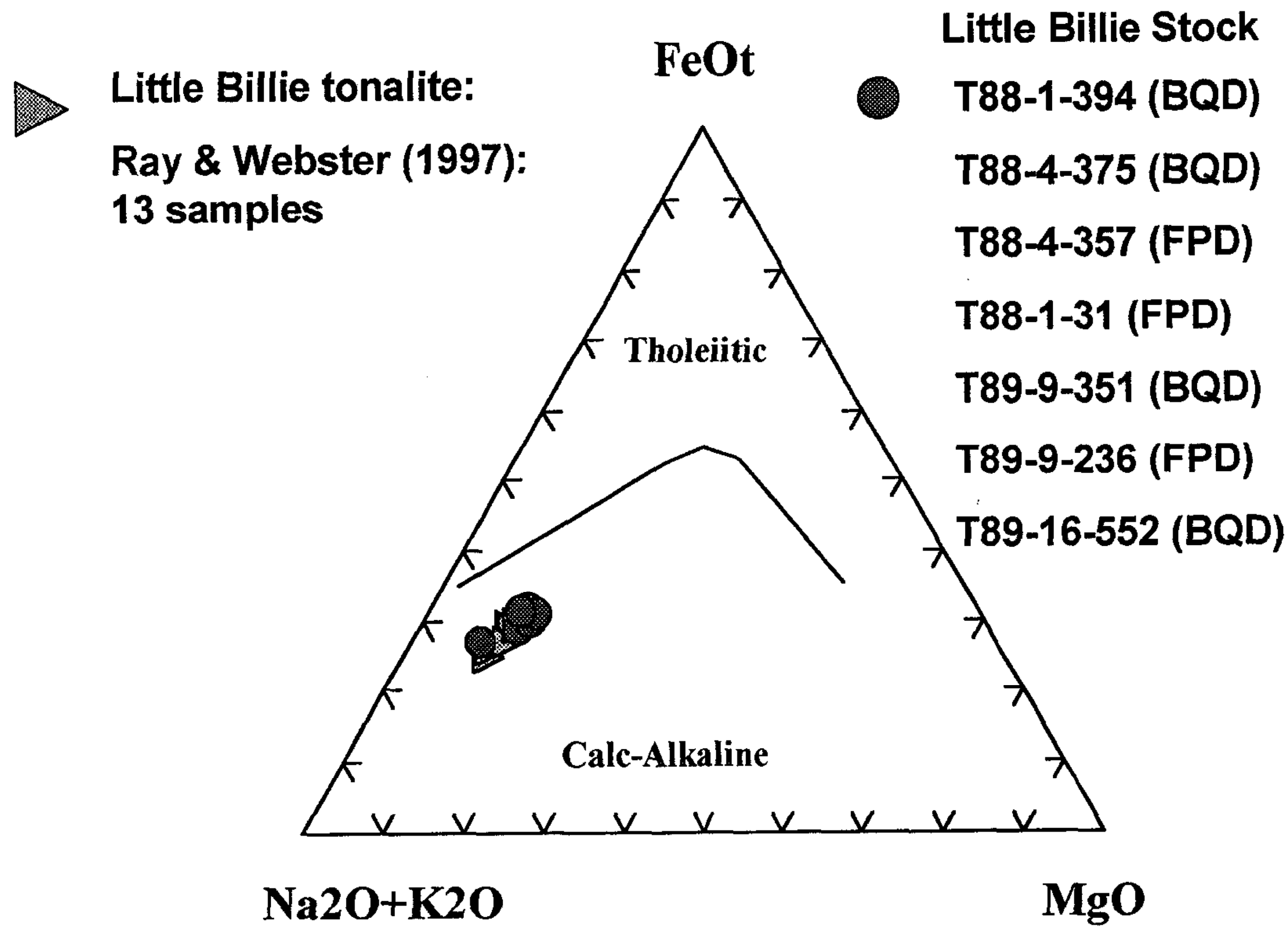
Normative (CIPW) quartz, feldspar and pyroxene contents of mafic and felsic intrusions in the Vananda area, Texada Island

Figure 17



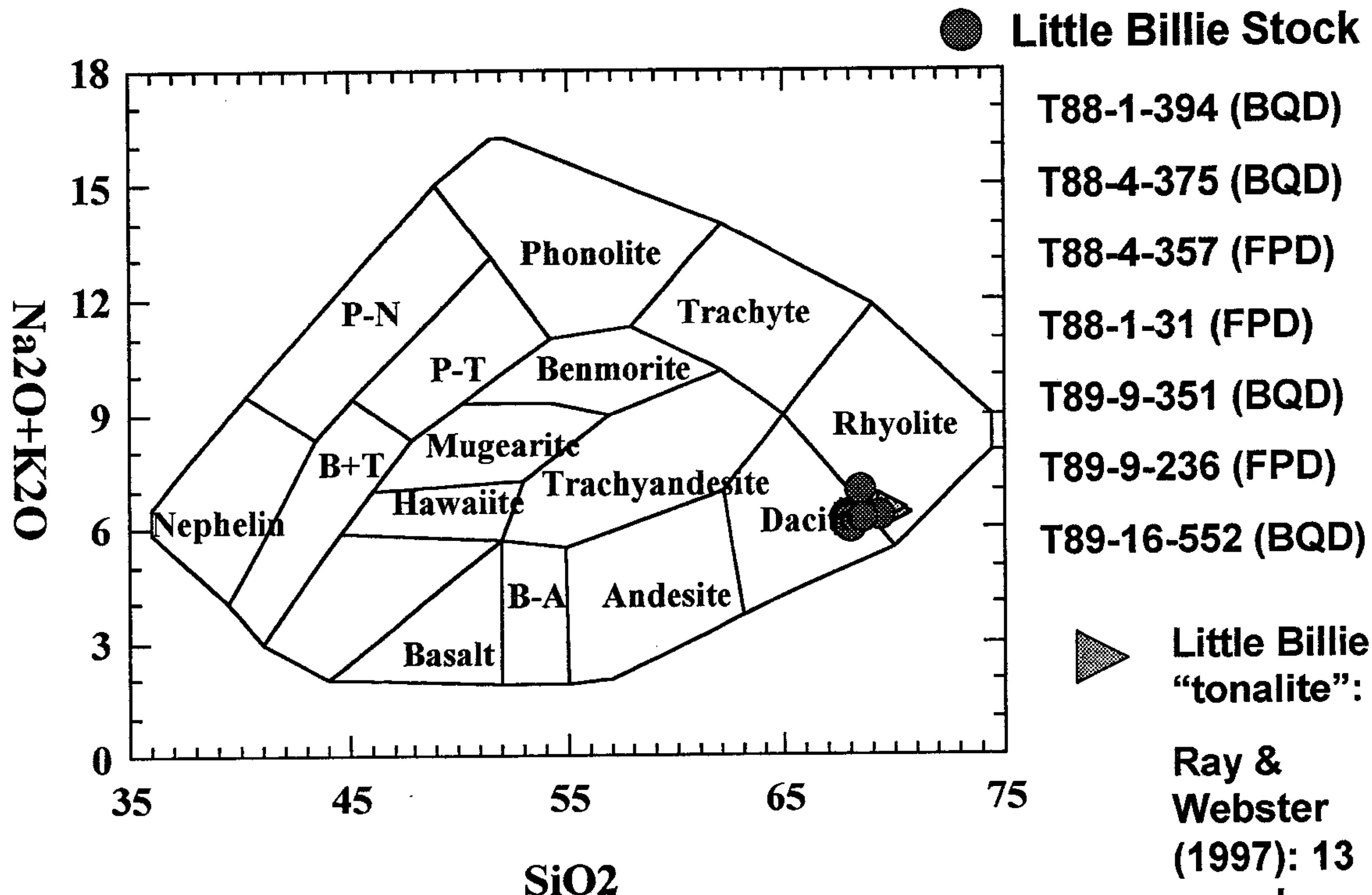
Normative (CIPW) clinopyroxene, feldspar and orthopyroxene content of mafic to felsic intrusions, Vananda area, Texada Island

Figure 18



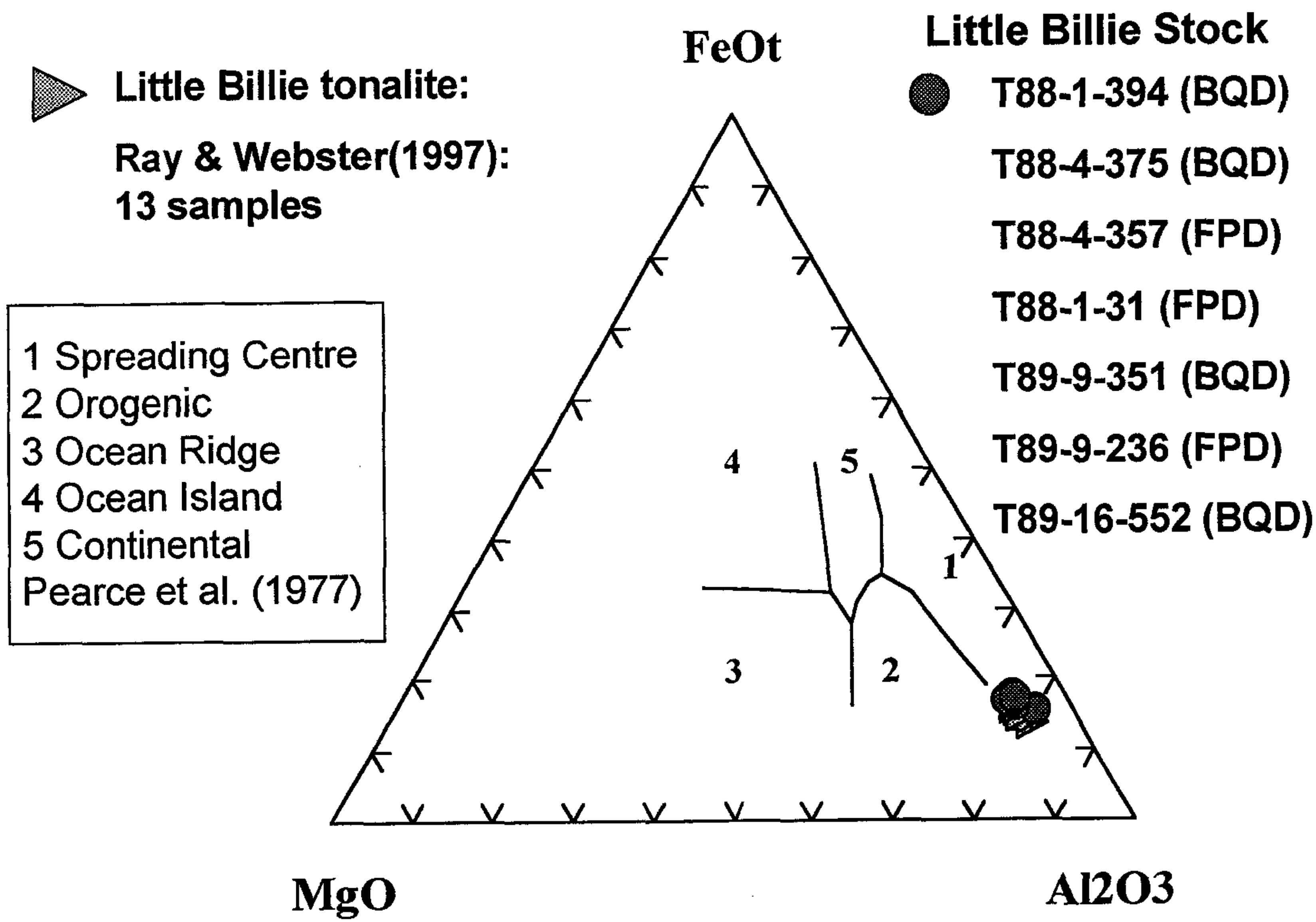
Na2O+K2O-FeO(total)-MgO plot for Little Billie intrusion and Related dykes from the Vananda area, Texada Island.

Figure 19



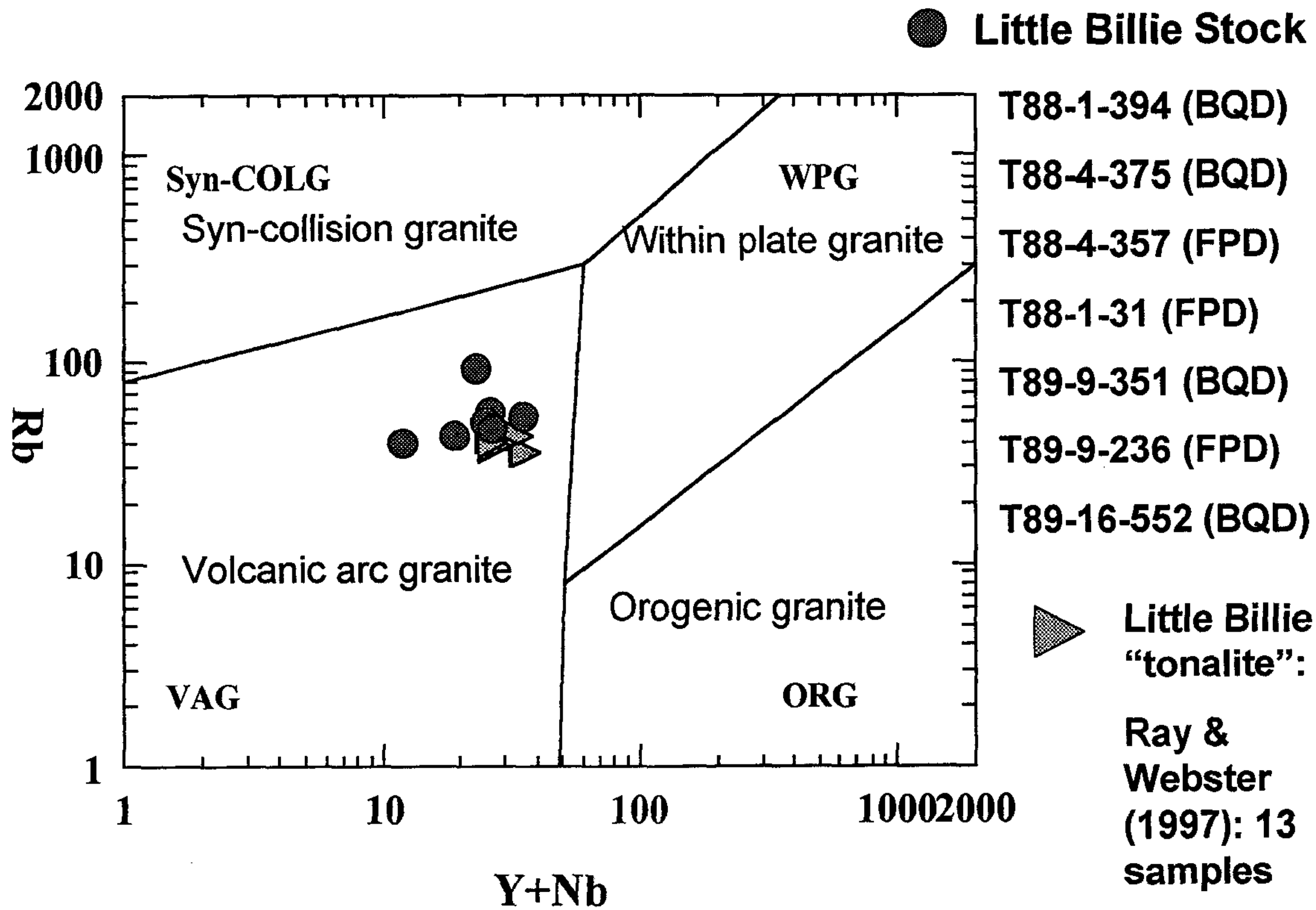
Na2O + K2O v SiO2 Discrimination plot for Little Billie intrusion and related dykes from the Vananda area, Texada Island

Figure 20



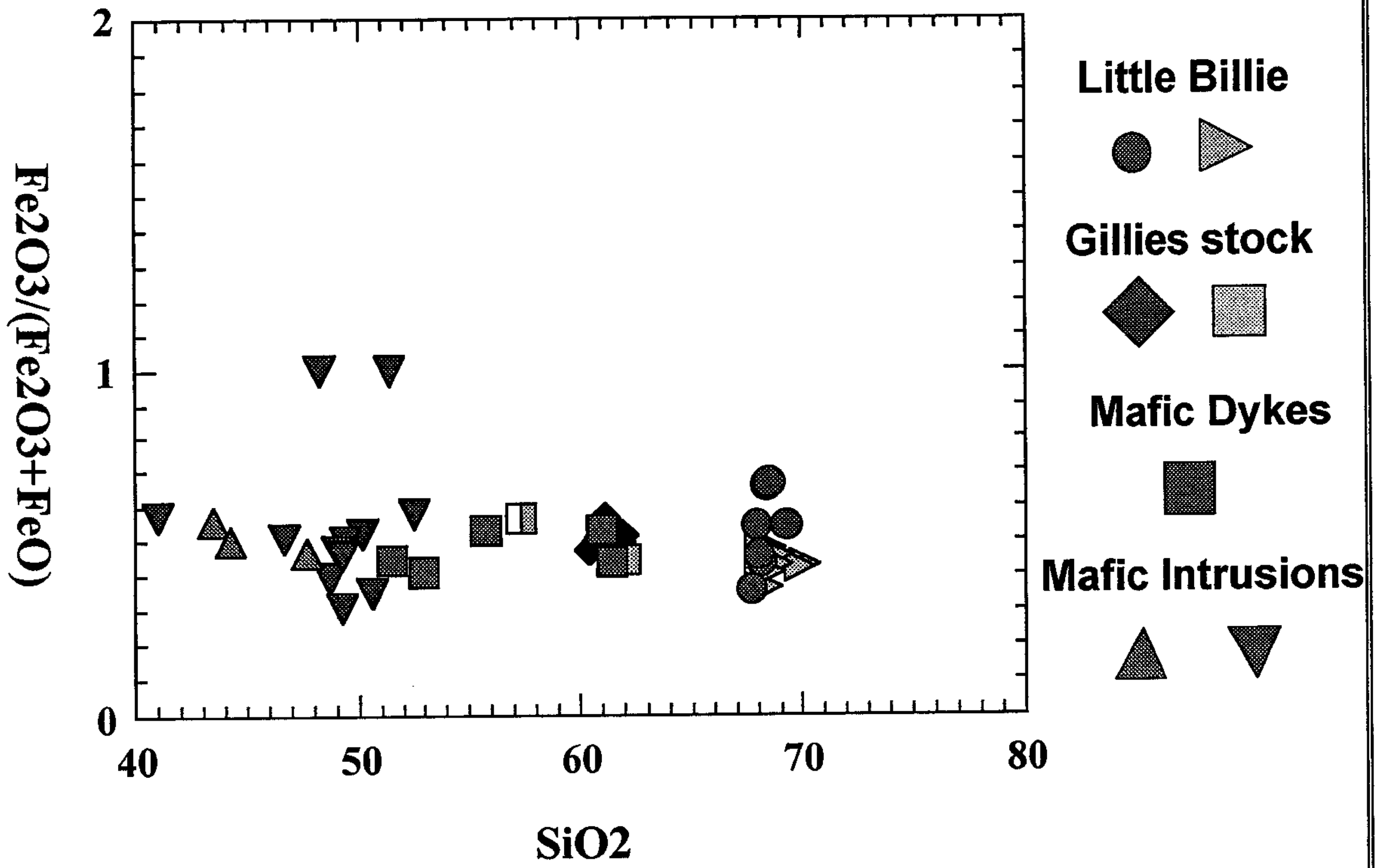
Mgo-FeO(total)-Al2O3 plot for Little Billie intrusion and related dykes from the Vananda area, Texada Island.

Figure 21



Rb v Y + Nb plot for Little Billie intrusion and related dykes from the Vananda area, Texada Island.

Figure 22



Fe2O3/(Fe2O3+FeO) ratios of Vananda area intrusions

Figure 23

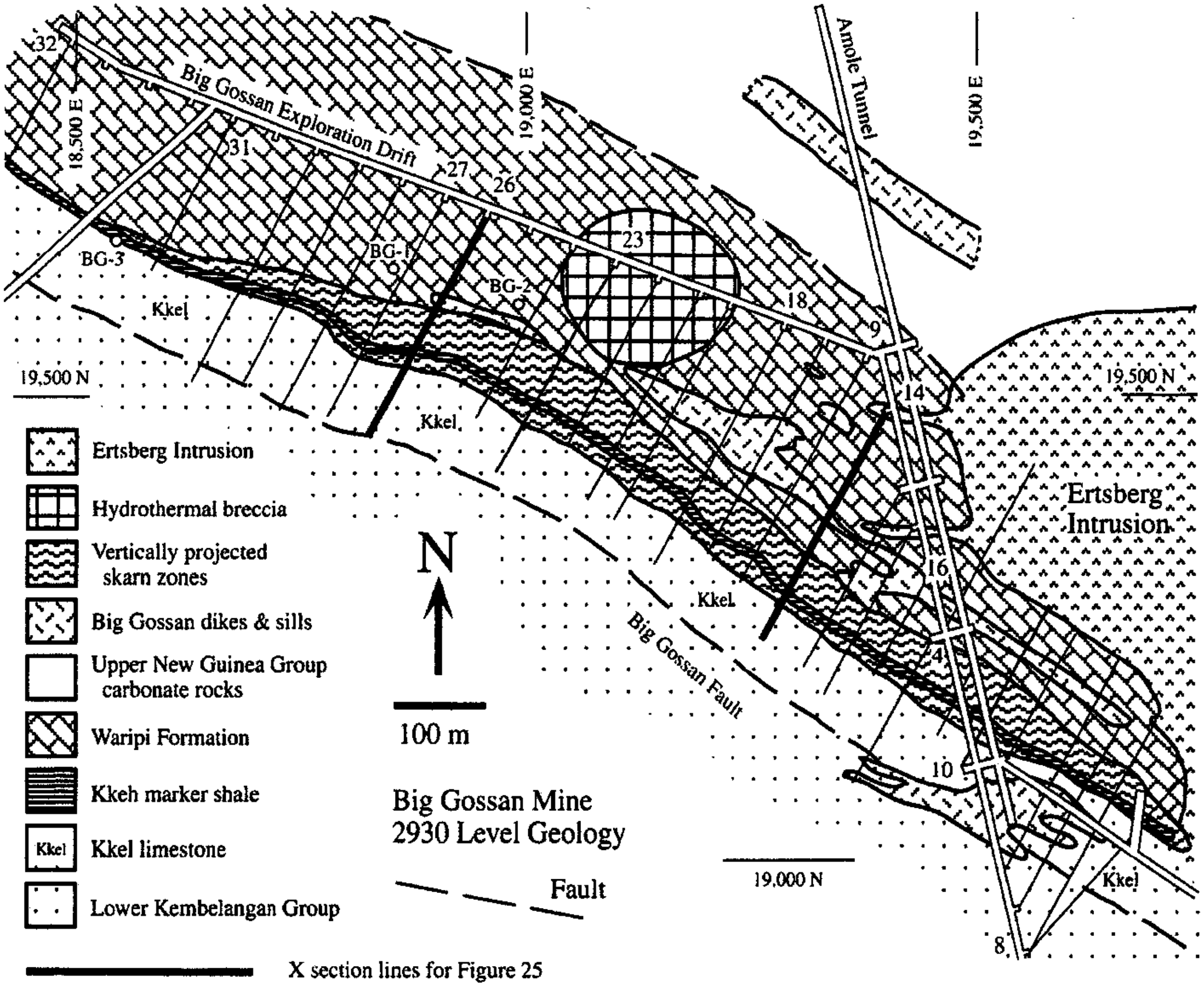


FIG. 24. Plan view of Big Gossan 2,930-m elevation geology and underground drill stations, West Papua, Indonesia. Vertical projection of skarn zones is approximate due to steep dip of units. More accurate skarn geometry is illustrated in two cross sections (Fig. 25) indicated by dark lines on plan map (modified from Meinert et al., 1997).

Page 36

Figure 24: Plan view of the Big Gossan Deposit, Meinert (2000)

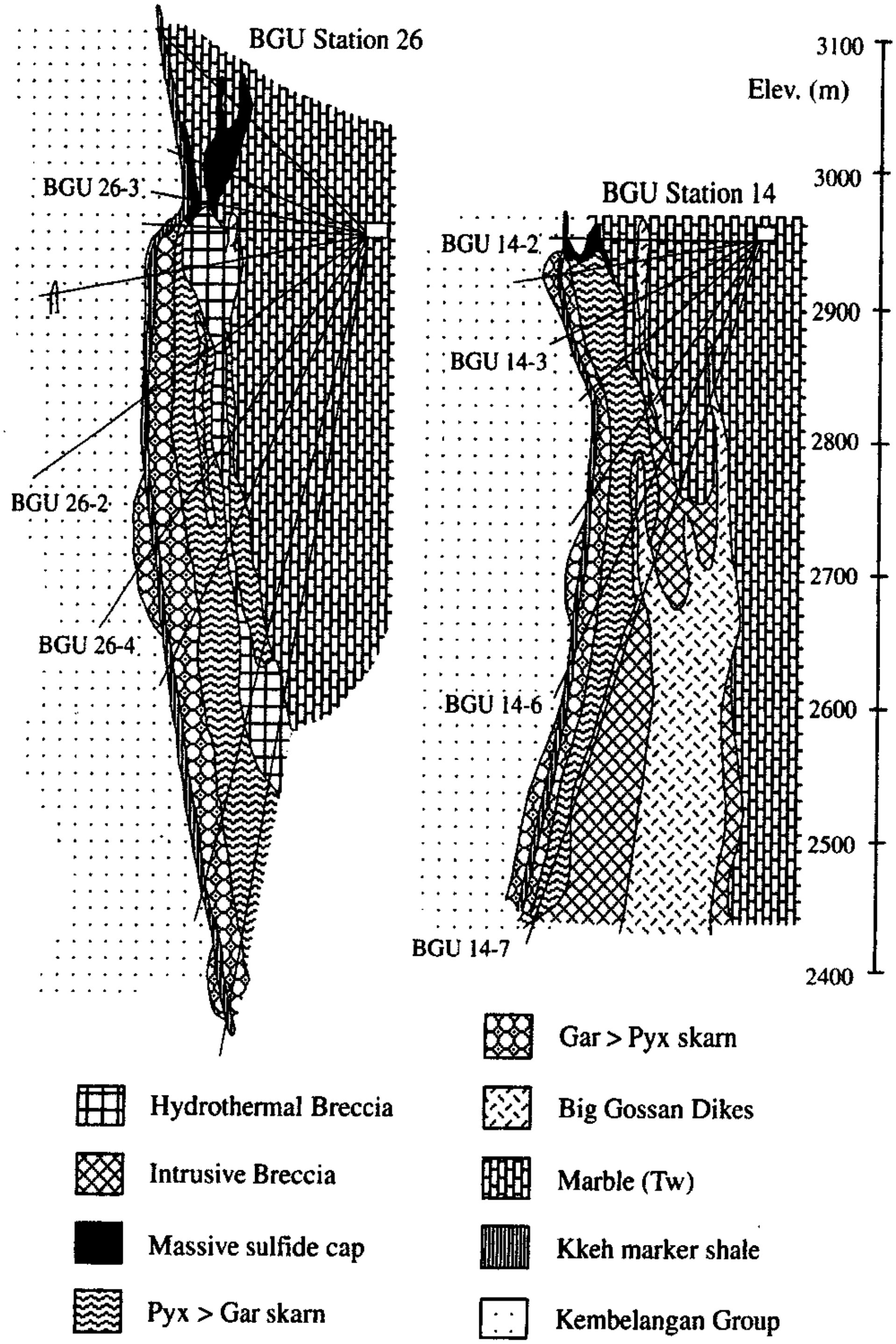


FIG. 25. Cross section through Big Gossan drill stations BGU 26 and BGU 14, illustrating typical geology and distal skarn geometry (modified from Meinert et al., 1997). Lines of section are shown in Figure 24.

Figure 25: Cross-section of Big Gossan Deposit, Meinert (2000)

APPENDIX A

CERTIFICATE OF QUALIFICATIONS

I, **Robert Hugh Pinsent**, of 2335 West 13th Avenue, Vancouver, British Columbia, hereby certify:

1. I am a Consulting Geologist, practicing form 2335 West 13th Avenue, Vancouver, British Columbia.

2. I graduated from Aberdeen University, Scotland, with a B.Sc. Honours (B.Sc. Hons.) Degree in Geology in 1968.

3. I graduated from the University of Alberta, Edmonton, Alberta, with a Master of Science (M.Sc.) Degree in Geology in 1972, and from Durham University, England, with a Doctorate in Geology (Ph.D.) in 1975.

4. I am a Practicing Member of the Association of Professional Engineers and Geoscientists of British Columbia, and have been since August, 1992 (Registration No. 19499).

5. I have practiced my profession over 30 years as an exploration geologist, a civil servant and a geological consultant.

6. This report, dated October 28th, 2003, is based on work conducted on samples collected by the author during a property visit in January, 2003.

7. I do not have a direct or indirect interest in the Vananda property, nor do I own, directly or indirectly, any securities of Consolidated Van Anda Gold Limited.

Dated at Vancouver, British Columbia this 28th day of October, 2003

PROFESSIONAL GEOSCIENTIST
PROVINCE OF BRITISH COLUMBIA
R. H. PINSENT

Robert H. Pinsent, B.Sc., M.Sc., Ph.D., P.Geo.

APPENDIX B

STATEMENT OF COSTS

Vananda Lithogeochemical Study:
Consolidated Van Anda Gold Limited:
Suite 1100 – 475 Howe Street,
Vancouver,BC,
V6C 2B3

Field Visit Costs:

Food & Accommodation: (Texada Inn)	100/day for 4 days	$400.00
Vehicle:	25/day for 4 days	$100.00

Analytical Costs:

Lithogeochemical Analysis: (TeckCominco Research Laboratories Limited)	17 samples at $51.36/sample	$ 873.12
Preparation of Thin Sections: (Vancouver Petrographics Limited)	16 samples at $16.78/sample	$ 268.57

Professional Services:

Field Visit: 20th – 23rd January, 2003	4 days at $400/day	$1,600.00
Data Analysis & Report Preparation:	4 days at $400/day	$1,600.00
	Total:	$4,841.69

Robert H. Pinsent,
2335 West 13th Avenue,
Vancouver, B.C.,
V6K 2S5

APPENDIX C

PETROGRAPHIC DESCRIPTIONS OF VANANDA PROPERTY SAMPLES ANALYSED FOR WHOLE ROCK AND MINOR ELEMENT DATA

KARMUTSEN

Sample T89-8-625

Porphyritic Basalt Flow:

The rock is porphyritic. It is black, speckled with white phenocrysts. It consists of ragged, subhedral, (1 to 5 but predominantly < 2 mm) phenocrysts of fresh, unzoned, plagioclase laths set in a fine-grained (< 1 mm) matrix of felted feldspar, fibrous, green-blue pleochroic amphibole. It also has a dusting of fine-grained magnetite and scattered blebs of pyrite. The phenocrysts are partially overprinted by fibrous amphibole.

MAFIC DYKES

Sample T89-9-235

Porphyritic Basalt Dyke:

The rock is crowded porphyry. It is black and consists of abundant, euhedral to subhedral (1-3 mm), phenocrysts of fresh, locally, weakly marginally-zoned, plagioclase laths set in an aphanitic to very-fine grained matrix of indeterminable composition. The latter probably consists of amphibole, feldspar and a fine dusting of magnetite. The matrix is spotted with small crystals of carbonate and contains traces of pyrite.

Sample T89-10-170

Diabase Dyke:

The rock is green in colour. It is composed of subhedral (1-2 mm) feldspar laths, minor quartz and ragged, blue-green pleochroic amphibole crystals. It has a classic ophitic, or "diabasic", texture. The amphibole is locally dusted with magnetite and the rock, as a whole, is overprinted with scattered spots of carbonate.

Sample T89-13-294

Diabase Dyke:

The rock is mottled, composed of black crystals in a lighter coloured matrix. It is weakly porphyritic. It is composed of very large (5-15 mm), highly poikilitic, phenocrysts of olive-brown, subhedral amphibole that enclose small laths of fresh, marginally zoned, plagioclase, crystals of apatite and magnetite. The matrix is ophitic. It is composed of weakly carbonate and epidote altered, zoned, plagioclase and crystals of blue-green pleochroic amphibole that locally replace the brown variety around its outer margins.

Sample T89-12-166 (Cornell Stock)

Coarse-grained Mafic Diorite.

The rock is mottle, black and white. It has an ophitic, coarse-diabaisic texture. It is composed of coarse-grained (5 mm) ophitic and poikilitic crystals of olive-brown, subhedral amphibole, slightly smaller (3-4 mm), irregular, matted, fibrous laths of blue-green pleochroic amphibole and similar sized, ophitic, weakly carbonate and sericite altered crystals of plagioclase. The rock contains scattered granules of magnetite, pyrite, apatite and sphene.

LITTLE BILLIE INTRUSION

T88-4-375 (BQD)

The rock is grey in colour. It has a medium-grained (4-5 mm) granitic texture. It is composed of fresh laths of weakly to strongly zoned plagioclase and crystals of quartz. It also contains a minor amount of orthoclase and small (0.5-1.0 mm) scattered mafic crystals. The latter include crystals of both fresh and blue-green amphibole-altered brown biotite and separate crystals of weakly blue-green pleochroic amphibole. The biotite is best developed in association with grains of oxide.

T88-1-394 (BQD)

The rock is grey in colour. It has a coarse-grained (4-6 mm) granitic texture. It is composed of quartz, weakly zoned plagioclase, minor orthoclase and a minor amount of fine-grained (0.5-1.0 mm) mafic material. The latter includes scattered laths of fresh brown biotite and separate crystals of weakly blue-green pleochroic amphibole. The mafic crystals are commonly associated with scattered grains of oxide.

T89-16-552 (BQD)

The rock is grey in colour. It has a medium-grained (3-5 mm) granitic texture. It is composed of quartz, weakly zoned plagioclase, minor orthoclase and a minor amount of fine-grained (0.5-1.0 mm) mafic material. The latter includes scattered laths of both fresh and amphibole altered brown biotite and rare separate crystals of weakly blue-green pleochroic amphibole. There are also scattered grains of oxide.

APPENDIX D

CERTIFICATES OF ANALYSIS

VAN ANDA GOLD-X03

T84/T88/T89 SERIES

teckcominco

Job V 03-0085R
Report date: 28 FEB 2003

LAB NO	FIELD NUMBER	SiO2	TiO2	Al2O3	Fe2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P205	Ba(4)	LOI	Total
		%	%	%	%	%	%	%	%	%	%	%	%	%	%
R0301980	T89-8-625	48.54	1.87	14.46	2.64	7.42	0.14	7.92	9.44	3.23	0.31	0.17	0.01	3.40	99.55
R0301981	T84-4-150	43.45	1.44	14.92	6.96	5.48	0.18	8.64	12.77	2.29	0.80	0.62	0.03	2.07	99.65
R0301982	T89-12-166	44.22	1.69	14.76	5.70	5.63	0.20	8.18	11.98	2.01	1.27	0.72	0.05	3.05	99.46
R0301983	T88-1-394	68.16	0.36	15.19	1.58	2.01	0.05	1.38	3.67	4.26	1.99	0.10	0.07	0.84	99.66
R0301984	T88-4-375A	67.70	0.37	15.36	1.23	2.21	0.05	1.48	3.59	4.30	1.96	0.10	0.07	1.39	99.81
R0301985	T88-4-375B	69.27	0.34	14.78	1.81	1.49	0.05	1.33	3.36	3.97	2.35	0.09	0.07	0.91	99.82
R0301986	T88-1-31	68.40	0.28	15.15	2.09	1.06	0.05	0.93	3.53	4.26	2.69	0.10	0.08	0.98	99.60
R0301987	T89-9-351	68.47	0.37	15.21	2.45	1.24	0.05	1.29	3.56	4.23	2.03	0.10	0.07	0.60	99.67
R0301988	T89-9-236	68.01	0.37	15.25	1.63	1.92	0.05	1.50	3.44	4.11	1.90	0.10	0.06	1.33	99.67
R0301989	T89-9-236B	67.93	0.36	15.15	2.08	1.48	0.05	1.52	3.42	4.03	1.91	0.10	0.06	1.56	99.65
R0301990	T89-16-552	67.94	0.38	15.34	2.04	1.69	0.05	1.36	3.50	4.34	1.87	0.09	0.07	0.91	99.58
R0301991	T89-9-235	55.72	0.77	18.67	3.56	3.17	0.12	3.42	7.71	3.02	0.68	0.15	0.04	2.58	99.61
R0301992	T89-10-170	51.52	0.76	17.75	3.15	3.89	0.11	4.23	8.73	2.95	0.70	0.11	0.02	5.62	99.54
R0301993	T89-13-294	52.97	0.70	18.57	3.26	4.65	0.11	3.49	7.46	4.11	0.37	0.18	0.02	3.65	99.54
R0301994	T89-16-459	60.95	0.54	17.14	3.14	2.78	0.10	1.87	5.48	4.80	1.14	0.17	0.06	1.33	99.50
R0301995	T89-16-507	61.41	0.55	17.37	2.55	3.27	0.10	1.88	5.46	4.51	1.22	0.18	0.05	0.97	99.52
R0301996	T84-1-209	47.74	1.09	14.36	5.09	5.74	0.20	7.34	11.27	2.94	0.79	0.23	0.05	2.61	99.45

I=insufficient sample X=small sample E=exceeds calibration C=being checked R=revised

If requested analyses are not shown, results are to follow

ANALYTICAL METHODS

FeO determined by acid digestion /volumetric.LOI determined gravimetrically

Other elements by Li borate fusion/XRF. Where no FeO value shown "Fe2O3" is total Fe as Fe2O3

VAN ANDA GOLD-X03

T84/T88/T89 SERIES

teckcominco

Report date: 03 MAR 2003 Job V03-0085R

LAB NO	FIELD NUMBER	Rb ppm	Sr(1) ppm	Y(1) ppm	Zr ppm	Nb ppm
R0301980	T89-8-625	24	477	15	118	<5
R0301981	T84-4-150	24	638	26	66	<5
R0301982	T89-12-166	29	653	27	90	<5
R0301983	T88-1-394	40	334	7	124	<5
R0301984	T88-4-375A	57	361	18	123	8
R0301985	T88-4-375B	54	327	30	127	<5
R0301986	T88-1-31	92	573	17	122	6
R0301987	T89-9-351	47	334	22	134	<5
R0301988	T89-9-236	43	332	14	129	<5
R0301989	T89-9-236B	43	320	21	132	<5
R0301990	T89-16-552	50	370	14	136	11
R0301991	T89-9-235	28	483	25	113	<5
R0301992	T89-10-170	22	562	17	103	<5
R0301993	T89-13-294	22	509	11	79	<5
R0301994	T89-16-459	31	540	15	138	<5
R0301995	T89-16-507	26	566	33	141	8
R0301996	T84-1-209	19	607	27	99	<5

I=insufficient sample X=small sample E=exceeds calibration C=being checked R=revised
If requested analyses are not shown, results are to follow

ANALYTICAL METHODS

Rb X-Ray fluorescence / pressed pellet
Sr(1) X-Ray fluorescence / pressed pellet
Y(1) X-Ray fluorescence / pressed pellet
Zr X-Ray fluorescence / pressed pellet
Nb X-Ray fluorescence / pressed pellet