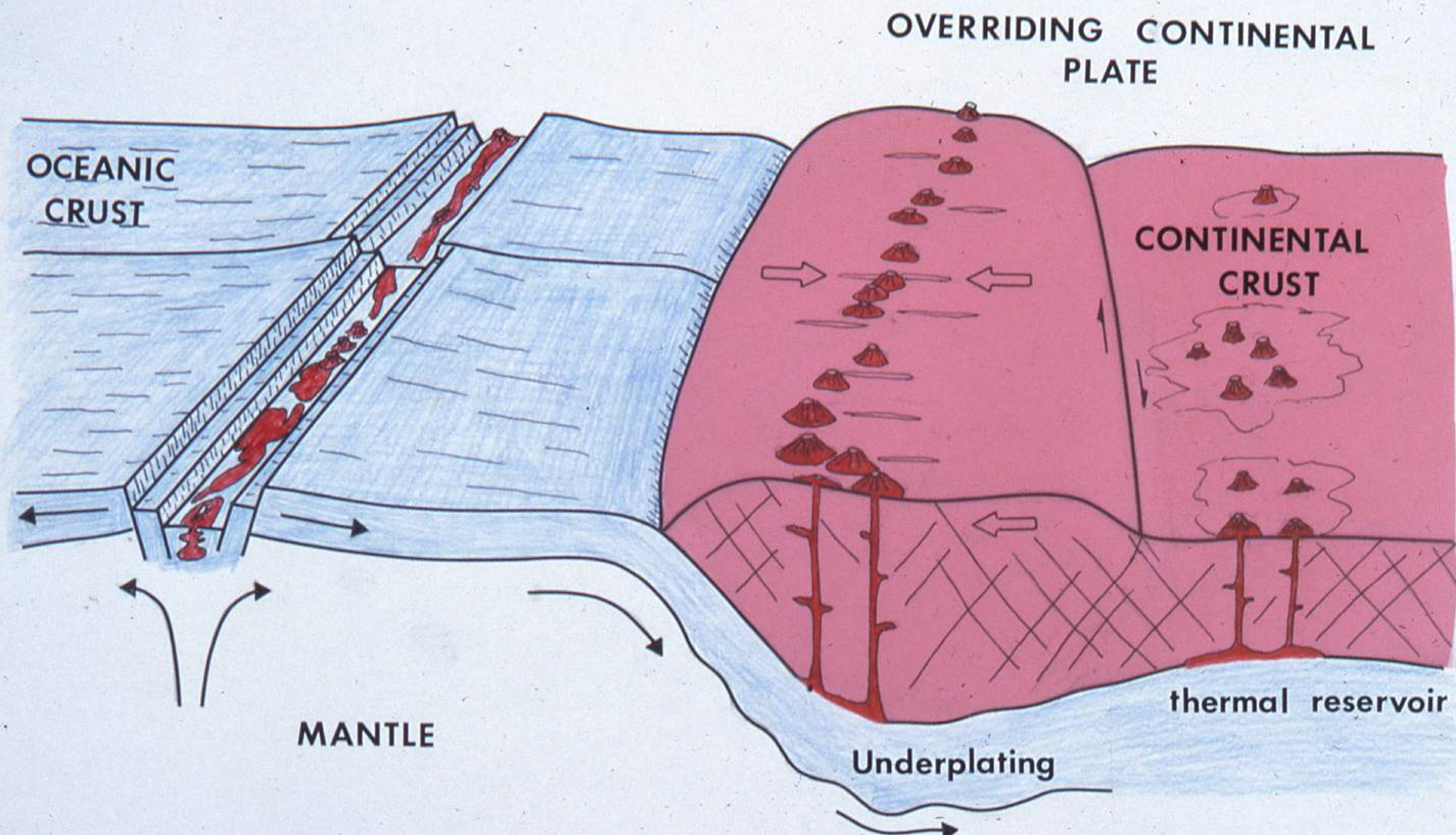

OVERRIDING CONTINENTAL PLATE
OCEANIC CRUST
CONTINENTAL CRUST
MANTLE
thermal reservoir
Underplating

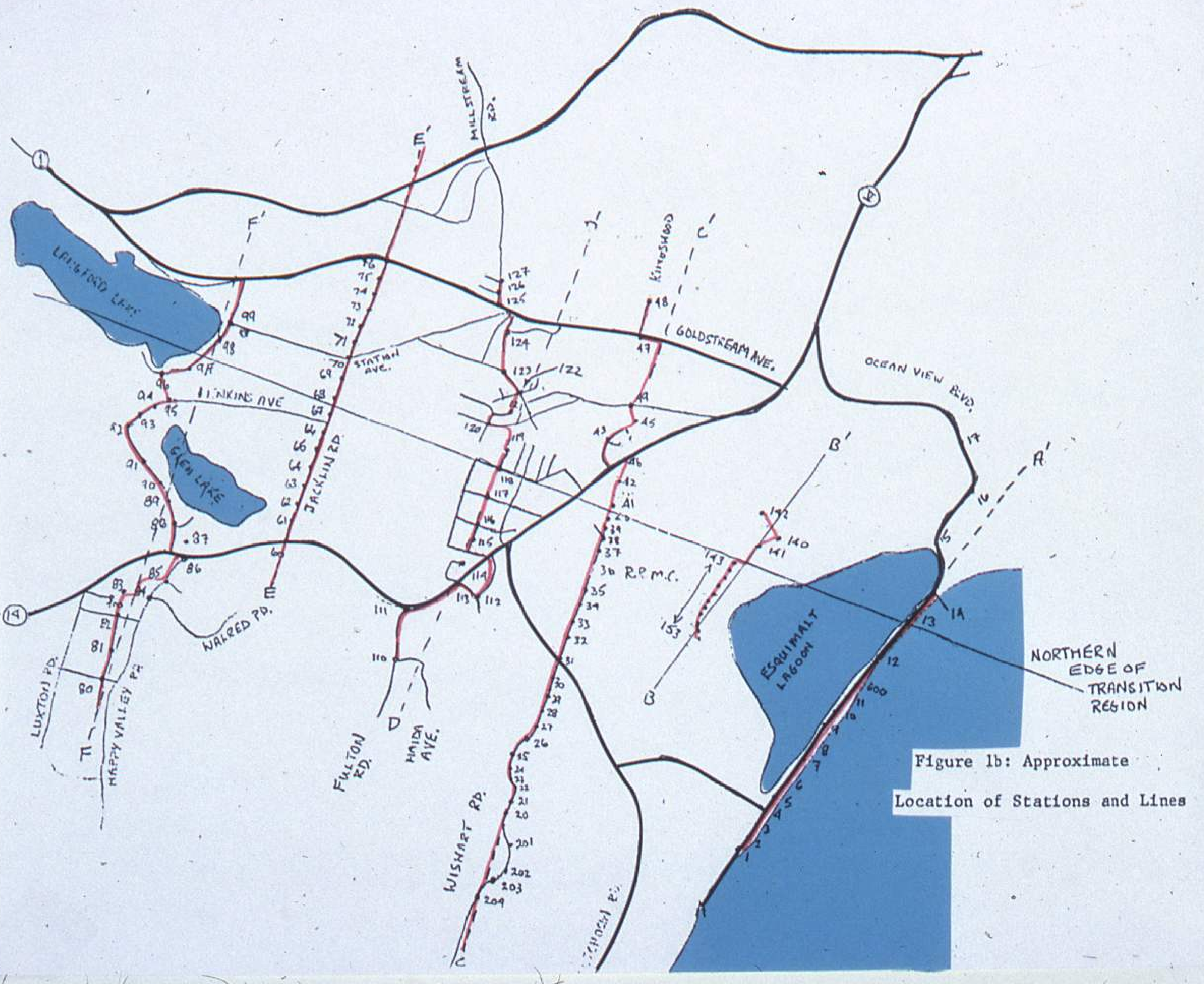
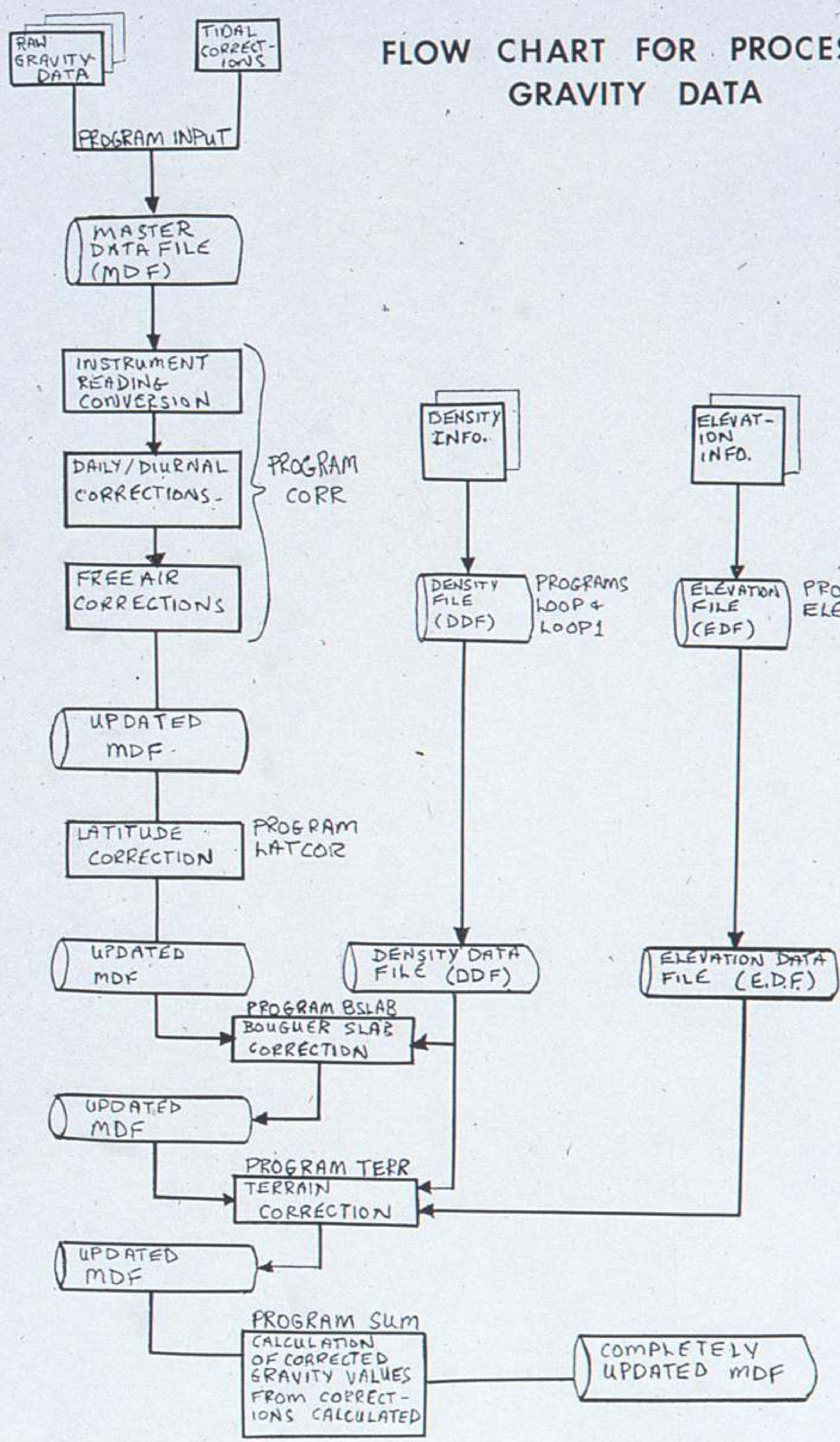


Figure 1b: Approximate Location of Stations and Lines

FLOW CHART FOR PROCESSING GRAVITY DATA

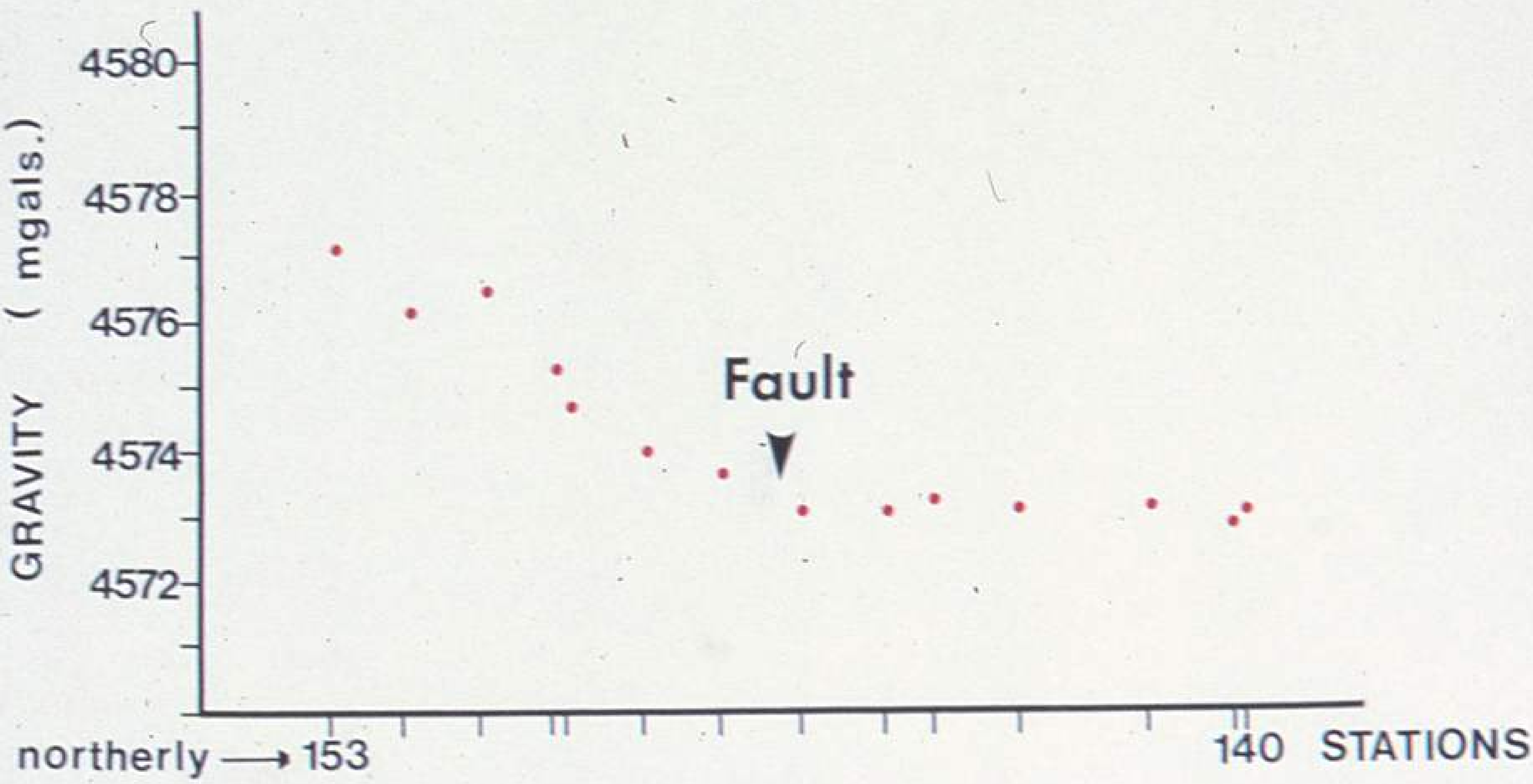


The following formula was used as the basis for refinement of the raw data (in order of application)

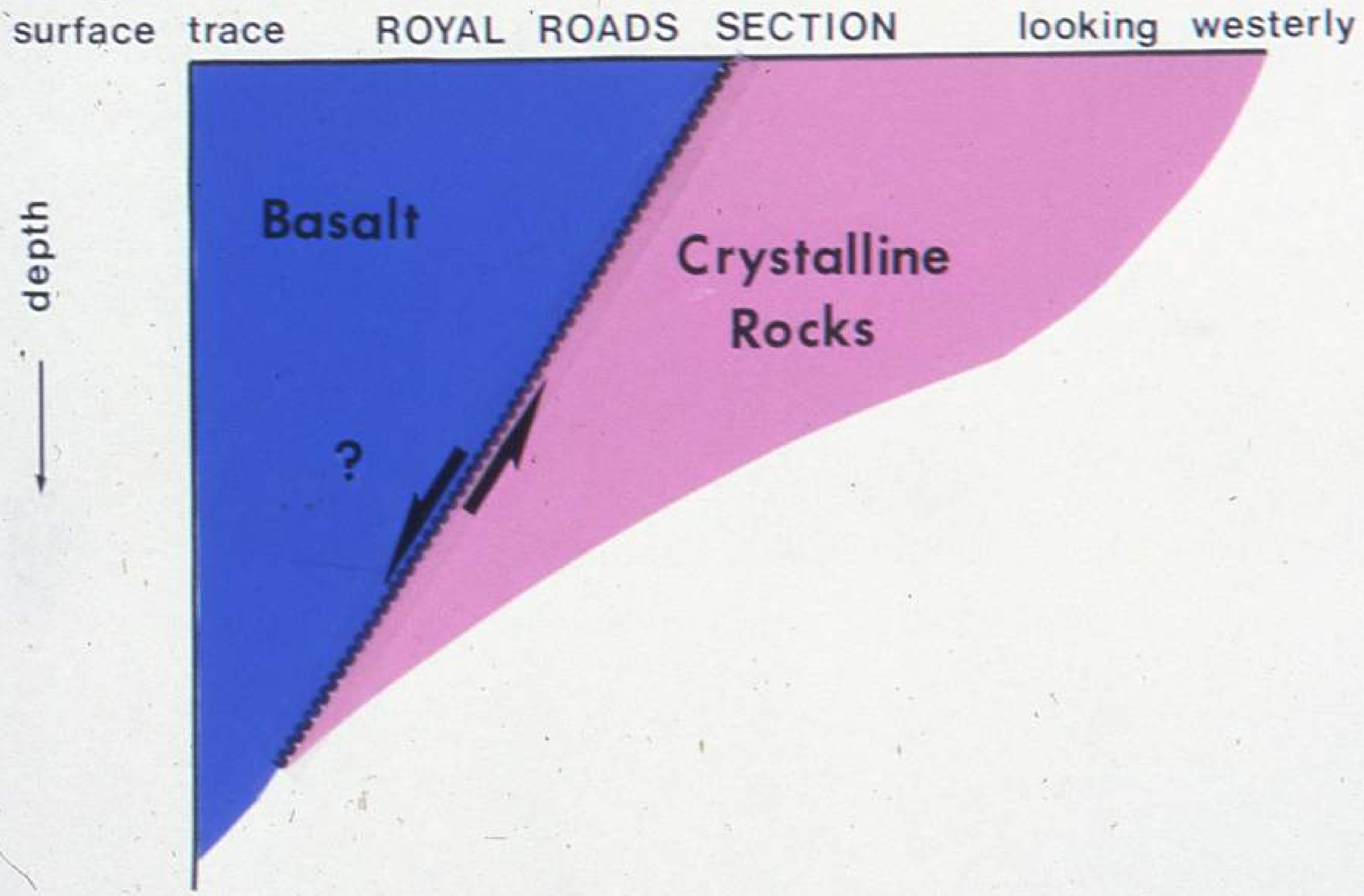
$$g = g' + g(tid) + g(daily) + g(diurnal) + g(fa) + g(lat) - g(b) + g(terr) \text{ mgal}$$

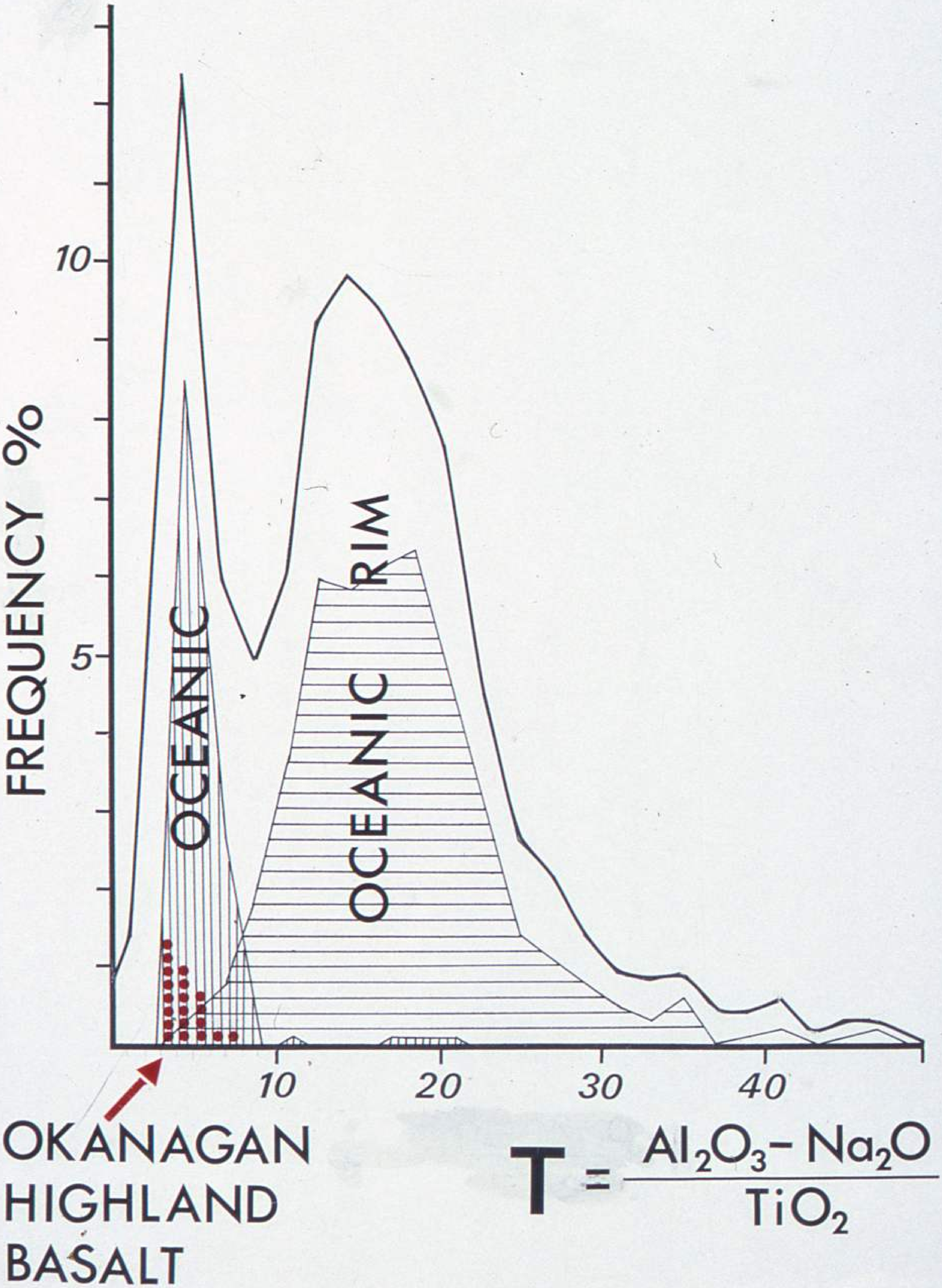
ROYAL ROADS SECTION OF LEECH RIVER FAULT

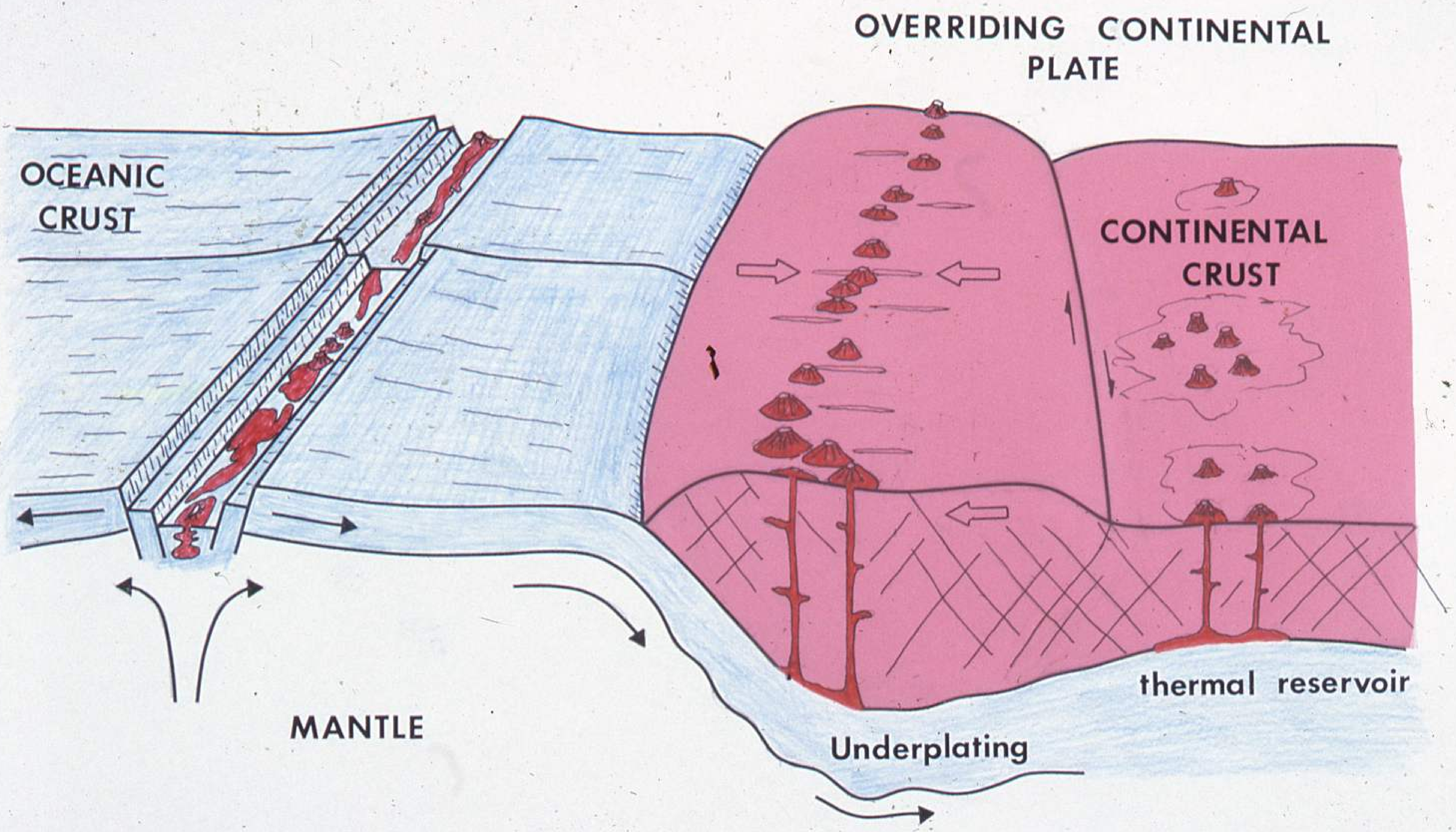
GRAVITY PROFILE



CROSS-SECTION




FREQUENCY %
10
5
OCEANIC
OCEANIC RIM
10
20
30
40
OKANAGAN HIGHLAND BASALT
$T = \frac{Al_2O_3 - Na_2O}{TiO_2}$


OVERRIDING CONTINENTAL PLATE
OCEANIC CRUST
CONTINENTAL CRUST
thermal reservoir
MANTLE
Underplating

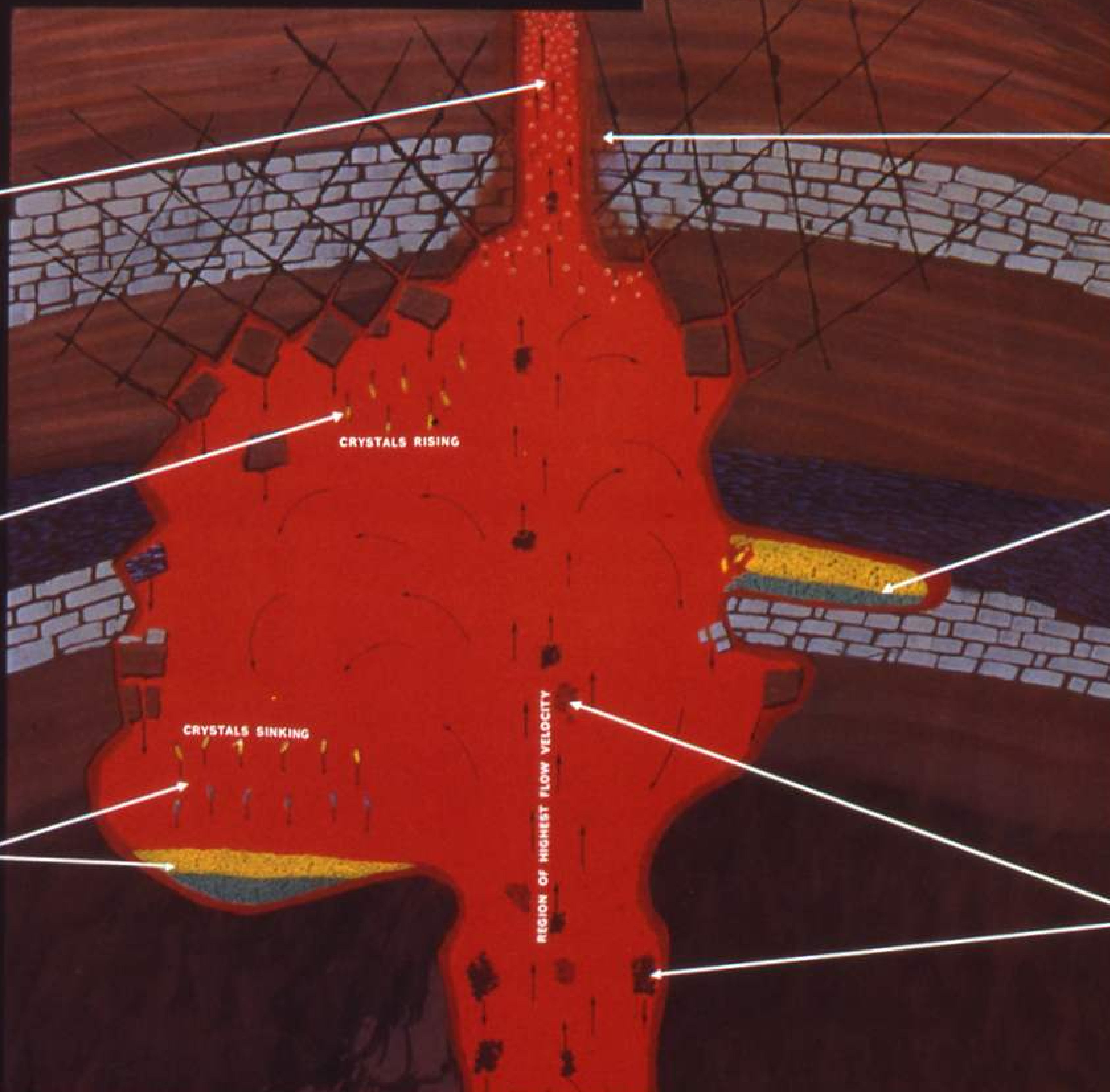
MAGMATIC DIFFERENTIATION

WITHIN LARGE RESERVOIRS OF MAGMA in the continental crust, various processes take place that tend to DIFFERENTIATE or change the composition of the magma. These processes include VESICULATION, CRYSTAL FLOTATION, CRYSTAL SETTLING, DIFFUSION, AND ASSIMILATION OF WALL ROCK.

VESICULATION. Magmas contain volatile constituents such as water (H_2O), carbon dioxide (CO_2), sulfur dioxide (SO_2), sulfur (S_2), and chlorine (Cl_2). As magma rises to the earth's surface, these constituents form gas bubbles or effervesce, similar to the effervescence of soda water. The bubbles tend to rise, carrying with them slightly volatile constituents such as sodium and potassium.

FLOTATION of lightweight crystals containing sodium and potassium tends to enrich the magma in the upper part of the reservoir with these elements.

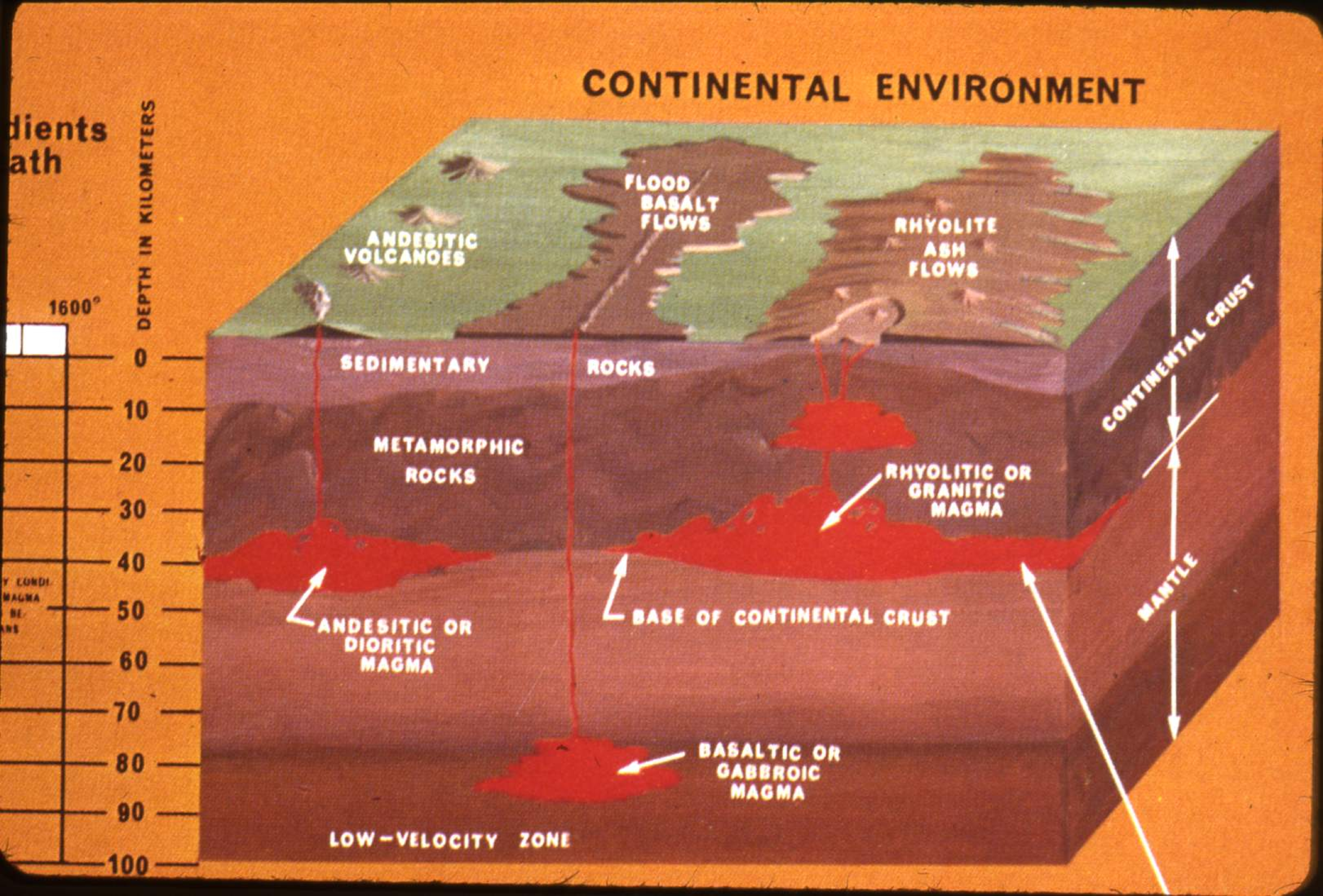
GRAVITATIONAL SETTLING of heavy crystals containing calcium, magnesium, and iron tends to enrich the magma in the lower part of the reservoir with these elements. Given sufficient time, this process may yield, upon crystallization, bodies of stratified rocks with layers rich in heavier silicate minerals (green) at the bottom, and layers rich in lighter-weight silicate minerals (yellow) at the top.

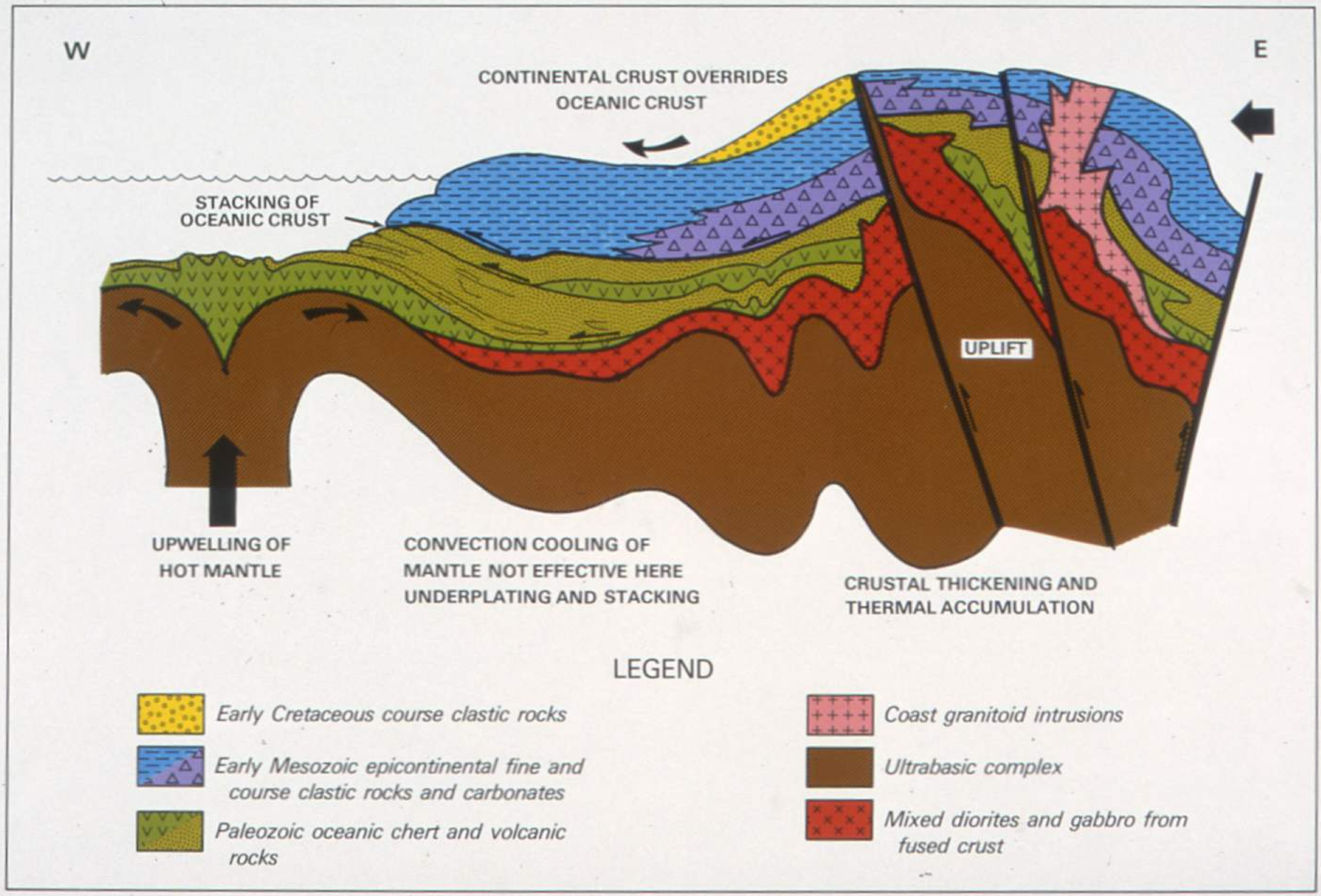


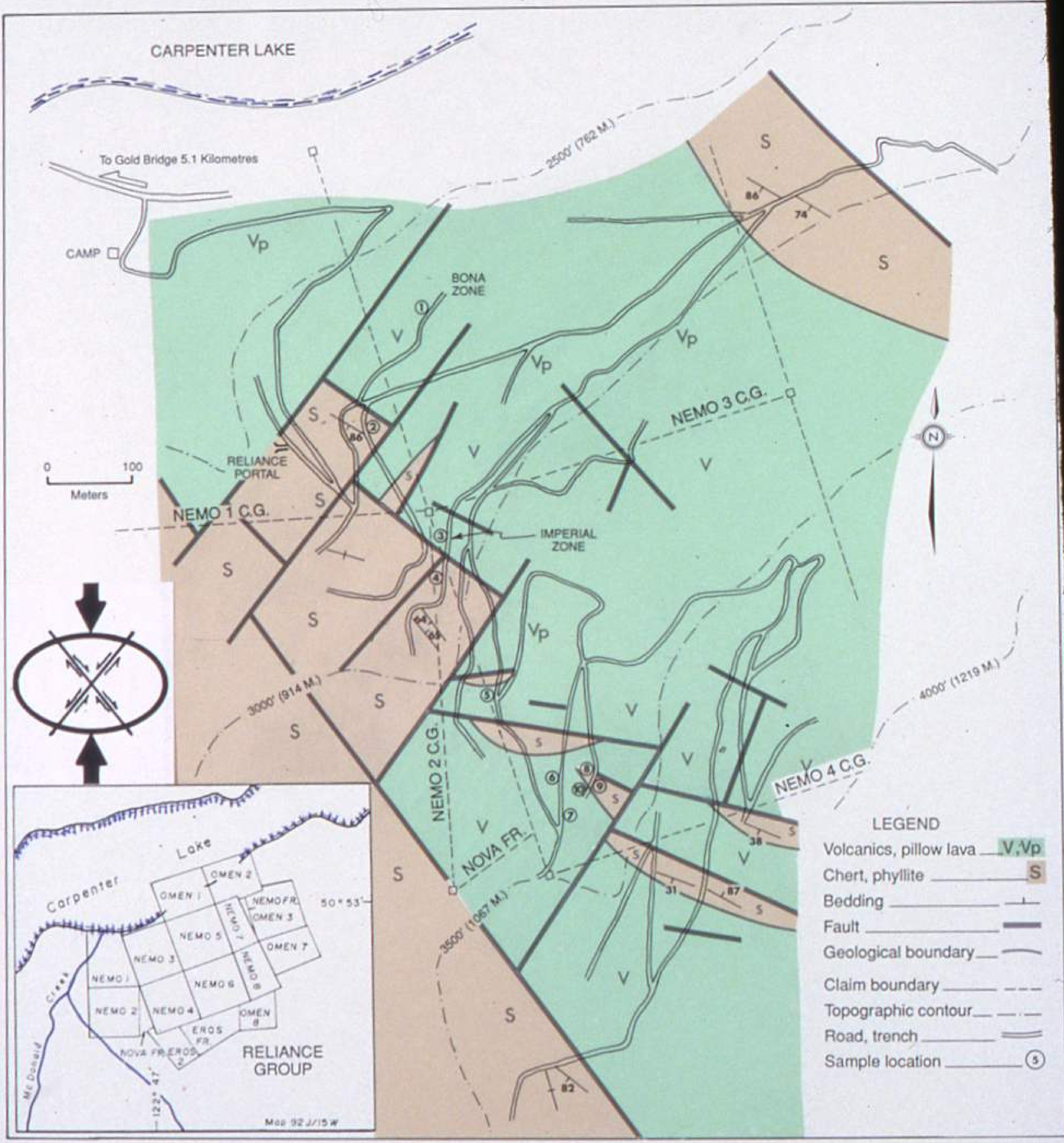
DIFFUSION, the slow exchange of material between the magma and the confining rock walls of the magma reservoir, is not as effective as other mechanisms of differentiation. It can be somewhat effective, however, if the magma is stirred by convection and circulates near the walls where it can lose some constituents and gain others.

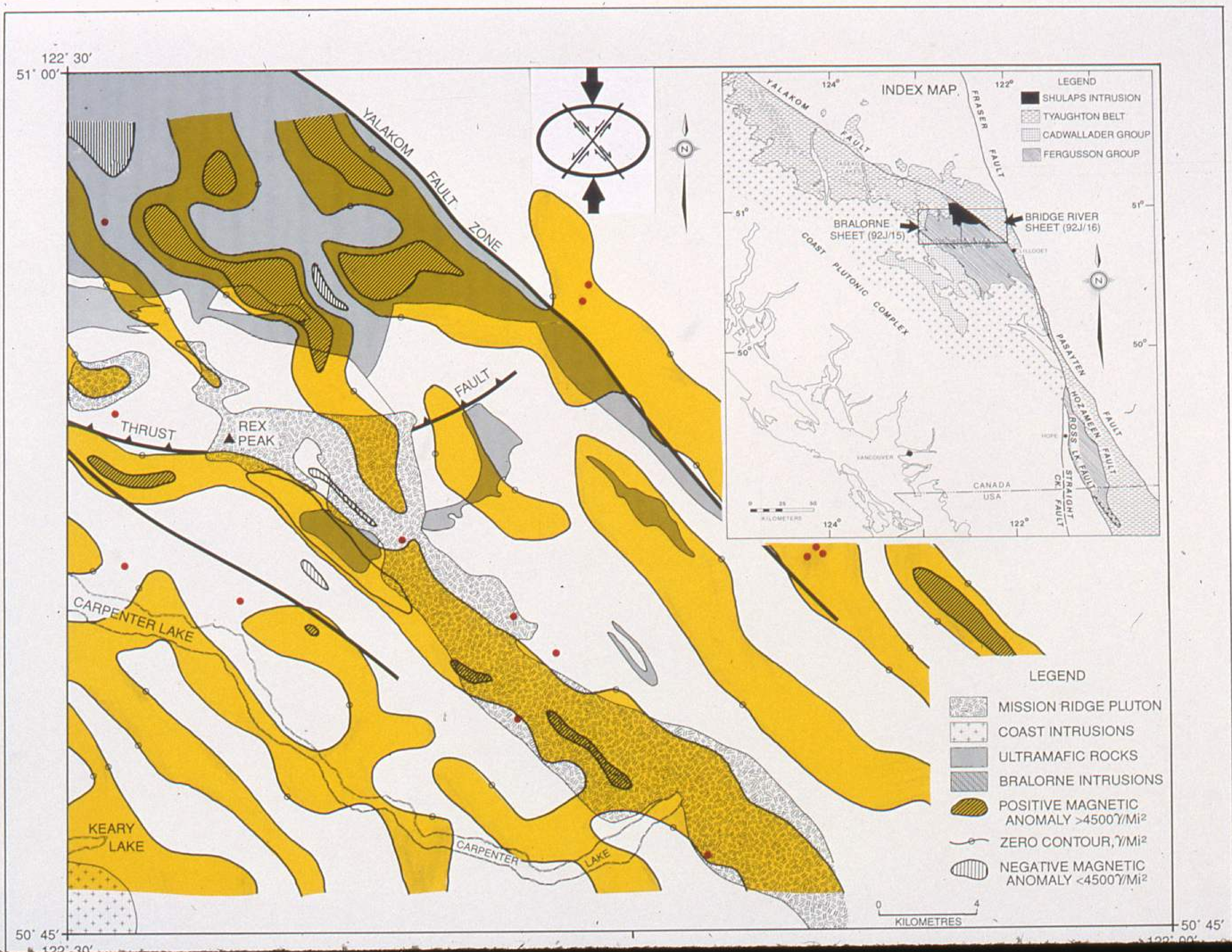
THICK HORIZONTAL SILLS commonly exhibit magmatic differentiation by crystal settling. The thin outer shell represents the original magma frozen against the walls of the reservoir. As the interior cools, the settling of crystals produces layers of heavy silicate minerals (green) at the bottom and layers of lighter-weight silicate minerals (yellow) at the top.

ASSIMILATION OF WALL ROCK. During emplacement of a magma, rocks torn from the walls of a reservoir become incorporated in the magma. These rocks react with the magma, or may be completely dissolved, thereby changing the magma's composition. If the wall rocks are rich in sodium, potassium, and silicon, the magma changes toward a granitic composition. If the rocks are rich in calcium, magnesium, and iron, the magma changes toward a gabbroic composition.


CONTINENTAL ENVIRONMENT
dients
ath
1600°
DEPTH IN KILOMETERS
0
10
20
30
40
50
60
70
80
90
100
ANDESITIC VOLCANOES
FLOOD BASALT FLOWS
RHYOLITE ASH FLOWS
SEDIMENTARY ROCKS
METAMORPHIC ROCKS
RHYOLITIC OR GRANITIC MAGMA
ANDESITIC OR DIORITIC MAGMA
BASE OF CONTINENTAL CRUST
BASALTIC OR GABBROIC MAGMA
LOW-VELOCITY ZONE
CONTINENTAL CRUST
MANTLE

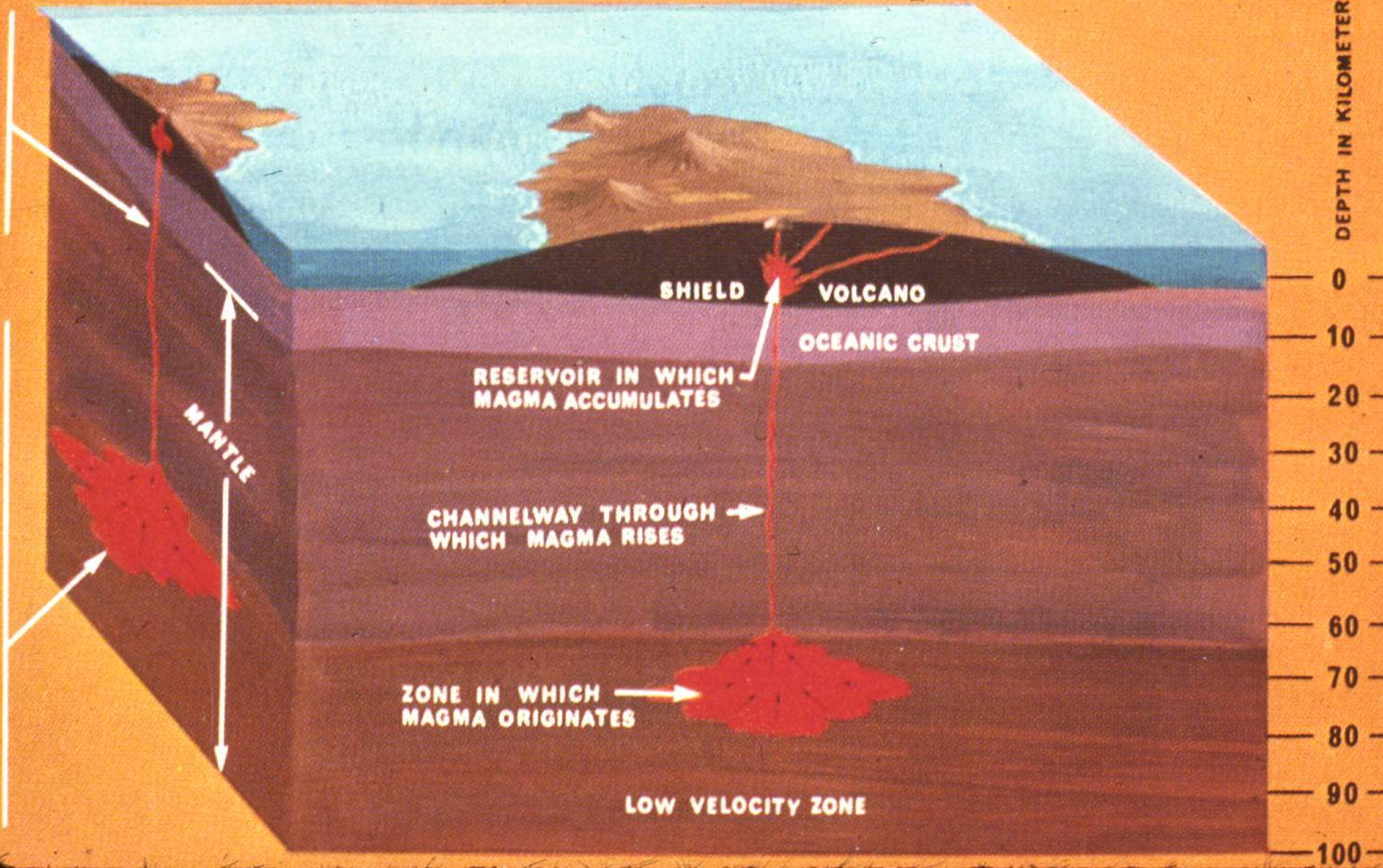

W
E
CONTINENTAL CRUST OVERRIDES
OCEANIC CRUST
STACKING OF
OCEANIC CRUST
UPLIFT
UPWELLING OF
HOT MANTLE
CONVECTION COOLING OF
MANTLE NOT EFFECTIVE HERE
UNDERPLATING AND STACKING
CRUSTAL THICKENING AND
THERMAL ACCUMULATION
LEGEND
Early Cretaceous course clastic rocks
Early Mesozoic epicontinental fine and course clastic rocks and carbonates
Paleozoic oceanic chert and volcanic rocks
Coast granitoid intrusions
Ultrabasic complex
Mixed diorites and gabbro from fused crust

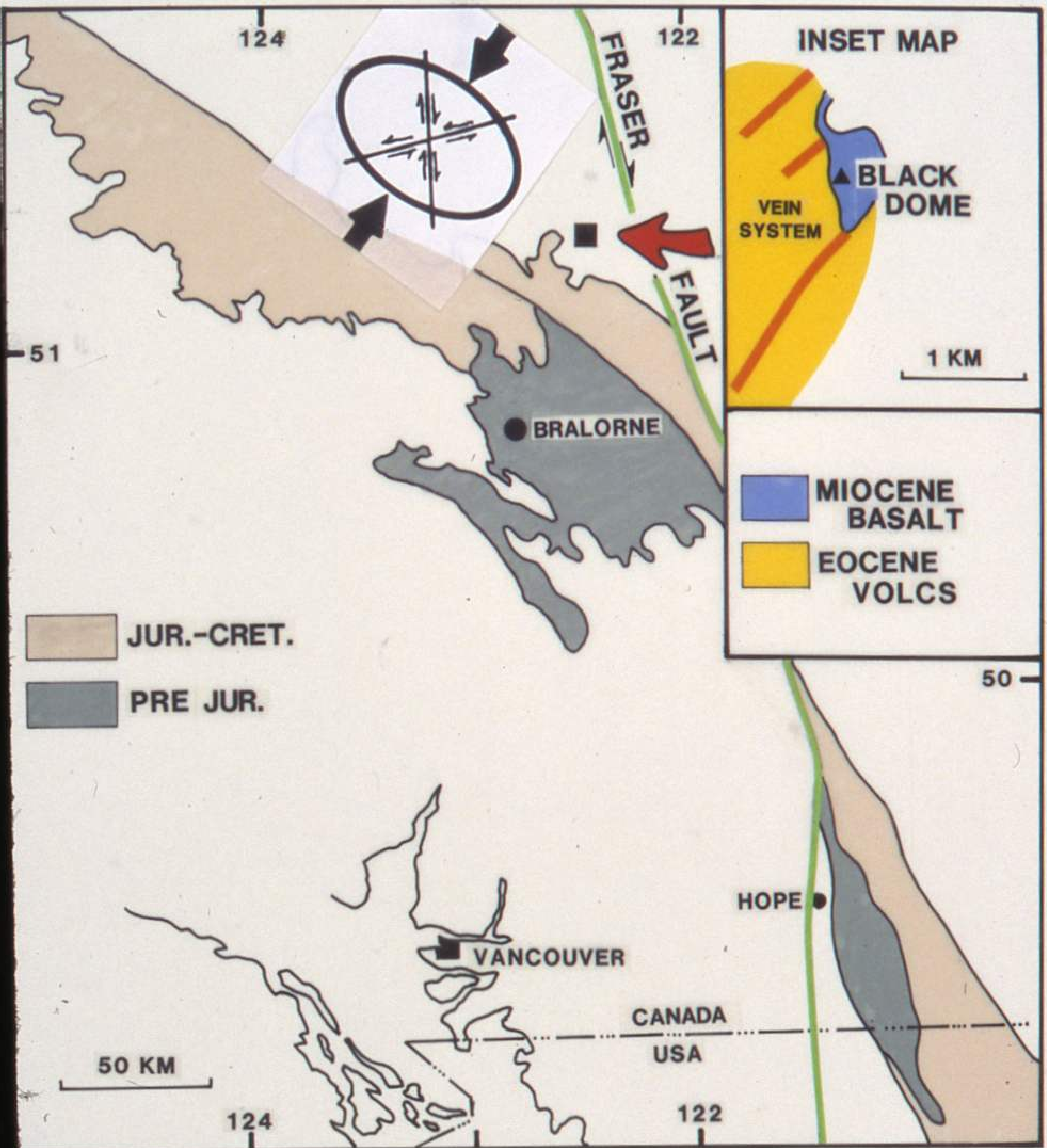

CARPENTER LAKE
To Gold Bridge 5.1 Kilometres
CAMP
2500' (762 M.)
BONA ZONE
RELIANCE PORTAL
0 100
Meters
NEMO 1 C.G.
IMPERIAL ZONE
NEMO 3 C.G.
3000' (914 M.)
4000' (1219 M.)
NEMO 2 C.G.
NEMO 4 C.G.
NOVA FR.
3500' (1067 M.)
50° 53'
LEGEND
Volcanics, pillow lava V,Vp
Chert, phyllite S
Bedding
Fault
Geological boundary
Claim boundary
Topographic contour
Road, trench
Sample location
Carpenter
Lake
OMEN 1
OMEN 2
NEMO FR.
OMEN 3
NEMO 5
NEMO 7
NEMO 3
OMEN 7
NEMO 1
NEMO 6
NEMO 8
NEMO 2
NEMO 4
OMEN 8
EROS FR.
NOVA FR.
EROS 2
RELIANCE GROUP
McDonald Creek
122° 47'
Map 92 J/15 W



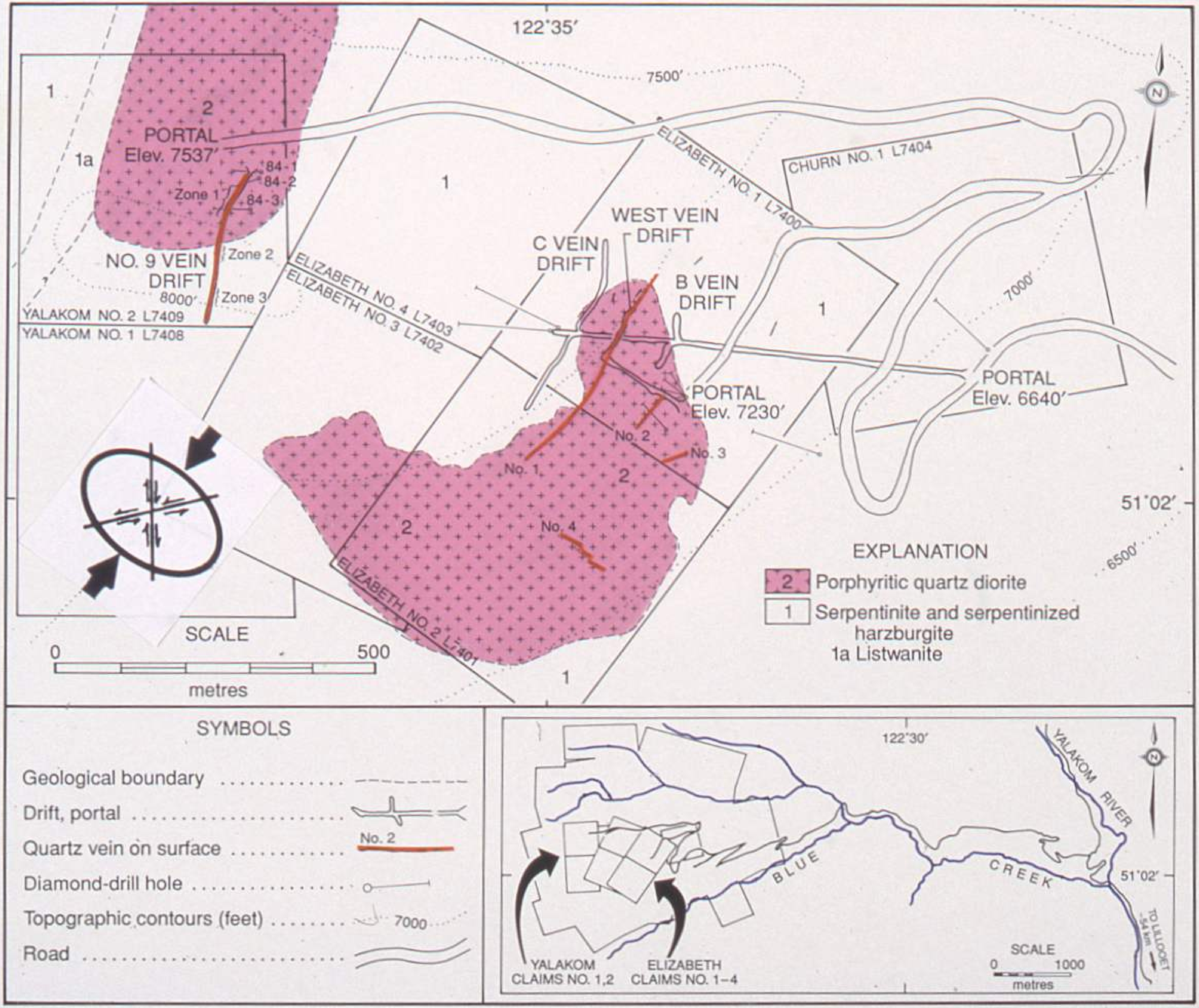
122° 30'
51° 00'
YALAKOM FAULT ZONE
FAULT
THRUST
REX PEAK
CARPENTER LAKE
KEARY LAKE
CARPENTER LAKE
INDEX MAP
YALAKOM FAULT
FRASER FAULT
124°
122°
51°
50°
BRALORNE SHEET (92J/15)
BRIDGE RIVER SHEET (92J/16)
LILLOOET
COAST PLUTONIC COMPLEX
PASAYTEN FAULT
HOZAMEEN FAULT
ROSS LK. FAULT
STRAIGHT CK. FAULT
HOPE
VANCOUVER
CANADA
USA
KILOMETERS
LEGEND
SHULAPS INTRUSION
TYAUGHTON BELT
CADWALLADER GROUP
FERGUSSON GROUP
LEGEND
MISSION RIDGE PLUTON
COAST INTRUSIONS
ULTRAMAFIC ROCKS
BRALORNE INTRUSIONS
POSITIVE MAGNETIC ANOMALY >4500γ/Mi²
ZERO CONTOUR, γ/Mi²
NEGATIVE MAGNETIC ANOMALY <4500γ/Mi²
0
4
KILOMETRES
50° 45'
122° 30'
50° 45'
122° 00'

OCEANIC ENVIRONMENT





124
122
FRASER
FAULT
INSET MAP
VEIN SYSTEM
BLACK DOME
1 KM
MIOCENE BASALT
EOCENE VOLCS
51
50
BRALORNE
JUR.-CRET.
PRE JUR.
HOPE
VANCOUVER
CANADA
USA
50 KM
124
122



122°35′
7500′
1
2
PORTAL
Elev. 7537′
1a
84-1
84-2
Zone 1
84-3
NO. 9 VEIN
DRIFT
Zone 2
8000′
Zone 3
YALAKOM NO. 2 L7409
YALAKOM NO. 1 L7408
ELIZABETH NO. 1 L7400
CHURN NO. 1 L7404
WEST VEIN
DRIFT
C VEIN
DRIFT
B VEIN
DRIFT
ELIZABETH NO. 4 L7403
ELIZABETH NO. 3 L7402
7000′
PORTAL
Elev. 6640′
PORTAL
Elev. 7230′
No. 2
No. 3
No. 1
No. 4
51°02′
EXPLANATION
2 Porphyritic quartz diorite
1 Serpentinite and serpentinized harzburgite
1a Listwanite
6500′
ELIZABETH NO. 2 L7401
SCALE
0
500
metres
SYMBOLS
Geological boundary
Drift, portal
Quartz vein on surface
No. 2
Diamond-drill hole
Topographic contours (feet)
7000
Road
122°30′
YALAKOM RIVER
BLUE
CREEK
51°02′
TO LILLOOET 54 km
SCALE
0
1000
metres
YALAKOM CLAIMS NO. 1,2
ELIZABETH CLAIMS NO. 1–4

Province of British Columbia
Ministry of Energy, Mines and Petroleum Resources

OPEN FILE MAP 1988 - 3

GEOLOGY OF THE BRALORNE MAP AREA

92J/15

By B.N. Church, M. MacLean, R.G. Gaba, M.J. Hanna and D.A. James

RELEASED FEBRUARY 1988

LEGEND

BEDDED ROCKS

TERTIARY

7 *(Eocene?) Felsic and intermediate lavas, hoodoo forming pyroclastics and minor sedimentary rocks*

LOWER CRETACEOUS

6 TAYLOR CREEK GROUP: *mostly boulder and pebble conglomerate and sandstone (6a) with some intercalated shales and micaceous sandstones (6b)*

UPPER JURASSIC

5 RELAY MOUNTAIN GROUP: *buchia-bearing grey shales, siltstones, tuffaceous and polymictic conglomerate*

TRIASSIC

CADWALLADER GROUP:

4 *HURLEY FORMATION: soft brown and green argillites, siliceous and calcareous argillites with sandstone and conglomerate (4a), limestone (4b) and volcaniclastics (4c)*

3 *NOEL FORMATION: mainly black argillite and siltstone with some calcareous zones*

2 *PIONEER FORMATION: basaltic pillow lava (2a), aquagene breccia and lenses of limestone breccia (2b), tuffs and amygdaloidal lava (2c)*

PALEOZOIC

1 FERGUSSON GROUP: *mostly ribbon chert (1a), ranging to biotite quartz gneiss (1b), some marble bands (1c) and fine-grained amphibolite (1d)*

IGNEOUS INTRUSIONS

TERTIARY

D REX PEAK PORPHYRY: *a felsic phase of the (Eocene) Mission Ridge pluton and equivalent stocks, sills and dykes*

CRETACEOUS

C COAST INTRUSIONS: *biotite and hornblende diorite, granodiorite and granite (including the various phases of the Eldorado (Ca) and Bendor (Cb) stocks)*

MESOZOIC

B *ULTRABASIC ROCKS: peridotite, serpentine and listwanite (Ba)*

PALEOZOIC

A *BRALORNE INTRUSIONS: mostly heterogeneous amphibolite, diorite and gabbro with felsic veinlets*

SYMBOLS

Geological Boundary
Bedding — horizontal, inclined
Foliation, schistosity
Fold Axis (plunge)
Glacial Striae
Fault — approximate, assumed
Roads
Topographic contours (interval, 50 metres)
Properties — Mines