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## Figures and tables

### Figures

(Front cover) Air-photo mosaic of Ardnamurchan showing the most complete set of ring intrusions in the British Isles. The relief of the hills is seen more clearly if the book is turned upside down. that is viewed from the north. Reproduced from Directorate of Overseas Surveys Mosaic DeS Geol. 1042 © Crown Copyright Ref. No. C4/83/52

(Map) Map of the Tertiary igneous complex of Ardnamurchan

(Figure 1) The Tertiary igneous centres of Scotland and their associated dyke swarms (based on Richey *et al.* 1930).

(Figure 2) The Tertiary intrusive complexes of Ardnamurchan—Centres 1, 2 and 3 (based on Richey *et al.* 1930).

(Figure 3) The Ben Hiant vent-complex (based on Richey *et al.* 1930 and Gribble 1974).

(Figure 4) Glas Eilean vent (based on Richey *et al.* 1930),

(Figure 5) Dips of layering for southern part of the hypersthene-gabbro (based on Skelhorn and Elwell 1971).

(Figure 6) Dips of layering for north-western part of the hypersthene-gabbro (based on Skelhorn and Elwell 1971).

(Figure 7) The granophyric quartz-dolerite and associated intrusions of Centre 2 (based on Skelhorn and Elwell 1971).

(Figure 8) The ring intrusions of Centre 3 (following Richey *et al.* 1930).

(Figure 9) Compositions of clinopyroxenes from rocks of Centre 3. Clinopyroxenes from the eucrites are less iron-rich than clinopyroxenes from the gabbros, and clinopyroxenes from the dolerite show substantial iron enrichment. The trend is similar to the Skaergaard trend although with less calcium depletion. The samples from the tonalite and quartz-monzonite do not continue this iron enrichment trend, and are interpreted as hybrid rocks formed from the partial melting of pre-existing rocks by the basic magma. Samples from the small gabbro intrusion of Meall an Tarmachain have been omitted as their results are ambiguous.

(Figure 10) The Mesozoic rocks and Tertiary igneous rocks of SrSròn Bheag (based on Richey *et al.* 1930).

(Figure 11) The outer cone-sheets of Centre 2. Mingary Pier area (based on Richey *et al.* 1930).

(Figure 12) Geology of the shore area near Mingary Castle (based on Richey *et al.*).

(Figure 13) geology of the shore section south of Eilean Carrach (based on Skelhorn and Elwell 1966)

(Figure 14) Geology of the area east of Grigdale, centre 2 (based on Paithankar 1968)

(Figure 15) a. Geology of Faskadale Bay (after Richey, map 19). Minor intrusions removed. b. North-south section of rocks, west of Faskadale Bay (based on Richey *et al.* 1930)

### Tables

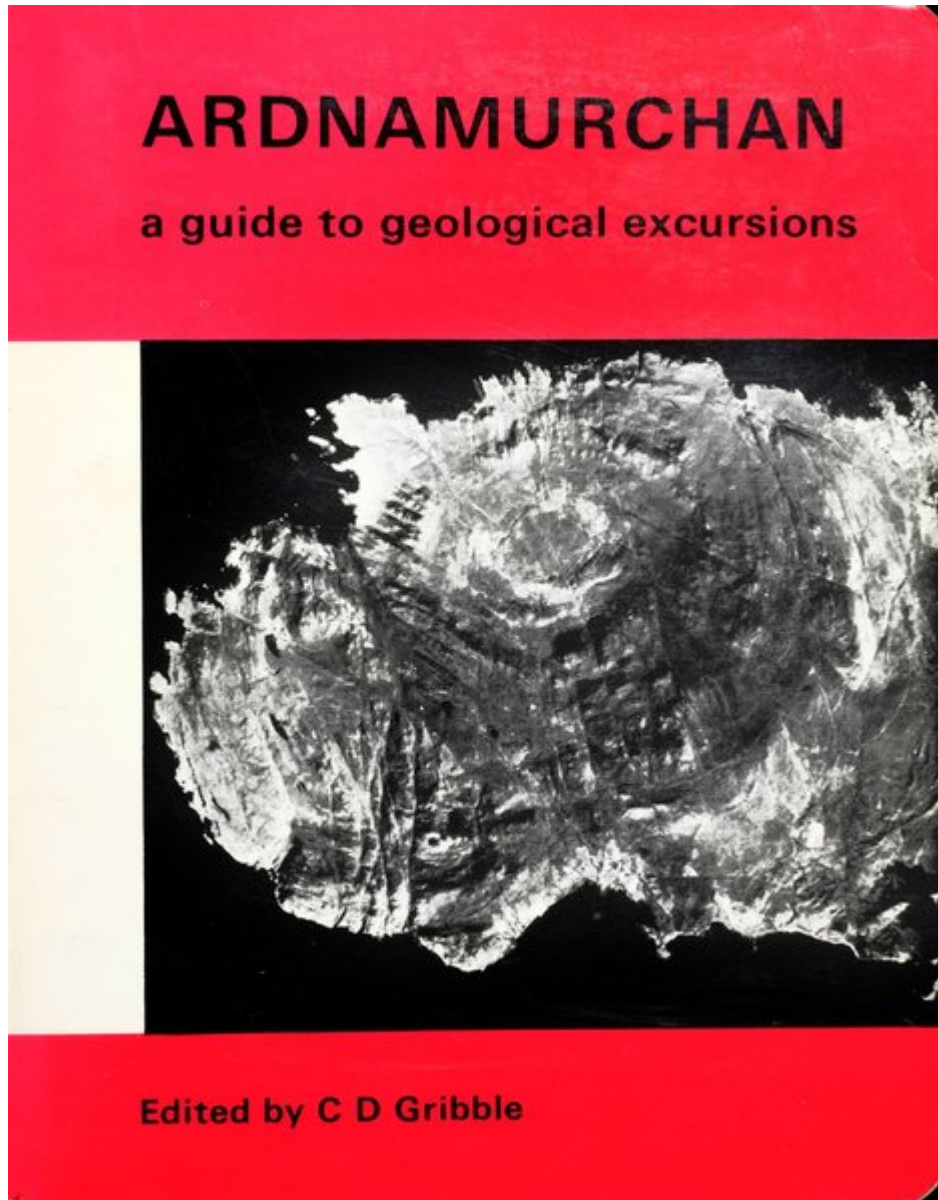
(Table 1) Radiometric ages of Tertiary igneous rocks (based on Mussett *et al.* 1988)

(Table 2) Mesozoic rocks of Ardnamurchan.

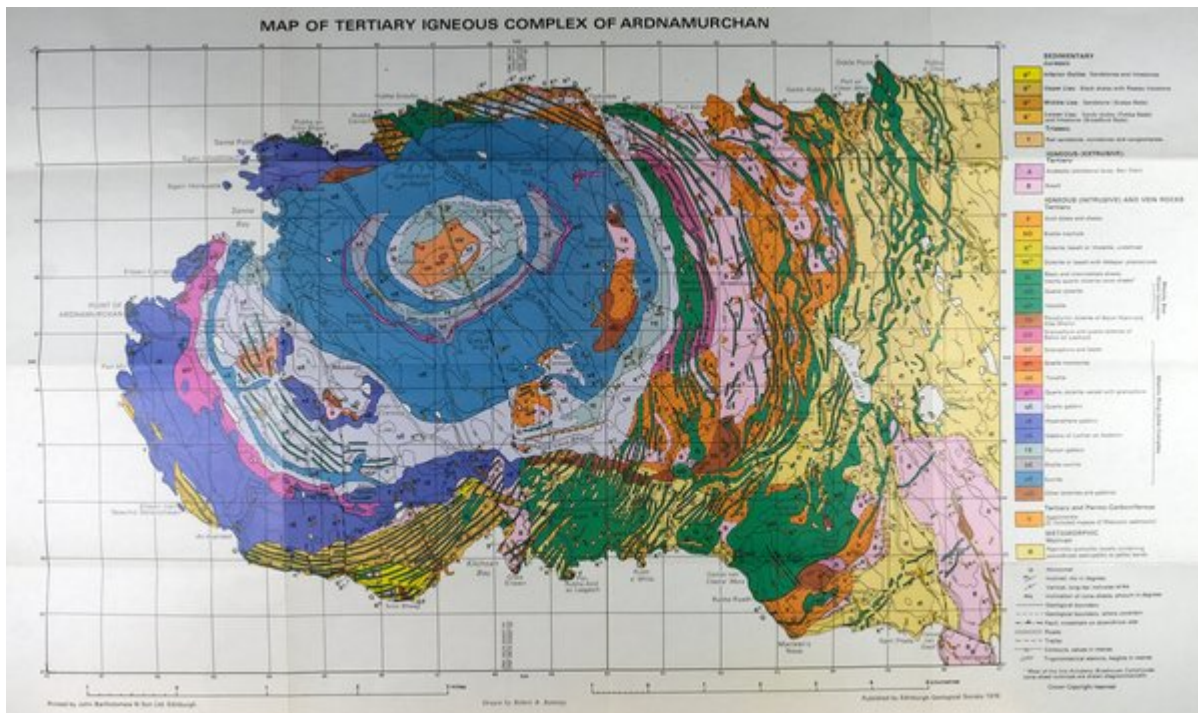
(Table 3) Compositions of Centre 1 rocks and magmas.

(Table 4) Modal proportions of the Centre 3 rocks.

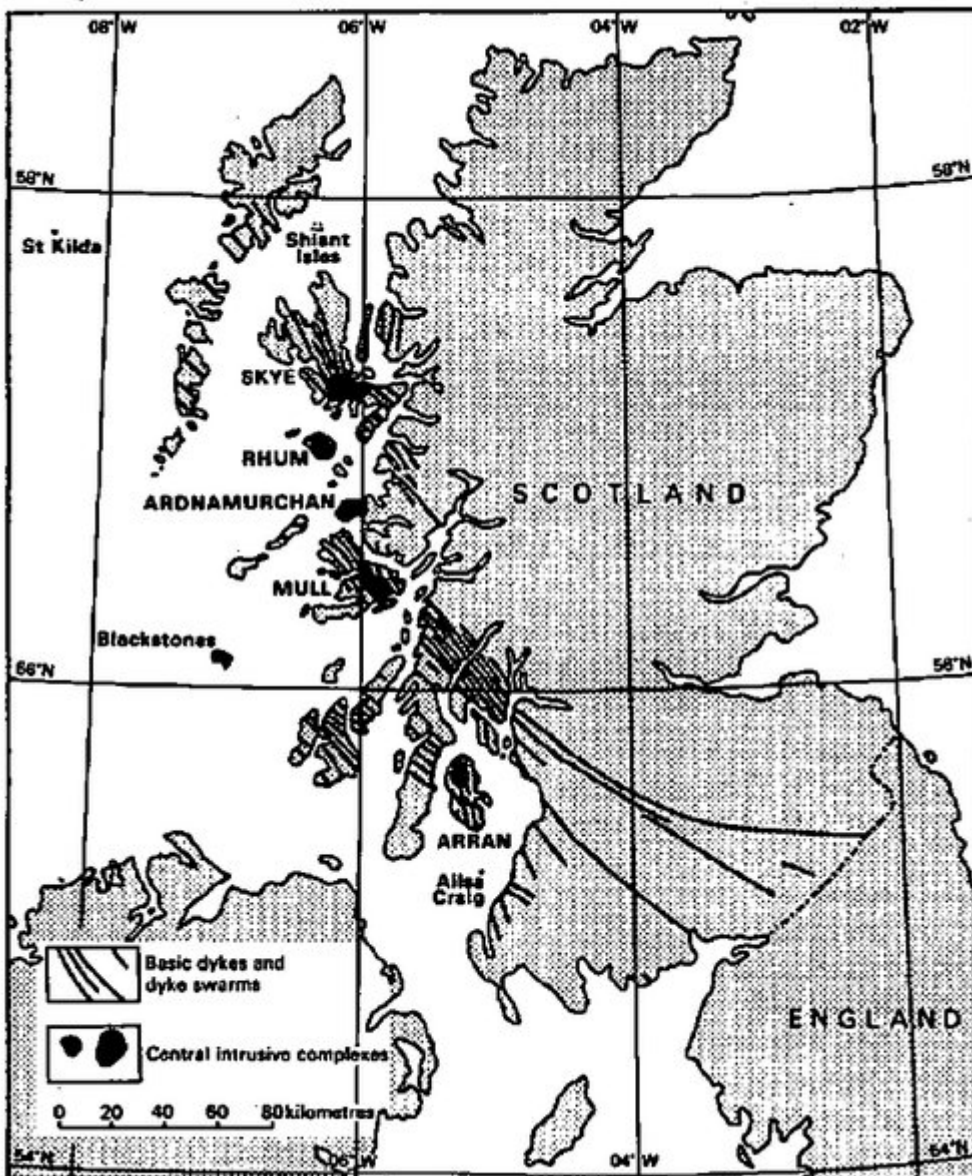
[References](#)



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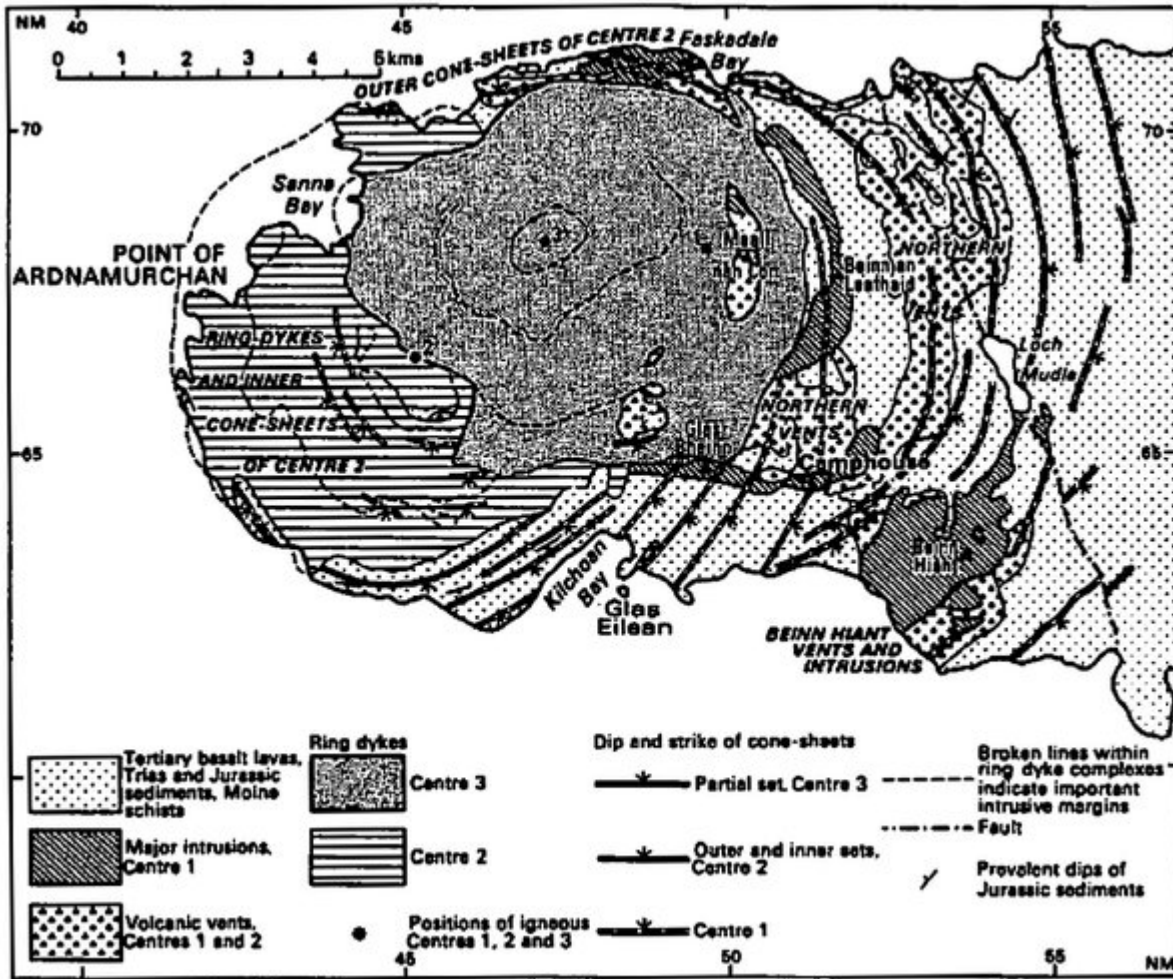


(Map) Map of the Tertiary igneous complex of Ardnamurchan

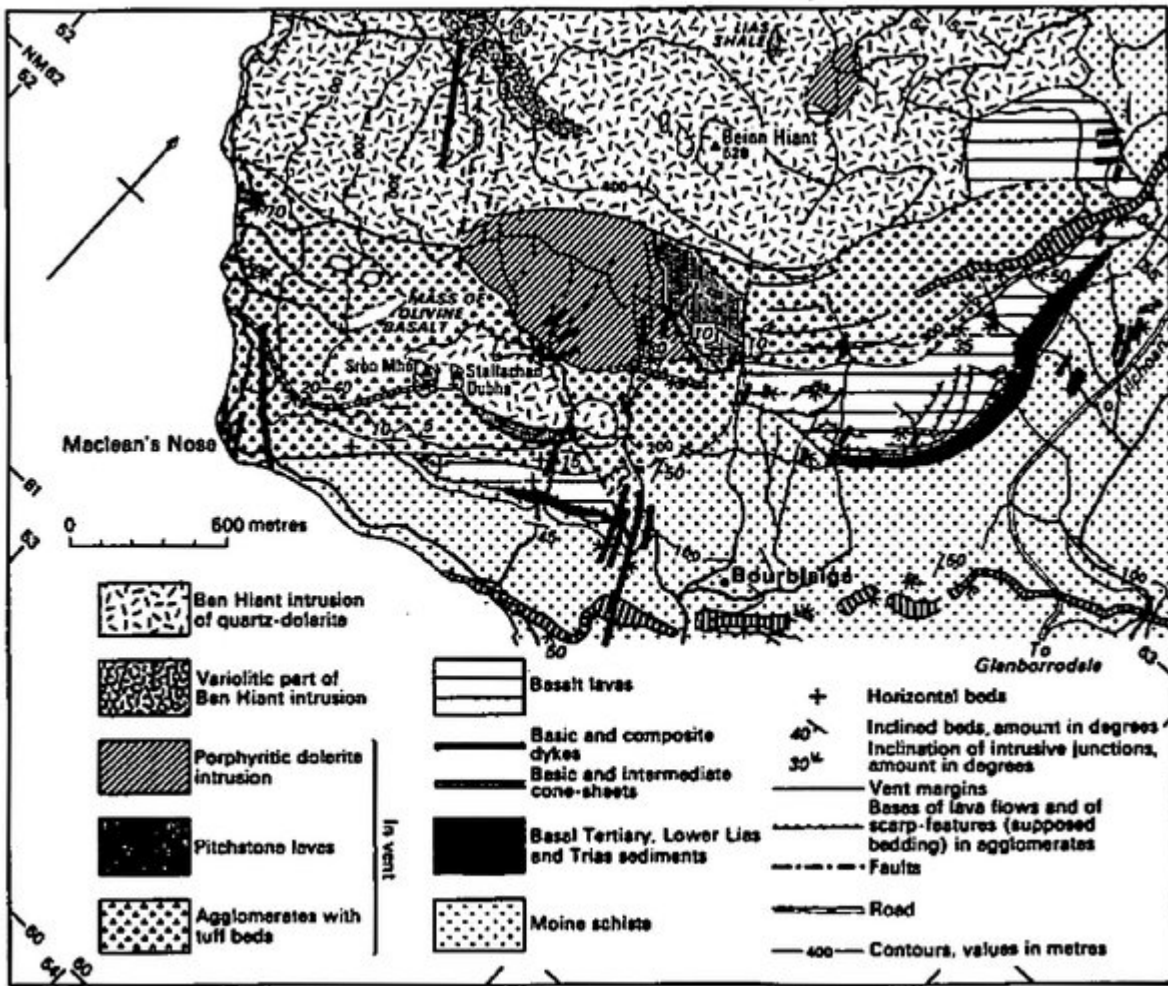


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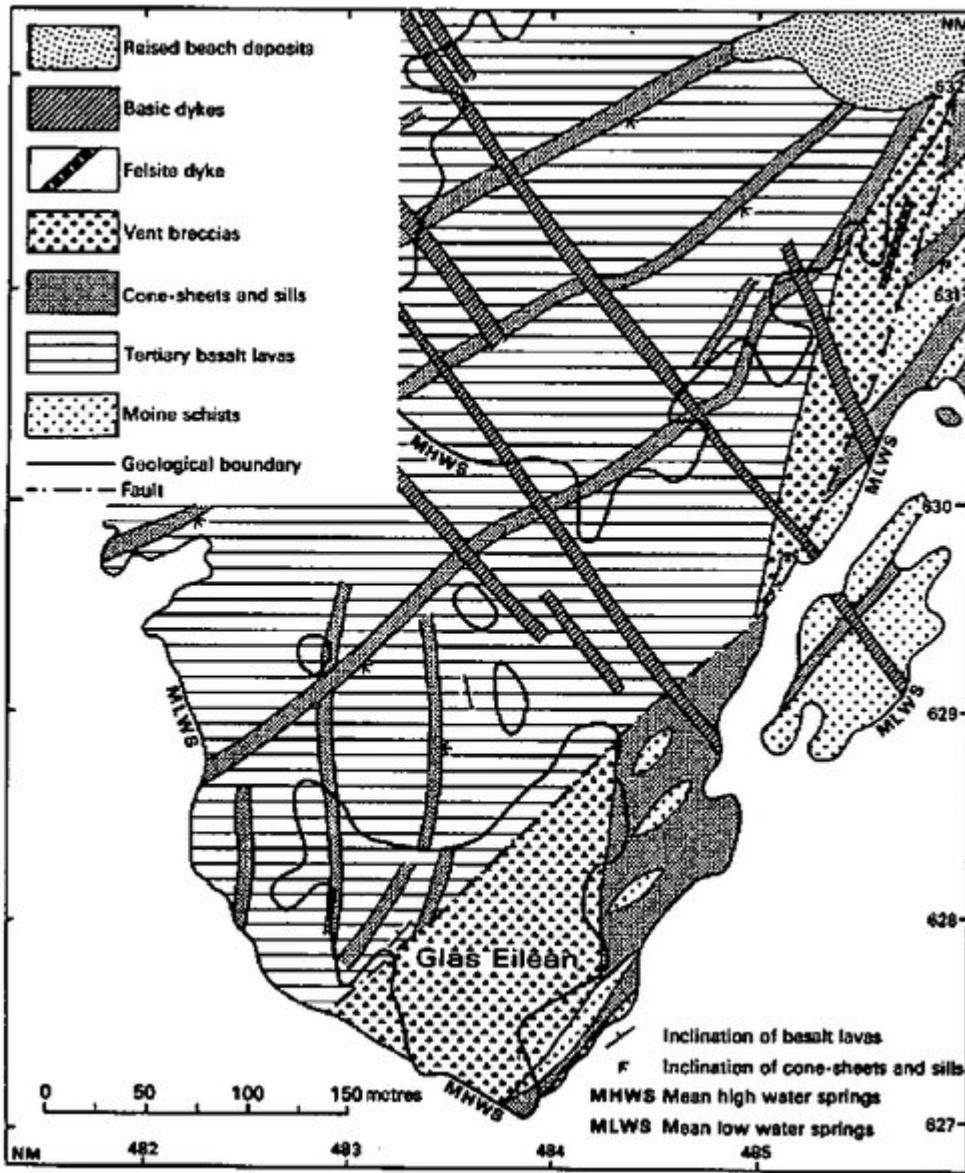




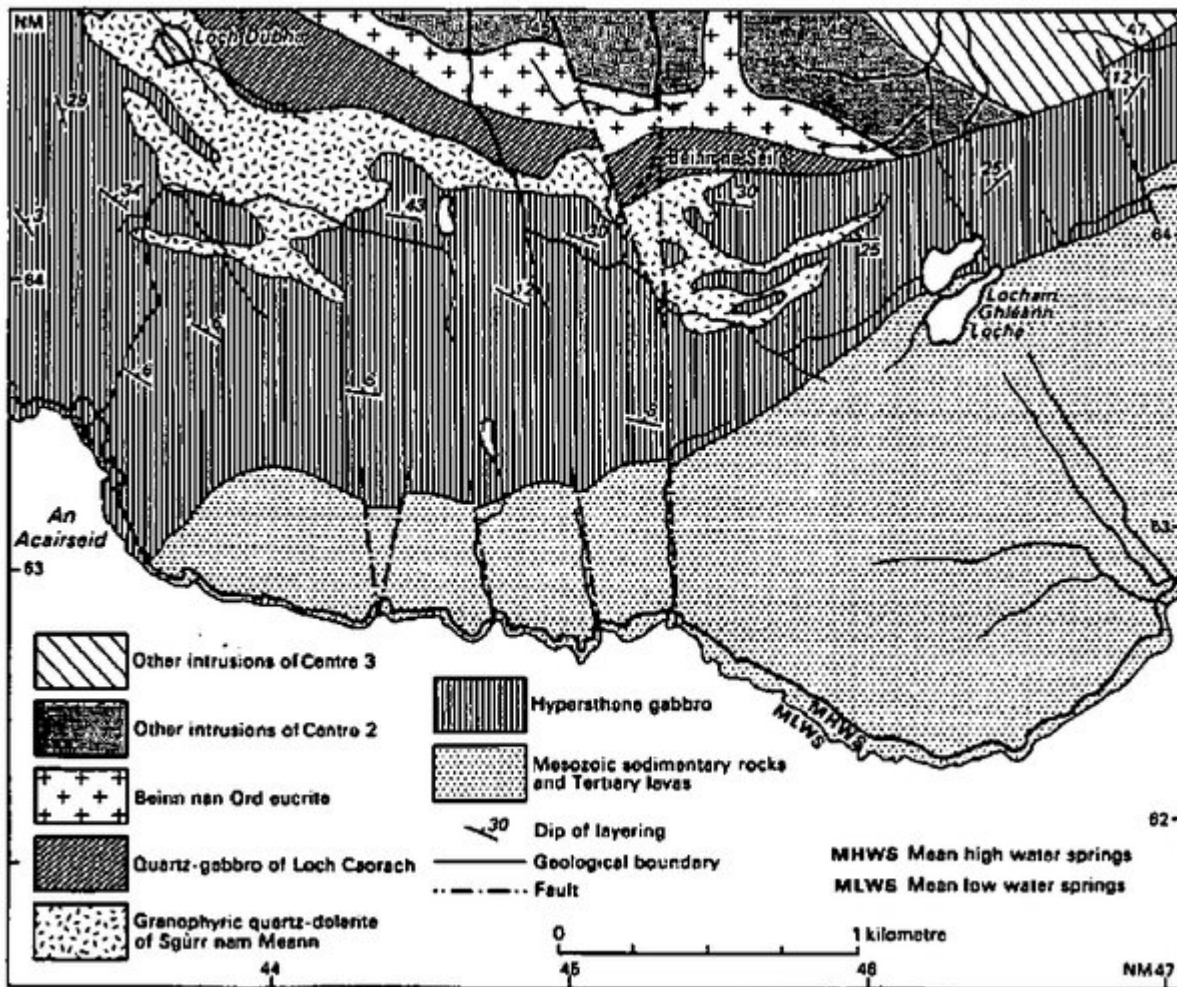
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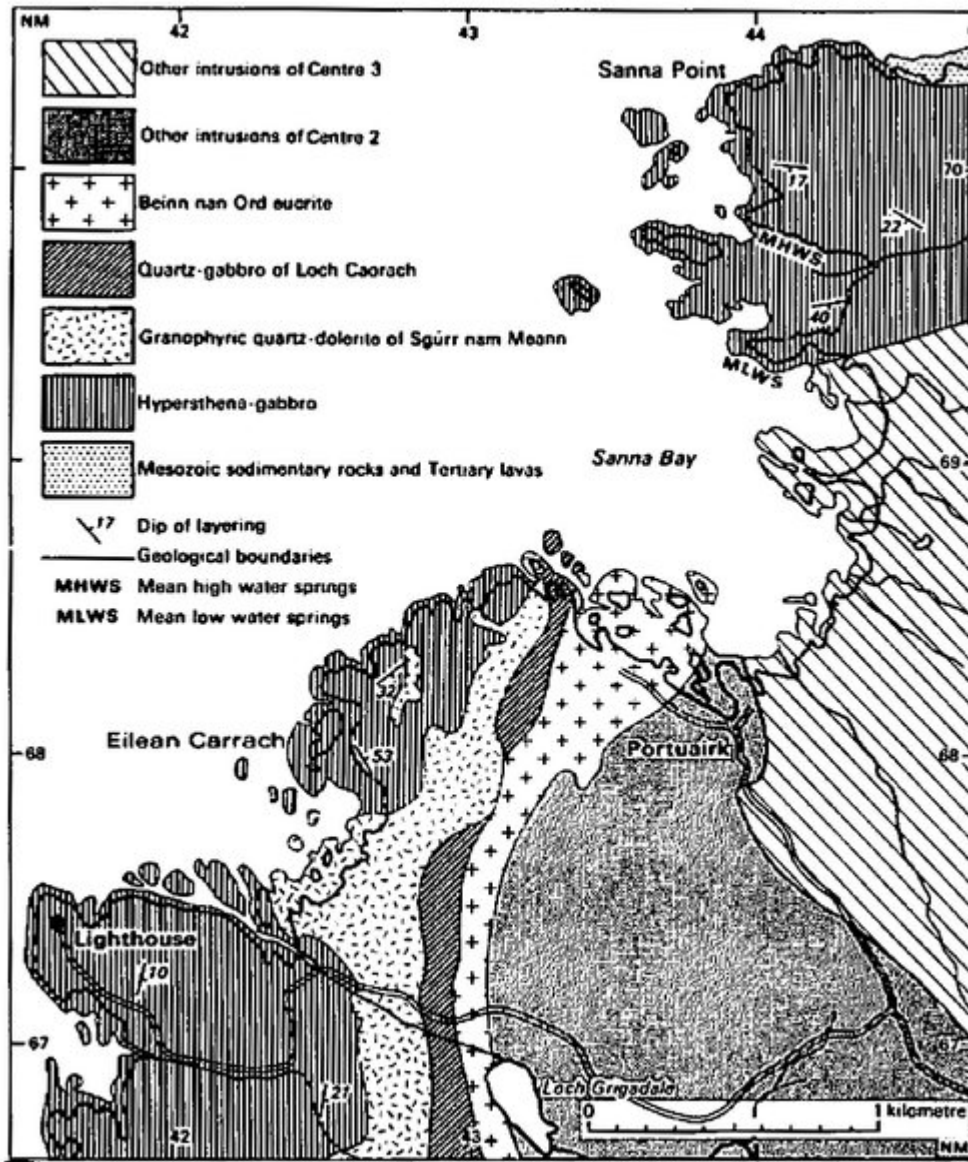
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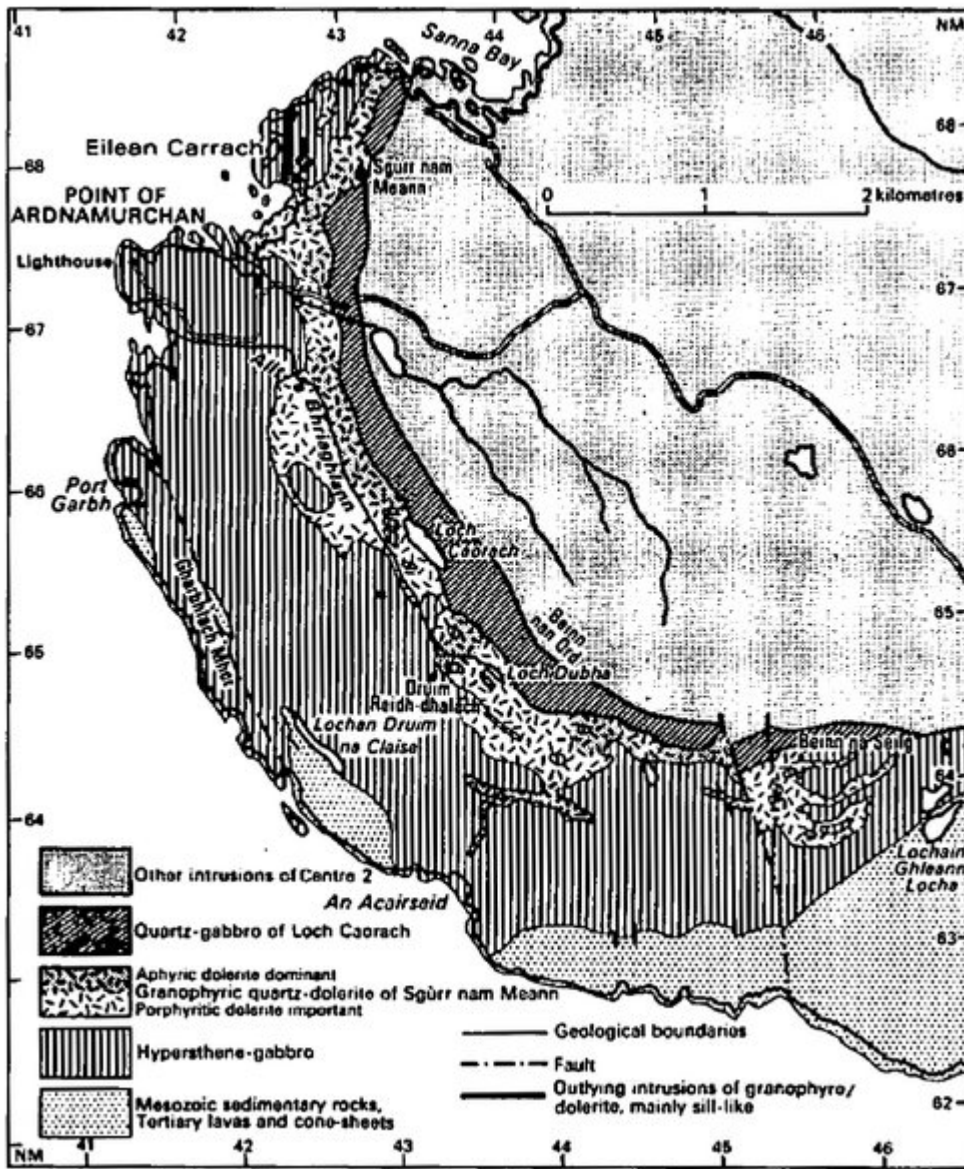


(Figure 5) Dips of layering for southern part of the hypersthene-gabbro (based on Skelhorn and Elwell 1971).

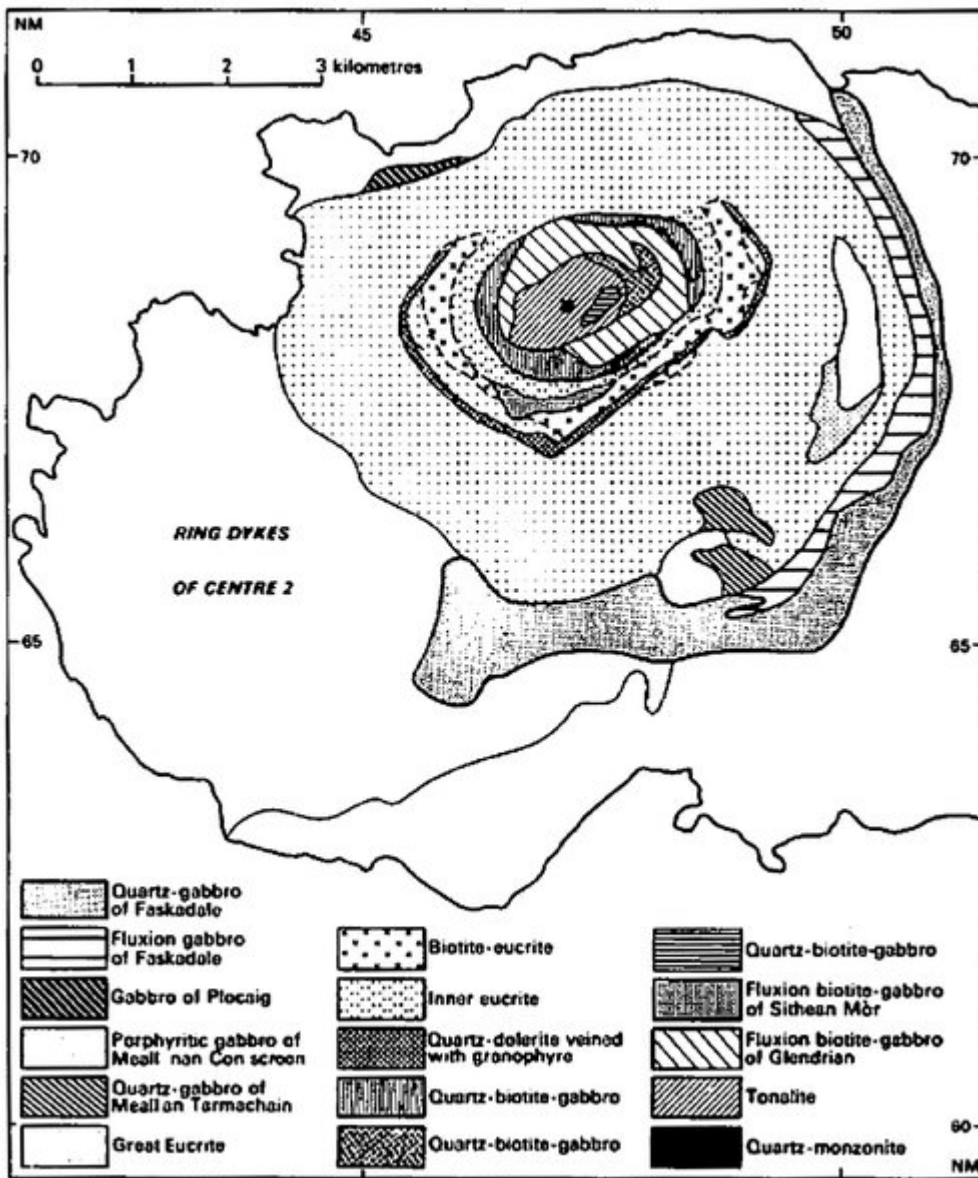


(Figure 6) Dips of layering for north-western part of the hypersthene-gabbro (based on Skelhorn and Elwell 1971).

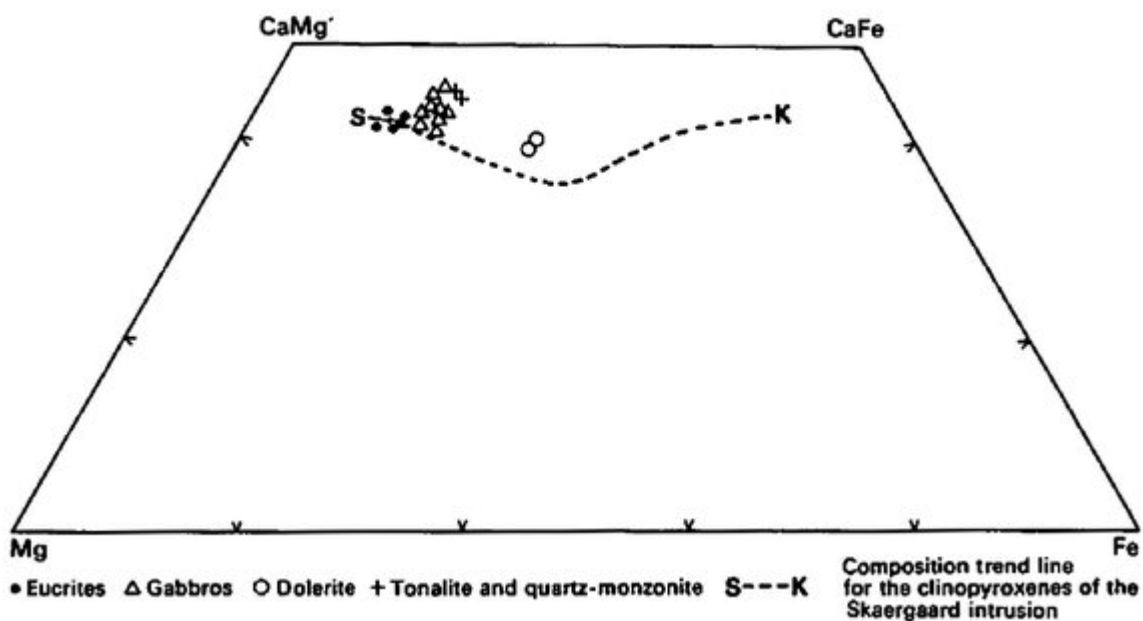




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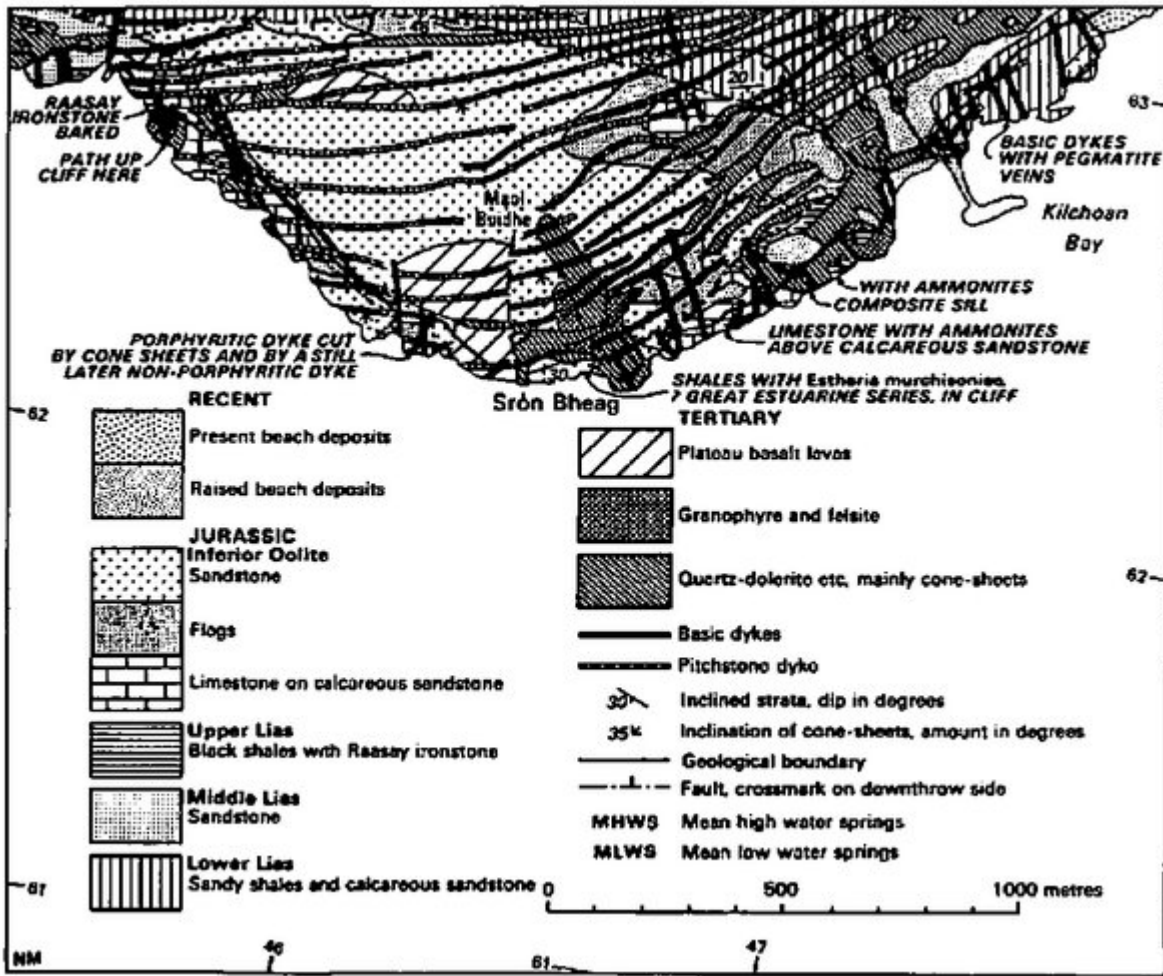


(Figure 8) The ring intrusions of Centre 3 (following Richey et al. 1930).

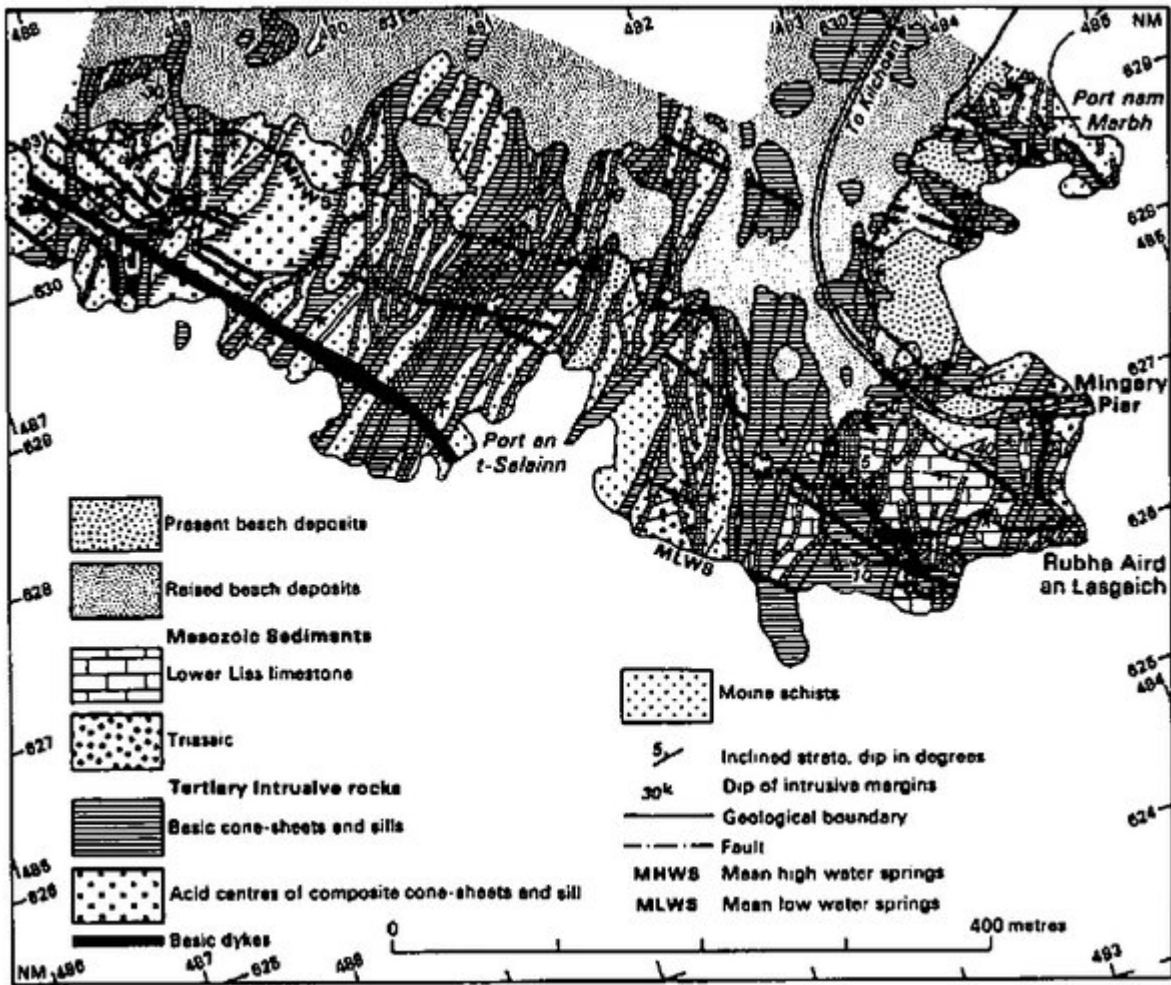


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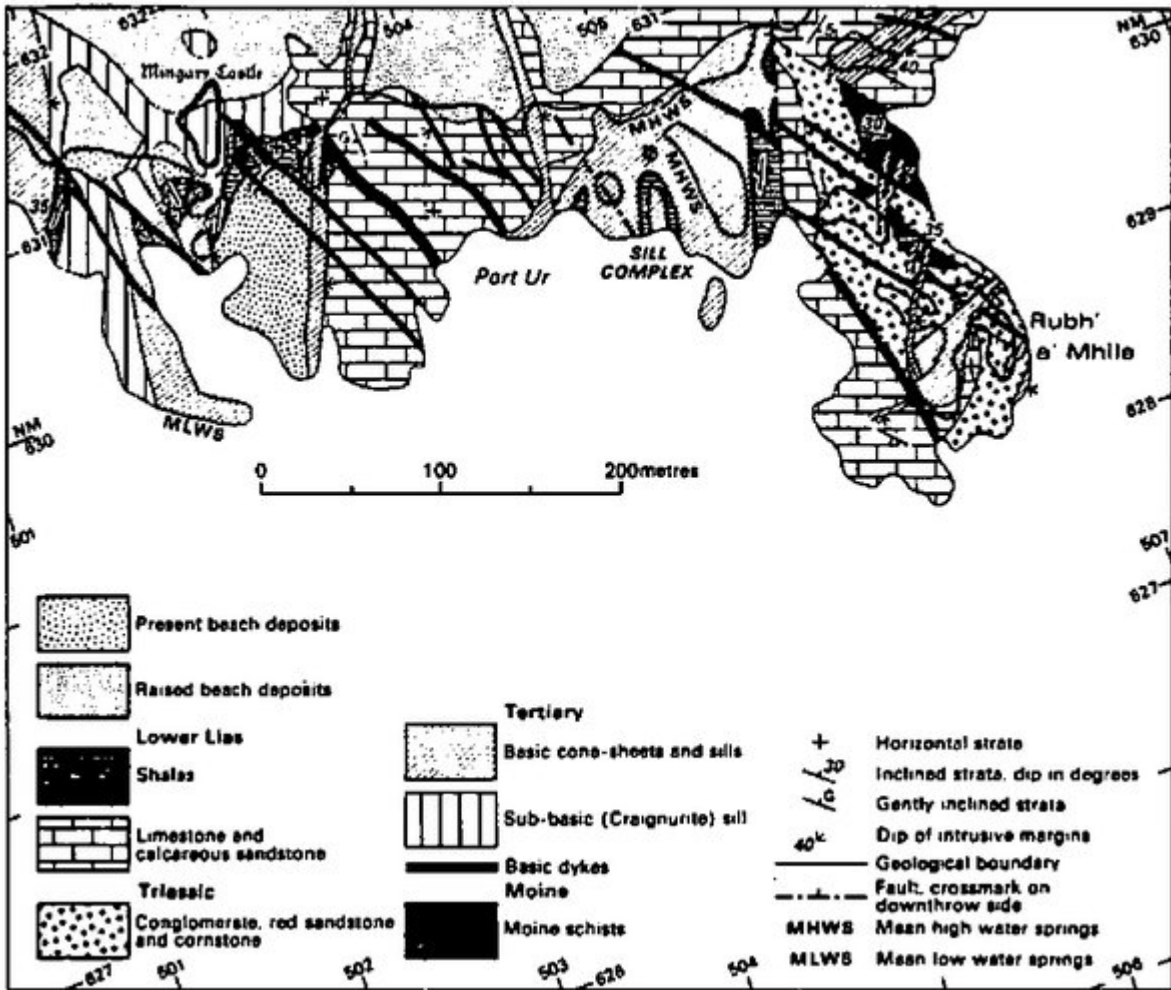


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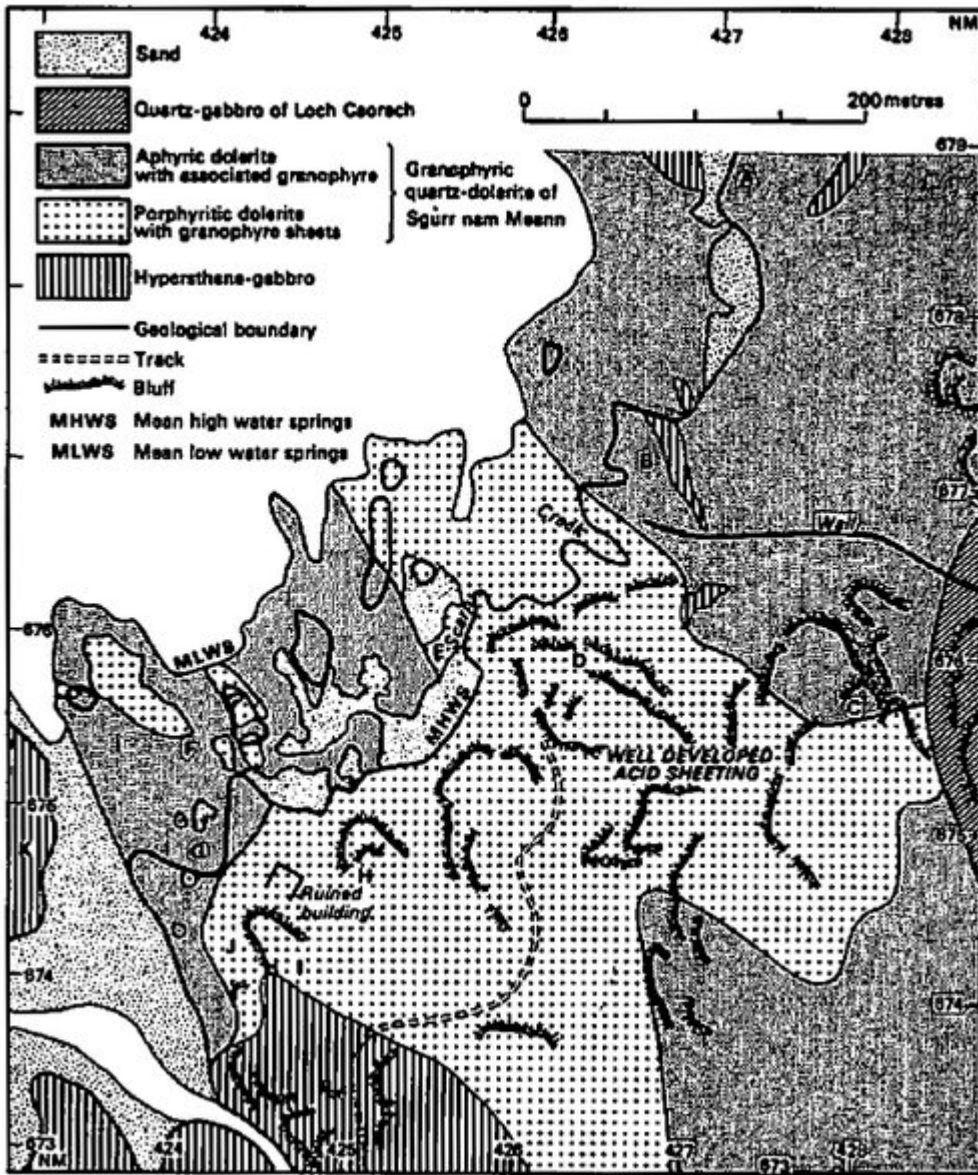


(Figure 11) The outer cone-sheets of Centre 2. Mingary Pier area (based on Richey et al. 1930).

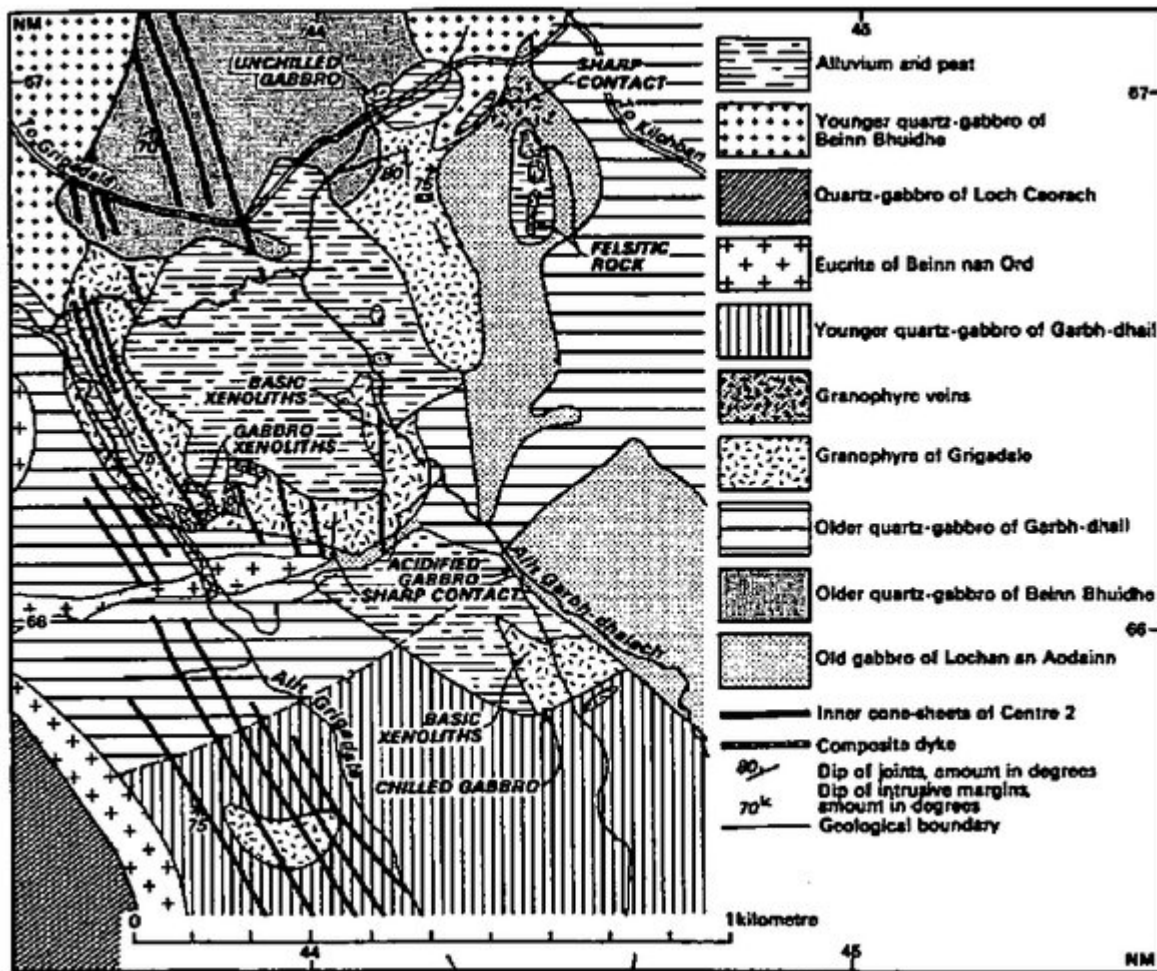




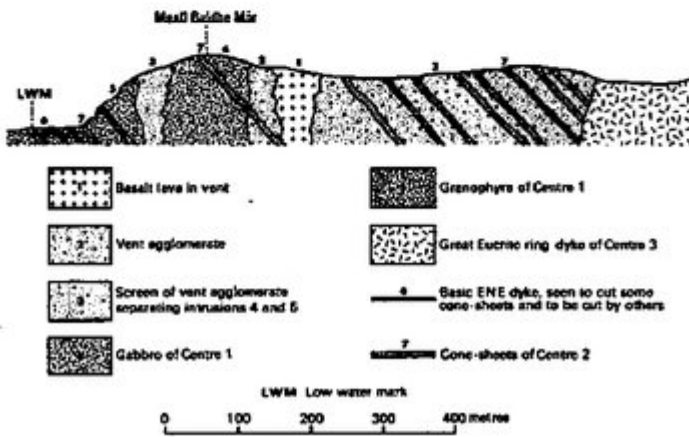
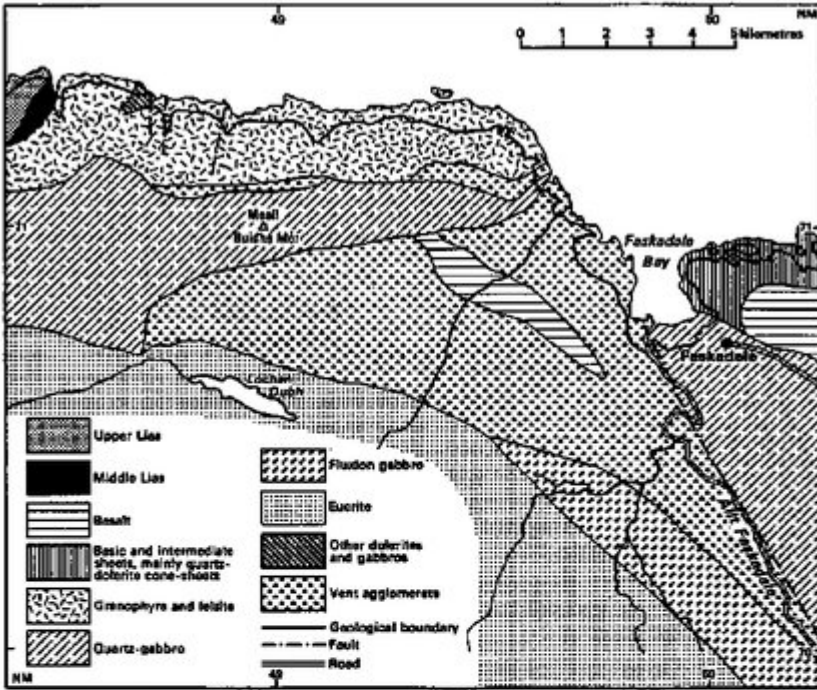
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(Figure 15) a. Geology of Faskadale Bay (after Richey, map 19). Minor intrusions removed. b. North-south section of rocks, west of Faskadale Bay (based on Richey et al. 1930)



Table 1

Radiometric ages of Tertiary igneous rocks  
(based on Mussett et al. 1988)

Centre	Age (Ma)						
	64	62	60	58	56	54	52
Eigg		L					L
Skye			L-----	PD-----			D
Rum			-PD-L				
Mull			L-----	PD-----			D
Arran			L----	PD----			
Ardnamurchan			L---	PD---			

L = lavas P = plutonic intrusions (incl. ring dykes) D = dykes

(Table 1) Radiometric ages of Tertiary igneous rocks (based on Mussett et al. 1988)

Series (location and thickness)	Stages	Zones (recognised or equivalent strata)	Rock types and fossils
Great Estuarine Series 3m (at Sron Bheag)	BATHONIAN and topmost BAJOCIAN		black fissile shales with <i>Estheria murchisoniae</i>
Inferior Oolite (g <sup>1</sup> ) 35m in situ only at Maol Buidhe, 2km S.W. of Kilchoan	LOWER BAJOCIAN	<i>Hyperlioceras discites</i> subzone	blue shales or flags with <i>Docidoceras</i> and calcareous beds with <i>Reynesella</i> ; also limestone with <i>Platygraphoceras</i>
	AALENIAN	<i>Graphoceras concovum</i> zone	hard white limestone with <i>Ludwigella cornu</i>
		<i>Ludwigia murchisonae</i> zone	limestone with varied fauna including <i>Ludwigella flexilis</i> , blue sandy limestones and hard limestones with <i>Ludwigia cf. murchisonae</i> limestone with doubtful <i>Ancollioceras</i> ( <i>Hudlestonia sinon</i> subzone?)
		<i>Tmetoceras sclerum</i> zone	sandy beds underlying limestones containing many species of <i>Leioceras</i>
Upper Lias (g <sup>1</sup> ) 6m west shore of Kilchoan Bay 1.5km S.W. of Pier	TOARCIAN	<i>Pleydellia aalenis</i> subzone	dark flags and shales with <i>Pleydellia aalenis</i> .
		<i>Dumortieria moorei</i> subzone	flags and shales with cementstones containing <i>Dumortieria brancai</i> fine-grained purplish shales with limy ironstone (= Raasay ironstone). Rocks frequently baked by Tertiary igneous intrusions, but have yielded various species of <i>Ducylioceras</i>
Middle Lias (g <sup>1</sup> ) 12m north shore 3km east of Rudha Groudin	DOMERIAN	Scalpa Sandstone	sandstone without fossils, often baked
On west side of Kilchoan Bay	LOWER PLEIENSACHIAN	Pabba Beds	sandy, well-bedded shales with poor fossiliferous horizons including <i>Gryphaea obliquata</i> and other species of <i>Gryphaea</i> , belemnites and bivalves
	SINEMURIAN	Broadford Beds	hardened shales and thin limestones with <i>Ostrea</i> sp.
Lower Lias (g <sup>1</sup> ) 120m + on foreshore, south of Mingary Pier	HETTANGIAN		
TRIASSIC (<5m in thickness) Found on foreshore at Kilchoan where Mingary pier is actually built on Trias. Also forms a thin band of sedi- ments on eastern flank of Brn Hiant, separating the Tertiary rocks (basalts) from the underlying Moines			Various rock types comprise the Trias sediments, but generally these include red sandstones, conglomerates, schist-breccia and concretion (fine-grained limestones). It should be noted that the basal Trias beds (conglomerates and red sandstones) are indistinguishable in the field from the Moines. No fossils have been discovered.

(Table 2) Mesozoic rocks of Ardnamurchan.

	1	2	3	4	5	6
SiO <sub>2</sub>	72.57	54.38	46.87	49.8	52.5	50.0
TiO <sub>2</sub>	.32	2.29	2.33	1.0	1.0	2.5
Al <sub>2</sub> O <sub>3</sub>	10.54	13.51	13.45	13.9	13.5	13.0
Fe <sub>2</sub> O <sub>3</sub>	n.d.	4.72	4.83	9.7	—	—
FeO	5.90	7.96	10.71	—	—	—
MnO	.10	.21	.23	—	—	—
MgO	.51	2.85	6.38	9.2	8.5	5.0
CaO	.47	6.37	8.62	12.9	12.0	10.0
Na <sub>2</sub> O	3.22	3.13	2.38	1.8	2.0	2.8
K <sub>2</sub> O	6.64	2.13	1.33	.2	1.0	1.2
P <sub>2</sub> O <sub>5</sub>	—	0.60	.38	—	—	—
H <sub>2</sub> O	—	2.17	2.19	1.0	—	—
Total	100.27	100.32	99.70	99.5	100.00	97.5

Analyses from Gribble (1974, tables 1 and 5), except for no. 6.

1. Rock glass from dolerite on Ben Hiant.
2. Quartz-dolerite, Ben Hiant.
3. Olivine-dolerite, Ben Hiant.
4. Estimate of average primary cumulate of Centre 1.
5. Estimate of average primary magma of Centre 1.
6. Non-porphyrific central magma type (Bailey *et al.* 1924).

**Table 3 Compositions of Centre 1 rocks and magmas.**

(Table 3) Compositions of Centre 1 rocks and magmas.

	EUCRITES	QUARTZ GABBROS	FLUXION GABBROS	DOLERITE	TONALITE	QUARTZ- MONZONITE
Plagioclase	64 (An <sub>65-75</sub> )	52 (An <sub>50-60</sub> )	51	57 (An <sub>30</sub> )	39 (An <sub>20-30</sub> )	36
Quartz + Alk. feldspar		2	2	3	*10/20	*10/28
Pyroxene	17	30	30	27	7	5
Olivine	16					
Biotite		2	2	4	8	9
Hornblende					4	4
Opakes	3	8	9	6	6	5
Accessories + Alteration		6	6	3	6	3

\*Quartz/Alkali feldspar

The values given are very approximate, especially for abundances below 10%. Some of the intrusions have insufficient data to give even approximate values.

*(Table 4) Modal proportions of the Centre 3 rocks.*