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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

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(Table 2) Mesozoic rocks of Ardnamurchan.

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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		LPD					
Rum			-PD-L				
Mull		LPD				D	
Arran			L	-PD			
Ardnamurcha	n		LPI	D			
L = lavas	P = plu	stonic in	trusions	(incl.)	ring dyke	s) D =	dykes

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

(location and thickness)	Stages	Zones (recognised or equivalent strata)	Rock types and fasals				
Great Estuarine Series 3m (at Sroa Bheag)	BATHONIAN and topmost BAJOCIAN		black fissile shales with Escheria murchisoniae				
	LOWER	Hyperlioceras discites subzone	blue shales or flags with Dacidoceras and calcareous beds with Represella: also limestone with Playgraphocerus				
laferior Oolite (g') 35m is situ only at Maol Buidhe,	AALENIAN	Graphoceras concevum 2002	hard white limestone with Ludwigella cornu				
		Ludwigia mwrchisonae zone	limestone with varied fauna including Ludwigella flexilis, blue sandy limestones and hard limestones with Ludwigia cf. murchisonae				
2km S.W. of Kilchean			limestorie with doubtful Ancolioceras (Hudlestonia sinon subzone?)				
12		Tmetocenas scissum zone	sandy beds underlying limestones containing many species of Leioceres				
Upper Lias (g ^e) 6m west shore of Kileboan Bay 1.5km S.W. of Pier	TOARCIAN	Pleydellia ealensis subzone	dark flags and shales with Pleydellia antensis.				
		Dumortieria	flags and shales with comentstones containing Dumortieria brancai				
		moorei subzone	fine-grained purplish shales with limey ironstone (* Raasay Ironstone). Rocks frequently baked by Tertiary igneous intrusions, but have yielded various species of <i>Decylincerus</i>				
Middle Lias (g') 12m north shore 3km cast of Rudha Groutin	DOMERIAN	Scalpa Sandstone	sandstone without fossils, often baked				
			sandy, well-bedded shales with poor fossiliferous horizons				
On west side of Kilchoan Bay	LOWER PLIENSBACHIAN	Pabba Beds	including Gryphere obliquese and other species of Gryphere, belombites and bivalves				
Lower Lias (g ⁱ) 120m + on foreshore, south of Mingary Pier	SINEMURIAN		burdened choice and this limestones with Oceans on				
	HETTANGIAN	Brokolero Beas					
TRIASSIC (<5m in thickness)							
Found on foreshore at Xilchoan where Mingary pier is actually built on Triss. Also forms a thin band of sedi- ments on eastern Bank of Ben Hiant, separating the Tertiary rocks (bastafts) from the usederbing Meiner			Various rock types comprise the Trias sediments, but generally these include red standstones, conglomerates, schist-breecie and cornstones (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 ₂	72.57	54.38	46.87	49.8	52.5	50.0
TiO ₂	.32	2.29	2.33	1.0	1.0	2.5
A1,0,	10.54	13.51	13.45	13.9	13.5	13.0
Fe ₂ O,	n.d.	4.72	4.83	07		
FeO	5.90	7.96	10.71	9.7	-	
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 ₂ O	3.22	3.13	2.38	1.8	2.0	2.8
K ₂ O	6.64	2.13	1.33	.2	1.0	1.2
P ₂ O ₅		0.60	.38	(<u></u>)	_	
H ₂ 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-porphyritic central magma type (Bailey et al. 1924).

Table 3 Compositions of Centre 1 rocks and magmas.

	EUCRITES	QUARTZ GABBROS	FLUXION GABBROS	DOLERITE	TONALITE	QUARTZ- MONZONITE
Plagioclase	64	_52	51	, 57	39	36
Quartz + Alk.	(An 65-75)	(An	50-60)	(An ₃₀)	(An 20.30)	
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
Opaques	3	8	9	6	6	5
Accessories +		2	13		12	÷
Alteration		6	6	3	6	3.

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

*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.