

Chapter 26 Economics

In the area described in this Memoir there are few mineral deposits of economic interest, and none that is at present being utilized in any industry. A brief description of certain occurrences may, however, be of service either in suggesting possible uses or in preventing fruitless exploration.

Lead

The only known occurrence is at Crossapol in Coll. A 'lead mine' is recorded from there in 'The (Old) Statistical Account of Scotland'.^{<ref>The (Old) Statistical Account of Scotland, vol. x., 1794, p. 400.</ref>} The vein is described by Macculloch^{<ref>J. Macculloch, The Western Isles of Scotland, vol. i., 1819, p. 68.</ref>} as a narrow string of galena lying in a fissure in the gneiss, and terminating in the sea. He also states that the vein offers no chance of profit and has not been worked. It was not found possible to locate the exposure during the recent Survey.

Iron-ore

Raasay Ironstone, Kilchoan, Ardnanturchan

A bed of limy ironstone occurs in the Upper Lias shales of the Kilchoan district, which is correlated by means of its contained Ammonites with the well-known ironstone of the island of Raasay (p. 44). It is exposed at two localities along the shore west of Kilchoan, as indicated on (Figure 3), p. 34.

At the more easterly locality, ■ mile S.W. of the Landing Jetty, Kilchoan Bay, the Upper Lias shales are riddled with intrusive igneous rocks, and thus occur in small disconnected outcrops. In two of these the ironstone is exposed. It is limy and oolitic, with shaly layers, and contains small Belemnites. The total thickness on view is only 2 ft., but the top of the bed is not seen.

At the second locality, west of the headland of Sròn Bheag, the strata are fairly free from igneous intrusions, but are highly baked by the neighbouring gabbro mass. The Upper Lias shales together with the ironstone are fully exposed, as described on p. 43. The bed of ironstone, 4 ft. thick, is largely altered to magnetite, but Belemnites can be recognized in it.

Analyses of the ironstone from the above two localities are given below, the first two (I and II) being of contact-altered specimens from west of Sròn Bheag, the third (III) from the west side of Kilchoan Bay. An analysis (A) from Raasay is added for comparison.

(Table 9) Analyses of Raasay Ironstone J''

	I.	II.	III.	A.
SiO ₂	30.15	17.07	7.73	8.58
Al ₂ O ₃	7.89	11.08	3.53	4.24
FeO ₃	12.20	23.40	0.03	1.24
FeO	16.73	7.22	475	11.79
MgO	3.56	3.88	1.41	1.71
CaO	24.57	25.79	43.49	35.43
Na ₂ O	0.41	045	0.42	0.08
K ₂ O	0.28	0.28	0.26	0.02
H ₂ O > 105°	0.94	1.62	1.20	4.44
H ₂ O < to 105°	0.19	0.14	0.36	1.37
TiO ₂	0.33	0.42	0.16	0.28
P ₂ O ₅	1.43	1.90	1.90	1.68

MnO	0.53	0.67	1.08	0.65
CO ₂	0.99	6.35	28.57	27.54
FeS ₂	0.22	0.16	471	0.72
Fe ₇ S ₈	0.00	0.00	0.58	0.15
SO ₂	—	—	—	0.15
(CoNi)O	0.06	0.05	0.00	0.04
BaO	0.00	0.00	0.00	0.00
Li ₂ O	0.00	0.00	0.00	0.00
C	—	—	—	0.26
	100.48	100.48	100.18	100.37

I, II, and III.-Quoted from E. G. Radley in Summary of Progress for 1921, *Mem. Geol. Surv.*, 1922, pp. 109–110.

A. Quoted from E. G. Radley in The Mesozoic Rocks of Applecross, Raasay, and North-east Skye, *Mem. Geol. Surv.*, 1920, p. 34.

Owing to the profusion of basic intrusive sheets there seems absolutely no prospect of the ironstone proving of economic value in Ardnamurchan. It is also of small thickness there as compared with Raasay. It is possible that the ironstone may underlie the lavas of the extreme north of Mull. If search were to be undertaken it might be well to start by boring through the red sandstone of Bloody Bay; but it will be readily understood that the prospects are not encouraging.

Iron-ore in Tertiary gabbro, Ardnamurchan

Many of the Tertiary gabbros, that form the nose of the Ardnamurchan peninsula, contain crystals of iron-ore (magnetite) in variable amounts. The crystals are usually dispersed amongst the other minerals of which the gabbros are composed. Layers of magnetite are occasionally met with, but they are always thin and at most only about a yard in length. Such layers are found in the Hypersthene-gabbro immediately to the west of the main, southern summit of Beinn na Seilg.

The richest occurrence of magnetite as isolated crystals in gabbro was located near the inner margin of the Hypersthene-gabbro, west of Beinn nan Ord, along a north-westerly extending hollow 200 yds. west-south-west of the north-west end of Lochan Dubha, and 700 yds. south of the south end of Loch Caorach. Even in this case the magnetite only forms from 10 to 20 per cent. of the rock (p. 227). There is consequently no likelihood of the ore being exploited commercially.

Quartz

The Clabhach-Gorton quartz-rock of Coll (p. 13) might perhaps be employed as a source of quartz. Its steeply inclined outcrop is 200 ft. wide where it crosses the road at Acha.

Coal

A coal-seam, 2 ft. in thickness, outcrops in a stream to the north of Ardsignish farm, Ardnamurchan, 730 yds. south-east of the summit of Bheinn Bhuidhe (see p. 106). It is a brown coal of poor quality and no great extent, as is shown by the fact that it is not found in sections in adjoining streams. No economic value can therefore be claimed for the seam, unless perhaps for local purposes.

There is evidence that the seam is of Tertiary age. It may be compared with the lignites of South-west Mull,<ref>E. M. Anderson in Tertiary Mull Memoir, 1924, pp. 415–417.</ref> though these are of considerably more importance.

Limestone

In Ardnamurchan, limestone has been quarried and burnt for lime close to Mingary Castle near Kilchoan, and on the northern coast north of Swordle.. The limestone at both localities belongs to the Broadford Beds of the Lower Lias (pp.

38–40), and at Swordle is about 80 ft. in total thickness. What appear to be the purest beds are confined to a few feet near the base of the seam, and consist of compact pale limestone. The remainder is grey limestone more or less charged with earthy impurities, and with frequent partings of shale.

Another thick seam of limestone is met with at a higher horizon on the west side of Kilchoan Bay (Inferior Oolite, p. 44). Here also the rock is impure, being grey in colour and interspersed with layers of shale. This seam outcrops again farther west, where it forms the white cliffs west of the headland of Sròn Bheag. It is there considerably altered by heat given off from the adjoining Tertiary gabbro, and to this its white colour is due. Microscopic examination (p. 236) indicates that it was an impure limestone prior to its alteration, and it is therefore not likely to prove of value for burning for lime.

Marble

Although beautiful marbles are known in Coll (p. 17), their development is probably too restricted to allow of exploitation.

The best outcrops are on the shore at high-water mark, 100 yds. west of Gorton farm; and at Uig, 50 yds. north-east of Breachacha Castle garden. At the former locality marble and calcareous schist extend for some 20 yds. across the strike.

Sandstone

Bloody Bay, Mull

A red sandstone occurs in the sea-cliff, a quarter of a mile south-east of Ardmore farm, at the north end of Mull. It is about 50 ft. thick and can be traced for some 200 yds. The quality of the freestone is good, and it has stood the weather well where employed in the wall of a path leading to Rudha nan Gall Lighthouse (Sheet 52).<ref>Quoted from E. B. Bailey in The Pre-Tertiary Geology of Mull, Loch Aline, and Oban, *Mem. Geol. Surv.*, 1925, p. 125.</ref>

Maol Bhuidhe, Ardnamurchan

A reddish sandstone, overlying the Inferior Oolite limestone, is exposed on the shore west of Kilchoan, near the headland of Sròn Bheag (see (Figure 3), p. 34). It is some 60 ft. in thickness, and is possibly the same bed as that of Bloody Bay. It also outcrops extensively inland around Maol Bhuidhe, where it is often comparatively free from Tertiary intrusions. These latter would, however, almost certainly add to the difficulties of quarrying.

Road metal

The area is well supplied with potential road metal, which could be developed by quarrying if the road traffic justified the expense. At present most of the road metal used is taken from little pits in surface deposits or partially disintegrated rock. There is no reason to suppose that road metal will ever be exported.

Peat

As already indicated (p. 369), peat is widely distributed. In Coll peat has been cut in the past for use in Tiree. Otherwise the use of the fuel has been strictly local.

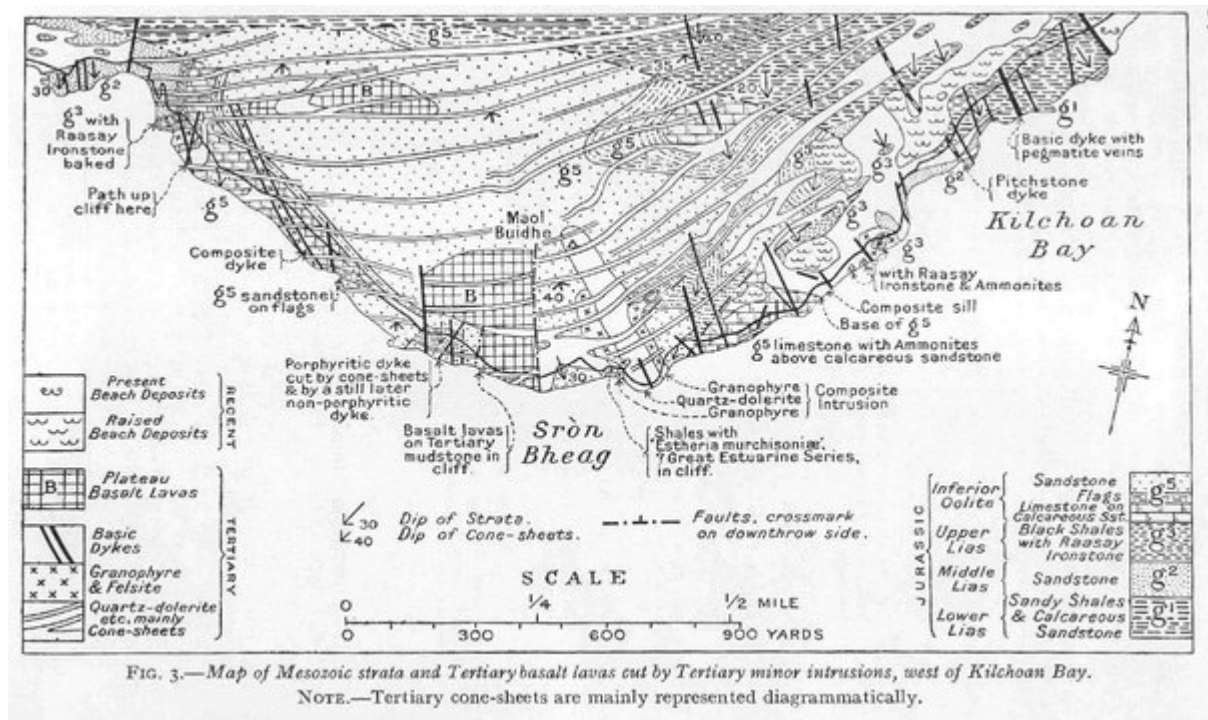
Shell sand

Shell sands are met with at various points around the coasts, either along the present beach or extending inland as dunes. There is no doubt that these sands could be employed as a source of lime for the improvement of peaty soil.

In North-west Mull, at the head of Calgary Bay, there is an extensive deposit that contains over 70 per cent. of CaCO_3 , and could be easily shipped for local purposes.

In Coll, the fringe of blown sand along the north-west coast and the stretches that extend across the western end of the island are full of shell fragments, and furnish valuable pasture for dairy cattle.

In Ardnamurchan, east of Sanna Bay, blown sands are locally made up largely of shell fragments, and might be utilized in the reclamation of peaty areas. E.B.B., J.E.R.



(Figure 3) Map of Mesozoic strata and Tertiary basalt lavas cut by Tertiary minor intrusions, west of Kilchoan Bay. Note. Tertiary cone-sheets are mainly represented diagrammatically.

TABLE IX
ANALYSES OF RAASAY IRONSTONE

	I.	II.	III.	A.
SiO ₂	30·15	17·07	7·73	8·58
Al ₂ O ₃ ..	7·89	11·08	3·53	4·24
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MnO	0·53	0·67	1·08	0·65
CO ₂	0·99	6·35	28·57	27·54
FeS ₂	0·22	0·16	4·71	0·72
Fe ₇ S ₈	0·00	0·00	0·58	0·15
SO ₃	—	—	—	0·15
(CoNi) O ..	0·06	0·05	0·00	0·04
BaO	0·00	0·00	0·00	0·00
Li ₂ O	0·00	0·00	0·00	0·00
C	—	—	—	0·26
	100·48	100·48	100·18	100·37

I, II, and III.—Quoted from E. G. Radley in 'Summary of Progress' for 1921, *Mem. Geol. Surv.*, 1922, pp. 109–110.

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