
Chapter 1 Introduction

The area described in this Memoir consists of the island of Coll, the north-west portion of the island of Mull, and the western part of the peninsula of Ardnamurchan. The first two districts are covered by Sheet 51 of the one-inch Geological Map of Scotland. The third extends from Sheet 51 for 5 miles eastwards into Sheet 52, and includes the whole of the Tertiary igneous complex of Ardnamurchan. Sheet 51 is published in a colour-printed edition showing the solid and drift geology. Sheet 52 has not as yet been completely surveyed. In order, therefore, to illustrate the Ardnamurchan igneous district in its entirety, a coloured map has been specially prepared for this Memoir (Plate 8).

Coll, which is over 12 miles in length from north-east to southwest, is situated some 9 miles west of the mainland of Ardnamurchan and 6 miles west of Mull. To the south, it is separated by a narrow strait from the island of Tiree (Sheet 42). North-west Mull lies south of the nose of the Ardnamurchan peninsula, the two bounding the common entrance to the Sound of Mull and Loch Sunart. The Sound extends south-eastwards from the area under description between Mull and the mainland of Morven, while Loch Sunart runs eastwards between Morven and Ardnamurchan. The three districts with which we are concerned are reached by steamer plying up the Sound of Mull from Oban, and calling at Tobermory (North-east Mull), Kilchoan (Ardnamurchan), and Arinagour (Coll).

In their physical features the three districts are widely different. The island of Coll is low-lying, being for the most part less than 200 feet above sea-level. The highest ground is formed by Ben Hagh, an isolated hill rising to 339 feet. North-west Mull may be described as hilly, its highest point being the summit of Carn Mòr at 1122 feet. The north-westerly lineation characteristic of much of its scenery is largely due to erosion along north-west lines of weakness, chiefly determined by Tertiary dykes. The western end of the peninsula of Ardnamurchan is mountainous, though few of its peaks attain more than 1000 feet in height. The highest hill, Ben Hiant, in Sheet 52, reaches 1729 feet.

In Coll, outcrops of rock are frequent around the coast and also inland, but considerable areas are covered by raised-beach deposits, blown sand, and peat. To the two former the island largely owes its characteristic pasture lands. In North-west Mull there is much rough pasture and peat, more particularly around the heads of sea-inlets, such as Loch a'Chumhainn at Dervaig. Rock is frequently exposed, in cliffs along the coast and as scarps on the hillsides. The scarps give rise to terrace featurings, and mark the outcrops of the more solid portions of the Tertiary plateau lavas, of which the district is mainly formed. Western Ardnamurchan is typically a country of bare rock, many of its hills being nearly devoid of vegetation. The nose of the peninsula is fringed by almost continuous rugged sea-cliffs, composed of Tertiary gabbro, which are well-known features of this coast. Only to the northwest and north, at Sanna and Achateny, and to the south around the head of Kilchoan Bay, are there any extensive areas of low ground.

The rocks encountered within the area range in time from Archaean to Recent, but there are wide gaps in the sequence. Two major unconformities are well illustrated. The first separates Highland Schists from the Mesozoic (Trias); the second, the Jurassic from the Tertiary plateau basalts.

The low-lying island of Coll, like its neighbour Tiree, is composed of gneisses and schists which repeat in all essential details the characteristics of the Lewisian of the North-West Highlands. A feature of particular interest is the interbanding of igneous and sedimentary material.

In the mountainous tract that forms the Ardnamurchan peninsula the oldest rocks belong to the Moine Schists, an assemblage that, farther north, overrides the Lewisian Gneiss together with the succeeding Torridonian and Cambrian sediments along the Moine Thrust-plane. Resting on the Moines with marked unconformity are stratified rocks of Mesozoic age, which range from Trias to the Inferior Oolite, and probably also include beds of the Great Estuarine Series. The Ardnamurchan development of these strata is characteristic of the Hebridean province, and the fossils of the Jurassic portion of the sequence allow of close correlations with the equivalent rocks in other districts.

The Tertiary igneous rocks that in turn succeed the Mesozoics include outliers of the great plateau group of lavas, which covers large portions of the adjoining island of Mull and mainland of Morven. The lava eruptions were followed by the formation of central vents and by localized intrusions of plutonic and hypabyssal habit, which supply the chief interest of

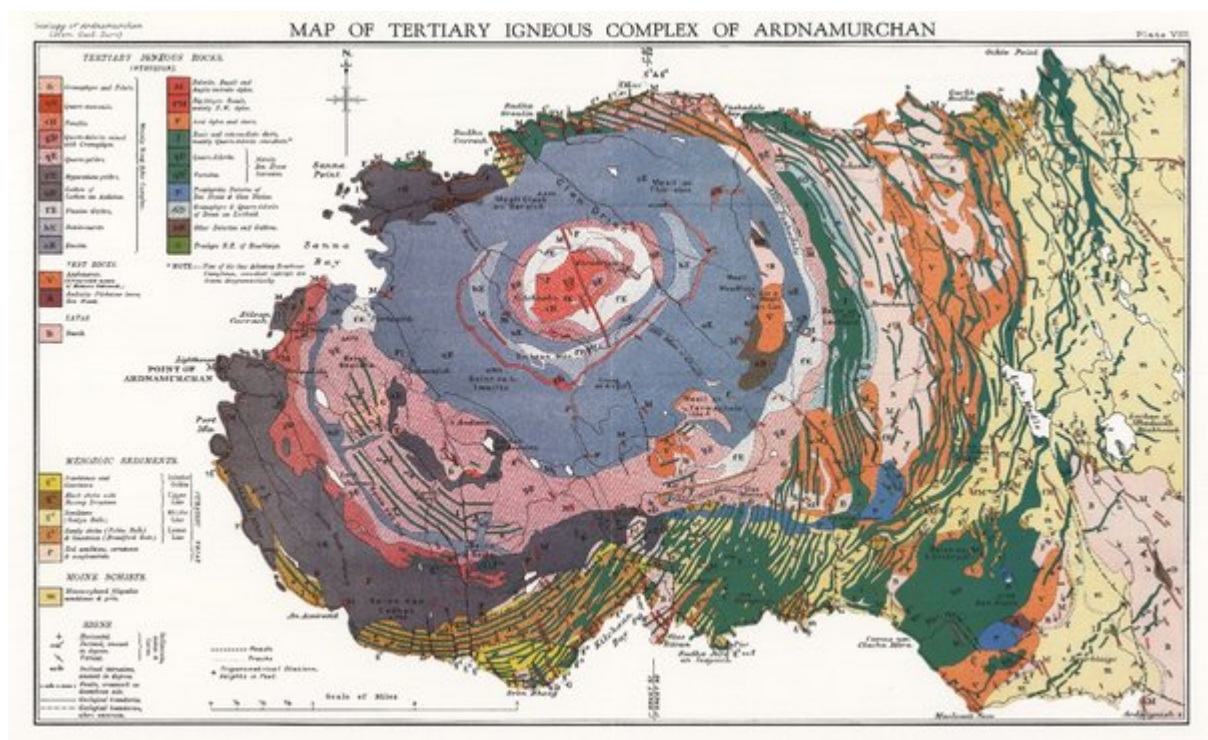
the Ardnamurchan district. This central intrusive complex is one of several that are distributed along the western sea-board of Scotland and extend to the north of Ireland. It clearly demonstrates in the number of its successive intrusive phases a long lapse of time, as is also shown by the adjoining central complexes of Mull and Skye. Though covering a smaller area than these, and evincing less complexity, it is of especial interest to the student of igneous geology on account of the clearness with which it exemplifies many of the phenomena characteristic of the British Tertiary province.

The vast amount of denudation that has taken place since the close of the Tertiary igneous period is shown in Ardnamurchan, as well as in related districts, by the de-roofing and erosion of the Tertiary plutonic rocks, which must have consolidated under a thick cover.

An interesting feature of somewhat late date, found in Northwest Mull and Ardnamurchan, is a pre-Glacial raised-beach platform, extending up to 140 feet above present sea-level. More recent crustal oscillations are indicated by the late-Glacial and post-Glacial raised-beach deposits that fringe the coasts and, in the case of Coll, extend well inland. Evidence of the Glacial period itself is supplied by striae and erratics.

The above brief outline of the geology of the area is supplemented by introductory accounts of the various rock groups, which are included with the detailed descriptions in subsequent chapters. Such accounts will be found chiefly at the beginning of each chapter and also, in the case of the Tertiary igneous rocks, in special chapters devoted to this purpose.

The arrangement of the chapters in this Memoir is based on the geological time sequence, so far as this is known. In the case of the Tertiary igneous rocks of Ardnamurchan, however, this plan is not strictly adhered to. For example, volcanic vents are treated in the same chapter, although they do not all belong to the same period of activity. J.E.R.



(Plate 8) Map of Tertiary Igneous Complex of Ardnamurchan.