
Appendix 1 List of Geological Survey photographs

By R. Lunn and W. Manson.

Acid Vein with Xenoliths. -2716.

Basalt-Lavas. 2671, 2673, 2686–7, 2706, 2715, 2725, 2727.9, 2732–3, 2736 2737, 2738, 2739, 2744–2745, 2747–2748, 2751, 2752, 2753, 2754, 2755, 2756, ? 2759; (Pillow-Lavas, by Mr. G. V. Wilson and Mrs. A. M. Bailey, Quarter-Plates, 1, 2, 3).

Beinn Bheag Gabbro. 2704.

Beinn Mheadhon Felsite. 2677–8.

Ben Buie Gabbro. 2707–2708.

Carsaig Arches. 2734–2735.

Channels due to Marine Erosion. 2729.

Chilled Margins. 2632, 2633, 2637, 2646, 2719–2721.

Columnar Basalt Lavas. 2732–3, 2736–8, 2751, 2753–6, ? 2759.

Columnar Basalt Intrusion. 2730.

Cone Sheets. 2692–2700, 2702–5, 2707–2708, 2717–2721, 2726.

Dykes. 2629, 2631, 2632, 2633, 2637, 2651.

Faults. 2674, 2725.

Flint-Conglomerate. 2684–2685.

Glen More Ring-Dyke. 2704.

Loch Uisg Gabbro. 2708–2711.

Loch Uisg Granophyre. 2709, 2712, 2714.

Macculloch's Tree. 2736–2737.

Pipe-Amygdales. 2745, 2752.

Pre-Glacial Marine Platform. 2746, 2757–8.

Pre-Glacial Marine Cave. 2749, 2750.

Pre-Tertiary Rocks of Lorne. 2613–2616, 2618–2628, 2634–2660, 2663–2665.

Pre-Tertiary Rocks of Mull and Morven. 2671, 2712, 2713, 2714, 2715, 2716, 2679, 2680, 2681, 2682, 2683, 2725, 2739–2744.

Raised Beaches. 2610–2812, 2617, 2629, 2630, 2631, 2661, 2662, 2666, 2667, 2668, 2669, 2687,

2690, 2712, 2712, 2714, 2723, 2724.

Sill. 2646.

Surface Agglomerates and Tuffs. 2731, 2734–2735;

Tertiary Folding. 2679, 2687, 2689, 2691, 2706.

Trap-Features 2748, 2751.

Vent-Agglomerates. 2698, 2701, 2707–2708.

Xenolithic Layer in Lava. 2722.

Copies of these half-plate photographs are deposited for reference in the London and Edinburgh Offices of the Geological Survey, and prints and lantern-slides are supplied at a fixed tariff.

[2024 note: The following list was not in the original memoir. It has been placed here to allow quick access to the images.]

Pre-Tertiary rocks of Lorne

[P216535](#) C02649 SW of Port Phadruig, SW coast of Island of Kerrera, Oban. Slaggy base of basalt lava resting in hollow of erosion cut through grits. Both lava and grits are of Lower Old Red Sandstone age. [NM 7950 2750]

[P216536](#) C02650 A little W. of Port Dubh, SW end of Island of Kerrera, Oban. Cliff of Lower Old Red Sandstone conglomerates and flaggy shales. [NM 7850 2650]

[P216537](#) C02651 A little W. of Port Dubh, SW end of Island of Kerrera, Oban. Tertiary basalt dyke cutting Lower Old Red Sandstone conglomerate. [NM 7850 2650]

[P216538](#) C02652 A little W. of Port Dubh, SW end of Island of Kerrera, Oban. Sun-cracks in Lower Old Red Sandstone flaggy shales. [NM 7850 2650]

[P216539](#) C02653 Shore, 0.4 km. W. of Gylen Castle, S. end of Island of Kerrera, Oban. Unconformity: Lower Old Red Sandstone basement breccia on black slates. [NM 8050 2650]

[P216540](#) C02654 Shore, 0.4 km. W. of Gylen Castle, S. end of Island of Kerrera, Oban. Unconformity: Lower Old Red Sandstone basement breccia on black slates. (Near view of part of C2653.) [NM 8050 2650]

[P216541](#) C02655 Shore, 0.4 km. W. of Gylen Castle, S. end of Island of Kerrera, Oban. Unconformity: Lower Old Red Sandstone conglomerate on folded and cleaved limestone and slates. [NM 8050 2650]

[P216542](#) C02656 Shore, 0.4 km. W. of Gylen Castle, S. end of Island of Kerrera, Oban. Unconformity: Lower Old Red Sandstone basement breccia on slates and limestones. [NM 8050 2650]

[P002379](#) C02657 Unconformity on shore, 0.4 km. west of Gylen Castle, at the south end of the island of Kerrera, Oban, Argyllshire. This is the basal breccia of the Lower Devonian (Lower Old Red Sandstone), resting unconformably on steeply inclined slates and limestones of the Easdale Subgroup, Argyll Group, Dalradian Supergroup. The breccia contains rounded and angular fragments of the underlying Dalradian and probably represents a fossil scree deposit. [NM 8050 2650]

[P216543](#) C02658 Shore, 0.3 km. W. of Gylen Castle, S. end of Island of Kerrera, Oban. Unconformity: Lower Old Red Sandstone conglomerate on black slates. [NM 8050 2650]

[P216544](#) C02659 A little W. of Gylen Castle, S. end of Island of Kerrera, Oban. Unconformity: Lower Old Red Sandstone conglomerate on black slates. [NM 8050 2650]

[P216545](#) C02660 A little W. of Gylen Castle, S. end of Island of Kerrera, Oban. Folded and puckered black slates and limestones. [NM 8050 2650]

[P216546](#) C02663 Near point of Rubha Seanach, S. end of Island of Kerrera, Oban. Folded limestone on black slates. [NM 8050 2550]

[P216547](#) C02664 Near point of Rubha Seanach, S. end of Island of Kerrera, Oban. Folded limestone on black slates. [NM 8050 2550]

[P216548](#) C02665 Shore NNE of Rubha Seanach, SE end of Island of Kerrera, Oban. Folded and puckered black slates and limestones. [NM 8050 2550]

Pre-Tertiary rocks of Mull and Morven

[P216552](#) C02671 Glais Bheinn, NE of Ardtornish Bay, Morvern. Looking S. Tertiary lavas, with Trias at base, overlooking gneiss platform. [NM 7250 4350]

[P216553](#) C02672 Strath Shuardail, Morvern, Argyll. Scenery of Moine gneiss. [NM 7350 4650]

[P216554](#) C02673 Aoineadh Beag, Ardtornish Bay, Morvern. Tertiary lavas capping Mesozoic sediments. Landslip in foreground. [NM 7050 4250]

[P216555](#) C02674 Inninmore Bay, Morvern. Inninmore Fault. Tertiary lavas (left) faulted down against Moine gneiss (right). [NM 7250 4150]

[P216556](#) C02675 Shore E. side of Ardtornish Bay, Morvern. Triassic 'cornstone'. [NM 6950 4350]

[P216557](#) C02676 Shore E. side of Ardtornish Bay, Morvern. Triassic 'cornstone'. [NM 6950 4350]

[P216560](#) C02679 Rubha na Sroine, E. side of Craignure Bay, Mull. Triassic quartz-conglomerate. [NM 7150 3750]

[P216561](#) C02680 S. of Craignure Bay, Mull. Surface of Craignure Limestone. [NM 7250 3650]

[P216562](#) C02681 S. of Craignure Bay, Mull. Tertiary dolerite dyke cutting Mesozoic sediments. [NM 7250 3650]

[P216563](#) C02682 1.2 km. S. of Craignure Bay, SE Mull. Gryphaea in bed of Lower Lias limestone. [NM 7250 3650]

[P216564](#) C02683 1.2 km. S. of Craignure Bay, SE Mull. Gryphaea in bed of Lower Lias limestone. [NM 7250 3650]

[P216601](#) C02725 Shore cliff at A' Cuilean, S. of Glenbyre, Loch Buie, S. Mull. Fault section; steep Lias (left), basalt lava (right). [NM 5750 7250]

[P002392](#) C02739 Port Uamh Beathaig and Beinn na h-Iolaire, south of Loch na Keal, south-west Mull. Moine gneiss forming the wave-cut platform in the foreground overlain by Mesozoic sediments (Triassic, Jurassic and Cretaceous) forming the cliffs behind. These are overlain in turn by Tertiary lavas forming the high cliffs in the distance. Mull is one of the series of Tertiary volcanic centres grouped along the west coast of Scotland and relates to a period of crustal extension between 55 and 61 million years ago. Similar aged lavas and intrusions in the Faeroes and East Greenland were all once part of the same Tertiary igneous province, before being separated by the opening of the Atlantic Ocean. [NM 4450 3250]

[P216612](#) C02740 Shore below Balmeanach, Gribun, SW Mull. Horizontally-bedded Triassic grits and sandstones resting unconformably on inclined Moine gneiss. [NM 4450 3250]

[P216613](#) C02741 Shore below Balmeanach, Gribun, SW Mull. Horizontally-bedded Triassic grits and sandstones resting unconformably on inclined Moine gneiss. [NM 4450 3250]

[P216614](#) C02742 Shore below Balnahard, Gribun, SW Mull. False-bedded Triassic conglomerate. [NM 4550 3450]

[P216615](#) C02743 Shore below Balnahard, Gribun, SW Mull. False-bedded Triassic conglomerate. [NM 4550 3450]

[P216616](#) C02744 Shore at Balnahard, Gribun, SW Mull. False-bedded Triassic conglomerate, cliffs of Tertiary basalt lavas in distance. [NM 4550 3450]

Raised beaches

[P002374](#) C02610 Old sea cliff at back of raised beach, undercut by the waves, Gallanach Road, 1.3 km. or so south-west of Oban Railway Station, Argyllshire. Undercut sea cliff of Devonian conglomerate behind the 6.4 m. (25 ft.) raised beach, demonstrating the erosive power of the waves. The road runs along the surface of the raised beach which was abandoned when the sea levels began to fall several thousand years ago. Raised beaches are common features along the coast of Scotland and were formed when the sea level was higher than at present. This typically occurs when an ice-cap retreats, rapidly releasing large quantities of water which raises the sea level. However, through time, the land rises isostatically with the removal of the ice load, and the sea level appears to fall again relative to the land. [NM 8450 2950]

[P002375](#) C02611 Old sea cliffs, Ardbhan Craigs, coast south-west of Oban, Argyllshire. Old sea cliffs on back edge of 6.4 m. (25 ft.) raised beach. The base of the cliffs is obscured by scree (now vegetation-covered), which has fallen onto the surface of the raised beach since it was abandoned by falling sea levels several thousand years ago. Some large fallen blocks can also be seen in the centre foreground. Raised beaches are common features along the coast of Scotland and were formed when the sea level was higher than at present. This typically occurs when an ice-cap retreats, rapidly releasing large quantities of water which raises the sea level. However, through time, the land rises isostatically with the removal of the ice load, and the sea level appears to fall again relative to the land. [NM 8350 2850]

[P216501](#) C02612 Ardbhan Craigs, SW of Oban. Old sea cliffs on edge of 25 ft. raised beach. [NM 8350 2850]

[P216504](#) C02617 Ard na Cuile, 5.6 km. SW of Oban. Rock-notch of 25 ft. raised beach. [NM 8250 2550]

[P002378](#) C02629 In the foreground, the basalt lavas of Lower Old Red Sandstone age are cut by a deep gully marking the line of a weathered-out dyke. In the distance the mountains of Mull are formed from a dissected Tertiary central igneous complex. The rock-notch of the 25 ft. raised beach (Rubha Seanach, south end of island of Kerrera) in middle distance. [NM 8150 2450]

[P216516](#) C02630 Port a' Bhearnaig, NW end of Island of Kerrera, Oban. Rock-notch of 25 ft. raised beach. [NM 8450 3150]

[P216517](#) C02631 From a point adjoining Port a' Bhearnaig, N. end of Island of Kerrera, Oban. Basalt dyke in contorted black-slates. The dyke is seen as a stack on the 25 ft. raised beach platforms. [NM 8450 3150]

[P002380](#) C02661 Looking west to Gylen Castle at the south end of the island of Kerrera, Oban, Argyllshire. The castle is built on the top of the old sea cliffs forming a feature at the back of the 6.4 m. (25 ft.) raised beach platform. The cliffs are composed of conglomerate near the base of the local Lower Devonian (Lower Old Red Sandstone) succession. The basal conglomerate of the Lower Old Red Sandstone is commonly over 60 m. thick hereabouts and contains boulders of the underlying Dalradian rocks and of the penecontemporaneous Lorne Plateau Lavas. The latter crop out on Kerrera and the adjacent mainland. [NM 8050 2650]

[P002381](#) C02662 Looking east to Gylen Castle and beyond, south end of island of Kerrera, Oban, Argyllshire. The castle is built on the top of the old sea cliffs forming a feature at the back of the 6.4 m. (25 ft.) raised beach platform. The cliffs are composed of conglomerate near the base of the local Lower Devonian (Lower Old Red Sandstone) succession. The natural arch in centre-left would have been an old sea cave excavated in a former sea stack on the raised beach. The basal conglomerate of the Lower Old Red Sandstone is commonly over 60 m. thick hereabouts and contains boulders of the underlying Dalradian rocks and of the penecontemporaneous Lorne Plateau Lavas. The latter crop out on Kerrera and the adjacent mainland. [NM 8050 2650]

[P002382](#) C02666 Eilean nan Gamhna, the 'Shepherd's Hat' off the west coast of the island of Kerrera, by Oban, Argyllshire. An island showing central flat-topped rock-crown surrounded by the 25 ft. raised beach platform. The rim of the 'hat' is the wave-cut bench of the 25 ft. raised beach while the crown or central rock-nob of the island is the remains of the old cliff.

[P216549](#) C02667 Off the W. coast of Island of Kerrera, Oban. Shepherd's Hat'. An island showing central flat-topped rock-crown surrounded by 25 ft. raised beach platform.

[P002383](#) C02668 Bach Island, commonly called the 'Dutchman's Hat' situated off the south-west of the island of Kerrera, by Oban, Argyllshire. An island showing central flat-topped rock-crown surrounded by the 25 ft. raised beach platform. Similar to the 'Shepherd's Hat', the rim of the 'hat' is the wave-cut bench of the 25 ft. raised beach while the crown or central rock-nob of the island is the remains of the old cliff. [NM 7750 2650]

[P216550](#) C02669 Off the SW of the Island of Kerrera, Oban. Bach Island, commonly called the 'Dutchman's Hat', a central rock-knob with surrounding 25 ft. raised beach platform. [NM 7750 2650]

[P216568](#) C02687 Port na Tairbeirt, SE Mull. Raised beach and cliff cut in tilted Tertiary lavas. [NM 7450 2950]

[P216571](#) C02690 Port nam Marbh, SE Mull. Raised beach and cliff. [NM 7350 2750]

[P002387](#) C02712 Cameron, Loch Buie, south Mull, Argyllshire. Looking east. The cliff on the left is a feature at the back of the raised beach. It is composed of granophyre, an acidic minor intrusion characterized by graphic intergrowth of the quartz and feldspar (seen in thin section) and part of the Mull Tertiary igneous complex. Mull is one of the series of Tertiary volcanic centres grouped along the west coast of Scotland and relates to a period of crustal extension between 55 and 61 million years ago. Similar aged lavas and intrusions in the Faeroes and East Greenland were all once part of the same Tertiary igneous province, before being separated by the opening of the Atlantic Ocean. [NM 6050 2450]

[P216590](#) C02713 Cameron, Loch Buie, S. Mull. Looking W. Raised beach and cliff. [NM 6050 2450]

[P216591](#) C02714 Cameron, Loch Buie, S. Mull. Undercut cliff of granophyre on raised beach. [NM 6050 2450]

[P002388](#) C02723 Cliff behind the raised beach, south of Glenbyre, Loch Buie, south Mull, Argyllshire. The cliff on the left is the back feature of the raised beach, whose planed-off wave-cut platform can be seen in the centre ground. Note the scree at the base of the cliff on left and the steady encroachment of vegetation over the raised beach. Raised beaches are common features along the coast of Scotland and were formed when the sea level was higher than at present. This typically occurs when an ice-cap retreats, rapidly releasing large quantities of water which raises the sea level. However, through time, the land rises isostatically with the removal of the ice load, and the sea level appears to fall again relative to the land. [NM 5850 2450]

[P216600](#) C02724 S. of Glenbyre, Loch Buie, S. Mull. Raised beach and cliff. [NM 5850 2450]

Sill

[P216532](#) C02646 0.8 km. SW of Port Phadruig, SW coast of island of Kerrera, Oban. Dolerite sill with chilled margins cutting columnar basalt lava of Lower Old Red Sandstone age. [NM 7950 2750]

Surface agglomerates and tuffs

[P216607](#) C02731 Shore W. of An Dunan, 2.4 km. E. of Carsaig, S. Mull. Agglomerate. [NM 5650 2150]

[P002389](#) C02734 Columnar basalt and natural arch, Carsaig Arches, south Mull, Argyllshire. Old sea stack with natural arch cut in tuffs (volcanic ash). The cliffs in the left background, probably part of a lava flow or sill, display good examples of columnar jointing in the basalt. Note the scree on left which is composed of basalt blocks broken off from the columns. Part of the Mull Tertiary volcanic centre. Columnar jointing is a characteristic feature of many minor intrusions. It is especially obvious in sills where the columns are commonly vertical. They originate with the development of a regular series of contraction joints as the rock cools from molten magma and crystallizes to a solid state. The columns are commonly hexagonal in pattern when viewed end-on. [NM 5350 2150]

[P216610](#) C02735 Carsaig Arches, S. Mull. Arch out in tuff underlying basalt. [NM 5350 2150]

Tertiary folding

[P216560](#) C02679 Rubha na Sroine, E. side of Craignure Bay, Mull. Triassic quartz-conglomerate. [NM 7150 3750]

[P216568](#) C02687 Port na Tairbeirt, SE Mull. Raised beach and cliff cut in tilted Tertiary lavas. [NM 7450 2950]

[P216570](#) C02689 Port Donain, SE Mull. Tilted Mesozoic sediments with raised beach behind. [NM 7350 2950]

[P002384](#) C02691 Loch a' Ghleannain, Loch Don anticline from the south, south-east Mull, Argyllshire. A classic locality that illustrates concentric folding associated with the emplacement of a central igneous complex. The foreground is Tertiary basalt lavas; the first hollow Mesozoic sediments; the ridges flanking the loch, Lower Old Red Sandstone (Devonian) lavas; the loch itself lies on Devonian slates. The anticline is part of a much larger annular fold belt surrounding the Mull central complex. [NM 7250 3150]

[P216585](#) C02706 S. end of Loch Spelve, SE Mull. Looking SW. Dipping lavas. [NM 6650 2550]

Trap-features

[P216620](#) C02748 Eastern end of Island of Ulva, from Mull. Trap features and scarps. [NM 4450 3950]

[P216623](#) C02751 S. side of Island of Ulva. Features of Tertiary basalt lavas. The near cliff is columnar. [NM 4350 3850]

Vent-agglomerates

[P216578](#) C02698 Southern slope of Beinn Bhearnach, N. side of Lussa River, SE Mull. Cone-sheet in vent agglomerate. [NM 6650 3250]

[P216579](#) C02699 Southern slope of Beinn Bhearnach, N. side of Lussa River, SE Mull. Cone-sheet in vent agglomerate. [NM 6650 3250]