

bands on the Scottish mainland and in the islands of Argyllshire.³⁵ But there are also scattered areas of coarsely-banded gneisses which present the closest resemblance to parts of the Lewisian gneiss of Scotland. The best areas for the study of these rocks lie near Pettigoe and Ballyshannon (Donegal), from Erris Head to Blacksod Point (Mayo), in the Slieve Gamph or Ox Mountains stretching from Castlebar beyond Sligo to Manor Hamilton, and in the western part of the County of Galway. The relations of the Dalradian series to the gneisses and granitoid rocks have not yet been accurately determined. But there is reason to believe that the former rests with a violent unconformability upon the latter. Near Castlebar, Mr. A. M'Henry, of the Geological Survey, has recently found at the base of the Dalradian schists a coarse conglomerate made up largely of fragments of the gneisses and granites on which it rests.

In England and Wales many isolated areas have been described as pre-Cambrian on evidence which, as already stated, cannot be considered satisfactory.³⁶ The areas where in my opinion the most satisfactory evidence of pre-Cambrian rocks can be produced are Anglesey, the Caer Caradoc and Longmynd area and the Malvern Hills. Of these areas by much the most important is the first named. In Anglesey the *Olenellus*-zone has not been discovered, but the fossils found indicate Tremadoc and possibly even Menevian horizons in the Lower Cambrian series.³⁷ The basement strata are conglomerates, and they evidently lie with a marked unconformability on certain crystalline schistose rocks. It was the belief of Sir A. C. Ramsay that the latter were metamorphosed portions of the Cambrian system, and they were so represented on the Geological Survey maps. But a re-examination of the ground leads to the conclusion that they had acquired their present crystalline characters before the Cambrian strata were laid down upon them; and as these strata belong to a low part, if not the

³⁵ The fullest account of these Irish metamorphic rocks will be found in the Memoirs of the Geological Survey of Ireland; see especially those on Sheets 1, 2, 5, 6 and 11 (Inishowen, Co. Donegal); 3, 4, 5, 9, 10, 11, 15 and 16 (N.W. and Central Donegal); 22, 23, 30 and 31 (S.W. Donegal); 31 and 32 (S.E. Donegal). See also Harkness, *Quart. Journ. Geol. Soc.* xvii. 1861, p. 256; Callaway, *op. cit.* xli. 1885, p. 221.

³⁶ There is now a voluminous literature on this subject; only some of the more important papers will be here cited.

³⁷ Prof. Hughes, *Quart. Journ. Geol. Soc.* xxxvi. 1880, p. 237; xxxviii. 1882, p. 16.