

*Dolomite Reefs of South Tyrol*, supplies a comprehensive account of this district, and forms the text to the Austrian Geological Survey Maps.

More recently the Norwegian geologist, Professor Broegger, has drawn a comparison between the rocks of the South Tyrol eruptive area and those of the Christiania area. He demonstrates that Richthofen's "Melaphyre" of the Mulatto mountain is not younger but older than the tourmaline granite, and that altogether the basic eruptions of augite, porphyrite, plagioclase porphyrite, and melaphyres in the Fassa Valley for the most part preceded the intrusion of the granite. Only a few ultra-basic dykes which penetrate the granite at Predazzo are younger than it. Broegger arrives at the conclusion that granite, monzonite, hypersthenite are only the deep-seated equivalents of the Triassic outflows of porphyrites and melaphyres; and his comparison of the Predazzo and Christiania areas leads him to assign a Triassic age to the granite masses at Brixen, and to the tonalite, adamellite, and banatite of the Riesenferner group, the Adamello group, and Cima d'Asta.

The extinct volcanoes of the Western Isles of Scotland were first described by MacCulloch (*ante*, p. 113). Ami Boué, in his *Geological Essay on Scotland* (1820), distinguished very exactly between basaltic sheets and dykes, and described the various volcanic rocks petrographically. Although a student of Jameson, he attached himself to Hutton's party in regard to the origin of basalt, phonolite, trachyte, porphyry, and granite.

L. A. Necker, the grandson of the great Saussure, travelled in Scotland and the Western Hebrides in 1823, but his account of his journey contained little that was new. The observations of Von Oeynhausen and Von Dechen, published in Karsten's *Archiv* in 1826, were of some importance for the geology of Skye, Eigg, and Arran.

In 1850, the Duke of Argyle discovered in the Island of Mull sedimentary beds with flint nodules belonging to the Cretaceous series, and fossil remains of dicotyledonous plants between basaltic flows. The fossils were determined by Edward Forbes to be of Tertiary age; nevertheless the same author referred the basalts of Skye to the Jurassic epoch. In 1861, Sir Archibald Geikie began that brilliant series of researches which extended over a period of thirty-five years, and made the Western Isles of Scotland a classical area for the study of extinct volcanoes.