

Greenough's map were particularly good; the geological colouring embraced Smith's results, and was partially founded upon his own observations. The original edition appeared in six sheets; in 1826 a reduced map was published and at once obtained a wide circulation. New and improved editions of Greenough's map continue to appear at the present day, and for a long time this map was the best that existed.

Smith's example gave a new impulse to geological work. John MacCulloch,¹ a physician in private practice, gave up his practice and devoted himself between 1811 and 1821 to the geological investigation of Scotland. The first fruits of his important labours were published in 1819 in his *Description of the W. I. of Scotland*. In 1826 he was commissioned by the Minister of Finance to prepare a geological map of that country. This large undertaking was completed in 1834. There were, however, no detailed topographical maps of Scotland available at that time, and MacCulloch had to enter the geological colours on the meagre topographical basis of the Arrowsmith map. MacCulloch's map was published posthumously in 1840. It frequently passed under the name of the author of the topographical map, and received on its appearance little attention even from geologists. Nevertheless, MacCulloch was one of the pioneers of British mineralogy and geology.

The country which he investigated was bristling with complexities and difficulty of every kind, but a wide mineralogical knowledge and experience stood him in good stead, and he built up a thorough groundwork for the general features in the distribution of the rock-varieties in Scotland. Although a little unwillingly at first, owing to MacCulloch's personal peculiarities and unpopularity, his memoirs have long been recognised as classical works in the history of British geology. They are characterised by accurate mineralogical determination

¹ John MacCulloch, born 1773 in the island of Guernsey, of Scotch descent, was educated in Cornwall, and studied medicine in Edinburgh. He became so enamoured of mineralogical studies that in 1811 he gave up his practice, and in the same year he communicated to the Geological Society several papers on the structure of the Channel Isles and Heligoland. In 1814 he was appointed a geologist on the Trigonometrical Survey. He belonged to no particular school; he frequently fell into scientific disputes with his contemporaries, and was very unpopular on account of his peremptory way and jealous temperament. He died in 1835, through a carriage accident in Cornwall.