

in Europe, were spared in the case of the other continents. In them the knowledge so hardly won in Europe could at once be adopted, and the help of experienced European observers could be secured in carrying out pioneer research elsewhere. Thus geological data furnished within a few years in foreign lands could often bear comparison with the results that had demanded many decades or even centuries of work in the European territories. Active co-operative research in the other continents did not commence until after the period with which this introductory chapter deals.

North America was first brought into the field of geological science. As early as 1752, Guettard had examined a collection of Canadian fossils, and had tried to apply to North America the sedimentary horizons which he had erected for Europe. He had gone so far as to construct a hypothetical map showing the distribution of the various rock-formations whose existence he had surmised.

Of another character were the investigations of the Scotsman, Maclure (1763-1840), who had been trained as a mineralogist by Werner. Maclure published in 1809 a treatise and a map on the geology of the United States (*Trans. Amer. Phil. Soc.*). He distinguished the rock-formations according to Werner's system, and showed that the primitive rocks predominate on the north and west of the Hudson, and form the basement in the New England States; the transitional formations repose upon the primitive rocks and extend far west to the Mississippi, where the Flötz or younger sedimentary formations begin. Maclure also gave a clear exposition of the distribution of the Carboniferous formation in the Alleghanies, in Pennsylvania, and in the West, of the absence of trap-rocks in the Flötz formation, and the absence of porphyry, vesicular rocks, and basalt in the whole eastern district of the United States. He fully realised and depicted the simplicity and the gigantic scale of geological structures in the United States.

Maclure's comprehensive survey of the geology of North America overshadows the many smaller works on local stratigraphical details, such as those of Jefferson, Gibbs, Bruce, Silliman, and others.

Long before geological research had begun in North America, however, the presence of mammalian remains similar to those of Siberia had been discovered. Dr. Mather, in 1712, reported in a letter to Woodward the presence of bones of enormous