

course of countless generations, but at definite periods of creation, by means of a more or less complete re-modelling of the previously existing species in the plant and animal kingdoms.

The numerous, and in some cases beautifully illustrated, works of Abramo Massalongo (between 1850 and 1861) elucidate the Tertiary floras of upper and middle Italy. Another voluminous writer on Tertiary floras was Baron von Ettingshausen.<sup>1</sup> His first works discuss the Tertiary plants of the Vienna basin and the fossil Proteaceæ.

A method of securing a natural impression of leaves was about this time discovered in the Government Printing Office at Vienna, and Ettingshausen immediately had the method adapted to facilitate scientific researches of recent and fossil types of venation. In a memoir published in 1854, Ettingshausen showed the importance of leaf-venation for the systematic identification of isolated fossil leaves, and suggested a special terminology for the nervation of leaves. His large work is a handsomely-prepared account of Austrian plants in six volumes, *Physiotypia Plantarum Austriacarum*, illustrated by natural impressions of the leaves. Pokorny collaborated with Ettingshausen in the preparation of this work, which was exhibited at the Paris Exhibition in the year 1867. Several independent monographs by Ettingshausen succeeded this work, and methods which he initiated have added very greatly to the security with which fossil leaves may be identified. Ettingshausen followed Heer in constantly making a comparison between recent and fossil forms, but, unlike Heer, he was an enthusiastic believer in the Darwinian theory of descent.

Meanwhile the knowledge of Carboniferous floras was being from time to time enriched. W. C. Williamson contributed several works (1851-68) on the Carboniferous flora of Great Britain; that of North America was being carefully examined by Sir William Dawson and Leo Lesquereux.

The first complete enumeration of palæophytological material

<sup>1</sup> Constantin Freiherr von Ettingshausen, born 1862 in Vienna, the son of the physicist, Andreas von Ettingshausen, studied in Kremsmünster and Vienna; worked as a voluntary assistant on the Imperial Geological Survey; in 1854 was chosen Professor at the Emperor Joseph Academy, and in 1871 Professor of Botany at Graz University; he died at Graz in 1897.