

distribution of the existing organisms and their fossil ancestors, as well as many other facts, are only comprehensible on the assumption of the doctrine of transmutation.

Palæontology has taken an active part since 1870 in the establishment of the theory of descent, and at the present day phylogenetic problems are regarded as one of the chief charms in palæontological research. The character of palæontological literature has been correspondingly modified; the purely stratigraphical treatment of palæontological results has been held more and more distinct from the biological-systematic treatment, and the latter places the genealogical direction of research more and more in the foreground. The literature has been so extensively increased, and has been contributed in so many different languages, and often circulated in so few copies, that very great difficulties stand in the way of obtaining a complete general survey of its results. The older text-books of Bronn, D'Orbigny, Geinitz, Quenstedt, Giebel, Nicholson, and others were rapidly out of date, and were partially designed only to meet the requirements of beginners.

The *Handbuch der Palæontologie* of Karl A. von Zittel, the botanical part of which was written by W. Schimper and A. Schenk, endeavours to provide a general survey of palæontological subject-matter in harmony with the modern standpoint of zoology. The original intention of the author was to comprise Palæozoology in one volume, but as the work proceeded it extended to four thick volumes, and the completion of the work occupied seventeen years (1876-93). The chapter on fossil insects was contributed by S. Scudder. Throughout the entire work a primary object has been to point out the close relationships between palæontology and the other branches of biological science (Zoology, Comparative Anatomy, Botany, Embryology), and to make application to palæontology of the data acquired by those sciences. The subject-matter is therefore arranged in strict systematical order, and the enumeration of each particular group of forms is preceded by an introduction elucidating the main features of the organisation. The histological structures are described in much fuller detail than in any of the former text-books of Palæontology. In the special systematic portion, all well-founded genera are accepted and described, the doubtful genera are eliminated or only briefly mentioned. The