

regarded as only one of several objects to be attained through the collection and study of fossils. The description of fossils is in fact only the first step in their use for the purpose of correlation in palaeogeography, attacking the far-reaching problems of evolution.

It is worth while recalling here that Wm. Smith, the father of stratigraphic palaeontology, made excellent use of certain fossils even before they were named in tracing the formations which they characterized over a great part of England. Smith's discovery of the value of fossils in correlation enabled him to prepare the first geological map of which we have any record. The fundamental importance of fossils to the geologist in enabling him to recognize or identify the same beds in different areas has been universally recognized since the days of Wm. Smith. It is for this purpose that the fossil collections of the field geologist are generally made. They necessarily often represent a great many localities, and frequently a small number of specimens from the individual localities which may or may not be as large as the conditions incident to the work will permit, and the preparation of stratigraphic sections in connection with them is most important.

Progress in stratigraphic palaeontology in recent years has been largely along the line of increasing our knowledge of the range and distribution of faunas, and of the individual species composing them. The important bearing of this class of knowledge upon questions concerning the evolution and dispersal of faunas is evident. Its interest to the general geologist lies chiefly in the fact that the accuracy with which fossils can be used in correlation is in direct proportion to the completeness of our knowledge of their range. The presence in certain areas of recurrent faunas or faunas which re-appear at higher levels after completely disappearing for a considerable interval from a series of beds, sometimes introduces for particular regions a new and difficult factor into the use of fossils in correlation until the inter-relations of the recurrent with the associated faunas has been worked out. Such areas require an amount of collecting and careful comparison of faunas and sections which would be unnecessary in ordinary regions. The recurrence in the Devonian section of southern New York of *Tropidoleptus carinatus* in the Chemung, 2,000 feet above its disappearance at the top of the Hamilton formation, is an example of this phenomenon.* (See fig. 2.) We learn from it and similar examples that the disappearance of a fossil from a section may not mean that it has become extinct, but that it has changed its habitat.

*E. M. Kindle, Jour. Geol., vol. XIX, pp. 346-347, 1911.