

temperature, &c., were described by Mr. F. P. Jepson, who has thus been able successfully to confirm the observations of previous investigators. Mr. Walter E. Collinge described the part played by the Collembola, or "springtails," in the destruction of such plant life as developing seeds, bulbs, orchids, and hops. The structure of the rose-aphid *Siphonophora rosarum* was described by Mr. A. J. Grove, and Prof. E. B. Poulton exhibited a collection of predaceous insects and their prey.

The disappearance of the fresh-water crayfish from the Thames valley and other localities in this and European countries owing to the so-called "plague" is a problem of great interest to biologists. Mr. Geoffrey Smith's paper on some of the work that he has been carrying on in cooperation with Prof. Dreyer on the pathogenic bacteria of *Carcinus moenas* was of especial interest to economic biologists, as this work is connected with the question of the relation of the so-called plague bacillus to other pathogenic bacteria living on the outside of crabs, lobsters, and crayfishes.

Prof. William Somerville exhibited an interesting collection of injurious fungi and the injuries caused by the same, and a paper on the blossoming and pollen of our hardy cultivated plants, by Mr. C. H. Hooper, was communicated to the association.

On July 14 a very enjoyable excursion to the School of Forestry's arboretum at Tubney and to Bagley Woods was made. It was also resolved to accept the invitation to hold the meeting next year at the University of Manchester.

#### THE MUSEUMS ASSOCIATION.

THE twentieth annual conference of the Museums Association, which opened at Maidstone on July 13, attracted a fair number of members from the more southern towns, though the northern districts were not very generally represented.

Preceding the conference there was a council meeting on the evening of Monday, July 12, when the secretary and editor, Mr. E. Howarth, resigned those offices, after being editor of the *Museums Journal* since its first issue in 1901, and secretary for many years prior to that date. The formation of the association was first advocated in an article written by Mr. Howarth and published in *NATURE* in 1877. From that time the idea gradually extended, and in 1889 the association was duly organised at York, where it will very fitly hold its twenty-first anniversary next year.

The president, Mr. Henry Balfour, curator of the Pitt-Rivers Museum at Oxford, opened the proceedings with an extremely interesting address, which dealt cogently with the question of a national folk-museum, one of the phases of museum work that has been strangely neglected in these islands. While the ethnology of most regions of the world is illustrated in museums with profusion, the mediæval and post-mediæval life of our own country has received quite inadequate attention. Even the British Museum is everything except British so far as ethnology is concerned. The president instanced two museums, however, where praiseworthy efforts were made to illustrate local folk-culture, viz. the Museum of the Society of Antiquaries in Edinburgh and the Guildhall Museum, London. "What is required is a national folk-museum dealing exclusively and exhaustively with the history of culture of the British nation within the historic period, and illustrating the growth of ideas and indigenous characteristics. Others have, indeed, a perfect right to criticise us, for in most European countries a folk-museum is a prominent and patriotic feature of very many of their cities and towns," Berlin, Budapest, Sarajevo, Moscow, Paris, Helsingfors, Copenhagen, Bergen, Christiania, and Stockholm being cited as a few examples.

Mr. Balfour then described with some detail the Nordiska museum in Stockholm as a model upon which to base a national folk-museum of our own, and said, "I feel sure that a well-organised and carefully arranged folk-museum standing in grounds which could be adapted for an open-air exhibition would be as much appreciated by students and as popular with the masses as any institution in the country." If a strictly national collection develops as it

should, and is treated upon broad scientific lines, there will be no lack of lessons that may be learnt from it. The development of culture within the geographical region would be illustrated by chronological series depicting the general life and habits of the people at successive periods. An open-air exhibition in connection with the main museum would enable obsolete types of habitations and other large structures to be erected, and admit of the exhibition of many features of the older domestic and social economy; and, further, it would supply a permanent centre for the performance of the folk-dances, songs, and old-time ceremonies of the British people.

It was rather singular that the special subject of the "arrangement of mammalia in museums," which had been selected by the council, was completely ignored, not a single paper with any reference to it being submitted, while ethnology received a large amount of attention. Mr. H. L. Braekstad supported the president's plea with a bright, descriptive paper on open-air museums in Norway, Mr. F. W. Knocker discoursed on the practical improvement of ethnographical collections in provincial museums, and Mr. W. Ruskin Butterfield offered some suggestions for loan exhibitions of local antiquities. Art museums were dealt with in thoughtful papers by Benj. I. Gilman, of the Museum of Fine Arts, Boston, and Dr. A. H. Millar, of the Albert Institute, Dundee. Other papers comprised the Maidstone Museum, by J. H. Allchin; the relation between libraries and museums, by F. Woolnough; mounting and displaying coins, by R. Quick; life-history groups of injurious insects, by H. Bolton; and a very serviceable description by Sir Martin Conway of his ingenious and convenient method of dealing with photographs.

The annual report, read at the business meeting on July 15, recorded the uninterrupted growth of the association, which now possesses a cash balance of 250l., as well as a stock of publications that are constantly in demand. The ballot papers showed that Dr. Tempest Anderson had been elected president, Mr. E. E. Lowe secretary, and Mr. F. R. Rowley editor. It was decided to publish a directory of all the museums in Great Britain and the colonies, the work to be proceeded with at once by Mr. H. M. Platnauer and Mr. E. Howarth.

#### ADAPTATION IN FOSSIL PLANTS.<sup>1</sup>

THE Darwinian theory of the origin of species by variation and natural selection only fulfils its rôle in so far as the distinctive characters of organisms are, or have been, adaptive, i.e. beneficial to the species. Purely "morphological" characters (if any such exist) and non-adaptive characters in general are not explained by the Darwinian theory (or only indirectly with the help of correlation). I therefore make no apology for having a good deal to say about adaptations in what follows.

That the great bulk, if not the whole, of organic structure is of the nature of an adaptive mechanism or device cannot be seriously doubted.

The origin of species by means of natural selection does not, as has sometimes been imagined, involve a constantly increasing perfection of adaptation throughout the whole course of evolution. Darwin expressed his belief "that the period during which each species underwent modification, though long as measured by years, was probably short in comparison with that during which it remained without undergoing any change."<sup>2</sup>

During the long periods of rest, adaptation to the then existing condition of life must have been relatively perfect, for otherwise new variations would have had the advantage and change would have ensued. It thus appears that, as a rule, a state of equilibrium has existed in the relation of organisms to their environment, only disturbed when the conditions were changing. That such long periods of evolutionary stability have actually occurred is shown, for example, not only by the familiar case of the flora of Egypt, unaltered during a long historic period, but still more strikingly by the absence of any noticeable change

<sup>1</sup> Abridged from the presidential address delivered before the Linnean Society on May 24. By Dr. D. H. Scott, F.R.S.

<sup>2</sup> "Origin of Species," sixth edition, p. 279.