be only for a day, until they have the opportunity of exchanging them for the foods they represent, raises a considerable question from the point of view of the genesis of abstract and symbolic behaviour.

If it succeeded in nothing else, the symposium undoubtedly did indicate to those who were present the vast field of interest which can be defined under the term 'animal behaviour'. It is clearly impossible for any one science to deal with all aspects of this subject. This very fact is

one of the best arguments for the existence of an organization, such as the Institute for the Study of Animal Behaviour, prepared to undertake the task of integrating the numerous studies, carried out in different departments of science, which are related under the heading 'animal behaviour'. The task that lies before the Institute is, however, far more than just the reviewing of separate advances in the subject, for this activity cannot but lead to the more responsible one of indicating the lines along which research needs to be directed.

Obituary Notices

Dr. Jan Koliha

THE National Museum of the Kingdom of Bohemia, at Prague, has suffered an irreparable loss in the untimely death of Dr. Jan Koliha, head of the Palaeontological Department of the museum since 1931.

Dr. Koliha was born on May 3, 1890, at Police nad Metuji in Eastern Bohemia, where his father was a teacher. He had already begun collecting natural history specimens in his teens, and when he proceeded to the Charles University of Prague, in about 1900, he studied natural science and obtained the degree of Ph.D. for a dissertation on "The *Atremata* of the Krušná Hora Beds" (published in *Palaeontographica Bohemica*).

Koliha next became assistant in geology and mineralogy to Prof. Cyril Purkyně at the Technical University, and also at the National Museum under Prof. Perner. The latter advised him to abandon his studies of the Bohemian Cretaceous and devote himself to the Palaeozoic strata of his country, which are well represented to the south and south-west of Prague.

While still a student Koliha had made the acquaintance of the great zoologist and palaeontologist Prof. Antonín Frič, who died in 1913. Frič lived to see the collections of the National Museum removed to the fine buildings at the top of Wenceslas Square (1892). Here Dr. Koliha, together with the late Dr. J. S. Procházka, acted as assistant to Prof. Kafka. On the death of the latter (1929), Dr. Procházka became the head of the Palaeontological Department until his death in 1931, when Koliha succeeded him. From this year the galleries containing Barrande's collections were called the Barrandeum, and Koliha was given the title 'Custodian of the Barrandeum'. He likewise became responsible for all the palaeontological collections, with the exception of fossil plants, which were under the care of Dr. Němejce.

Dr. Koliha was the chief authority on the Lower Palaeozoic fossils of Bohemia. He is especially to be remembered for his research on the Tremadocian of Eastern Bohemia (1925). Drs. Kodym and Matějka of the State Geological Survey had found black clay shale near Český Brod (East Bohemia) in a locality hitherto supposed to be Cretaceous. Dr. Koliha

examined some of the material and on the basis of the contained fossils proved it to be of Lower Ordovician age. Later he succeeded in correlating it with the Tremadoc Shales. An account of this discovery is given in the *Journal of the State Geological Institute of C.S.R.*, vol. 2, pp. 305 ff. The importance of this discovery was shown by the fact that it placed the Ordovician fauna of Eastern Bohemia in quite another sea to that which existed in the Barrandian basin at the same time. The Tremadocian of East Bohemia belongs to the Baltic-Scandinavian facies.

Dr. Koliha was well known and honoured not only in his own country, but also in Great Britain, Germany, Sweden, and the United States. As a specialist in the older Palaeozoic he was unrivalled, and material from all over the world came to him for determination. He was likewise a good zoologist. He possessed a surprising knowledge of English literature. He was also acquainted with Swedish and Welsh, and spoke excellent French.

Dr. Koliha was a kind friend and a good colleague. He was for many years a member of the Geographical Society of Prague, of the Geological and Mineralogical Society of Czechoslovakia and also of the National Museum Society, to the meetings of which he contributed many inspiring lectures and other communications on palaeontological matters. He died on April 7, after long suffering. His place at the Museum has been taken by his colleague Dr. Němejce.

I am indebted to Prof. Perner of the Charles University and to Dr. F. Prantl, of the National Museum, for some of the details of Dr. Koliha's work and career.

T. OAKES HIRST.

WE regret to announce the following deaths:

Dr. E. T. S. Appleyard, research assistant in physics in the University of Bristol, on June 15, aged thirty-five years.

Prof. A. E. Kennelly, emeritus professor of electrical engineering in Harvard University and the Massachusetts Institute of Technology, on June 18, aged seventy-seven years.

Dr. E. Kidson, O.B.E., director of meteorological services in New Zealand since 1927, aged fifty-seven years.