trial and error by which he set up twenty-eight alternative hypotheses and chose the one which seemed to him to accord best with the observed total travel times of outstanding phases. But he did not publish any demonstration that his solution was either unique or the best attainable from the data. Not until a direct method of attack on the core problem is found can we begin to discuss with confidence the distribution of velocities within the core or the probable characteristics of the material composing it. There seems to be evidence for the transmission of shear waves through the core, but this evidence raises new problems which call for direct attack. The transmission of shear waves would prove effective rigidity and consequent solidity in the popular sense, but would not prove solidity in the technical sense of the phase theory. In fact, the conditions at the center of the core would seem to transcend all possibilities of direct human experience. The temperature is completely unknown and the pressure is so enormous as to stagger the imagination. Unknown states of matter are not excluded.

In conclusion, it would seem that the entire picture of positive geological results attained by seismological methods, of the new problems thus realized and formulated, and of the better understanding and readiness to cooperate which is evidenced in the ranks of geologists and of seismologists, is a most encouraging one and foreshadows a new and exceedingly interesting era of geologico-seismological research.

OBITUARY

JAMES HARTLEY ASHWORTH

JAMES H. ASHWORTH, professor of natural history in the University of Edinburgh, died suddenly at his home in Edinburgh in the night of February 3–4, 1936. He had attended a meeting of the Royal Society of Edinburgh, of which he was general secretary, the preceding afternoon, at which meeting Professor H. S. Jennings, of Johns Hopkins University, who is this year George Eastman professor at Oxford, gave an address. In the evening he was present at a dinner in honor of Professor Jennings, who was a guest at his home. He retired for the night, weary but with no premonition of death; in the morning he was found cold and still.

Professor Ashworth was 62 years old. He was born in Lancashire, educated at Manchester University; and after he had taken the degree of D.Sc. at London, he was for four years lecturer and demonstrator in zoology at Manchester. For the past thirty-six years he had been associated with the University of Edinburgh, first as lecturer in invertebrate zoology, then as professor of zoology and for the past nine years as professor of natural history and administrative head of the department. His publications include memoirs on many groups of invertebrate animals, and the accuracy and value of his researches brought him important honors and awards, among them the Keith Medal of the Royal Society of Edinburgh; he was president of the Royal Physical Society of Edinburgh, a fellow of the Royal Society of London and member of its council. But it is probable that his most important contributions to science were in the fields of instruction, organization and administration. He was a conscientious and inspiring teacher and a particularly able organizer and wise executive. When he came to his professorship in the university he found the department of zoology inadequately organized and badly housed. He at once set about making improvements, with the result that his department is now of outstanding excellence. In 1923 a generous donor gave £20,000 toward the development of the department of zoology, in 1925 the trustees of the Carnegie Trust for the Universities of Scotland set aside £18,000 for this purpose, and at Christmas, 1926, the International Education Board of the Rockefeller Foundation appropriated £74,000 to carry out this project. The University Court in accepting these generous gifts "placed on record their sincere appreciation of the part which Professor Ashworth had taken in making possible this great development, and their recognition that the provision of funds adequate for the undertaking had been due in large measure to his personality and unsparing efforts." Sketch plans of the building were prepared by Professor Ashworth; construction was begun in June, 1927, and the building, which cost £80,000 and is one of the most complete laboratories of zoology in the world, was formally opened by His Royal Highness Prince George on May 15, 1929.

Professor Ashworth's interests were not limited to his own institution, but he was always ready to lend a helping hand to others. He was a trustee of the Bermuda Biological Station for Research and had been active in recent months in undertaking to raise funds in Great Britain for that institution. He was widely known in this country, where he had visited and lectured at universities and scientific institutions from the Atlantic to the Pacific. The gracious and charming personalities of Professor and Mrs. Ashworth are remembered by a host of American friends who lament his untimely death.

E. G. CONKLIN

[27] B. Gutenberg, "Nachrichten der K. Gesellschaft der Wissenschaften zu Göttingen, Math.-physikalische Klasse," pp. 28–29, 1914.