minate existent thing cannot be determined to exist or to act, unless it be so determined by another cause which is also finite and has a determinate existence, and so on *ad infinitum*. That is to say, a determinate existent thing has a positive reality in so far as it expresses the eternal essence of Substance, but in so far as it is finite, in so far as it is limited and restricted, it has not. Yet it is precisely in this latter capacity that modes function as causes in the modal sphere, and thus serve to account for the existence of each other. Modal existence has to be recognised as a fact, though it falls apart from substantial existence, and the chasm widens as the character of the former comes to be more closely scrutinised. But criticism is comparatively easy, constructive thinking is difficult. When criticism has in this connexion said its last word, there will remain in Spinoza's constructive achievement amply sufficient to entitle him to the lasting gratitude of those who in his spirit strive to carry on the work of philosophical inquiry.

Obituary.

MR. J. J. LISTER, F.R.S.

WITH the death of J. J. Lister on Feb. 5 in his home at Grantchester, there passes away one of the band of younger zoologists who, under the leadership of Francis Maitland Balfour, helped to build up the reputation of the Cambridge school of zoology. Although he was most widely known for his important researches on the morphology and reproduction of the Foraminifera, he was a man of liberal interests in many branches of zoology and a keen and accomplished naturalist. Those of us who were his friends and colleagues in the 'eighties vividly remember not only his charm of manner but also the bright and stimulating conversation with which he enlivened our social meetings. There seemed to be few subjects within the wide range of natural history about which he had not something interesting to say. At the same time he was to the undergraduates of his generation a hero in the athletic world. As stroke of the first boat of the Lady Margaret Boat Club from 1878 until 1882, he led his men to many victories both on the Cam and at Henley, and later he was often seen on the river as stroke of the "Ancient Mariners."

Born at Leytonstone in 1857, Lister was the son of Mr. Arthur Lister, who was himself a fellow of the Royal Society and brother of Lord Lister. From an early period of his life, therefore, he must have been associated with men of scientific tastes and initiated into some of the mysteries of biological problems. His father was an authority on the Mycetozoa and published many important papers on this group of organisms. J. J. Lister and his sister took part in these investigations and added materially to the common stock of knowledge that the family possessed. It was not surprising, therefore, that when he wrote the article on Mycetozoa for Lankester's "Treatise on Zoology," it was rightly appraised as the most authoritative summary of our knowledge of the group in the language. But Lister was destined to achieve great personal fame for his work on another group of protozoa. The dimorphism of the species of Foraminifera was already known, but Lister showed, by the most careful investigations of the Polystomella of our own seas, that the two forms are not male and female respectively as had been suggested, but that each produces free swimming spores and that the spores of one of them may be sexual spores, although he failed to prove that the process of conjugation actually took place. His researches on Orbitolites, Quinqueloculina, Polytrema, and other Foraminifera also produced valuable additions to our knowledge of the group.

After taking his degree Lister entered St. Bartholomew's Hospital with the intention of entering the medical profession, but owing to ill-health he abandoned the idea and travelled for some years, first in a sailing ship to Australia and afterwards in H.M.S. *Egeria* in the Pacific Ocean. During this voyage in the surveying sloop, when he had the opportunity of visiting several remote and interesting islands, his ability as an accomplished man of science showed itself in the records of several important observations he made on various subjects. A short paper on the birds of Phœnix Island, in which he described the nesting habits of the frigate birds; an account of the natives of Bowditch Island; and the important conclusion he reached by his study of the islands of the Tonga Group, that, contrary to the Darwinian hypothesis of subsidence, coral reefs and atolls are formed in some regions where the land is undergoing elevation, were some of the varied contributions to knowledge that resulted.

Among the collections he brought home were some specimens of the coral Millepora beautifully preserved in spirit with the zooids expanded, and these he most generously handed over to the writer of this article for further study. They are undoubtedly the only specimens in which the expanded zooids have been seen in Great Britain, for in all the other material that has been collected the zooids are so tightly contracted as to be useless for demonstration purposes. He also brought back some specimens of the young stalked form of the coral Fungia, described by Stutchbury in 1830, and wrote a paper on the strobilisation of the genus.

During the later years of his life, long and continuous ill-health led to a retired life in his home in Grantchester, and his visits to the University Museum and Laboratory became more and more infrequent. But his interest in natural history never waned, and he devoted his energies to a searching investigation of variation in British Lepidoptera.

Lister was made a fellow of his College (St. John's) in 1899, and elected to the fellowship of the Royal Society in 1900. He was president of Section D of the British Association at the York meeting in 1906, and for many years an active member of the council of the Marine Biological Association. S. J. H.