of the theory of descent they raise more questions than they solve. In this address I have briefly touched on some of the most general and most speculative problems in the hope of giving an opening for discussion. It might have been more profitable to deal in detail with definite facts of observation, but recent discoveries have brought us face to face with the great questions of descent among plants. However imperfect our data may be, both as regards the method and the course of evolution, the problems suggested, nevertheless, make urgent claims on our attention.

## The Shackleton-Rowett Oceanographic and Antarctic Expedition.

By DR. HUGH ROBERT MILL.

THE Shackleton-Rowett expedition, the preliminary plans of which were outlined in NATURE for July 7, p. 602, left St. Katherine's Dock in the *Quest* on Saturday, September 17, remained at Sheerness for a few days to complete the fitting of the wireless telegraphy apparatus, and sailed from Plymouth on Saturday last, September 24, at 5 p.m.

So much publicity has been given to the plans and prospects of this expedition, and such stress laid by headlines and large type on the minor incidents of preparation and departure, that one reader might be excused if he viewed it all as what, for lack of a more ancient and decorous term, he might be tempted to call a mere stunt; while another of a more generous disposition could scarcely be blamed for looking on it as a great oceanographical expedition. As a matter of fact, it is designed to be neither the one nor the other. The *Quest* is a very small vessel, and she has started on a very big voyage, full of dangers and risks that it is probable no committee of geographical or nautical experts would recommend any selected leader to undertake; but no such committee was created or consulted, and Sir Ernest Shackleton bears on his own broad shoulders all the responsibility for the plan of the expedition, the choice of his comrades, and the fight with the very real difficulties of a great and romantic adventure. Even if no scientific results were aimed at, this revival of the old spirit of maritime knight-errantry which has invigorated our sea-history since Elizabethan days is a thing to be proud of and grateful for in an age of disillusion, low ideals, and love of ease. The members of the expedition include the most experienced polar explorers and men who have been trained in the almost incredible hardships of mine-sweepers, submarines, and "Q"-ships.

Sir Ernest Shackleton has, however, a very clear and useful programme of scientific work, in which he sought the advice and secured the help of many authorities, including the Admiralty and the Air Ministry. He has not tried to make the *Quest's* voyage a second *Challenger* expedition, or in any way to anticipate the renewal of the large-scale oceanographical research ably sketched out by Prof. Herdman and wisely postponed to a more convenient, and, we trust, not very far distant, season. The *Quest* is fitted with the latest machines for deep-sea soundings, and if her voyage is completed along the route projected the results should be of great importance, especially in the Enderby quadrant of the Antarctic. Some may be inclined to doubt the possibility of taking exact soundings from so small a vessel in high seas, but in the early days of telegraph-cable surveying with the crudest appliances excellent results were obtained, in depths far more than a thousand fathoms, from sailing vessels smaller than the *Quest*. No surveying ship probably has been better equipped for fixing accurate positions, as it should be possible to rate the chronometers by wireless time-signals during the greater part of the cruise. Deep-sea temperature observations and the collection of water-samples to be preserved for examination on shore should also be possible. The size of the ship makes it hopeless to attempt deep-sea dredging or trawling, but shallow-water dredging will no doubt be carried out when occasion offers, and the collection of plankton will be greatly facilitated by the low freeboard and comparatively slow speed of the ship.

Much interest attaches to the meteorological work to be done on board, and especially to the upper-air investigations for which provision has been made by the Meteorological Office. The small seaplane carried by the *Quest* will be very useful in piloting the vessel in ice and in the search for doubtful islands *if* it can be put together successfully and transferred safely from the ship to the sea and back again; but this part of the equipment must be viewed as an experiment the success of which is not to be acclaimed until it has been proved. Magnetic observations will, it is hoped, be made a special feature of the scientific work, and for the first time, we believe, a gyroscopic compass will be carried into high latitudes, where its indications should be of extreme value, as the track should carry the *Quest* across the region of maximum change of variation where the magnetic needle is of least value. Opportunities will doubtless occur for magnetic work on ice-floes and perhaps also on islands if local attraction is not too strong.

The *personnel* of the Expedition was announced as follows:—

Sir Ernest Shackleton, leader and captain; Commander Frank Wild, second-in-command; Commander Frank Worsley, hydrographer and sailing-master; Lieut.-Commander D. G. Jeffrey, navigator; Major A. H. Macklin, surgeon; Capt. L. D. A. Hussey, meteorologist; Lieut. A. J. Kerr, chief engineer; Major R. Carr, airman; Capt. G. V. Douglas, geologist; Capt. G.

Wilkins, naturalist; Mr. J. C. Bee-Mason, photographer and kinematographer; Mr. G. Smith, second engineer; Mr. J. Dell, electrician; Mr. Harold Watts, wireless operator; D. Ericson, gunner; C. J. Green, cook; Boy Scouts N. E. Mooney and J. W. Marr. The members of the scientific staff enumerated above will also work the ship, and on leaving Plymouth two additional members were shipped for the first part of the voyage in the persons of Mr. Gerald Lysaght and Mr. McLeod. Of the complete ship's company of twenty all told, no fewer than five accompanied Sir Ernest Shackleton on his Antarctic expedition in the *Endurance* in 1914.

## Obituary.

### Dr. Walter George Ridewood.

DR. WALTER G. RIDEWOOD, whose sudden death occurred on September 19, was born in London on February 1, 1867. He was educated at Enfield Grammar School, of which his father, Mr. W. S. Ridewood, was headmaster for many years. He was at the Royal College of Science from 1883 to 1887, becoming an associate and taking first classes in both biology and geology. In 1888 he took his B.Sc. degree in the University of London, with first-class honours in zoology, and in 1897 he became D.Sc. In the meantime, in May, 1888, he had been appointed assistant to the director at the British Museum (Natural History), where he was employed in making the wonderful series of anatomical preparations exhibited in the Central Hall of that institution. In this kind of work Dr. Ridewood was without rival, his extraordinary manual skill and technical knowledge being supplemented by a thorough grasp of the principles of morphology and a close acquaintance with its literature. He also organised and prepared several special exhibitions, among the most important being the Darwin Centenary Exhibition and the series of preparations illustrating the different modes of flight in the animal kingdom. This series is still on exhibition, and is an excellent example of his work. For these and other exhibitions he prepared valuable illustrated guide-books. He severed his connection with the British Museum in 1917, after twenty-nine years' service, his resignation being greatly regretted by his colleagues.

In addition to, and for the most part relating to, his work in the museum Dr. Ridewood published a long series of valuable memoirs, mostly dealing with the comparative anatomy of the Vertebrata. Only some of the more important of these can be referred to: "On the Cranial Osteology of the Teleostei" (five papers in the Proc. Zool. Soc., 1904, and in the Journ. Linn. Soc., vol. 29: these were intended to be used in a general work on the osteology of fishes, never published); "On the Air-bladder and Ear in the British Clupeoid Fishes" (*Journ. of Anatomy*, vol. 26); "On the Structure and Development of the Hyobranchial Skeleton and Larynx in Xenopus and Pipa" (Journ. Linn. Soc., vol. 26: this was his thesis for the D.Sc. degree). He also wrote on a new species of Cephalodiscus from the Cape Seas, and on the Pterobranchia of the Antarctic (*Discovery, Scotia,* Australasian, and *Terra Nova* Expeditions). His chief paper relating to the Invertebrata is the "Monograph on the Gills of the Lamellibranchia" (Phil. Trans., 1903); this he illustrated by a series of models in the British Museum. His last published work is an important memoir, "On the Calcification of the Vertebral Centra in the Sharks and Rays" (Phil. Trans., 1921). In this he was able to show that Hasse in his great work on the same subject had "overestimated the importance of the disposition of the calcified masses and laminæ in the centrum as a taxonomic feature." Another completed paper on the development of the skull in the whalebone whales remains to be published.

Dr. Ridewood was a man of a singularly quiet and retiring disposition, which perhaps in some cases led to his real character being misunderstood. Actually his reticence was a mask covering a genuine kindliness which often showed itself in the great amount of trouble he would take to help anyone who asked for his advice and assistance. During the war he drove a Red Cross ambulance in France for nearly two years.

Apart from zoology, Dr. Ridewood's chief interest was in music. He was an extremely good performer on the flute, and for many years was a member of various amateur orchestras, especially of the Strolling Players. He made a thoroughly scientific study of his favourite instrument, but does not seem to have published anything on the subject.

He was for twenty-three years lecturer on biology in the Medical School of St. Mary's Hospital, London, and was reader in zoology in the University of London. He was also a life member of the Linnean, Geological, Zoological, and Malacological Societies. C. W. A.

## Notes.

We learn from the *Times* that Sir Thomas Holland, who recently resigned his post as Minister of Industries in the Governor-General of India's Council as a protest against the suspension of prosecution in connection with alleged corrupt practices in the supply of munitions, left Simla on Friday last for England. The whole facts of the case are not before us, but so far as we can make them out Sir Thomas Holland has been sacrificed to political expediency. In a recent speech the Viceroy, Lord Reading, suggested that the trouble would not have arisen had the post of Minister of Industries been filled by a lawyer