the reduction of the magnetic observations made by the *Challenger* expedition, 1872-76, during which expedition it was discovered that the coral islands of Bermuda lay over a magnetic field in which the variation of the compass differed as much as 6° , viz. from 4° W. to nearly 10° W., the true variation of the needle being 7° W.; this was ascertained by swinging the *Challenger* on every point in deep water close to the islands, and this process was continued on board that vessel in many other parts of the world, where the true variation was affected by local attraction on shore, so that the results of the shore observations were not trustworthy; but the *Challenger* being a wooden vessel, although not entirely free from iron in her construction, better results were obtained by swinging her in deep water near the land. The results of the *Challenger* observations are published in vol. ii. of the official narration of the voyage, and in vol. ii. of the reports on the physics and chemistry of the expedition, where plans, constructed by Creak, are given of the magnetism observed at the Bermuda Islands, and also charts of the variation, inclination, horizontal force, and vertical force for the epoch 1880, constructed mainly from the *Challenger* observations, combined with all other observations available to the date of publication.

Capt. Creak pointed out in his magnetic contributions that at certain positions in the world magnetic shoals exist which affect the compasses of vessels sailing over those shoals. One such shoal near Cossack, in North Australia, was crossed by H.M. surveying vessel *Meda*, in a depth of 8 fathoms, with two shore objects transit, and the compass needle was deflected 30° for about one mile.

At Funafuti, another coral atoll in the Pacific, in lat. $8^{\circ} 30'$ S., long. $179^{\circ} 12'$ E., another magnetic field exists, where the variation changes nearly 2° , and the dip 1° , in different localities, as shown by the magnetic survey of the atoll made by Admiral Sir A. Mostyn Field in H.M.S. *Penguin* in 1896, the results being investigated by Capt. Creak, and published by the Royal Society in 1904. Capt. Creak also instructed the officers engaged in the Arctic expedition of 1875-76 under Capt. G. S. Nares, R.N., and prepared the directions and magnetic charts for the "Arctic Manual," 1875. He also prepared the magnetic instructions for the Antarctic expedition of 1901. When, owing to his having reached the age of fifty-five, he had to retire from active service afloat in 1890, and to his not having served the number of years afloat to entitle him to be retired with the rank of captain, a special Order in Council was issued giving him that rank, so that his important services in the compass department should not deprive him of the honour he would have received had he served the requisite number of years at sea.

During Capt. Creak's service in the compass department the late Lord Kelvin invented a compass superior to that then in use in H.M.

ships, which was adopted by the Admiralty; but, owing to the increase in the size of the guns in H.M. ships, this compass was eventually discarded for a liquid compass brought out by Capt. Creak, which is now the standard instrument afloat, and is furnished with a special azimuth circle for use in torpedo-boats, destroyers, etc., all other compasses having failed to stand the vibration and motion and the gunfire in these vessels. He also brought out a simple form of instrument for correcting by magnets the heeling errors, and invented the Lloyd-Creak dip and intensity apparatus, originally meant for observations afloat, but which has been found very useful also on shore. This instrument was fully described in *Terrestrial Magnetism* for October, 1901.

In 1903 Capt. Creak was president of the geographical section of the British Association, and in his presidential address at Southport in that year gave an interesting account of the progress of our knowledge of magnetism both afloat and ashore up to that time, which was published in the Proceedings of the British Association, and also in the *Geographical Journal*, vol. xxii., 1903. He was made a C.B. in 1901, in which year he was retired from the compass department at the age of sixty-six. Capt. Creak also assisted the late Sir Frederick Evans and Mr. Archibald Smith in preparing and publishing the "Elementary Manual for the Deviations of the Compass in Iron Ships" in 1870, and after the death of Sir F. Evans later editions of that manual were entirely prepared and published by Capt. Creak. In the ninth edition prepared by him in 1895 the question of heeling error and its correction was specially discussed, and tables were given to assist in the correction of quadrantal deviation and the application of the Flinders bar, etc.

T. H. T.

SIR EDMUND GILES LODER, BART.

THE death of Sir Edmund Loder at the age of seventy removes from the ranks of English country gentlemen one of the cultivated members of that class. Possessed of ample means and abundant leisure, Sir Edmund devoted his youth and middle age to field sport and travel in many lands. In the pursuit of big game in four continents his fine marksmanship enabled him to make the very large collection of horned and other trophies now preserved at Leonardslee. He was among the last of British sportsmen to take toll of the dwindling herds of bison in North-west America, and the first European to obtain a specimen of the little desert antelope, named after him, *Gazella Loderi*, which inhabits the Sahara contentedly without access to water.

Were that all, it would scarcely serve to raise Sir Edmund Loder above the common ruck of big-game shooter and globe-trotter; but he possessed and exercised the gift of accurate observation, enabling him to acquire much sound knowledge of the habits of wild animals, and to distinguish their specific affinities. Unfortunately, he had

not the knack of recording his experience. Not only was he destitute of all turn for literature, but the mere act of putting pen to paper was intolerably irksome to him. This is the more to be regretted, because the few papers on zoology and botany which he contributed to scientific journals contained sound, and sometimes important, information.

Sir Edmund's indolence in this respect had no counterpart in his botanical work, for he took infinite personal pains in the delicate operation of hybridising rhododendrons. His crowning achievement in that line has been the magnificent cross between *R. Griffithianum* and *R. Fortunei* which appropriately bears the name *R. Loderi*, and is generally admitted to be the grandest hardy hybrid hitherto raised in that genus. The collection of conifers which he formed and grew at Leonardslee contained more species than any other in the United Kingdom.

Only a few weeks before Sir Edmund's death the present writer spent an afternoon with him in the wonderful landscape he had created at Leonardslee. The early Asiatic rhododendrons were already ablaze; there was no warning in that fair scene; but now comes Horace's dirge irresistibly to mind:—

Linquenda tellus et domus et placens
Uxor, neque harum quas colis arborum
Te, præter invisas cupressus,
Ulla brevem dominum sequetur.

HERBERT MAXWELL.

PROF. WILHELM PFEFFER, FOR.MEM.R.S.

W. PFEFFER, who died on January 31 last at Leipzig, was born in 1845 near Cassel, the son of an *Apotheker*; he studied at a number of German universities, his Ph.D. being taken at Göttingen. He was first a Privatdozent at Marburg, then assistant-professor at Bonn, and later full professor at Basel, in Switzerland. In 1878 he went to the University of Tübingen, and in 1887 to the University of Leipzig, where he remained for the rest of his life. He was elected a foreign member of the Royal Society in 1897. Pfeffer may be associated with Sachs as the founder of modern plant physiology. He and the late Prof. Strasburger, of Bonn, were for a long time the two best-known German botanists, and for many years they drew to their respective laboratories numerous foreign workers, particularly from the United States. Pfeffer was the author of many scientific papers, but he is perhaps best known for his "Pflanzenphysiologie," of which the first edition appeared in 1880, and the last part of the second edition in 1904; the second edition was translated into English. This handbook was a truly monumental work, in which a wealth of material was dealt with with great critical insight; hence it was for many years the standard and invaluable reference book on the subject. Pfeffer's work in 1877 on osmotic pressure, which laid the foundation of our more exact knowledge of that phenomenon, must also be referred to. With his

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death the three outstanding figures of the older German botany—Sachs, Strasburger, and Pfeffer—have all passed away. V. H. B.

IT is with much regret we learn of the death, on February 20, of MR. MAXWELL HALL, Government Meteorologist of Jamaica. Mr. Maxwell Hall was a barrister-at-law and resident magistrate for the district of Hanover. His interest in meteorology has placed the knowledge of the weather of Jamaica on a better basis than that of any other West Indian island. He succeeded in establishing a weather service in Jamaica in 1880, the objects being to encourage the recording of rainfall and to foretell the approach of hurricanes. In 1911 rainfall records were available from 194 stations, with observations at each for at least ten years. It is hoped that this fine record of work will not be interrupted by the death of its originator. For upwards of thirty years Mr. Maxwell Hall was a fellow of the Royal Meteorological Society.

THE death is announced of LORD GUTHRIE, one of the senators of the College of Justice in Scotland, at seventy-one years of age. Charles John Guthrie was admitted to the Faculty of Advocates in 1875, and, after a successful career at the Bar, was appointed a Judge in the Court of Session in 1907. Lord Guthrie was for a time president of the Royal Scottish Geographical Society and chairman of the Early Scottish Text Society. His interest in antiquities led to his election as member of the councils of the Antiquarian and Scottish History Societies. He was joint author of the memoirs of his father, the Rev. T. Guthrie, D.D., founder of the Ragged Schools and editor of the *Sunday Magazine*. In the world of literature he will be best remembered as a friend in youth of Robert Louis Stevenson, of whose nurse, "Cummy," he published an appreciation in 1914.

MEMBERS of the British Association who have attended any meeting for many years past will learn with regret of the death of Mr. H. C. STEWARDSON, the chief clerk and assistant treasurer. Mr. Stewardson's record of devoted work was particularly notable. He entered the service of the association in 1873, being encouraged to do so by William Spottiswoode, president of the association in 1878, to whom he was apprenticed in the printing business. The annual reports of the association owe much to his careful reading and indexing, and he was also specially concerned with the work of the Corresponding Societies Committee, and compiled its valuable annual catalogue of communications to local scientific societies. Mr. Stewardson was a member of the Stationers' Company.

THE RIGHT HON. SIR THOMAS W. RUSSELL, Vice-President of the Department of Agriculture and Technical Instruction for Ireland from 1907 to 1918, died on May 2 in his eightieth year.