

Transactions, besides numerous articles on special cases of Parthenogenesis in certain gall-flies, solitary wasps, spiders, and mites), (18) *Protista*, (19) *Protoplasm*, (20) *Rhizocrinus*, which sent forth our late deep-sea dredging expeditions, (21) *Sauroids* and *Sauropsida*, (22) *Sphéride* (insects whose marvellous instincts have been described by Lespes and other observers), and (23) *Vivisection* and its results.

A few of these subjects are discussed in articles devoted to more general matters; for example, (8) is noticed, but not figured or even systematically described, under *Foraminifera*, *Laurentian Formations*, and *Palæontology*, and (9) is referred to in the last-named article; (12) is mentioned in *Spongiada*, and more fully described, but not figured, in *Alyonaria*; (17) is alluded to, in so far as the researches of Huxley and Lubbock go, in the article *Aphis*; (19) is noticed under *Cells*; and (21) *Sauropsida* is defined in the article on *Birds*.

Cross references, which, like illustrations, have been far too scantily employed in these volumes, would have partly removed this source of complaint, as for example *Sauropsida* [Birds, E. C. S.]

On the following subjects our knowledge has not been brought up to what can with every allowance, be called a recent date:—(1) *Avolites*, latest reference 1861, and no bibliography; (2) *Alea*, latest reference 1861; (3) *Annelida* contains no reference to Claparède's appalling criticism on De Quatrefages' researches; (4) *Archæopteryx* has no reference to Huxley's papers; (4) *Blood* contains no reference to late researches on the structure of the corpuscles, to the occurrence of *Protagon* in them, or to the remarkable colour-test for blood, discovered by Dr. Day of Geelong, which has succeeded in detecting old blood spots, when even spectrum analysis in the hands of its great master, Mr. Sorby, has failed; and Dr. Richardson is stated to hold the opinion that the fibrin is held, in solution in the body by ammonia, although it is well known that, with a moral courage which cannot be sufficiently commended, he publicly (at a meeting of the British Association some years ago) renounced that opinion as soon as he found it was untenable; (5) *Birds of Paradise* would have been a more satisfactory article if it had had the benefit of Mr. Wallace's supervision; (6) *Foraminifera* would have been all the better if the writer had been acquainted with Hæckel's splendid monograph on the *Radiolaria*; (7) *Nervous System* is perhaps the most imperfect article in the whole volume. It contains no reference to the labours of Gratiolet, Lockart Clarke, Brown-Sequard, Claude Bernard, Robin, Philippeaux, or Vulpian on the minute structure and the physiology of the nerves, while the chemistry of the brain is discussed without a reference to Protagon or Neurine. The synthetical formation of the latter is surely of sufficient interest to deserve notice.

Regard for the value of space in your columns alone prevents me from prolonging the list of imperfect articles.

The English Cyclopædia is, as I presume everyone will admit, intended for "all sorts and conditions of men," for "women labouring with child" (if we use the phrase in the same sense as a German governess, who is said to have expatriated to a popular bishop on the comprehensiveness of a church-service that did not even overlook the daily cares of those who devoted themselves to the duties of early education), and even for children; at all events I read the "Penny" with great pleasure as a boy. Hence it should be a source of knowledge from which we might expect to find information in all cases of ordinary difficulty. To decide how far this assumption is correct, I put it to the test in the following way:—I read Huxley's splendid address "On the recent progress of Palæontology" which lately appeared in your columns, and the "Report on a Close Time for Birds" in the last volume of the British Association Reports. I freely admit that I am not learned in Natural History; but as an old country doctor, I probably picked up quite as much knowledge in my youth, as the average class of "Cyclopædia" readers. None of the following terms taken from Huxley's address are to be found either in the Index to the Cyclopædia, or in the Supplement:—*Amphycyon*, *Anchitherium*, *Antracosaurus*, *Artiodactyle*, *Cainotherium*, *Charopotamus*, *Coccoliths*, *Coccospheres*, *Compognathus*, *Coryphodon*, *Dicynodes*, *Didelphia*, *Dinosauria*, *Discoliths*, *Elasmobranchs*, *Eophyton*, *Eozoon*, *Evolution*, *Galeosaurus*, *Globigerina*, *Hipparion*, *Hipparitherium*, *Homotaxis*, *Hyænicus*, *Hyenoartos*, *Hyopotamus*, *Hyra-cotherium*, *Ichtherium*, *Mesopithecus*, *Microlestes*, *Monadelphina*, *Omalootherium*, *Ornithodelphia*, *Ornithoscelida*, *Orycteropus*, *Perissodactyle*, *Phaseolotherium*, *Pliolophus*, *Pterosauria*, *Sauropsida*, *Stereognathus*, *Typotherium*.

I will not go further into the "Close Time" Report than to state that I learn from it the important fact that owls eat, *inter alia*, "*Arvicola*, *Crocidura*, *Crossopi*, *Hypudæi*, *Sorices*, shrews and voles." I look in vain for all these inviting edibles, and I find only *Hypudæus* in the Cyclopædia, and what benefit do I derive from my search? Only that *Hypudæus* is sometimes spelt *Hipudæus*. A learned friend, who is ever ready and able to remove difficulties from the paths of his weaker brethren—the genial guardian of Kent's Cavern—suggested that it was something in the mouse or rat line, and so I turned to *Murida*, where I found the required information regarding that animal and the voles.

It is not for the purpose of depreciating the Supplement to the English Cyclopædia that I have noticed the above omissions and deficiencies, but with the object of pointing out how they may still be remedied. The Supplement has evidently been drawn up without any editorial care. Let a duly-qualified editor obtain a list of *desiderata* from some botanist, geologist, and zoologist of eminence; and let him fix upon the articles that he deems the most important, and give them to qualified writers. Let him attend duly to the compilation of bibliographies of the most important subjects, and let him increase to an enormous extent the amount of cross references. The article *Murida*, from which I exhumed *Hypudæus*, would probably yield fifty references.

A few subjects—as birds and hydrozoa—are fairly supplemented. Why should not similar articles be given us on the progress, during the last sixteen years, of our knowledge of the crustaceans, insects, fishes, reptiles, &c.? An additional supplement, such as I have here suggested, would probably not occupy more than 100 pages.

South Devon

NEMO

ADMIRAL MANNERS

ADMIRAL RUSSELL HENRY MANNERS was born in London on the 31st of January, 1800, entered the Royal Naval College the 6th of May, 1813, and embarked March the 6th, 1816, as a volunteer on board the *Minden*, 74, Captain Paterson, in which, after assisting at the bombardment of Algiers, he proceeded to the East Indies, where he served under the flag of Sir Richard King, until nominated midshipman, the 1st of July, 1818, to the *Orlando*, 36, commanded by Captain John Clavell, with whom, in 1819, he returned to England on the *Malabar*, 74. After an intermediate employment on the Channel and West India stations in the *Spartan* and *Pyramus* frigates under Captains William Furlong Wise and Francis Newcombe, he became, the 29th of July, 1822, Acting Lieutenant of the *Tyne*, 26, Captain John Edward Walcot, to which vessel the Admiralty confirmed him the 19th of October following. In May 1823, he rejoined the *Pyramus*, still commanded by Captain Newcombe, under whom he continued until he obtained his promotion on the 16th of August, 1825. His last appointment was on the 21st of October, 1827, to the command of the *Britomart*, 10. The *Britomart* was first employed and intended for the Channel service under the order of the Commander-in-Chief, the Earl of Northesk, at Plymouth. She accompanied the squadron of ships escorting Don Miguel to Lisbon in the early part of 1828. In consequence of the revolution that followed in Portugal on Don Miguel declaring himself absolute, the *Britomart* was stationed at and off Oporto to watch the British interests there. The Constitutional party, failing to restore the Constitution against the usurped position of Don Miguel, the British Government withdrew her Minister from Lisbon, leaving the British interests in the hands of the Consul only, and Capt. Manners was selected to be in readiness to support him in case of need by keeping in sight of signals from Lisbon as long as the safety of the vessel permitted, but not to anchor within any Portuguese port unless absolutely necessary. This involved a long and vigilant cruising off and on the coast for about eight months, and through the whole of the winter. The only

place communicated with during that time was Gibraltar, and then only to receive a supply of provisions and water from the dockyard. The yellow fever unfortunately breaking out at Gibraltar just before going there for this object, no communication could be had with the town, and the stay was confined to from twenty-four to forty-eight hours. The zeal and ability with which this service was carried out by Capt. Manners, as witnessed by Sir George Sartorius, there in command of the Portuguese Constitutional Squadron, and under whose orders in some degree the *Britomart* was placed, led to Capt Manners receiving his Post-rank on the 4th of March, 1829. He retired from active service in March 1849, became Rear-Admiral in July 1855, Vice-Admiral in April 1862, and Admiral in September 1865.

Admiral Manners was the only child of the late Mr. Russell Manners, M.P., and married in 1834 Louisa Jane, daughter of Count de Noé, Peer of France, who survives him, and by whom he has two sons and a daughter.

From the time he attained his Post-rank to the time of his death he devoted himself to scientific pursuits. He was elected a member of the Royal Astronomical Society in 1836. At a very early period he took an active interest in its administration, and after being on the Council for some time, was elected one of the honorary secretaries in February 1848, an office which he filled until 1858, when he accepted that of Foreign Secretary. This was a post for which his knowledge of foreign languages and his position in society peculiarly fitted him, and during his tenure of office he formed by active correspondence a connecting link between English and foreign astronomers. He was much esteemed abroad, so much so indeed that one of the presidents, in asking Admiral Manners to transmit one of the Society's medals to a foreign recipient, deemed it just to preface his remarks with the following well-deserved compliment :—

“Admiral Manners,—It has been my good fortune to visit the majority of European Observatories, and to make the acquaintance of their directors and other gentlemen connected with them, and it has in consequence become known to me how high in their esteem our Foreign Secretary stands. Your urbanity and promptitude in carrying out our foreign business has indeed become proverbial.”

Admiral Manners was, on more than one occasion, asked to accept the chair of President, which, after some hesitation, he consented to do, and he was elected to that position in 1868. None of his predecessors was more highly esteemed by the Fellows of the Society, and no one filled the chair more admirably than he did. His mathematical attainments were considerable, more so than one might be apt to infer from his quiet demeanour. He was well versed in the astronomical literature of the day, and took a deep interest in the progress of astronomical science, both in England and on the Continent; and his active influence was always available for the promotion of any object connected with it.

On presenting the gold medal of the Society to Mr. Stone, first assistant of the Royal Observatory, Greenwich, Admiral Manners delivered a most able and exhaustive summary of that able astronomer's labours, and evinced a complete knowledge of the history of the solar parallax, for the investigation of which the medal was mainly awarded. Illness overtook him before he could complete his second year of office, and he was compelled to forego the gratification of delivering the address to M. Delaunay for his researches on the lunar theory; but he made it a point of duty and pleasure to receive M. Delaunay at his house, and although he was compelled to delegate to the friendly hand of Prof. Adams the drawing up of the address, yet he read and approved of what was written before it was delivered.

Admiral Manners in all his relations was a pure-minded, courteous, and sympathetic man, and in the fullest sense of the word a gentleman.

THE PRIMITIVE VEGETATION OF THE EARTH

TWENTY years ago scarcely anything was known, even to those engaged in the study of vegetable fossils, of a land flora older than the great coal-formation. In 1860, Goeppert, in his Memoir on the plants of the Silurian, Devonian, and Lower Carboniferous, mentions only one land plant, and this of doubtful character, in the Lower Devonian. In the Middle Devonian he knew but one species; in the Upper Devonian he enumerated fifty-seven. Most of these were European, but he included also such American species as were known to him. The paper of the writer on the Land Plants of Gaspé was published in 1859, but had not reached Goeppert at the time when his memoir was written. This, with some other descriptions of American Devonian plants not in his possession, might have added ten or twelve species, some of them Lower Devonian, to his list. In the ten years from 1860 to the present time, the writer has been able to raise the Devonian flora of Eastern North America to 121 species, and reckoning those of Europe at half that number, we now have at least 180 species of land plants from the Devonian, besides a few from the Upper Silurian. We thus have presented to our view a flora older than that of the Carboniferous period, and, in many respects, distinct from it; and in connection with which many interesting geological and botanical questions arise.

Geologists are aware that in passing backward in geological time from the modern to the Palæozoic period, we lose, as dominant members of the vegetable kingdom, first, the higher phænogamous plants, whether exogenous or endogenous; and that, in the Mesozoic period, the Acrogens, or higher cryptogams, represented by Ferns, Club-mosses, and Equiseta, share the world with the Gymnosperms, represented by the Pines and Cycads, while the higher phænogams on the one hand, and the lower cryptogams on the other, are excluded. Hence, the Mesozoic age has been called that of Gymnosperms, while the Palæozoic is that of Acrogens. These names are not, however, absolutely accurate, as we shall see that one of the highest forms of modern vegetation can be traced back into the Devonian; though the terms are undoubtedly useful, as indicating the prevalence of the types above mentioned, in a degree not now observed, and a corresponding rarity of those forms which constitute our prevalent modern vegetation.

It is my present object shortly to sketch the more recent facts of Devonian and Upper Silurian Botany, and to refer to a few of the general truths which they teach. The rocks called Devonian in Europe being on the horizon of the Erie division of the American geologists, which are much more fully developed than their representatives on the Eastern Continent, I shall use the term *Erian* as equivalent to Devonian, understanding by both that long and important geological age intervening between the close of the Upper Silurian and the beginning of the Carboniferous.

Just as in Europe the rocks of this period present a twofold aspect, being in some places of the character of a deposit of “Old Red Sandstone,” and in others indicating deeper water, or more properly marine conditions, so in America, on a greater scale, they have two characters of development. In the great and typical *Erian* area, extending for 700 miles to the westward of the Apalachian chain of mountains, these rocks, sometimes attaining to a thickness of 15,000 feet, include extensive marine deposits; and except in their north-eastern border are not rich in fossil plants. In the smaller north-eastern area, on the other hand, lying to the eastward of the Apalachian range, they consist wholly of sandstones and shales, and are rich in plant remains while poor in marine fossils. Hence it is the Devonian of Gaspé, of New Brunswick, and of Maine, with that of eastern New York,