Affinities of the Sponges

MR. PARFITT seems to think that Mr. Carter has done Prof. Greene some injustice, because he has not referred to him as an original investigator of the Sponges, and he bases his opinion on the figures in Prof. Greene's "Manual of Protozoa," urging that the only difference between the forms figured by Carter in 1871, and those by Greene in 1859, is "the want of the funnel-shaped mouth, which seemed to have escaped the observation of Prof. Greene, probably owing to want of definition in the instrument used in the investigations." Allow me to point out that there is no pretence of originality in Prof. Greene's useful manual, that the figures alluded to are acknowledged (p. 85) to be copied from those illustrating the papers by Williamson and Dobie, and to express the opinion that much further research is necessary before the affinities of the sponges can be regarded as satisfactorily settled. When that day comes there is little doubt that a good deal of what is now guess work will require to be completely sponged out. W.

Sun-Spot

WHILE watching the sun set over the hills to the west of Halifax, on the evening of July 17, my attention was called to an intensely black spot upon its southern hemisphere, almost vertically below the centre of the disc, which was visible to the naked eye. I may add that the evening was fine, but a thin mist was rising from the valleys, and that it was about five minutes before the sun touched the horizon that the spot was first seen. THOMAS PERKINS

EDOUARD RENÉ CLAPARÈDE

AT the early age of thirty-nine, one of the most skilful, laborious, and honoured of European zoologists has been lost to Science in the person of Edouard Claparède. For the last three years his health has been such that his friends continually feared to receive the sad news which has at length come from Italy. In spite of a complication of pulmonary and cardiac disease, his indomitable spirit had kept the man at work to the last. Having taken up his residence in Italy for the benefit of his health, he produced during the last three years of his life a series of memoirs, so richly illustrated, and exhibiting such astonishing industry, that one would have fancied a man in full health and vigour was unequal to such abundant fertility. He once remarked to a friend, who expressed surprise that a man in his precarious state of health should work so hard, that he felt work was the only thing which kept him to life, if he left off working he should die at once. Claparède was a native of Switzerland, and a pupil of that great master of great zoologists, Johannes Müller. He could write French and German equally well, and consequently some of his researches are to be found published in the German periodicals, others in French in the Transactions of the Academy of Geneva. His earliest published work of large size is the "Recherches sur les Infusoires," which he produced in conjunction with his friend Lachmann, who unhappily died before it was completed. Though now to a great extent superseded by the later researches of Stein, Zenker, Cohn, and others, working with more accurate instruments, this treatise is one of classical importance, and forms the foundation of modern views on the Infusoria. Not long after the publication of this work, Claparède came to England, where he made the acquaintance of Dr. Carpenter, and spent a portion of the summer in his company in the Hebrides, working with the microscope, chiefly at the lower worms and annelids. From this expedition resulted a quarto publication, illustrated with plates (published by the Geneva Academy), giving accounts of new marine worms allied to the Earth-worms, and many valuable observations on the Turbellarian worms. In conjunction with Dr. Carpenter, he also published some observations on the curious *Tomopteris onisciformis* in the Linnean Transactions. Attracted by the Limicolous Annelids, Claparède continued his observations on the forms of this group inhabiting the streams around Geneva; and his "Recherches sur les Oligochêtes," also published by the Geneva Academy, furnished zoologists with a very complete account of the anatomical and systematic differentiæ of many of these worms, till then almost entirely neglected and misunderstood. In this work the homology of the segmental organ with the reproductive ducts was demonstrated. The circulation of spiders, which he studied in the transparent young of the genus *Lycosia*, and the development of the freshwater gasteropod, *Neritina fluviatilis*, also about this time furnished occupation for his pen and pencil; and an elaborate work on the development of the Nematods, in which the important questions of the signification of the parts of the egg are discussed, was completed by him. In the collections of miscellaneous observations, always finely illustrated, which he from time to time published, such as "Glanures zootomiques," "Beobachtungen über wirbellosen Thiere," &c.," he recorded observations principally on the Annelids and free-living worms, which he made from year to year on the coasts of Normandy or the shores of the Mediterranean, and many strange forms, paradoxical marine larvæ, and unsuspected annectant genera, are briefly figured and described, which excite the interest of the zoologist, and awaken the desire to know more of them; whilst in other cases new modes of reproduction, new anatomical details, or physiological observations are related (for Claparède was no narrow zoologist) of rare and little known forms. The great work which he took in hand after his health had compelled him to reside in a warm climate during winter, was the study of the Annelids of the Bay of Naples. Under this title he has left two thick quarto volumes, illustrated by more than fifty coloured plates, consisting of anatomical and enlarged coloured drawings of these beautiful worms. Many new and curious forms were added by one winter's work to the known species of the Annelida; but his work is even more valuable for the anatomical and histological observations which are there recorded, and for the great critical ability displayed in dealing with the perplexing questions of synonymy. M. Claparède appears to have found especial pleasure in doing justice to Delle Chiaje, who preceded him in the investigation of the fauna of the Bay of Naples; whilst he does equal justice to M. de Quatrefages, whose errors in a recently-published "Histoire des Annelées" he does not hesitate repeatedly in the course of his book to expose, at the same time dedicating the first volume of his work to that distinguished French naturalist, and naming many new species in his honour. Whilst this splendid work on the Neapolitan Annelids was in press, M. Claparède also gave to the world some very interesting studies on Acarids (published in German), in which many new facts are detailed, and the Darwinian theory, in the manner of Fritz Müller, is shown to furnish a satisfactory explanation of the modification of dissimilar parts in different genera, to form identical organs. During the same period he also published in the *Zeitschrift für wiss. Zoologie* a memoir on the histology of the Earth-worm, illustrated with nine coloured plates, which is certainly the most minute and careful piece of work which he ever produced. The structure of the nervous system and of the three "riesige Rohren-faden," soon to become very celebrated in zoological circles, are here for the first time fully described; and, indeed, the subject had been so slightly handled before that the whole work abounds with new matter. M. Claparède's last published paper appeared this year in the *Zeitschrift*, and as if to show that he did not intend to abandon himself to the study of one group, consisted of observations on the anatomy and reproduction of some marine polyzoa, illustrated by three coloured plates, drawn with his accustomed facility and grace. He has, we understand, left

behind him ready for publication a large work on the Embryology of Insects, and an immense collection of microscopic preparations, of Annelids of great value. Perhaps the most striking discovery recorded in any of M. Claparède's writings (which should, however, be judged by the accumulated value of their immense number of anatomical observations) is one among those relating to the Annelids of the Bay of Naples. Claparède found that the *Nereis Dumerilii* lays eggs, sexually fertilised, which, on hatching, produce a worm which had been placed in quite a distinct genus (*Heteronereis*), and this worm lays similar true eggs, which produce sometimes a second kind of *Heteronereis*, or at other seasons the original form *Nereis Dumerilii* again. The difference between *Heteronereis* and *Nereis* is very great, and one extending into such details as the form of the setæ of the feet. At present this appears to be the only *real* case of alternation of generations on record, if, by "generations," we understand "sexual generations."

Whilst working so largely as an original observer, M. Claparède occupied himself also in reviewing the labours of others from time to time in the *Archives Suisses* published at Lausanne. Though holding the title of Professor in the Academy of Geneva, we believe he never (certainly not of late years) gave any public lectures on zoology; yet that he was admirably fitted for such work, had he thought fit to devote his time to it, is evident from the admirable style of his writings, especially the reviews and criticisms published in the *Archives Suisses*. His criticism of Mr. Wallace's views on the Descent of Man is known to our readers. Having access to the French world of science as a speaker and writer of the French language, and being thoroughly familiar with German writings and thought, both from education and continued association, M. Claparède appears to have taken an honest delight in every now and then dealing a severe blow at some one or other of the French naturalists who might venture to exhibit superficiality or dishonesty in his field of study. Dujardin is roughly handled in the "Recherches sur les Infusoires;" Rouget also, who appears to have personally resented the correction. Balbiani's researches on the development of the Aphides are made the subject of special investigation by M. Claparède, who, three years since, studied the embryology of a species of aphis at Naples solely with the view of testing some extraordinary statements then recently advanced by the French doctor, and came to the conclusion that they were utterly unfounded, and that M. Balbiani had not done justice to the work of his predecessors, which conclusions he stated in very plain language. The attack on M. de Quatrefages, gracefully made and richly deserved, was perhaps the most entertaining. For M. de Quatrefages, charged to present to the French Academy the work which was dedicated to him, and in which, while his good work was appreciated, his errors were exposed, thought it advisable to reply to some of M. Claparède's criticisms, and displayed some temper, and even hinted that the dedication was objectionable. The sequel to this is to be found in the dedication of the second volume of the "Annélides du Golfe de Naples." It is dedicated to Delle Chiaje. Perhaps, says M. Claparède, were he alive he would object to this dedication; he would see with regret many of his errors pointed out; although so much of his work is here confirmed, human vanity would suggest to him to refuse the dedication of a work, to which, however, posterity considers he is justly entitled. It is, he concludes, easier sometimes to dedicate a book to a dead than to a living man.

The ardent naturalist, the accurate observer, the brilliant artist, the keen critic, the lucid exponent, has ceased his work, but has left a name which may well cheer the most faint-hearted among us—even those who feel to want the physical vigour of their fellows—for it is to be remembered that the works which do most honour to the name of Edouard Claparède were the labours of a dying man.

E. R. L.

ALEXANDER KEITH JOHNSTON, LL.D.

A MEMOIR of Mr. Johnston would be the record of a life laboriously and successfully devoted to the spread and popularisation of a single science. Mr. Johnston's first maps, the result of a walking excursion through the north of Scotland, appeared in 1830, and were issued in a Traveller's Guide-Book. His first large work was the "National Atlas," folio, on which he was assiduously engaged for upwards of five years, having projected and drawn the greater part of the maps (forty-five in number) and written nearly all the names they contain with his own hand. This work went through many editions, and was considered the best of its time.

Having, in the course of his residence in Germany, been much interested in the writings of Ritter, Humboldt, and Berghaus, on Physical Geography, and having learned that Humboldt had expressed a desire to see an English physical atlas constructed in a manner suited to the taste of the British public, and on a scale sufficient to admit of entering fully on the details of physical phenomena, Mr. Johnston visited Germany in 1842, travelling from Hamburgh to Vienna, collecting materials for such a work, and making arrangements for an extensive correspondence.

Previous to the commencement of Keith Johnston's Atlas, Physical Geography was an unknown term in Britain. Hence it was predicted that the work would be a failure, and it required great faith to enable him to persevere in his self-imposed task. He was unfortunate in his first publisher, who was not able to do much with so expensive a work; however, the first edition was sold off, and a second was called for, and published in 1856. The two editions occupied Mr. Johnston ten years of the best period of his life. These writings procured for him, in 1850, a Fellowship in the Royal Society of Edinburgh.

In 1850 appeared the first edition of his "Dictionary of Geography, Descriptive, Physical, Statistical, and Historical," 1 vol. 8vo., on a new plan, embracing numerous facts in the different branches of science not before noticed in similar works.

In 1851 the author constructed a Physical Globe of the earth, thirty inches in diameter, showing in colours its Geology, Hydrography, Meteorology, &c. &c. For this, the first Physical Globe ever drawn, the medal of the Great Exhibition of 1851 was awarded. The globe was not intended to be published.

Between 1851 and 1855, he constructed and published for educational purposes four Atlases, royal 8vo.—namely, General, Classical, Physical, and Astronomical, and one Elementary Atlas, small 4to. All these have been improved, some of them re-engraved, and as many as from five to thirty editions of each have been published, of 1,000 copies each. In 1852 he prepared an Atlas of Military Geography to accompany Alison's "History of Europe," 1 vol. 4to. This work was most favourably reviewed, and commended by military men.

In 1855 was commenced the "Royal Atlas of Modern Geography," on which the author brought to bear the geographical experience gained during the labours of a quarter of a century.

In 1865 the University of Edinburgh conferred on him the Honorary Degree of Doctor of Laws.

During the last four years Mr. Keith Johnston was engaged in the production and increase of a complete series of geographic works for schools.

From the brief notice which appeared in our last number, it will be seen that Mr. Johnston may be said to have died in harness, his active labours having been carried on till the close of his life.