

*tricha echinulata*, is recorded, and the species is described in detail. Amongst the additions to the fauna, a fresh-water Nemertine (*Tetrastemma lacustre*) and a northern leech (*Placobdella raboti*, recorded by Prof. Blanchard), several Protozoa and Rotifers are noteworthy. It is, however, to the Plankton that the Director has devoted special attention since the founding of the station in 1891, and accordingly the influence of temperature on the constituents, their unequal distribution through the lake, and their appearance, maximum abundance, and gradual disappearance are carefully noted, together with the bearing of these facts on the present position of the Plankton question.

The occurrence of certain Protozoa (*Carchesium polypinum* and *Epistylis lacustris*) freely floating in the Plöner See during June and July in great numbers, and under conditions that do not warrant the supposition that they had been torn away from their supports, is recorded by Dr. Zacharias, who suggests that this may be a periodic change from the fixed to the free-floating habit, and that, further, the pelagic species of *Dinobryon* and *Floscularia* may have a similar origin. The researches conducted at Plön are, however, not the first to direct attention to this point, as Dr. Zacharias asserts (p. 123). Lang ("Ueber den Einfluss der festsitzenden Lebensweise," p. 152: Jena, 1888) has already made the same suggestion, based on the presence of *Zoothamnium* noticed by himself, and more frequently by Brandt and others in plankton collected at Naples.

Another interesting point about which we at present know very little, is the changes of form assumed by the same species at different times of the year. In reference to this matter, Dr. Zacharias describes the seasonal changes in three species of *Hyalodaphnia*, *Bipalpus vesiculosus* (a rotifer), and *Ceratium hirundinella*.

The enlarged size of this report gives evidence of the increasing interest in fresh-water biology, also shown by the fact that a new station is in process of erection on the border of the Müggel See, near Berlin. Two plates, illustrating the new species obtained, and a map of the neighbourhood of Plön, are given with this part.

F. W. G.

*Biology as it is applied against Dogma and Freewill, and for Weismannism.* By H. Croft Hiller. Second edition. (London: Williams and Norgate, 1893.)

ON a first glance through this unusual book, there rises in one's mind the delightful remark that the mother of David Hume is reputed to have made to him—"Man, Davie, you'd believe anything if it's no in the Bible." For Mr. Croft Hiller accepts in the most trusting spirit the newest conclusions and theories of modern biology, and thrusts them with a fierceness that makes the index as combative as the text, against freewill and dogma—by dogma apparently meaning ecclesiastical Christianity. But it is only fair to say that although his acceptance of scientific authorities is from the point of view of science absolutely uncritical, he states the views he has selected with an acumen that his discursive and flamboyant style cannot disguise completely. A considerable part of the book is given to accounts of controversies in which the author has been engaged, and hell-fire, plenary inspiration, and the immorality of the clergy reappear like King Charles' head. He endeavours to show that recent investigations have established the dependence of man's physical qualities on physical structure, and he accepts Weismann's view that acquired characters are not inherited. From these premises he draws sociological conclusions that made a writer in the *National Reformer* (to the pages of which Mr. Hiller was an esteemed contributor) accuse him of Toryism. But his conclusions do not always justify such a use of that appellation. They are such as the following:—That however society may attempt to equalise men, nature will

insist on producing great inequalities. That education, as its effects are not transmitted, will not directly ameliorate society by raising the general standard. That criminals are no more worthy of punishment than geniuses of reward. That while for the benefit of individuals training of individual qualities is necessary, for the benefit of the race selection of the naturally better endowed is necessary. That the mainspring of all action is selfishness, but in practice the selfishness of the individual is restrained by the selfishness of the community. P. C. M.

*Heat: an Elementary Text-Book, Theoretical and Practical, for Colleges and Schools.* By R. T. Glazebrook, M.A., F.R.S. (Cambridge: University Press, 1894.)

A FEW months ago it was announced that the Cambridge University Press intended to publish a series of science manuals, and since that time we have looked forward with pleasurable anticipation to the appearance of the works in the series. But expectations are rarely realised. The book before us is the first of the volumes devoted to physical science, and we are not strikingly impressed with it. Some books favourably force themselves upon one's notice by their originality of treatment or lucidity of expression, but Mr. Glazebrook's volume possesses neither of these characteristics to a noticeable degree. This is said at the risk of being considered hypercritical; but there are so very many ordinary books in existence, that we almost expect a new work to be different from its predecessors in order to justify its publication at all. However, though the book before us is not the best elementary class-book on heat, it is very good. The author has not confined himself to the experimental or to the theoretical side of his subject, but has happily combined the two, so that the book suits both the lecture-room and the physical laboratory. Another commendable feature is the statements of "sources of error" after the descriptions of some of the experiments. The illustrations are line-drawings, and though somewhat coarse, they possess the merit of being clear, and that is, perhaps, the chief desideratum of a book designed for use in our schools and colleges. These institutions will certainly benefit by adopting the book for their students.

*Electrical Experiments.* By G. E. Bonney. (London: Whittaker and Co.)

"THIS book," the author states, "is written in response to suggestions received from correspondents," and is intended to show how "induction coils and other electrical apparatus" may be used for instructive amusement.

In the two hundred and fifty pages to which the book extends, the writer describes in some detail a number of well known electrical experiments. The experiments described appear to be well chosen, and the instructions given for performing them are fairly accurate, but the theoretical explanations are, in most cases, entirely wrong. The claims of the book to scientific accuracy may be judged of from the following typical extracts, which convey the full meaning of the context. On p. 68 it is stated that "an electric current passing through a wire conductor develops therein a magnetic condition which exerts an influence on the air surrounding the wire, converting it into a magnetic shell," and on p. 203 we find the statement that "the quantity of electricity passing through a resistance of one ohm in one second will liberate 0.00158 grain of hydrogen." Inaccuracies of this kind are far too serious to pass unnoticed, even in a book intended to provide instructive amusement, and we cannot recommend the seeker after electrical knowledge to trust to the guidance of a work in which they occur. From the publisher's point of view, however, the book is well got up, and will no doubt answer the purpose for which it was written and published.