

to relegate the rare and occasional visitors—often of the utmost interest—to a future supplement, which will enhance the expense.

To the eye of an artist the plates will doubtless appeal as admirable specimens of the process employed, but to that of an ornithologist they lack the life and vigour which in many cases compensate for an absence of coloration.

Finally, we quite agree with Mr. Stonham that in many species the female and young are well worth depicting, and that it is quite useless to attempt to represent the songs of most birds by a set of syllables which each reader would in all probability mouth differently.

The Manufacture of Concrete Blocks, and their Use in Building Construction. By H. H. Rice and W. M. Torrance. Pp. 122. (London: Archibald Constable and Co., Ltd., 1906.) Price 8s. net.

THIS work is a reprint in full of the two prize papers on concrete block construction in connection with a competition instituted by the *Engineering News* and the *Cement Age*, and, in addition, abstracts are given of the papers of ten other competitors, which contain data not given in the prize papers.

Mr. Rice in his paper deals fully with the raw materials—cement, sand and gravel, or crushed stone; with the mixing and manufacture of the blocks; and with the important questions of curing and facing the blocks with a finer quality of the material, and he briefly discusses the principles underlying the use of this material in building construction.

Mr. Torrance deals more fully with the form of the blocks, illustrations being given of many of the moulds for which patents have been granted, and with the relative cost of buildings of concrete and other material; finally, he states that from an artistic standpoint the best success so far obtained has been where the process of casting in sand has been adopted, and several reproductions of photographs are given to illustrate this point.

The abstracts of the other ten papers give much useful information on many points of detail not dealt with by the authors of the two prize papers, with regard both to the manufacture of the blocks and also to their employment in building construction.

In an appendix are the rules and regulations governing the use of this material and the testing of the blocks in Philadelphia. There has been quite a flood of literature during the past year on reinforced concrete, but until this book appeared little had been written in reference to the use of concrete by itself for building purposes.

Elementary Electrical Calculations. By W. H. N. James and D. L. Sands. Pp. 216. (London: Longmans, Green and Co., 1905.) Price 3s. 6d. net.

THIS book is based upon a series of lectures given by the authors to first- and second-year students of electrical engineering, and can be confidently recommended to those for whom it is written. So far as it goes, it is well arranged and perfectly clear; the only criticism that can be suggested is that it does not go far enough. The range of a subject which should be studied by first- and second-year students is, however, a matter for individual teachers to settle.

It will suffice, therefore, to state that the book begins with an account of the fundamental units, proceeds to discuss Ohm's law very fully, and devotes brief chapters to power and work, conversion of energy, transmission and distribution treated quite simply, electrochemistry and photometry. Each chapter contains numerous examples fully worked out, and a large number of exercises for the student.

LETTERS TO THE EDITOR.

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Biometry and Biology: A Rejoinder.

I SHOULD like to preface my remarks on Mr. Lister's reply by relieving his mind from any anxiety about Dr. Pearl's feelings. Dr. Pearl is in America, and I cannot, of course, communicate with him, but I know him intimately, and am convinced that he is far too good a man of science to feel aggrieved by any criticism of his writings. He might well feel aggrieved that Mr. Lister supposes him desirous that his paper should remain un-criticised, because the criticism should affect his reputation. I am inclined to think that, as a fellow biometrician, he will rejoice with me that Mr. Lister's vague charge—made at a singularly unfitting moment—has been brought to a definite issue, and can be tried *coram iudice*.

Had a first-year biometrical student in my laboratory sought advice from a biological freshman about the nature of *Paramaecium caudatum*, I should have anticipated that he would receive much the information with which Mr. Lister provides us. His remarks could only be made by one who (a) had either not studied the memoir he criticises, or had failed to perceive the significance of the constants calculated by the author, and (b) had never attempted accurate measurements on infusoria, or previously to such attempt been trained to that caution and accuracy in measurement which it is the function of biometry to inculcate.

I challenged Mr. Lister to substantiate the charge he made in August, when, presumably, the grounds of his insinuation at York were fresh in his mind. He then considered that Dr. Pearl's position was traversed by the objection that the conjugants individually are possibly or probably differentiated gametes.

What was the author's position? He expresses it exactly by quotations from Huxley and Romanes:—

"In my earliest criticisms of the 'Origin' I ventured to point out that its logical foundation was insecure so long as experiments in selective breeding had not produced varieties which were more or less infertile, and that insecurity remains up to the present time" (Huxley, "Life and Letters of Darwin," vol. i., p. 170).

"To state the case in the most general terms we may say that if the two basal principles are given in heredity and variability, the whole theory of organic evolution becomes neither more nor less than a theory of homogamy—that is a theory of the causes which lead to discriminate isolation, or the breeding of like with like to the exclusion of unlike" (Romanes, "Physiological Selection").

This problem of the divergence of individuals into varieties is the one selected by Dr. Pearl, and according to Mr. Lister is the best example by which he can illustrate his statement that biometricians do not select a sound biological problem "before bringing a formidable mathematical apparatus into action for its investigation." This is the "hare cooked before it was caught," to cite again Mr. Lister's phrase. Dr. Pearl shows that such homogamy exists in an extraordinarily high degree in *Paramaecium caudatum*. In other words, he has broken entirely novel ground, which, to say the least of it, renders Huxley's position no longer tenable. This is now admitted, albeit in a niggardly fashion, by Mr. Lister himself. In August he considered that Dr. Pearl's position was traversed by his omission to consider the differentiation of gametes which was possible or probable. He does not now even endeavour to show that it is traversed by this, but says that I have claimed for Dr. Pearl the first demonstration of the existence of this differentiation. In other words, he now admits that Dr. Pearl has fully considered the problem of differentiation. In fact, more than half Dr. Pearl's memoir is devoted to it. He further twits Dr. Pearl and myself with not distinguishing between a man and his gamete!