

sider a request to devote a small sum from an emergency fund, which is under his personal control, that an organization for work might be effected. The Governor had already expressed a favorable interest in the subject and after consideration agreed to assign the sum of one thousand dollars to the purposes mentioned in the bill. It is quite obvious that this sum is totally inadequate to the carrying out of the plan originally formulated, which involved the expenditure of ten times the amount in hand; but considerable preliminary work may be done that will simplify matters when the full sum becomes finally available.

One part of the fund will be devoted to an investigation of the conditions which favor the transmission of malaria in certain districts in the State, and a competent man has been secured for that purpose. He will be located in a malarial district where *Anopheles* is abundant and its breeding places numerous. This will afford opportunity for a careful study of the condition under which these mosquitoes are able to carry the organisms causing the disease. The student will be supplied with material from other districts in the State where malaria as an endemic disease is practically unknown. This material will be used in comparison with that collected in the infected locality, and if possible a comparative study of the media in which the larvæ breed will be made.

Another subject that will be taken up by one thoroughly qualified for the work is a study of the food habits of such vertebrates as live in the waters inhabited by mosquito larvæ. It is further expected that collections will be arranged for throughout the State that the mosquito fauna may be thoroughly understood, and the various species locally involved may be intelligently considered.

The general survey of the salt-marsh region, which was contemplated as part of the original plan, will have to be postponed for the present. It will be possible, however, for me to cover the ground in a preliminary way, that I may be fully informed when I am able to put field parties into active service.

Aside from the general work here outlined some of the more common species will be bred in the laboratory in quantities sufficient to allow of experiments with poisonous materials. The application of oil on a large scale has been found somewhat unsatisfactory, and while there is no doubt of its effectiveness in general, there are occasions when its use should be avoided if possible.

This outline of what has been done and what it is expected to do is presented that the scientific world at least should be under no misapprehensions in this matter.

JOHN B. SMITH.

NEW BRUNSWICK,
May 15, 1902.

SCIENTIFIC BOOKS.

A *University Text-book of Botany*. By DOUGLAS HOUGHTON CAMPBELL, Ph.D., Professor of Botany in the Leland Stanford Junior University. New York, The Macmillan Company; London, Macmillan & Co., Ltd. 1902. All rights reserved. 8vo. Pp. xv+579. With many illustrations.

It has been the pleasant task of the present reviewer on several previous occasions to notice books prepared by Dr. Campbell, each time with increased interest. There was first a little text-book for High Schools—the 'Elements of Structural and Systematic Botany'—which appeared twelve years ago, and justified the reviewer's favorable estimate. Five years later came that admirable book—the 'Structure and Development of Mosses and Ferns'—which has been a handbook of advanced botanists since its publication. This was followed in 1899 by 'Lectures on the Evo-

lution of Plants,' one of the most suggestive and readable of recent books on the philosophical aspects of botanical science. We may see the steps in the evolution of a leading botanist in the preceding books, especially when we add to the list the one which has just appeared, and which is here to be noticed.

The author brings to the task of preparing a book for university students long experience in teaching in the high school, as well as the university, and his many explorations in new fields of botanical research add greatly to his preparation. One might say that his earlier works have been preparatory to this, and that in their preparation he was laying the foundations upon which to build this compendium of the science. He has made this a book of reference, and it is very distinctly stated that it is not a laboratory manual. We have here an indication of a recession of the tide which at one time seemed likely to sweep away everything that was not of and for the laboratory or the field. The book is thus a contribution to the discussion of the methods of teaching botany, and as such we welcome it as an omen of better things than we have had. It is an 'all-round' book, and the student who is so fortunate as to be led through it by a competent teacher will not come out of the university with one-sided notions of the subject. It should represent the 'general botany' course in the university, as distinguished from the botanical work in the college. Upon what is contained in it the student who intends to become a professional botanist or who wishes to take up particular lines of work in restricted fields may build with safety.

The book is made up of fifteen chapters, as follows: I., 'Introduction' (in which certain generalities are discussed); II., 'The Plant-body' (which is general morphology); III., 'The Plant-cell' (cytology and histology); IV., 'Classification' (really devoted to the Flagellata, Myxomycetes, Schizomycetes, Schizophyceae and Diatoms); V., 'The Algæ'; VI., 'Fungi'; VII., 'The Archegoniatae (Bryophyta)'; VIII. and IX., 'Pteridophyta'; X., 'Spermatophyta (Gymnosperms)'; XI., 'Angiospermæ (Monocotyledones)'; XII., 'Dicot-

yledones'; XIII., 'Physiology'; XIV., 'Relation to Environment'; XV., 'Geological and Geographical Distribution.' There is thus a fair balance in the treatment of the different parts of the subject.

In looking over these chapters we are particularly pleased with those on the 'Plant-cell' (III.), the 'Bryophyta' (VII.), and the 'Pteridophyta' (VIII. and IX.). Here the author is quite at home, and the treatment is with a firmer hand than elsewhere. These chapters afford him the opportunity of applying his intimate knowledge of these groups in the presentation of the matter in pedagogical as well as scientific form. It is needless to say that the whole presentation is from the standpoint of modern evolution, and at every step the student is led to see that all forms are derived from similar antecedent forms. Yet the author is cautious, and does not assume to know all of the details of the evolution of present vegetation. It is a sound, scientific book, a credit to American botanical science.

CHARLES E. BESSEY.

THE UNIVERSITY OF NEBRASKA.

Text-book of Zoology Treated from a Biological Standpoint. By Dr. OTTO SCHMEIL. Translated from the German by RUDOLPH ROSENSTOCK. Edited by J. T. CUNNINGHAM. London, A. and C. Black. 1901. Pp. xvi+493.

The first impression that this book is apt to make upon the morphologically trained zoologist is that it is somewhat crude and often deals with merely trivial matters. A more careful study of the book shows that the first impression is an inadequate one. Here we have a philosophical treatise of zoology: one of the first. Thus even the morphological reader will admit now that it is becoming clear that morphology demands a physiological interpretation. And that is what the author of this book attempts to give us. As an example of the method let us take the treatment of the European wild boar (*Sus scrofa*). First, a brief statement as to dimensions and weight (how important for structure!). Next, "The wild boar prefers for its habitat swampy forest thickets, which are avoided by all other