the numbers of white grubs. From Puerto Rico these toads have now been sent to Louisiana and Hawaii, and from Hawaii they have been sent to the Philippines and Australia. Incidentally some of these toads were taken from Puerto Rico to Mauritius by one of their entomologists, but the authorities there would not allow them to enter.

An important contribution has been made by Mrs. Raquel Dexter, of the University of Puerto Rico, in determining the contents of the alimentary tract of this toad. It was found that over a quarter of the food of the toad in cane fields consists of May beetles and another eighth consists of large leaf-eating weevils or "vaquitas," the grubs of which are second only to the common white grubs in their destructive effect on roots of sugar cane. Only one fortieth of the food consisted of the changa or Puerto Rican mole cricket, a serious pest of tobacco and vegetables.

The status of the white grub in Puerto Rico has been changed from a major to a minor pest of sugar cane by the toad. In 1933 a foreign entomologist, studying the insect parasites of white grubs, had difficulty in obtaining a sufficient supply of them on which to rear large numbers of parasites in the laboratory. After a completely successful method of killing white grubs by chemical means (emulsion of carbon bisulfid) was found, the only opportunities for its use in Puerto Rico have been limited to small areas in pineapple plantations at elevations where the toad is even yet not present in sufficient abundance. So many reputed failures, or worse, in the past, have resulted from the introduction of predatory animals and birds, such as the English sparrow and the starling into the United States, and the mongoose from India into other parts of the tropics, that this decidedly beneficial introduction of a batrachian is worthy of record.

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# SCIENTIFIC BOOKS

## CHRONICA BOTANICA

*Chronica Botanica.* Edited by FR. VERDOORN. Editorial and Publishing Office, P. O. Box 8, Leiden, Netherlands. April, 1935. 447 pp. Price, 15 Netherl. guilders.

FEW persons, even those professionally engaged in the science, realize the extent and complexity of present-day botany. There is a distinct need for a periodic survey of this vast field, and it is such a survey that is attempted in "Chronica Botanica." The first volume of this periodical (for it is intended that it shall appear annually) has recently made its appearance, and one can not examine it carefully without marveling at its accuracy and the reasonably complete manner in which it has succeeded in covering its chosen field. It is, to be sure, a compilation dependent in large measure upon the cooperation of collaborators everywhere, yet an immense amount of detailed work must have been required in the editorial office.

After a brief introduction by E. D. Merrill, stressing the need of international cooperation among botanists, and an illustration calling attention to the fact that it is just two hundred years since the original edition of Linnaeus' "Systema Naturae" was published at Leiden, there is an almanac for 1935 and the first three months of 1936, in which are designated the dates of important meetings and various anniversaries occurring during that period. Fifteen pages are then devoted to the Sixth International Botanical Congress to be held at Amsterdam in September, with a brief history of former botanical congresses, and thirty-five pages to forthcoming national and international gatherings.

Then follows the really important section, a "review of all branches of plant science during 1934." This takes up each country of the world in alphabetic sequence, and under each the names of the places where botanical work is carried on, with a résumé of the operations, during the year, of each institution from which a report was available. More than half of the book is devoted to this impressive review of botanical accomplishment and is freely illustrated with pictures of gardens, laboratories and buildings; there are also portraits of many botanists, especially of those who died during 1934. Another section is taken up with correspondence; one lists new periodicals; and a very useful one of thirty-four pages supplies new and changed addresses.

There are two indexes, one of plants and one of persons; although the latter seems quite complete, its omission of detail appears to be the greatest defect of the volume. Even the lighter phases of the science are not ignored, three pages being occupied by a series of humorous cartoons depicting the history of botany in the Netherlands from the first century to the present time. The editor is to be congratulated upon the production of a reference work indispensable to the botanist who wishes to keep abreast of the times, and it is to be hoped that the undertaking will receive from all quarters the support that it so richly merits.

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