A POTENTIAL INTERMEDIATE HOST OF SCHISTOSOMA MANSONI

ALTHOUGH as close as the West Indies and parts of South America, schistosomiasis has never become established in the continental United States nor are there present in this country any of the known intermediate snail hosts of the three species of human schistosomes. Because of the possibility of the acquisition of schistosomiasis by troops serving in endemic areas abroad and the return of infected individuals to the United States, experiments are being carried out in this laboratory to determine whether domestic species of snails are capable of serving as intermediate hosts for these schistosomes. We[1] have already reported negative results following efforts to infect eleven species and subspecies of native snails with *Schistosoma mansoni*. Lest those results engender a false sense of security, it is deemed advisable to report promptly recent experimental evidence which indicates that the snail, *Tropicorbis havanensis*, is suitable for development of the intermediate stages of *S. mansoni*. Six juveniles of *T. havanensis* measuring about 3 mm in diameter were exposed to infection by adding on three occasions eggs and miracidia of *S. mansoni* to the water of the finger-bowl aquarium. Thirty-one days after the first exposure and 24 days after the last exposure schistosome cercariae were noted in the water. Only one of the 6 snails proved to be infected; from 1 to 16 emerging cercariae per day were observed on 12 of the ensuing 17 days.

The snails used in the experiment were laboratory reared progeny of specimens obtained through the cooperation of Drs. Harold Manter and Arlie Todd; they were collected by the latter from a lake at the edge of the campus of the Louisiana State University, Baton Rouge, Louisiana. They were identified as *Tropicorbis havanensis* (Pfeiffer) by Drs. H. A. Rehder and J. P. E. Morrison, of the U. S. National Museum. In the museum's collection, in addition to a considerable number of specimens from various localities in Cuba, there is one lot collected from Lake Pontchartrain, Louisiana, and another from near New Braunfels, Comal County, Texas.

It is hoped that this report will stimulate additional research with this and other species of *Tropicorbis*.

ADDENDUM.—Subsequently, of another lot of six *T. havanensis*, two additional specimens have been infected. The original infected snail is still shedding cercariae 52 days after they were first detected.

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CONCERNING THE PROPOSED WORD "ECHOLOCATION"

IN a recent article[1] the word "echolocation" is proposed to describe the process of locating obstacles by means of echoes of sounds emitted vocally or by special instruments.

Rather than introduce a new word it would seem better to use "echo-ranging" or "sound-ranging." These terms are definitive and have been in use for a number of years in underwater acoustics.

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SCIENTIFIC BOOKS

TELESCOPES

Telescopes and Accessories. By GEORGE Z. DIMITROFF and JAMES G. BAKER. ("Harvard Books on Astronomy.") 307 pp. 146 figures. Philadelphia: The Blakiston Company. 1945. $2.50.

To many persons the instruments and methods used in the study of the stars are fully as intriguing as the results of astronomical research. There is something mystical about a telescope that reveals the wonders of distant worlds. The present work gives an up-to-date popular description of the tools used by astronomers, and though written for the layman the book contains much valuable material for the professional student, and especially for the amateur who builds his own telescope and who is always interested in equipment and means beyond his reach.

The chapters on light and on the principles of the visual telescope give an expansion of the usual material in elementary text-books. Since so much astronomical work is done by photography there is a chapter on the photographic process. The discussion of photographic plates brings to mind the great debt astronomers owe to Dr. C. E. K. Mees, director of the Eastman Kodak Research Laboratories, for continued cooperation in furnishing the newest and best emulsions that can be made. During the past dozen years or so the advancement of observational astronomy has been even more a matter of new photographic plates than of instrumental improvements.

[1] E. B. Cram, M. Jones and W. H. Wright, *Proc. Helminth. Soc. Wash.*, 11: 64–66, 1944.

[1] Donald R. Griffin, SCIENCE, 100: 589–590, December 29, 1944.

Under photographic telescopes both reflectors and refractors are discussed, with emphasis on the Schmidt camera. It is a striking fact that as late as 1930 a really new form of telescope could be invented by Bernhard Schmidt, of Bergedorf, Germany. This telescope or camera consists simply of a spherical mirror and a thin correcting plate of glass placed at the center of curvature of this mirror, the combination fulfilling the contradictory requirements of both speed and wide field. Whereas the great reflectors have focal ratios of about f/5, the new Schmidt telescopes are as fast as f/2.5 or, in the smaller sizes, down to f/1. It appears that these instruments are springing up like mushrooms in the United States, with projected sizes up to a 72-inch mirror at Palomar and a 60-inch at Harvard. After the war we may expect that all the striking pictures of the star fields of the Milky Way, taken with five to ten-inch lenses, will have to be done over again with Schmidt cameras and red-sensitive plates.

The different attachments that go with telescopes, such as spectrographs and photometers, are well described, but the tyro will not always be able to distinguish between a currently active and an obsolete instrument, nor between the precision obtained, for instance, of radial velocities with the slit spectrograph and the objective prism.

In the elaborate instruments for solar research we come, strange to say, to the field of the amateur. The late Dr. George Ellery Hale once defined an amateur as one who works at astronomy because he can not help it. In his life-long study of the sun Hale himself remained true to this definition, always contriving new and more powerful apparatus, and toward the end he brought out the spectrohelioscope, a device within the means of amateurs and used all over the world. The McMath-Hulbert Observatory near Pontiac, Michigan, is another case where the amateurs have outdone the professionals. Here the first moving pictures of solar phenomena were taken, and various instrumental innovations such as the electrical driving of a telescope are copied to advantage by observatories elsewhere.

The large telescopes of the world are listed in the order of their size; sometime we may hope to have such a list in the order of their contributions to science. The late Professor Edward C. Pickering, when once asked if they had the largest telescope in the world at Harvard, replied: "No, but we probably have the smallest one that is doing useful work." It was in about 1900 that James E. Keeler with the Crossley reflector at the Lick Observatory demonstrated the possibilities of the reflecting telescope in a good climate. There are now in various countries some twenty-five telescopes larger than the 36-inch Crossley, but, measured by the product, not more than half a dozen are equal to it in efficiency and power. That more than mere size is involved is well stated by the authors:

> A telescope is more than a machine; it is an enterprise around which clusters the life of an institution. It is in a sense a never-ending development, born of the vision of the scientist who conceives it and the engineer who designs it; it assumes form in the hands of the builders, the mechanics, whose ability and skill contribute to the construction; and finally it is nursed by the observer, not altogether without affection, through many nights and years of service, continuously altered or improved as the years bring new technical developments or as new ways are found of using it more efficiently.

The book is well printed with many good illustrations, and the few errors inherent in a first printing do not detract from its value. It is a worthy member of the Harvard series, and, like the others, if a person has a copy, somebody else will soon be asking to borrow it.

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AQUATIC PLANTS

Aquatic Plants of the United States. By WALTER CONRAD MUENSCHER. 374 pp. 154 figs. 400 maps. Comstock Publishing Company. 1944. $5.00.

AS Volume 4 of the series of handbooks of natural history issued under the editorial supervision of A. H. Wright, this book maintains the high standards of previously issued numbers. The author has the same difficulty experienced by Fassett in selecting material for his "Manual of Aquatic Plants" (McGraw-Hill, 1940). In range Muenscher is more catholic by covering the entire United States, though he excludes Canada. This wide coverage is a valuable feature of the book, since many visitors to Florida are interested and puzzled by the abundant aquatics there.

In the application of his definition of aquatic plants, Muenscher omits many (33) genera included by Fassett, and also fails to include conspicuous algae and bryophytes, as well as woody plants. In both books species are omitted (*e.g., Helonias bullata, Rhexia virginica, Rynchospora* spp., *Caltha natans*) which other botanists would have included. Muenscher with good reason avoids the trinomials and quadrinomials which cluster around the numerous named forms and varieties of such variable genera as Potamogeton. His failure to include synonyms is not so happy.

Families and genera are well defined. The excellent keys effectively replace the detailed descriptions of species usual in manuals.

The numerous illustrations are well drawn and reproduced, and with the keys make identification fairly