

generic appellation antedates Daudin's *Ophisaurus*, of the type which is our glass-snake, *O. ventralis*. Boulenger regards both species as congeneric, and if he respects the law of priority he will have to call the latter *Sheltopusik ventralis*. It is hardly probable, however, that any American herpetologist will follow him in placing the Eurasiatic species with two posterior legs in the same genus as the totally legless North American species.

According to the above there can be no doubt but that the generic name for the *Chirotes* must stand as *Bipes*, and the family name will, accordingly, be *Bipedidae*. The synonymy of the genus is as follows:—

Bipes LATREILLE.

1802.—*Bipes* LATREILLE, Hist. Nat. Rept., II., p. 90 (type *B. canaliculatus*).

1804.—*Microdipus* HERMANN, Obs. Zoöl., p. 289 (same type).

1811.—*Bimannus* OPPEL, Ord. Rept., p. 45 (same type).

1817.—*Chirotes* CUVIER, Regne Anim., 1st ed., II., p. 57 (same type).

Species: *Bipes canaliculatus* Bonnaterra.

THE RAVAGES OF BOOK WORMS.

At a meeting of the Massachusetts Historical Society, held Feb. 9, 1893, Dr. Samuel A. Green, after showing two volumes that had been completely riddled by the ravages of insects, as well as some specimens of the animals in various stages, made the following remarks:—

For a long period of years I have been looking for living specimens of the so called "book-worm," of which traces are occasionally found in old volumes; and I was expecting to find an invertebrate animal of the class of annelides. In this library at the present time there are books perforated with clean-cut holes opening into sinuous cavities, which usually run up the back of the volumes, and sometimes perforate the leather covers and the body of the book; but I have never detected the live culprit that does the mischief. For the most part the injury is confined to such as are bound in leather, and the ravages of the insect appear to depend on its hunger. The external orifices look like so many shot-holes, but the channels are anything but straight. From a long examination of the subject I am inclined to think that all the damage was done before the library came to this site in the spring of 1833. At all events, there is no reason to suppose that any of the mischief has been caused during the last fifty years. Perhaps the furnace heat dries up the moisture which is a requisite condition for the life and propagation of the little animal.

Nearly two years ago I received a parcel of books from Florida, of which some were infested with vermin, and more or less perforated in the manner I have described. It occurred to me that they would make a good breeding-farm and experiment station for learning the habits of the insect; and I accordingly sent several of the volumes to my friend Mr. Samuel Garman, who is connected with the Museum of Comparative Zoölogy at Cambridge, for his care and observation. From him I learn that the principal offender is an animal known popularly as the Buffalo Bug, though he is helped in his work by kindred spirits, not allied to him according to the rules of natural history. Mr. Garman's letter gives the result of his labors so fully as to leave nothing to be desired, and is as follows:—

MUSEUM OF COMPARATIVE ZOÖLOGY, CAMBRIDGE, MASS.,
Feb. 7, 1893.

DR. SAMUEL A. GREEN, BOSTON, MASS.

Sir:—The infested books sent for examination to this Museum, through the kindness of Mr. George E. Littlefield, were received July 15, 1891. They were inspected and, containing individuals of a couple of species of living insects, were at once enclosed in glass for further developments. A year afterward live specimens of both kinds were still at work. Besides those that reached us alive, a third species had left traces of former presence in a number of empty egg-cases.

Five of the volumes were bound in cloth. On these the principal damage appeared at the edges, which were eaten away and

disfigured by large burrows extending inward. Two volumes were bound in leather. The edges of these were not so much disturbed; but numerous perforations, somewhat like shot-holes externally, passed through the leather, enlarging and ramifying in the interior. As if made by smaller insects, the sides of these holes were neater and cleaner cuttings than those in the burrows on the edges of the other volumes.

The insects were all identified as well-known enemies of libraries, cabinets, and wardrobes. One of them is a species of what are commonly designated "fish bugs," "silver fish," "bristle tails," etc. By entomologists they are called *Lepisma*; the species in hand is probably *Lepisma saccharina*. It is a small, elongate, silvery, very active creature, frequently discovered under objects, or between the leaves of books, whence it escapes by its extraordinary quickness of movement. Paste and the sizing or enamel of some kinds of paper are very attractive to it. In some cases it eats off the entire surface of the sheet, including the ink, without making perforations; in others the leaves are completely destroyed. The last specimen of this insect in these books was killed Feb. 5, 1893, which proves the species to be sufficiently at home in this latitude.

The second of the three is one of the "Buffalo Bugs," or "Carpet Bugs," so called; not really bugs, but beetles. The species before us is the *Anthrenus varius* of scientists, very common in Boston and Cambridge, as in other portions of the temperate regions and the tropics. Very likely the "shot-holes" in the leather-bound volumes are of its making, though it may have been aided in the deeper and larger chambers by one or both of the others. The damage done by this insect in the house, museum, and library is too well known to call for further comment. Living individuals were taken from the books nearly a year after they were isolated.

The third species had disappeared before the arrival of the books, leaving only its burrows, excrement, and empty egg-cases, which, however, leave no doubt of the identity of the animal with one of the cockroaches, possibly the species *Blatta Australasica*. The cases agree in size with those of *Blatta Americana*, but have thirteen impressions on each side, as if the number of eggs were twenty-six. The ravages of the cockroaches are greatest in the tropics, but some of the species range through the temperate zones and even northward. An extract from Westwood and Drury will serve to indicate the character of their work:—

"They devour all kinds of victuals, dressed and undressed, and damage all sorts of clothing, leather, books, paper, etc., which, if they do not destroy, at least they soil, as they frequently deposit a drop of their excrement where they settle. They swarm by myriads in old houses, making every part filthy beyond description. They have also the power of making a noise like a sharp knocking with the knuckle upon the wainscoting; *Blatta gigantea* being thence known to the West Indies by the name of drummer; and this they keep up, replying to each other, throughout the night; moreover, they attack sleeping persons, and will even eat the extremities of the dead."

This quotation makes it appear that authors as well as books are endangered by this outlaw. With energies exclusively turned against properly selected examples of both, what a world of good it might do mankind! The discrimination lacking, the insect must be treated as a common enemy. As a bane for "silver fish" and cockroaches, pyrethrum insect powder is said to be effectual. For a number of years I have used, on *lepisma* and roach, a mixture containing phosphorus, "The Infalible Water Bug and Roach Exterminator," made by Barnard & Co., 7 Temple Place, Boston, and, without other interest in advertising the compound, have found it entirely satisfactory in its effects. Bisulphide carbon, evaporated in closed boxes or cases containing the infested articles, is used to do away with the "Buffalo Bugs."

Very respectfully yours,

SAMUEL GARMAN.

MR. FREDERICK VERNON COVILLE has been appointed botanist to the Department of Agriculture in place of Dr. George Vasey, deceased. Mr. Coville has been for some years past one of Dr. Vasey's assistants.