segment with a narrow yellow fascia at its basal margin, usually more or less interrupted in the middle; the fifth segment has a similar fascia; the apical segments are reddish yellow; the fascia on the fourth segment is frequently obsolete.

Hab. Brazil (St. Paulo, Para).

[To be continued.]

BIBLIOGRAPHICAL NOTICE.

Synopsis of the Acrididæ *of North America.* By Cyrus Thomas, Ph.D. *Being Part I. of the Fifth Volume of the 'Report of the United-States Geological Survey of the Territories,' issued by the Department of the Interior.* 4to: Washington, 1873.

There is one particular in which the Government of the United States puts those of European countries to utter shame. This is the liberality shown in America in the promotion of scientific research, both by the central Government and by the Legislatures of the various States. All over the States geological surveyors are hard at work; and the results of their labours are given to the world in a constantly increasing series of valuable volumes, which are most liberally circulated gratuitously in other countries. With a breadth of view which deserves all praise, the geological surveyors do not confine themselves to mapping the geological formations of various districts, and describing the fossils obtained from them, but they devote a good deal of attention to the recent productions of the regions traversed by them; and the results of their investigations are published from time to time at the public cost, and as an integral part of the work properly belonging to the surveys.

Dr. Thomas's "Synopsis of the Acrididæ of North America" is one of these publications, and it forms the first part of a volume which is to be devoted exclusively to the recent zoology and botany of the United States. After giving a list of works on the Orthoptera referred to in his monograph, the author describes, in considerable detail, the external and internal structure of the insects belonging to the family the American species of which form its subject-matter. This introduction, which is illustrated with two outline wood-engravings, furnishes a guide to the terminology of the parts in these insects.

With regard to the oviposition of the Acrididæ, Dr. Thomas states that the destructive migratory species of the West (*Caloptenus spretus*), like the migratory locusts of Europe, deposits its eggs, to the number of 50 or 100, in a cocoon-like mass, covered with a tough glutinous secretion, but that this method is by no means followed by all other American species. Even the red-legged locust (*Caloptenus femur-rubrum*) was found by him to lay its eggs loosely in rotten wood.

Dr. Thomas enters at great length into the question of the classification of the Orthoptera, and gives a complete revision of all the more important systems which have been proposed by various authors, from Linnæus downwards. His final result is an adoption of Burmeister's classification of the families, except that he includes the Forficulidæ, placed by Burmeister as a distinct tribe. He divides his Acrididæ into two subfamilies, the Acridinæ and the Tettiginæ, and the former again into seven groups, as shown in the following Table (p. 40) :—

I. Anterior margin of the prosternum truncate, not elevated; claws furnished with pulvilli; pronotum shorter than the abdomen ..... Subfam. 1. Acridinæ.
A. Antennæ 6–8-jointed, not longer than the head Group 1. *Proscopini.*
AA. Antennæ multiarticulate, longer than the head.
a. Head produced in front in the form of a cone or pyramid; face very oblique; antennæ ensiform, triquetrous.
b. Elytra narrow ..... Group 2. *Tryxalini.*
bb. Elytra very broad ..... Group 3. *Trigonopterygini.*
aa. Face suboblique or vertical.
b. Antennæ filiform, subdepressed, or clavate; joints indistinct.
c. Prosternum unarmed ..... Group 4. *Œdipodini.*
cc. Prosternum spined ..... Group 5. *Acridini.*
bb. Antennæ acuminate; joints distinct; front more or less advanced between the antennæ, in the form of a blunt cone.
c. Joints of antennæ flat ..... Group 6. *Xiphocerini.*
cc. Joints of antennæ terete ..... Group 7. *Phymatini.*
II. Anterior margin of the prosternum elevated; claws without pulvilli; pronotum extending to the tip of the abdomen ..... Subfam. 2. Tettiginæ.
A. Prosternum unarmed ..... Group 8. *Tettigini.*

Mr. Walker's Pamphagidæ are included in the group Xiphocerini. Five of the above groups have representatives in the fauna of the United States, the first, third, and seventh being deficient. In the present work, however, Dr. Thomas works out the genera and species only of four groups, the Tettiginæ being described chiefly from the writings of previous entomologists.

The author tells us that the number of species of Acrididæ (exclusive of Tettiginæ) known to occur in the United States is about 120, belonging to 25 genera. The number described in Fischer's 'Orthoptera Europæa' (1853) was 77, belonging to 20 genera. The total number of species (including 20 Tettiginæ) found in the North-American region (taking in British America, Mexico and Central America, and the West Indies) is 227; these belong to 45 genera, 4 of which are Tettigine. Characters of these, principally compiled from the writings of other authors, are given as a sort of appendix to the body of the "Synopsis." Of the 120 species inhabiting the United States, 40 have been described as new by the author in this and former memoirs; and he tells us that many of these have been figured by Professor Townend Glover in a lately

published work, entitled 'Illustrations of North-American Entomology,' which we have not seen.

Of course any special criticism of this work is quite out of the question, unless one were prepared to go through nearly the same amount of labour that the author has bestowed upon it. The genera and species are most carefully characterized, tables are freely introduced to facilitate their determination, and the whole book bears the impress of most conscientious work. Here and there we seem to see indications of a desire to draw the line of specific distinction too tightly; but without a knowledge of the species it is of course impossible to pronounce a decided opinion upon such matters; and we can only welcome Dr. Thomas's memoir as a most important contribution to our knowledge of American entomology. It is illustrated with a nicely executed plate of outline figures, designed to show the general characters of a few of the genera referred to.

MISCELLANEOUS.

Eozoon canadense. By Prof. Max Schultze.

The discovery of the American geologists Sir William Logan and Prof. Dawson with regard to a peculiar fossil in the primæval limestones of the oldest formation of Canada, which they thought must be referred to the Foraminifera, and named *Eozoon canadense*, has obtained a provisional settlement by the investigations of Dr. W. B. Carpenter, of London, whose extensive works upon the Foraminifera are recognized as occupying the first rank. Carpenter considers there is no doubt that the discoidal masses, about a foot in diameter and several inches thick, composed of alternate layers of greenish silicates (serpentine or augite) and carbonate of lime (or magnesia), which, caked together into irregular nests, occur in the Laurentian deposits of Canada hitherto regarded as perfectly azoic, represent the remains of a many-chambered Foraminifer of the habit of the Acervulinæ, M. Schultze. Like the glauconitic filling of more recent Foraminifera, the serpentinous mass of the *Eozoon* has penetrated into the interior of the chambers, while the intervening calcareous bands represent the original calcareous walls of the chambers. In these, in well-preserved specimens, there is a complex, ramified canal-system, connected with the original cavities of the chambers, and filled, like these, with a silicate which is insoluble in acids. Carpenter compares them to the canals detected in various fossil and recent Foraminifera, which occur arranged in bundles, as, for example, in *Calcarina* or *Siderolites calcitrapoides* from the chalk of Maestricht.

The statements of the above-mentioned English and American observers have been received with much mistrust, especially in Germany. In fact there can be no doubt that much of what has been given out as *Eozoon* shows no kind of organic structure when examined under sufficiently high powers. The author therefore