

tropics. I give figures of three of the most interesting. Fig. 1 is a cerambycid elytron, 9.5 mm. long and 3 mm. broad, with large brown spots, the edges of which are darkened as in Eburia. It was found by my wife at our Station 2. I call it *Cerambycites wilmatta*, placing it in the blanket-genus *Cerambycites* because it cannot be definitely referred to a modern genus known to me. Fig. 2, which I call *Gryllus vociferans*, is part of the tegmen of a small male cricket, the part shown being only 4 mm. long, the veins sepia brown. It is probably not a *Gryllus* in the strictest sense, but it is of particular interest as showing the male vocal organs fully developed, as in modern forms. This does not necessarily indicate a very recent age for the deposit, as similar specimens (three species) have been found in the Oligocene of the Isle of Wight. Fig. 3 shows the forceps of an earwig, *Psalis pachyura*, the forceps reddish brown, 3.3 mm. long, simple, broad at base. The genus *Psalis* is doubtless an old one, being found on both sides of the world. I had referred the fossil to *Psalis* in a broad sense; and Mr. J. A. G. Rehn, to whom I sent a sketch, independently reached the same conclusion: "I should say from your sketch it would clearly be *Psalina*." These are the first orthopteroid insects found fossil in South America.

Now that attention is directed to these beds, others will doubtless investigate them, and we may expect to learn a great deal about the Tertiary insects of northern Argentina.

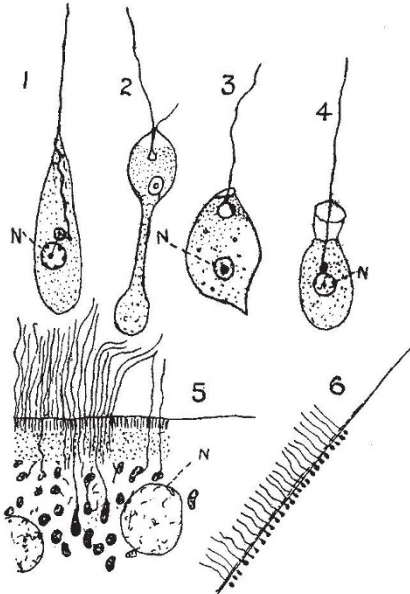
T. D. A. COCKERELL.

University of Colorado,

Boulder, September 29.

#### *Opalina ranarum*: a Flagellate.

MINCHIN, in his well-known volume, "An Introduction to the Study of the Protozoa," 1912, states that the species of the genus *Opalina* differ in certain peculiarities of structure and life history from all other ciliates. The life history has been studied by Metcalf and Neresheimer, whose accounts agree as



regards the general life history, but differ in some cytological details.

Neresheimer considers that the life-cycle of *Opalina* proves its affinities are with the Flagellata rather than with the Ciliata. This view did not find favour with Minchin, who placed *Opalina* in its usual position.

NO. 2924, VOL. 116]

Recently we have carried out some work on *Opalina*, and have obtained results which we believe show conclusively that this protozoon is really a flagellate, as Neresheimer suggested from his study of the life history.

In a flagellate (Figs. 1-3, from Minchin) the flagellum nearly always passes into the substance of the organism and ends in a bead, vacuole, cyst or special granule of some kind. In various flagellates the granule may be specially well marked as a "solid," well-defined structure; in others it is apparently associated with a cyst of some sort.

In the typical ciliate, the cilia are almost invariably short structures arising from cortical granules which are nearly always quite small (Fig. 6). We know, however, of cases where the cilia have been described as entering right into the substance of the organism, and even impinging upon the nucleus, but such cases are rare, and unlike typical flagella.

Now, in *Opalina ranarum*, the "cilia" enter right into the substance of the organism, and take their origin from the peculiar granules which exist in very large numbers in the protoplasm of *Opalina* (Fig. 5).

This system exactly resembles the arrangement in the choanocytes of *Grantia compressa* and *Spongilla* (Fig. 4) as described by Hirschler and Gatenby. We claim, therefore, that the motile organs of *Opalina* are flagellar in nature, and that this protozoon should be classified among the Flagellata.

J. BRONTÉ GATENBY.

S. D. KING.

Trinity College, Dublin,  
October 28.

#### The Geographo-Economic Institution at Leningrad.

IN 1919 the leading professors of the Geographical Institution, Leningrad, conceived the idea of creating a scientific institution for research upon geographical questions in which young men and women students of the Geographical Institution were to co-operate. From this sprang a "Scientific Collegium," which in 1923 was reorganised and named the "Geographo-Economic Institution."

This Institution is now under the direction of Prof. S. Sovietov and has eight departments: (1) Plant Geography, (2) Soil Science, (3) Zoo-geography, (4) Geophysics, (5) Economic Geography, (6) Geology, (7) Geography, (8) Ethnography. There are about thirty fellows and forty assistants now working in all departments. The principal work of the Institution is field studies. All the fellows and assistants are engaged during the summer in different parts of Russia, and during the winter the results of their work are discussed at the meetings of the Institution. This makes a very valuable training for young scientific workers in preparing them for responsible scientific positions. As Russian literature is very poor in good field manuals, the Institution has just published a handbook entitled "How can the Country be Studied?" Another large publication, a Geographical and Economic Atlas of the Leningrad country, is in preparation. This work will contain maps showing the distribution of different climatic and soil factors as well as of the various organisms—plants and animals, and of different peoples and their cultures.

The Institution has its own publication, "The Phyto-Geographical Atlas of the World," and would be glad to establish scientific relations with other similar Institutions of the world. The address is: Leningrad, Mramornyi Dvoretz (Marble Palace), Geographo-Economic Institution.

BORIS FEDTSCHENKO.