3. Three Gregarines from Louisiana.

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(With 2 figures.)

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Through the kindness of Prof. E. Bethel of Denver, Colorado, the writer recently received a collection of living beetles from New Orleans, Louisiana. Three species of these beetles proved to be the hosts for gregarines, of which two species seem to be new, and the other furnishes a new record.

Gregarinidae.

Gregarina grisea sp. nov. (Fig. 1.)

Type locality, New Orleans, Louisiana. March, 1913.

Host, *Tenebrio castaneus* Knoch., a Tenebrionid beetle.

Average associations, 500 μ to 700 μ; smallest observed, 390 μ; largest, 1055 μ.

Habitat, intestine, particularly the posterior third.

Primite. Length of the protomerite 4,5 to 6,5 in the length of the deutomerite; width of the protomerite 1,5 to 1,1 in the maximum width of the deutomerite; maximum width of the deutomerite about 2, less frequently 2,5 in the length of the deutomerite; protomerite rather hemispherical, the region of its maximum width being at or just in front of its junction with the deutomerite; deutomerite cylindrical, tapering slightly if at all posteriorly, somewhat rounded at its junction with the protomerite, posterior margin broadly rounded; epicyte thick and uniform; sarcocyte very clear and about twice as thick as the epicyte; endocyte very dense, lead gray in color, that of the protomerite being slightly granular; nucleus not visible in the living animal, easily demonstrated with Iodine solution, its diameter about equal to the length of the protomerite.

Figure 1. *Gregarina grisea* Ellis. Length of the association, 700 μ.

Satellite. Rather narrowly joined to the Primite, which it resembles; deutomerite tapering posteriorly so that it is roughly conical; nucleus distinct, its diameter not quite equal to the length of the protomerite, clear and without granules.

Associations. All specimens seen were in association. The measurements of four associations are given below.

Primite		Satellite		Association
Protomerite	Deutomerite	Protomerite	Deutomerite	Total
47 μ	157 μ	43 μ	143 μ	390 μ
43 -	215 -	47 -	171 -	466 -
71 -	200 -	71 -	260 -	602 -
72 -	443 -	71 -	470 -	1055 -

This species was found in large numbers in both of the host beetles examined. It may be distinguished from *Gregarina xylopini* Crawley, (in part, fig. 30[1]), a species from *Xylopinus saperdioides* Oliv., a tenebrionid beetle closely related to the host of this species, by the shape of the protomerite and the general measurements of the deutomerite. The protomerite of *G. xylopini* is elongate, equal to half the length of the deutomerite, and is so constricted as to resemble a dumb-bell. *G. xylopini* is also a much slimmer gregarine than *C. grisea.*

Gregarina passali cornuti Leidy.

This species was represented by large numbers of small individuals in each of the several specimens of the lucanid beetle, *Passalus cornutus* Fab., examined.

Actinocephalidae.

Stephanophora xopha sp. nov. (Fig. 2).

Type locality, New Orleans, Louisiana. March, 1913.

Host, *Nyctobates barbarata* Knoch., a Tenebrionid beetle.

Average cephalonts, 700 μ; average sporonts, 1200 μ; largest observed, 1600 μ.

Habitat, intestine.

Figure 2. Cephalont of *Stephanophora xopha* Ellis. Length, 800 μ.

Cephalont. Length of the protomerite and epimerite 9 or less in the length of the deutomerite; width of the protomerite a little less than that of the deutomerite, which is 6 to 8 in the length of the deutomerite; length of the epimerite about equal to or less than that of the protomerite; epimerite terete, narrowed at the base and terminated by a ring of eight or more digitiform processes; epicyte thin; sarcocyte about twice as thick as the epicyte over most of the deutomerite, thicker over the posterior end of the deutomerite, at the junction of the deutomerite and the protomerite, and over the anterior portion

[1] Crawley, Proc. Acad. Nat. Sci. Phila. LV. p. 47. fig. 30. 1903.

of the protomerite; endocyte of the protomerite grayish brown in color and rather dense, that of the deutomerite very dense and almost black; nucleus very obscure or invisible in the living animal. All specimens examined under 1000 μ were cephalonts. One gregarine, 1140 μ, was seen to throw off its epimerite. The epimerite was almost disconnected when the gregarine was first observed and the protomerite was being jerked from side to side vigorously. This jerking of the protomerite continued for some time after the epimerite was completely thrown off.

Sporont. General structure the same as that of the cephalont; protomerite rounded anteriorly and rather globose; deutomerite greatly elongated, pointed and tapering posteriorly, its region of maximum width just back of the junction with the protomerite; length of the protomerite 8 to 12 in the length of the deutomerite; width of the deutomerite about equal to the length of the protomerite.

This gregarine was found in large numbers in each of the several specimens of the host examined. It was not active, moving slowly if at all. When treated with tap water the anterior third of the deutomerite became greatly enlarged, the epicyte and sarcocyte swelling away from the endocyte.

The observation of this gregarine and *Gregarina grisea* in two species of Tenebrionid beetles closely related to *Xylopinus saperdioides* offers an explanation of the two types of gregarines figured by Crawley, l. c., as *Gregarina xylopini*. Figures 29 and 30 as taken from Leidy's MS. are of different gregarines, a fact recognized by Crawley. Figure 30 represents a gregarine closely related to *G. grisea*, while figure 29 is apparently of a sporont of *Stephanophora xopha*. In the absence of other description the name *Gregarina xylopini* should be restricted to figure 30, since it gives more characters than figure 29, which is clearly of a gregarine not referable to the family Gregarinidae.

4. Die Stephaniden Formosas.

Von Dr. Günther Enderlein, Stettin.

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Die Stephanidenausbeute Sauter's aus Formosa im Deutschen Entomologischen Museum in Dahlem enthält sechs noch unbekannte Arten, die sich auf die Gattungen *Parastephanellus*, *Diastephanus* und *Foenatopus* verteilen. Es zeigt sich auch an der Hand dieses Materials wieder, daß die Größendifferenzen innerhalb einer Art bei den Stephaniden eine auffällige Größe erreichen, wie sie wohl kaum von einer andern Insektenfamilie übertroffen wird. So ist das kleinste ♀ von *Foenatopus formosanus* Enderl. 12,4 mm, das größte 21½ mm lang.