

Habits.—Although the parasites occur in great numbers, on account of their minute size and inconspicuousness, they are rather difficult to find in nature. For this reason their natural habits in regard to activity are more or less unknown, except in the case of ovipositing females.

They have been observed crawling over the leaves of corn and cotton, mostly in the morning of fair and clear days, but have never been observed to feed on the secretions of leaf glands as do various of the Chalcidoidea. In the laboratory, however, they have been fed on ripe peach juice and a diluted water solution of brown sugar, sometimes feeding rather eagerly, but mostly quite incidentally, and in one case, not at all. The taking of food seems to have no effect on the length of life.

In regard to the latter, of course, we have nothing but laboratory records upon which to base conclusions. Through all of the breeding season of 1904 numerous specimens were kept under spacious glass jars, and their length of life noted. Summing up results, the average length of life was about 36 hours or slightly longer, but the range was from 12 to 108 hours. The longer period was very exceptional. The males die somewhat earlier than the females. The season of the year apparently has no effect on the length of life. Both sexes are very active and crawl rapidly and they also fly and are then very hard to see.

Percentage of Alabama eggs killed.—A few records, late in the season, were obtained for the percentage of the eggs of *Alabama argillacea* Hübner, the cotton caterpillar, killed by this parasite. On October 22, parasitized eggs were common on cotton but healthy eggs scarce. Forty-six (46) eggs collected from the leaves on that date showed by census 73.9 per cent. parasitism; by the end of the week following, the percentage for this lot was 76 per cent., another egg having since shown the characteristic blackened color.

The percentage of *obsoleta* eggs parasitized during 1904 has been given by Quaintance and Brues (1905).

List of hosts.—The genus *Trichogramma* confines its attacks mostly to the Lepidoptera, as far as our records go, but one species, *odontota* Howard, attacking the Coleoptera (*Odontota dorsalis* Thunberg), and one, *ceresara* Ashmead, known definitely to attack Hemiptera (*Ceresa bubalus* Fabr.), and two species attacking the Hymenoptera, namely, *minuta* Riley and *pretiosa* Riley. The latter species is known to attack members of two orders, Hymenoptera and Lepidop-

tera, and has quite a large number of hosts belonging mostly to the last named order. It was first recorded from *Alabama* and *Heliothis* and the genus *Pteronus*, and at present has been reared from the following hosts. — Lepidoptera: *Alabama argillacea* Hübner, *Autographa brassicæ* Riley, *Carpocapsa pomonella* Linn., *Heliothis obsoleta* Fabricius, *Ianassa lignicolor* Walker, *Laphygma frugiperda* Smith & Abbot, *Mamestra picta* Harris, *Phlegethontias sexta* Johanssen, *Platynota rostrana* Walker, *Polychrosis viteana* Clemens. — Hymenoptera: *Pteronus ribesii* Scopoli and doubtfully *Pachynematus palliventris* Cresson.

LITERATURE REFERRED TO.

1885. Riley, Charles Valentine. 4th Rep. U. S. Ent. Commission, Washington, p. 102.
1905. Quaintance, Altus Lacy and Charles Thomas Brues. Bull. No. 50, Bureau Ent., U. S. Dep. Agric., Washington, p. 116.

Class I, HEXAPODA.

Order IV, DIPTERA.

A NEW GENUS AND SPECIES OF SABETHID
MOSQUITO.

BY FREDERICK KNAB,

WASHINGTON, D. C.

Dinomimetes, new genus.

Eyes contiguous; clypeus without bristles; antennæ very long, filiform, ciliate, the whorls inconspicuous, the second segment over fourteen times as long as wide in both sexes; metanotum with setæ. Prothoracic lobes well separated.

Dinomimetes epitedeus, new species.

Female: Antennæ, the tori small, globular, ochreous, naked; second segment extremely long; third segment about two-thirds as long, the following ones successively shorter; the segments are densely ciliate and bear many scattered longer setæ; the second segment brown scaled. Clypeus elongate, conical, naked. Labial palpi moderately short. Occiput clothed with narrow pale brownish recumbent scales and a few scattered erect forked ones; along the posterior margin a dense conused row of erect forked scales. Prothoracic lobes prominent. Mesonotum brown, the scale vestiture bronzy brown, having two submedian bare stripes and with numerous coarse setæ, mostly in subdorsal and lateral rows, longest and most closely placed on the posterior portion. Scutellum distinctly trilobed, yellow-brown, with three patches of brown scales and groups of long coarse setæ on the lobes. Meta-

notum rather narrow, elongate, with a group of setæ near the apex. Postscutellum clothed with dull brown scales and with many pale setæ, somewhat produced at the middle where there is a double ridge of erect scales. Abdomen long and slender, blunt at the apex, the cerci small, slender and pointed. Vestiture of the abdomen above dull brown, beneath dull yellowish bronze. Wings rather broad, the scales of the veins brown and mostly narrow. Basal cross-vein slightly oblique, more than its own length behind the anterior cross-vein. Knobs of the halteres brown scaled. Legs brownish black, unicolorous. Claws small and simple.

Length of body, about 5 mm. ; of wing, 4 mm.

Male: Very similar to the female. The antennæ even longer; the third segment hardly shorter than the second, the fourth but little shorter than the third; terminal segments much shortened. Palpi slender, about equal to those of the female in length. Abdomen subcylindrical, slightly expanded at the apex and with large very stout claspers. All the claws simple, those of the front and middle legs very long, those of the hind legs small.

Length of body, 4 mm. ; of wing, 4 mm.

Locality. — Port Limon, Costa Rica (2 ♀♀, 1 ♂, F. Knab).

Type. — No. 10291, U. S. National Museum.

This mosquito has a deceptive resemblance to *Deinocerites cancer* Theob. and like it occurs in crab-holes. My remarks in *Psyche*, xiii, p. 95, on the occurrence of *Deinocerites cancer* at Port Limon apply to this species. At the time the article was written the specimens in question were in the hands of Mr. Coquillett and were not accessible for study.

DEINOCERITES AGAIN. C R

BY FREDERICK KNAB,

WASHINGTON, D. C.

In *Psyche* for February, 1907, Miss Evelyn G. Mitchell, attempts to defend the subfamily *Deinoceritinae*, erected by her in *Psyche*, xiii, 1906, pp. 11-21. The last article is so pretentious in character and presents such a mixture of ideas that it calls for some criticism.

I will first take up the larval characters of *Deinocerites* which are made use of by Miss Mitchell. While in her original article it is not directly stated that the "groove" is a unique structure, one is led to infer from her statements that this was her belief. What I asserted in my article on *Deinocerites*, *Psyche*, xiii, pp. 96-97, and still maintain, is that a mere matter of difference in size and shape of the structure in question can have no great systematic value. The "angulation" of

the chitinous piece in question, which Miss Mitchell insists is such an important feature, is largely illusory. The figure of the under side of the head which I gave in *Psyche* was carefully drawn from a head in horizontal position and I believe is a correct representation of the head when thus viewed. When the larva is examined from above the head is deflected and the lobes projecting at the sides are seen in perspective and present the angular appearance noted by Miss Mitchell. It will be unnecessary to discuss at this time the mandibular structures of mosquito larvæ. I simply assert that the structures pointed out by Miss Mitchell are not of primary importance. If one adopted Miss Mitchell's method of classification, *Lesticocampa*, in which the larva has enormous maxillæ projecting far beyond the antennæ, shaped like mandibles and armed with several long sharp teeth, would on such a remarkable structure have to be removed from the Diptera altogether! Her simile in this connection of the tails of monkeys throws an interesting sidelight on her ideas of classification which would certainly astonish vertebrate zoölogists. Would she propose to remove the South American short-tailed *Brachyurus* from the Platyrrhine group and mercilessly throw it among the old world apes?

It will be as well, on this occasion, to dispose of Miss Mitchell's subfamily Psorophorinæ. *Lutzia bigoti* has a predaceous larva, in all the details of the mouth parts like that of *Psorophora*. But by no artifice can the adult of this mosquito be associated with *Psorophora*. It is only by the very large empodia that this form is generically separable from *Culex*, an adaptive structure to enable this large mosquito to rest upon the water. The larval structure is purely adaptive to habits and doubtless acquired quite independently.

But it is when we turn to the adult characters that the crudity of Miss Mitchell's ideas becomes most obvious. It is certainly a great wrong to Osten Sacken to misquote him in the manner she has. The striking differences in the antennæ of the Nemocera anomala from those of the true Nemocera lie in the brevity of the segments and the absence of the whorls of sensory hairs. Anyone who has examined the antennæ of a *Simulium* or a Bibionid will appreciate the difference. The antennæ of *Deinocerites* differ from those of most other Culicids merely in the greater relative length of some of the segments; as a result the whorls of hairs are less conspicuous, but present they are. How any member of so homogeneous and specialized a group as the mosquitoes can be considered "primitive," least of all one with such

specialized habits as *Deinocerites*, is incomprehensible. Moreover a mosquito which has similarly elongated antennal segments but belonging to a distinct group, the Sabethinæ, and described in the preceding article, has recently come to light. Furthermore *Culex latisquamma* Coq. has a distinctly elongated second segment of the antennæ. As all three of these species live in crab-holes it becomes obvious that the lengthening of the antennal segments is not a "primitive" character but is correlated in some way to the mode of life of these mosquitoes. The attitude of alertness which these mosquitoes must maintain to avoid destruction by the excursions of their crustacean host may possibly account for the presence of this extra length of sensory surface.

Finally a fact bearing on Miss Mitchell's new classification of the Culicidæ by antennal characters. Unfortunately for her generalizations, in the subfamily Sabethinæ (*Trichoprosoponinæ*, Miss Mitchell) the genera *Joblotia* (*Trichoprosopon*), *Lesticocampa* and *Sabethes* have densely plumose antennæ in the male.

Class I, HEXAPODA.

Order V, LEPIDOPTERA.

IN DEFENSE OF INCISALIA HENRICI.

BY PROF. JOHN H. COOK,

ALBANY, N. Y.

In the Entomological News for April (1907) Dr. Henry Skinner has published an article entitled "*Studies of Thecla irus Godart and T. Henrici Grote and Robinson*" in which he contends that "these two names represent one variable species." Having made an elaborate investigation of these butterflies, and having published* conclusions to which Dr. Skinner has taken exception, I feel called upon to make definite and detailed reply to the article in question.

The concluding sentence reads: "From the evidence before me I am convinced that *Thecla irus* and *henrici* are one species." Let us first inquire into the "evidence" presented in support of this contention.

* Canadian Entomologist, Vol. XXXVII, No. 6 (June, 1905), p. 216.

THE EVIDENCE PRESENTED.

Point 1. — In ¶ 1 (l. 7) Dr. Skinner writes: "I have never been able to make out two species, one for each of the above names." The argument is reinforced by repetition in ¶ 3 (l. 1). "If there are two species of *Thecla* found here (Philadelphia) that might be designated as *irus* and *henrici*, I have failed to discover the fact."

Both of these statements are obviously true but can hardly be raised to the dignity of evidence.

Point 2. — In ¶ 1 (l. 18) we read: "It would seem logical to think that *henrici* was believed to be a new species because it differed from the figure of *irus* given by Boisduval and Leconte. I do not believe that the authors knew any *T. irus* in nature."

I would point out that a belief is not evidence and that this "logical" inference is based upon a debatable major premise. But the whole question should be dismissed as irrelevant and beside the point. Inasmuch as Grote and Robinson have left us the type specimen, I fail to see how a knowledge of the psychology back of the original description of *henrici* can be of any assistance in an attempt to determine the validity of the species based upon that type.

Point 3. — In ¶ 3 (l. 6) there is given a partial list of the opinions which have been expressed by various writers on the group, W. H. Edwards, Herman Strecker, S. H. Scudder, and myself.

I pass by the exclusion of the expressed opinions of J. B. Smith, H. G. Dyar, W. J. Holland, and others "who have probably not investigated" the two names (*henrici* and *irus*) and confine myself to the point at issue. From the list given it appears that the division of opinion resulted in placing Scudder and Strecker on one end of the beam and Mr. Edwards and me on the other. Thus was equilibrium maintained until Dr. Skinner threw the weight of his authority into the balance, thereby lifting Mr. Edwards and myself high in the air.

I would timidly venture the assertion that the relative value of two opinions is not to be gauged by the number and prominence of the men who hold them so much as by the number and importance of the facts upon which they are based. I may point out in this connection that, of the four eminent gentlemen in the pans, Mr. Edwards alone has bred either species; and that his more humble companion in the recent ascension has bred both species. The weights of opinions vary and it may be that the scales will respond to the specific gravity of the two unequal masses.