The males of *minimus*, as well as the closely related species, *minkii*, *oculatus*, and *sylvestris*, have the valve relatively small and the plates long, so that the latter project beyond the valve a distance equal to once or twice the length of the valve. *Melsheimerii*, on the other hand, is readily separated from the preceding by its proportionately large valve and very short plates. The latter do not project beyond the valve to a distance more than one third or one half the length of the valve. See the accompanying figure (C).

I must conclude then that *Deltocephalus melsheimerii* is distinct from *D. minimus*; that the references to *D. melsheimerii* in "Hemiptera of Colorado" were correct; and that *D. affinis* G&B is a synonym of *D. melsheimerii*.

Chlorotettix unicolor Fitch.— This species was described from a single female, to which Dr. Fitch gave the number 767. The type is still in a good state of preservation except that it is considerably faded in color.

Mr. Baker in his article on Chlorotettix referred to above reports upon an examination of what he supposes to be a Fitch type in the National Museum and says it is the species described by Mr. Van Duzee as *C. galbinata*. This being correct, the specimens reported in "Hemiptera of Colorado" as *C. unicolor* must be wrong. I compared the type of *unicolor* with *C. galbinata* Van D., and with the Colorado specimens of *C. unicolor* and found Mr. Van Duzee's determinations to be correct and his *galbinata* very distinct from the type of *unicolor*. The descriptions of both these species as given by Mr. Van Duzee in PSYCHE of August, 1892, pp. 308–311 are correct and will enable any one conversant with the gross anatomy of these insects to correctly separate the species without so much as a hand lens to aid him, unless his eyesight is very poor.

INSECTS AND SPIDERS OF THE GALAPAGOS ISLANDS.

BY VERNON L. KELLOGG, STANFORD UNIVERSITY, CAL.

By the financial aid of Mr. Timothy Hopkins of Menlo Park, California, Stanford University was enabled to send two zoologists with Captain Noyes of the ninety-six ton schooner Julia E. Whalen (San Francisco) to the Galapagos Islands in November, 1898. Mr. Robert Evans Snodgrass, assistant in entomology, and Mr. Edmund Heller, student in zoology, were selected to make the trip. They reached the Archipelago on December 22, 1898, and remained in it until June 23, 1899. In the time of their stay they visited every island of the group except the small island called Jervis, spending from two to sixty days on each island. Some of the larger islands were visited

several times. Extensive zoological collections were made especially of birds, reptiles, fishes, spiders and insects. These collections were placed in the hands of specialists for study, and the papers based on the material are being published in the current volume of the Proceedings of the Washington Academy of Science.

The most important invertebrate collections are those of the spiders, the biting bird-lice (Mallophaga) and of long series of the Acridid genera, Schistocerca, Sphingonotus and Halmenus. In addition the insect collections include other Orthoptera, Diptera, Hymenoptera, Lepidoptera, Coleoptera, Hemiptera, Thysanura, Isoptera and Odonata.

The Arachnida, which have been studied by Nathan Banks, include 650 specimens, "by far the largest collection ever made" in these islands, representing 48 species, of which 39 are Araneida, 6 are Arthrogastra and 3 are Acarina. The thirty-nine species of spiders represent fifteen families; twenty-five of these spiders are new species, twenty-one being already known. The collection includes all of the species except two ever taken on these islands. From his study of this collection Banks concludes that the Arachnidan fauna of the Galapagos Islands is more truly related to that of the Central American region than to that of any other portion of the earth. A very valuable part of the paper on these spiders is the extensive ecological notes made by Mr. Snodgrass during his collecting.

The long series of the interesting Galapagos species of Schistocera, Sphingonotus and Halmenus representing all of the islands of the group in which the species are to be found have been carefully studied by Mr. Snodgrass and his interesting conclusions are contained in a paper suggestively entitled "On the varieties of the Orthopterous genera Schistocerca, Sphingonotus and Halmenus on the Galapagos Islands, and a discussion of their inter-relationships, together with a consideration of the relative geological ages of the various islands of the Archipelago." The other Orthoptera comprising twenty-three species have been worked by Prof. Jerome McNeill, who finds seven new species in the collection.

The insects of other orders, except the Mallophaga, have been studied by the specialists of the U. S. Division of Entomology, under the direction of Dr. L. O. Howard. Mr. Coquillet determines twenty-eight species of Diptera representing twenty-three genera, and sixteen families! Of these five species are new; seven are peculiar to, or at least were described from the islands, and all of the remaining sixteen are species known from South or Central America, the West Indies and warmer parts of North America. In the Hemiptera Mr. Heidemann finds twenty-four species of which two are new, and five previously recorded only from the islands. In this collection are two species of the interesting ocean surface genus Halobates. In the other orders a small number of new species is described.

The collection of the Mallophaga is the first made from birds of the Galapagos Islands. Specimens of bird-lice were taken from 183 bird individuals representing thirty-four out of the seventy-nine bird species so far recorded from the Islands. Mallophaga were taken from twenty-six out of the forty-eight bird species and from all of the five bird genera peculiar to the Islands. There is a total of forty-three Mallophagous species represented in the collection, twenty-five of which I have described as new. The problem of the occurrence on the Galapagos birds of previously known species of parasites, and the extraordinary distribution of various Mallophagous species on widely dissimilar bird hosts of the islands make the study of this unique collection of Mallophaga a most interesting one. Little of value in the way of suggestions as to the affinities of the five bird genera peculiar to the islands, drawn from a study of their parasites, can be got at until a better knowledge of the Mallophaga of the birds of the west coast of South and Central America is had. Up to the present no collections of Mallophaga have been studied from the region south of Panama, but such collections are now being made in Bolivia and and Chili, and their examination should offer much of interest in connection with the present Galapagos Island collection.

All the specimens here referred to are now in the entomological collections of Stanford University.

NOTES ON CRYPTICERYA TOWNSENDI CKLL.

BY T. D. A. COCKERELL AND GEO. B. KING.

Crypticerya townsendi was described from specimens collected on the Mescalero Apache reservation, N. M. At the same time a var. *plucheae* was described, from the Mesilla Valley; I am now convinced that this is a valid species, and must be called *Crypticerya plucheae*. The next find of *C. townsendi* was on Gutierrezia at Albuquerque, N. M., by the present writer, in Sept., 1897. So far, the species had only occurred sparingly, and on a single species of plant; but on Aug. 26, 1900, my wife and I found it in great quantity on Goat Mtn., Raton, N. M., living on Compositae of five different genera. The food-plants of *C. townsendi* at Raton were submitted to Prof. E. L. Greene who determined them as follows:— *Townsendia grandiflora* Nutt., *Picradenia floribunda* (Gray), *Grindelia squarrosa* Pursh, *Gutierrezia sarothrae* (Pursh) and *Bahia chrysanthemoïdes* Gray. Specimens collected at Raton Aug. 26, gave birth to young at the end of October. Mr. G. B. King at my request, has kindly made measurements of the antennae and legs, and these, with other observations, are given by him below. [*T. D. A. Cockerell.*]

On October 27, 1900, I received a