

instead of laterally. Mr. Caudell considered it very closely related to the Forficulidæ, the males having forcipated and toothed anal appendages and there being other points possessed in common with the earwigs. It looks very much like a wingless Embiid (*Embia uhrichi* Saussure) from Trinidad.* The systematic position of this insect was further discussed by Messrs. Cook, Howard, and Hunter.

—Dr. Stiles, referring to a disease which has of late proven so fatal to horses in the Philippine Islands, said that it is known as Surra and is closely allied to the tsetse-fly disease of South Africa; it seems to be spread by flies of the genus *Tabanus*. The disease originated in India where *Tabanus tropicus* was the supposed transmitter. Unlike the malarial parasite, which goes through a double life-cycle, a sexual in the mosquito and a non-sexual in man, *Trypanosoma*, the parasite of Surra, has only a non-sexual generation so far as is known. This being the case, the disease may probably be carried by any biting or piercing insect.

Dr. Howard said, in discussing Dr. Stiles' note, that the conditions governing the spread of this disease pointed as well to some biting Muscid allied to the tsetse-fly as to one of the Tabanids, since both are dependent for successful breeding on moisture conditions. The biting Muscids breed most successfully in moist manure and the Tabanids in damp soil muck, while the Surra is well known to be most prevalent in damp localities and during damp seasons. He agreed with Dr. Stiles that the disease is probably carried by either of these types of biting flies.

—Mr. Morris read extracts from a letter from Mr. Pollard, written from Baracoa, Cuba, where the latter, in company with Dr. Edward Palmer and Mr. William Palmer, was making a collection of plants and zoological specimens.

The first paper was by Mr. Caudell and was entitled:

SOME INSECTS FROM THE SUMMIT OF PIKE'S PEAK, FOUND ON SNOW.

By A. N. CAUDELL.

No tourist visiting the Rocky Mountain region for the first time thinks of leaving without ascending Pike's Peak, that most accessible of the high mountains. During our season's collecting in

* Figured in Mittheil. d. Schweiz. entom. Gesellsch., IX, fig. 2, 1896.

Colorado last year, Dr. Dyar and I followed the general custom and made the ascent. We arrived at the summit of the peak about 4 P. M., and took a walk to see what we could find in the way of insects. A sharp wind was blowing and it was so cold that we feared but little would be found. The summit is one great mass of irregularly shaped blocks of granite. No vegetation was seen except a little grass and a few small, brightly colored flowers, which had found root in a level spot some way down the side of the mountain. Here we found a number of small beetles, *Phyllotreta pusilla* Horn, and we thought this was to constitute the whole of our catch. But fortunately such was not to be the case, for a couple of small snow fields yielded results appreciated only after our return to Washington, when, upon getting their identification completed, I find there are no less than 78 different species. Though we collected many more species lower down the mountain, and ones of more value, it is only these specimens found on snow that I wish to discuss.

There were two of the snow fields, one very small, hardly more than a couple of rods across, and one larger one, something over an acre in area. They lay a hundred yards or so below the Summit House on the south side of the mountain, and were crusted over sufficiently to bear up the weight of a man. The insects were found scattered over the surface and their bodies were partially sunken into the snow. In nearly all cases they were either dead or so benumbed with cold as to be almost motionless. But one exception occurred, that of the little Chrysomelid beetles mentioned above, which were found in great numbers clustered about the bodies of larger insects. They were perfectly active, a number taking flight when disturbed.

With few exceptions all the insects are inhabitants of the boreal region of the foot hills and not true alpine forms. They were doubtless carried to this high altitude by ascending currents of air and, once up, the foolish, inexperienced creatures were attracted to the smooth, glistening snow fields, there to perish.

Not more than half an hour was consumed in gathering the specimens, and at the time I estimated the number of species represented to be not more than twenty. Had I known there were nearly four times that number I would have made further efforts at collecting and additional species would probably have resulted.

For the identifications I am indebted to Mr. Coquillett in the Diptera, and Mr. Ashmead in the Hymenoptera, except the Formicidæ which were determined by Mr. Pergande. Mr. Schwarz named the Coleoptera and Mr. Herbert Barber furnished me with their distribution. Mr. Banks named the single species of Neuroptera, and the Orthoptera I identified myself. The lists of Lepidoptera and Hymenoptera, containing original matter, are signed by their respective authors.

All the larger orders are represented, the Hemiptera leading in point of numbers with 23 species.

DIPTERA.

Of the Diptera there are fifteen species, the family Syrphidæ being the best represented, there being four species. None of the Diptera are alpine. They are as follows :

Gnophomyia tristissima Osten-Sacken.

One specimen. Ranges from New York to Georgia and westward to Colorado.

Anthrax catulina Coquillett.

Four specimens. Occurs in Washington and northern California.

Erax jubatus Williston.

A single specimen. This species was described from New Mexico.

Microdon xanthopilus Townsend.

One specimen. Described from California.

Syrphus arcuatus Fallen.

One specimen. Occurs from Nova Scotia to New England, westward to Alaska and California ; also in Europe.

Sphærophoria sulphuripes Thomson.

One specimen. Described from California.

Chrysochlamys cræsus Osten-Sacken.

A single specimen. Reported from Utah and New Mexico, westward to Washington and California.

Exorista vulgaris Fallen.

One specimen. Occurs in New Hampshire, Idaho, and Washington ; also in Europe.

Calliphora erythrocephala Meigen.

“ *viridescens* Desvoidy.

One example of each. Both species occur over nearly the whole of the United States, and the first also occurs in Europe.

There also occurred on the snow the following Diptera, all in too poor condition to admit of more than a generic determination.

Tabanus sp.

Phaonia sp.

Limnophora sp.

Sarcophaga sp.

Anthomyia sp.

All these species were represented by single specimens except the last, of which there occurred eight examples.

HYMENOPTERA.

Agapostemon splendidus Lepeletier.

One female specimen.

Halictus sp.

One specimen.

Copidosoma sp.

One specimen.

Amblyteles suturalis Say.

Three female specimens.

Cryptus persimilis Cresson.

One female specimen.

Anomalon sp.

One female specimen.

Tryphonid sp.

One specimen.

Banchus abdominalis Cresson.

Two specimens.

Cremnops (Agathis) vulgaris Cresson.

Nine specimens.

The collection contains eleven specimens of Formicidæ, constituting two species (one *Camponotus* and one *Formica*.) Both males and females occur, but no workers; therefore the species could not be determined.

LEPIDOPTERA.

By HARRISON G. DYAR.

Ctinucha venosa Walker.

One example. The species flies in Mexico, Texas and Colorado, and has been taken in the canyons of the Rocky Mountains. It is not uncommon, yet was not taken by us on this trip, except this example on the snow.

Gnophæla latipennis Boisduval.

One example. The species was flying at the Half-Way House and had been abundant there a week previously. It was seen also in several of the canyons.

Carneades perexcellens Grote.

One example in poor condition, rendering the identification uncertain. The moth is a common Noctuid of the foot-hills.

Clisiocampa fragilis Stretch.

Fifty examples. The species was occurring in countless numbers above the Half-Way House, where acres of aspen trees had been defoliated by the larvæ. The moths were flying in swarms all day about the leafless trees, which were loaded with their cocoons like fruit.

Cacæcia semifera Walker.

Three specimens. These were the true *semifera*, the oak-feeding species, doubtless from the oaks in the canyons near Manitou. The box-elder species, which has been confused with this, has the same markings, but is much paler, often nearly uniformly creamy white with marks obsolete. It may be called *C. negundana*. There are likewise two forms under the name *C. argyrosbila* Walk. The bright reddish or ochraceous one may be called *C. vividana*. I will refer to these more fully in treating of the larvæ collected in Colorado.

There also occurred three specimens of a Pyralid, all in such poor condition as to preclude the possibility of even a generic determination.

The species normally living above timber line and which were flying in fair numbers at the time, such as *Colias meadii*, *Argynnis helena*, *Chionobas semidea*, two species of *Anarta* and several Tortricids and Tineids, were not taken on the snow.

COLEOPTERA.

The Coleoptera come next to the Hemiptera in point of numbers, there being twenty species.

Amara (Lirus) brunneipennis Dejean.

Six adults and one larva. This is a true Alpine species. It is found in Labrador and has been taken in Colorado, on Mt. Lincoln, at an altitude of from 11,000 to 13,000 feet. It also occurs in New Hampshire.

Selenophorus pedicularis Dejean.

One specimen. Widely distributed east of the Rocky Mountains.

Silpha inæqualis Fabricius.

A single specimen. The National Museum contains specimens from various localities from Texas eastward.

Hippodamia convergens Guérin.

Half a dozen specimens. Distributed all over the United States.

Harmonia picta Randall.

One specimen. Occurs all over the United States.

Nitidula ziczac Say.

One specimen. The whole of the United States.

Podabrus lateralis LeConte.

Two specimens. Occurs in Colorado, Arizona and Utah.

Collops bipunctatus Say.

One specimen. There are specimens in the collection of the National Museum from Colorado, Kansas, New Mexico, Arizona and Idaho.

Tetropium cinnamopterum Kirby.

One specimen. Northern and Western States, Indiana, Alaska.

Acmæops atra LeConte.

A single specimen of this seemingly rare species was in the collection. The specimens in the National collection are from Washington and Montana.

Monohammus scutellatus Say.

Widely distributed over the United States.

Acanthocinus obliquus LeConte.

Three specimens. Western States.

Pogonocherus mixtus Haldeman.

United States east of the Rocky Mountains, Idaho.

Orsodachna atra Ahrens.

Two specimens. British Columbia and the whole of the United States.

Diabrotica tricineta Say.

A single specimen. Arizona, Colorado, New Mexico.

Trirhabda canadensis Kirby.

Three specimens. British Columbia and the whole of the United States.

Phyllotreta pusilla Horn.

Numerous examples. Very common in the southwestern States.

Epicauta sericans LeConte.

Occurs all over the United States.

Cantharis nuttalli Say.

One specimen. The specimens in the National collection are from Montana, Minnesota, Colorado, Wyoming, and Idaho.

Cleonus quadrilineatus Chevrolat.

One specimen. United States west of the Mississippi.

ORTHOPTERA.

There were but two species of Orthoptera taken. *Melanoplus atlanis* and *Mestobregma kiowa*. The highest altitude at which *M. atlanis* is recorded as having been taken is 9,500 feet in Utah, where Prof. Scudder took it over twenty-five years ago. It occurs above timber in the mountains of New Hampshire (6000 feet). *M. spretus* is the species that has been reported as common in high altitudes in Colorado, and has been taken by Prof. Scudder on Pike's Peak. But I saw no specimens of this species anywhere in Colorado, and Prof. Gillette, the Entomologist of the Colorado Experiment Station, says that it has not been taken in the State for over seventeen years. Mr. W. D. Hunter tells me, however, that he took a few specimens in 1897 at Julesburg.

Mestobregma kiowa abounds throughout Colorado, and Prof. Scudder took it at Manitou, but it has never before been recorded from high altitudes. I took one adult female and two young nymphs, which, I think, belong to this species.

HEMIPTERA.

By O. HEIDEMANN.

In this small but interesting collection are represented five families, *i. e.*, Pentatomidæ, six species; Coreidæ, four species; Lygæidæ, eight species; one species of Capsidæ and one of Aradidæ, besides two species of Homoptera.

Podisus cynicus Say.

Twelve adults and one larva; males and females. Six of these specimens evidently belong to another species, probably *P. bracteatus* Fitch. This species is considered by some American authors as synonymous with *P. cynicus* Say. But the writer has lately had occasion to examine Fitch's type specimen, a female (U. S. Nat. Mus.), and to compare the same with specimens of *P. cynicus*, and there seems to him no doubt that *P. bracteatus* will have to stand as a separate species. The female genitalia are decidedly distinct in these two forms; there are also differences in the shape of the body, which in *P. bracteatus* is comparatively broader and shorter. However, more material from other localities will have to be examined, and especially the male characters, before a definite conclusion can be reached.

Murgantia histrionica Hahn.

One example, showing the general pattern and colors. This bug originally came from the subtropical region, but has invaded the Southern and nearly all the middle States of North America. In some localities it is propagating in great numbers on the leaves of cabbage plants.

Peribalus limbolarius Stal.

One specimen; common; found in the northwestern and Atlantic States.

Pentatoma (Lioderma) sayi Stal.

Five specimens; three males and two females. It occurs in the western United States and is quite abundant in some localities.

Pentatoma (Lioderma) uhleri Stal.

A single specimen. This seems to be a strictly western form. From the other species it can be easily differentiated by the more rounded body, and by the white or yellowish-white margins of the thorax and base of elytra. It is recorded also from Mexico.

Thyanta custator Fabricius var.

Seven specimens; three males and four females of the pale green variety, without the usual red band across the thorax, or

red markings on the sides. This species is very variable and is common throughout the United States and in Canada.

Thyanta rugulosa Say.

Five specimens, all females. A western species; the specimens vary sometimes in the length of the third and second antennal joints.

Alydus conspersus Montandon.

One specimen, a female. Inhabits the western and northern States, and can be distinguished from other species of the genus by the round, dark spots scattered over the thorax, elytra and membrane.

Alydus pluto Uhler.

One specimen, a female; often confounded with the black forms of *Alydus eurinus* Say, but it is deep black throughout, more robust and very hairy. A more northwestern species, also found in Canada.

Stachyocnemus apicalis Dallas.

One specimen. This species, although considered rare, has a wide geographical distribution. It was originally described from Florida, has also been found in the northwestern States, and has lately been taken by the writer in the District of Columbia.

Dorachosa illuminatus Distant.

One example of the variety *D. umbrosus* Dist., with the legs entirely black. This species has often been confused with a European species, *Microtoma carbonaria* Rossi, but *Dorachosa* is smaller and the thorax differently shaped. It was originally described from Mexico. The species is widely distributed. It occurs also in the eastern States, and has been taken in the District of Columbia underneath stones.

Harmostes reflexulus Stal.

One specimen, a male, of the pale variety that occurs mostly in the western States.

Emblethis arenarius Linnæus.

Three specimens. A European species, probably introduced; found all over the United States and in Canada.

Trapezonotus (Sphragisticus) nebulosus Fieber.

Three specimens. It is also a European species, quite common and widely distributed.

Nysius californicus Stal.

One example. Not uncommon. It has also been occasionally found in the eastern States.

Nysius angustatus Uhler.

Numerous specimens. This is a very common bug, and has been found in nearly all the States and in Canada.

Ischnorhynchus didymus Zetterstedt.

Three specimens. A common European insect; it has become quite common here also, and is found all over the United States and in Canada.

Lygæus turcicus Fabricius.

A fine set of specimens of the variety *L. reclinatus* Say, that shows the white markings on the membrane very distinctly. The species is very abundant.

Melanocoryphus fascetus Say.

Four specimens. The species is described by Say from Florida. It is subject to great variation in the red markings on the thorax and abdomen. The bug inhabits the southern States and the West, and seems to be very common in some localities. Specimens of this species have previously been found on the snow fields of Pike's Peak.

Lygus sp.

One example of a *Lygus*. It is too much distorted for specific determination.

Aradus sp.

A single specimen, a male. Probably a new species, but having only one specimen, and not knowing the other sex, it is not advisable to describe it.

Idiocerus lachrymalis Fitch.

Thamnotettix sp.

NEUROPTERA.

Limnephilus concolor Banks.

Three specimens, the only species of Neuroptera represented in the collection. The species has never before been reported from Colorado, though it probably occurs quite widely distributed through the northwestern States. It was described from the State of Washington. These specimens taken on snow were in very poor condition and very much resembled the rubbed specimens of unidentified Pyralids mentioned under the head of Lepidoptera.

In discussing the paper, Dr. Dyar referred to the extreme abundance of *Clisiocampa fragilis* on Pike's Peak almost up to the timber line. Mr. Cook remarked that the Myriapoda were especially good material for the study of geographical distribution, as their manner of life restricted their range very effectively. With the exception of a few large centipedes, one almost cosmopolitan species being mentioned in particular, hardly any myria-