7. Leaf-like appendages before the mouth as broad as long, serrate on the end (fig. 2, $d$ ) . . . . . . . . . . . . . . . . \{Sayomyia americana ${ }^{1}$
\Sayomyia hudsoni
These appendages narrow, much longer than wide.
8
8. These appendages serrate (fig. $2, e$ ) ........ $\begin{aligned} & \text { Sayomyia trivittata }{ }^{2} \\ & \text { Sayomyia albipes }\end{aligned}$

These appendages smooth, at least outwardly, long pointed (fig. 2, f)
!Sayomyia sp."
(Sayomyia rotundifolia
-Mr. Currie presented the following paper:

## DRAGONFLIES FROM THE KOOTENAY DISTRICT OF BRITISH COLUMBIA.

By Rolla P. Currie.

About a year ago the writer gave the Society a general account of the Kootenay District of British Columbia and of the three months spent there by Dr. Dyar, Mr. Caudell and himself in the study and collection of insects. The dragonflies constitute a group in which he is especially interested, but the effort to collect a good series of insects in all Orders prevented his devoting as much attention to the Odonata as he might have wished. Nevertheless, the collection of Kootenay dragonflies

[^0]comprises I32 specimens, representing 16 species. In addition there are five specimens from Vancouver Island collected by Dr. Dyar, representing four species not included in those from the Kootenay country, namely, Lestes congener, Eschna constricta, Sympetrum costiferum and S. vicinum.

While at Banff, Alberta, the writer took an undetermined $\circ$ of Eschna; and Mr. N. B. Sanson, Curator of the Park Museum at Banff, subsequently sent him for determination three specimens of Sympetrum scoticum, a species which in all probability occurs in portions of British Columbia.

The most abundant species in the Kootenay District appear to be Lestes forcipatus, Enallagma cyathigerum, Cordulia shurtleffi, Leucorhinia proxima, Sympetrum corruptum and Libellula quadrimaculata.

The writer is indebted to Dr. Philip P. Calvert for kind assistance in naming some of the species of Sympetrum and for verifying the determinations of Leucorhinia.
[Lestes congener Hagen.
We did not find this species in the Kootenay District, but Dr. Dyar collected a single $\sigma^{7}$ at Wellington, on Vancouver Island, September 2.]
Lestes uncatus Kirby.
Kaslo, August 5 (I ơ, I 우), August 7 (I 아).
Lestes forcipatus Rambur.
Kaslo, July 9 ( $30^{\top} 0^{7}$, 6 우 우)-all somewhat teneral; Mirror Lake, Kaslo, August 6 ( I ㅇ).

One of the $0^{7} \sigma^{7}$ is remarkable for its extremely short abdo-men-measuring only 20.5 mm ., the same length as the hind wing.
Enallagma yathigerum Charpentier.
"Lilypad Lake," Kaslo, June 7 (Dyar: 2 o $^{7} 0^{7}$, teneral) ; June Io ( $5 \sigma^{0^{\top} 0^{7}, 2} 2$ of them teneral), June $26\left(2 \sigma^{7} \sigma^{7}\right)$, July $2\left(3 d^{\top} \sigma^{7}, 2\right.$ of them teneral), July 9 ( $5 \mathrm{O}^{7} \mathrm{o}^{7}$ ); Mirror Lake, Kaslo, August 6
 Bear Lake, July 20 ( 5 o $^{7} 0^{7}$ ).
Enallagma sp.
"Lilypad Lake," Kaslo, May 29 (Dyar: i of); Mirror Lake, Kaslo, July 7 (1 ㅇ) , August 6 (2 ㅇ ㅇ) ; Loon Lake, Ainsworth, July in ( I 우).

These specimens belong either to cyathigerum or calverti, but as no character for separating the $\circ \phi$ of these two species has yet been discovered they cannot now be determined specifically.

Enallagma calverti Morse.
Mirror Lake, Kaslo, August 6 (3 $0^{7} \sigma^{7}$ ) ; Loon Lake, Aiṇsworth, July I (I $0^{7}$, I pair in coitu).
Enallagma carunculatum Morse.
Mirror Lake, Kaslo, July 17 (I 9 ), August 6 ( $60^{7} 0^{7}$, I pair in coitu, I ㅇ).
Ischnura cervula Selys.
Mirror Lake, Kaslo, July 17 (I $\mathrm{o}^{7}$ ), August 6 (I $\mathrm{o}^{\top}$ ).
Æschna juncea (Linnæus).
Kaslo, August 7 (I ơ).
Æschna multicolor Hagen.
Loon Lake, Ainsworth, July iI ( $20^{7} \sigma^{7}$ ).

## [Æschna constricta Say.

Not taken in the Kootenay District, but Dr. Dyar collected two $0^{7}$ specimens on Vancouver Island-one at Shawnigan Lake, August 3I, and the other at Wellington, September 2.]

## Æschna spp.

"Lilypad Lake," Kaslo, July 8 (I ㅇ) ; Bear Lake, July 2 I (I ㅇ) ; South Fork Creek, August II (I 우):

Also a $+\frac{f}{}$ from Banff, Alberta, collected on August 16.
Somatochlora semicircularis (Selys).
Loon Lake, Ainsworth, July in (i $\mathrm{o}^{7}$ ); Bear Lake, July 20 ( I 우).

The triangle is crossed in the left hind wing of the $\sigma^{7}$ and in both hind wings of the $q$. The triangles are crossed in the fore wings of both specimens, but there is in the U. S. National Museum a specimen collected by the writer on the Snake River, Yellowstone National Park, August 14, 1896, in which the triangles of both fore wings are free, although the cross-vein is indicated at either end in the right wing.
Cordulia shurtleffi Scudder.
"Lilypad Lake," Kaslo, May 29 (Dyar: i ${ }^{7}$ ), June 7 (Dyar:

Five of these specimens show irregularities in venation, as follows: The single of has a second cubito-anal cross-vein in the right hind wing; while of the other specimens- $0^{7} \sigma^{7}$, all from Loon Lake-one has a second cubito-anal cross-vein in the right hind wing; one has this vein, interrupted in the middle, in the left hind wing; one has this vein in both hind wings; while the fourth specimen has no cubito-anal cross-vein in either hind
wing, although the first cross vein is indicated at the upper and lower extremities of the median space.

Leucorhinia hudsonica (Selys).
"Lilypad Lake," Kaslo, June 7 (Dyar: i \& ) ; Fletcher's Ranch, Kaslo, 2,800 feet alt., June i ( ( $\mathrm{J}^{7}$ ); Ainsworth, June 8 (Dyar: I $0^{7}$, I of).

The triangle of fore wings is crossed in all four of our specimens. The postcubitals vary from 7 to 1 . The internal triangle, in the $\delta^{7}$ collected on June ir, is 3 -celled in right fore wing, partially crossed by a single vein in the left fore wing; in the $\sigma^{7}$ from Ainsworth the internal triangles are 2 -celled in both fore wings; in the $\circ$ collected on June 7 the internal triangle in right fore wing is 3 -celled, in left fore wing open, the triangle of left hind wing is crossed and there is one supratriangular on the right hind wing; in the $\%$ from Ainsworth the internal triangle is 2 -celled in left fore wing, free in right fore wing.
Leucorhinia proxima Calvert.
"Lilypad Lake," Kaslo, June I (Dyar: i teneral o'), June ıо ( $\mathrm{I} \mathrm{o}^{7}$ ); Kaslo, June 12, found dead on hotel window ( $\mathrm{I} \mathrm{o}^{7}$ ), June 26 (I $0^{7}$ ), July 2 (I $\circ$ ), July 9 (I $\begin{aligned} & \text { r }\end{aligned}$ ).

The specimen collected on June i has the wings subfumose.
Sympetrum corruptum (Hagen).
Kaslo, June 7 (Dyar: i o ) , June 13 ( I 甲 ) , June 18 ( $3 \sigma^{7} 0^{7}$ ),
 28 (I $\mathrm{o}^{7}$ ), June 29 ( $3 \mathrm{o}^{\text {r }} \mathrm{o}^{7}$ ), July 2 ( 4 우 ) ; Fletcher's Ranch, Kaslo, 2,800 feet, June if (I d ${ }^{7}$ ); Loon Lake, Ainsworth, July II (ll ${ }^{\circ}$ ).

## Sympetrum madidum (Hagen).

Kaslo, August 5 (I \& P).
The single specimen seems to be referable to this species rather than to any other of the described North American species of Sympetrum.
Sympetrum obtrusum (Hagen).
Kaslo, August 7 (2 우 우).
The writer had determined these specimens, from the description, as Hagen's decisum; but Dr. Calvert has since informed him that some years ago, from a study of Hagen's types of that species, he reached the conclusion that decisum is a synonym of obtrusum.
[Sympetrum vicinum (Hagen).
Wellington, September 2 (Dyar: I $\mathrm{J}^{7}$ ).]

Sympetrum semicinctum (Say).
Kaslo, August 6 (I ㅇ ), August 7 (I or $^{7}$ ).
[Sympetrum costiferum (Uhler).
Wellington, September 2 (Dyar: I 아).]
[Sympetrum scoticum (Donovan).
Banff, Alberta (N. B. Sanson: i teneral $0^{77}$, I adult $0^{7}$, I 8 ).]
Libellula quadrimaculata Linnæus.
Kaslo, May 29 (Dyar: iof), June 9 (I $\mathrm{o}^{7}$ ), June II, Mirror Lake, I, 670 feet, and Fletcher's Ranch, 2,800 feet ( $210^{7} 0^{7}, 5$ 우 우, 2 pairs in coitu), June 14 ( $20^{\top} 0^{7}$ ), June 16 (Iq), June 18 (I $0^{7}$, I \& ), July 2 ( $\mathrm{I} \mathrm{o}^{\mathrm{J}}$ ).
-The concluding paper was by Mr. Banks, and entitled:

## ARACHNIDS FROM COCOS ISLAND.

## By Nathan Banks.

Cocos Island, situated in the Pacific Ocean some distance off the west coast of Mexico, has been rarely visited by naturalists. The only spider previously recorded from the island is Argyrepeira nigriventris Keys., which was taken by the HopkinsStanford Galapagos Expedition. A few years ago Dr. Paul Biolley of San José, Costa Rica, visited the island, and several papers have been published on the results of his trip. The Arachnida were sent to me for examination, and although few containgo or two interesting things. The most important is a Phalangid representing a new genus. There were eight species in the collection, six spiders, and two Phalangids. The types are in the collection of the writer.

## ARANEIDA.

Gasteracantha hexacantha Fabricius.
Several specimens of the usual type. This is a widely distributed species in the tropics.
Gasteracantha biolleyi, new species.
Cephalothorax black; legs and sternum black; abdomen yellow, with black spines and marks; a band connecting the larger lateral spines, an oblong spot near base of anterior spines, and a crescent each side in front; from the black band there is a mark extending to the posterior spines; all the sigillæ are on these black marks. The venter is black, with many small yellowish spots. In shape it is much like G. cancriformis,


[^0]:    ${ }^{1}$ Mr. Johannsen separates the American form of plumicornis under a new name because the four spines of the antennæ are equal in length. But Mr. Knab has called my attention to Weismann's article (Zeits. für wissensch. Zool., xvi, 1866) where the spines are shown of equal length in the European form. But Dr. Felt repeats the statement of the difference (N. Y. State Mus., Bull. 79, 370, 1904) and figures the leaf-like appendages of the two forms, which appear slightly different. I therefore provisionally use Mr. Johannsen's name. S. hudsoni Felt does not seem to differ in any tangible manner.
    ${ }^{2} \mathrm{Mr}$. Johannsen cites my figure of this species as indicating but two hairs on the anal segment. The figure is drawn as if of one side only; there are in fact four hairs, two on each side. To judge by Dr. Felt's figures, $S$. albipes Joh. differs in the smaller development of the serrations on the edges of the appendages.
    ${ }^{3}$ This may be the larva of $S$. punctipennis Say or S. rotundifolia Felt. The specimen was collected by Mr. F. Knab at Springfield, Mass. Dr. Felt says of rotundifolia that the leaf-like appendages have several rather large irregular teeth at the base of the long pointed process. In the form before me there is scarcely a trace of an irregularity anywhere, and it is, therefore, probably a distinct species. It may be called Sayomyia knabi, new species.

