colony, or sleeping place, was tenanted by some eight or ten different species. Although he noticed a few ♀♀, most of the specimens observed were ♂♂. Small bees were found in closed blossoms of the lace flower, or wild carrot (*Daucus carota*), while bumble bees rested under the edges of certain flowers. Wasps belonging to the genus *Ammophila* held on to grass stems by their mandibles, the body extended straight and wings closely folded. Some other species use their mandibles in the same way, but *Ammophila* is the only insect which, in some cases, uses its mandibles exclusively for this purpose, the legs not touching the stem.

—Mr. Banks referred to his recent visit to the Museum of Comparative Zoology at Cambridge, Mass., where he made an examination of Hagen's collection of Neuropteroid insects and Emerton's collection of spiders. Some of Keyserling's types of spiders, also, are deposited in the Museum. He stated that Hagen's collection has not been rearranged but is kept intact just as Hagen left it. This Mr. Banks considered most commendable and a policy which should be more generally followed.

—Mr. Caudell mentioned instances which have come under his observation of the mating of different species of *Melanoplus*, *Schistocerca*, and other Orthoptera. The Morse collection of Acrididæ, he stated, contains a fine series of intergrades. The subject of hybridization was discussed by Messrs. Piper and Gill, the latter stating that so-called new genera in fishes have been based upon hybrids between different genera.

—Dr. Dyar read the following paper:

OUR PRESENT KNOWLEDGE OF NORTH AMERICAN CORETHRID LARVÆ.

By Harrison G. Dyar.

Having discussed, in conversation with Mr. Coquillett, the relationships of the Diptera allied to the Culicidæ, it seemed to us a more natural arrangement to separate the true mosquitoes into a distinct family on the character of the presence of the proboscis, and remove the non-biting forms, the old Corethrinæ, placing them with the Dixidæ as a second family, under the name Corethridæ. In the larvæ of this group the mouth brushes are somewhat developed, and in other characters they approach the true mosquitoes.

Dixa is the most generalized form and is a surface feeder, taking small vegetable particles by the rapid motion of its mouth parts. The air tube is well developed, but sessile, and there are false abdominal feet to assist the larva in ascending the water film at the margin, as is its habit. From *Dixa* can be derived not only all the other Corethridæ, but the Culicidæ as well. *Anopheles*, for example, is very close to *Dixa* in many characters.

Except *Dixa*, all the Corethridæ are predaceous, feeding largely on the larvæ of the true mosquitoes. Next to *Dixa* comes *Eucorethra*, with its air tube still sessile, but the mouth parts modified for its predaceous habits. It is still nearly a surface feeder, lying flatly in the water. *Corethrella* is a further specialization of this type, the air tube having become elongated, allowing the larva to sink lower in the water, while the peculiar rapacious antennæ are remarkably adapted.

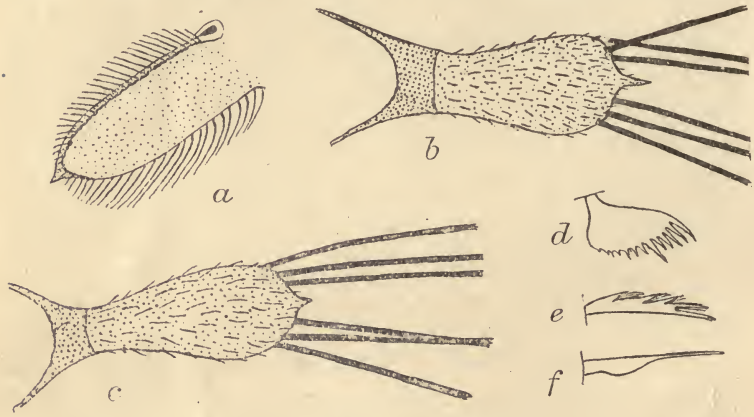

FIG. 2.—Structural details of North American Corethrid larvæ: *a*, ciliated plate of air tube in *Dixa recens*; *b*, anal segment of *Dixa recens*; *c*, the same of *D. centralis*; *d*, leaf-like appendage of *Sayomyia americana*; *e*, the same of *S. trivittata*; *f*, the same of *S. knabi*

Corethra shows a development in a different direction. The air tube is elongated, but apparently could not be adapted to the requirements of the larva, as it became necessary for it to sink deeper and deeper in the water, so it has begun to be disused. The horizontal position is still maintained by the formation of air bladders, one pair in the thorax, a second near the end of the abdomen. These are enlargements of the tracheal tubes and are joined by them to the air tube. It would seem that this fortunate arrangement supplied the larva with air-reservoirs, so that it is able to stay long below the surface and frequent the depths where it finds its subsistence.

Sayomyia has accomplished a still further specialization along these lines. It has dispensed with the air tube entirely and the trunks of the tracheal tubes as well, while it floats like a transparent ghost deep in the pool, carrying its four sacs of air which are now never connected with the air above. We suppose that the air in these sacs is replenished by diffusion through the body walls from the air dissolved in the water; but the character appears to us as a very remarkable one which would not have been antecedently thought possible.

The Corethridæ, as here limited, include 23 species described from North America. Of these we know the larvæ of 15 more or less completely. There are no unknown genera, and it is probable that the unknown species of *Dixa* and *Sayomyia* are similar to the known ones. Indeed some of the species of *Dixa* may be synonymous; but on the other hand, there are probably a number of forms to be discovered. The subject has been very little worked.

The following synoptic table will separate the known larvæ:

1. Air tube present 2
   Air tube absent, larvæ aquatic 7
2. Air tube sessile, larvæ at surface of water 3
   Air tube elongate, larvæ below surface of water 6
3. Abdomen with false feet; antennæ not longer than other mouth parts 4
   Abdomen without false feet; antennæ long and directed forward *Eucorethra underwoodi*
4. Ciliated plates of the air tube without a projecting triangular hairless apex ..... *Dixa clavula*[1]
   These plates with such an apex (fig. 2, *a*) 5
5. Anal segment finely haired, the hairs shorter than the stout terminal cone (fig. 2, *b*) ..... *Dixa recens*
   Anal segment coarsely haired, the hairs longer than the small terminal cone (fig. 2, *c*) ..... *Dixa centralis*
6. Antennæ moving in a horizontal plane; larvæ flattened dorso-ventrally ..... *Corethrella brakeleyi*
   Antennæ moving in a vertical plane; larvæ subcylindrical, *Corethra cinctipes*[2], *Corethra lintneri*, *Corethra velutina*, *Corethra karnerensis*

[1] = *modesta* Joh. According to Mr. Johannsen's figure (Bull. 68, N. Y. State Mus., pl. 48, figs. 5 and 7, 1903). I have not myself seen the larva. The projecting apex belongs to the outer sheath of the plate and it may not be shown in Johannsen's figure.

[2] I am unable to distinguish *Corethra cinctipes* Coq. and *C. velutina* Ruthe. The latter may not be the European form, but *C. karnerensis* Felt or *C. lintneri* Felt, which I am likewise unable to distinguish.

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*) ..... { *Sayomyia trivittata*[2] / *Sayomyia albipes*

These appendages smooth, at least outwardly, long pointed (fig. 2, *f*) { *Sayomyia sp.*[3] / *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

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[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] 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.