

**Article XXVI.—OBSERVATIONS ON SOME NORTH AMERICAN
MEMBRACIDÆ IN THEIR LAST NYMPHAL STAGES.**

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PLATE XXVII-XXXII.

The material described in the present paper was collected at Newark, Montclair, and Elizabeth, N. J., in the year 1910, with the exception of the insects of Figs. 1, 11, and 17, as otherwise noted. I succeeded in rearing all of the forms.

Ceresa Am. et Serv. albescens Van D.

Plate XXVII, Fig. 1.

Size about 7 mm., of a whitish-yellow color and fuzzy appearance. I did not find any in 1910; the figure represents an insect collected on July 13 of last year. It seems to be a rather scarce insect for it is not mentioned in the report of the insects of New Jersey, 1909.

Ceresa bubalus Fabr.

Plate XXVII, Fig. 2.

Size about 8 mm., of a more or less dull greenish-brown. While collecting near Elizabeth last year I found the first nymph of this species in a thicket of *Viburnum*, *Sambucus*, and *Solidago*, so that I was unable to make out with which plant it was associated. On July 21 I found another and on the following day two more insects. The latter died on July 25, but the former was kept alive until August 19, when it died like the others without coming to maturity. The fact that the insect remaining alive selected *Sambucus* as a food plant, and its rather dark brown coloring led me to believe that it was the nymph of *Ceresa diceros* which is usually found in the adult stage on *Sambucus*; but while collecting near Newark on July 31, I found one nymph near an adult insect of *Ceresa diceros* on *Robinia*. Hence I was convinced it was the nymph of the species mentioned and was quite surprised when it matured, on August 11, without showing the dark brown color for which I vainly waited; it proved to be a female of *Ceresa bubalus*.

***Ceresa taurina* Fitch.**

Plate XXVIII, Fig. 3.

Size $7\frac{1}{2}$ mm., sometimes of a very bright green color. On July 1 of this season while collecting near Newark, I found two nymphs of a large size on *Sambucus* fully surrounded by very high plants of *Solidago*; and on July 5, three more were found near Elizabeth. The former became mature females on July 6, while of the latter only one adult male appeared on July 7.

***Ceresa palmeri* Van D.**

Plate XXVIII, Fig. 4.

Size $6\frac{1}{2}$ mm., of a light green color. The first nymphs were found on *Liquidambar* near Elizabeth on June 4 and 5. Additional specimens were collected on the 12th of the same month, the first of which matured on July 5. I found this species very abundant but less so than in the previous year. In its earlier nymphal stages it displays peculiar thorn-like prominences which are characteristic of this genus. This insect also has been found probably for the first time in the State, because in spite of its abundance it has not yet received mention in the report of insects of New Jersey.

***Acutalis Fairm. semicrema* Say.**

Plate XXXVIII, Fig. 5.

Size $5\frac{1}{2}$ mm. of a light yellowish-green; on July 5 a single nymph which became a mature female on July 8 was found under similar circumstances as the previous year namely, on *Solidago* occurring under *Sambucus*. In breeding this species I have obtained so far only females, but I am quite certain that the *Acutalis tartarea* of Say is the male of this form; and I am inclined to believe that the male described by Van Duzee is probably the variation of the same. This, however, needs to be confirmed by further observation. In the New Jersey list only the male was mentioned and the female is stated as "not yet actually taken."

***Carynota Fitch mera* Say.**

Plate XXVII, Fig. 6.

Size $7\frac{1}{2}$ mm., of a light or dark brown color marbelled with gray. The specimens were found near Newark on *Juglans*. A single specimen taken on May 22, I could not rear; later this species was found in large numbers,

but owing to the difficulty in rearing, I selected in collecting on June 18, 19 and 26, only larger specimens of which three matured on July 2; one of these was a male and the other two were females.

***Thelia* Am. et Serv. *bimaculata* Fabr.**

Plate XXIX, Fig. 7.

Size $8\frac{1}{2}$ mm., varying in color between light and dark brown marbelled with yellow or gray. I vainly tried two years ago to bring some of these insects to maturity. This season I found them in great numbers near Newark on *Robinia pseudacacia* and in both adult and nymphal stages; several of the latter were taken for experimentation and on July 4, three adult females developed. It was on this occasion for the first time that I found ants among them in abundance. Whereupon I am inclined to believe that the ants care for them only when they occur in large numbers.

***Telamona* Fitch (species not determined).**

Plate XXIX, Fig. 8.

Size $8\frac{1}{2}$ mm., found together with adult insects on *Liquidambar* near Elizabeth. Last year I vainly tried to bring this form to maturity; in one specimen the skin of the nymph split, but the insect died without developing further. On August 14 of this season while collecting at the same spot I finally obtained one female still fresh and soft after emergence together with the recently shed skin of the nymph; hence all doubts concerning the relationship were removed.

***Telamona barbata* Van D.**

Plate XXIX, Fig. 9.

Size 7 mm., of a dark grayish brown color. The only nymph of this small and rather hairy species I found on *Quercus* near Newark on July 1; it became a mature male on the 5th of the same month. This insect also seems to be scarce, as it is not mentioned in the report on the insects of New Jersey.

***Telamona unicolor* Fitch.**

Plate XXX, Fig. 10.

Size $7\frac{1}{2}$ mm., of the same color and appearance as *Carynota mera* (Plate XXVII, Fig. 6). From a collection of *Carynota* nymphs taken on *Juglans* and believed to be all of the same species I was greatly surprised to obtain

on June 15, a nymph collected ten days earlier which became a male *Telamona* of a species unknown to me. On the 19th I obtained another male and on the 21st two additional males and one female; the latter is an entirely different color from that of the male, being a clear green especially immediately after maturity. Later the individuals of this sex become yellowish-green while the males have a prothorax of a purplish green-yellow with dark brown markings.

Cyrtolobus *Godg.* (species not yet determined).

Plate XXX, Fig. 11.

Size $4\frac{1}{2}$ mm., of a greenish-brown color. The specimen was found on *Quercus*, the first insect taken on a collecting trip in New Jersey on May 30, 1908; in addition one adult insect was taken but was later lost. On June 6 of the same year in the Bronx, New York, I found on the same plant two more nymphs which were quite similar to the above mentioned specimens as regards structure and color but were somewhat smaller in size; one developed the next morning, but the other from which the figure was made died. In 1910 I obtained nymphs of this genus as early as May 15 while collecting with Prof. A. Petrunkevitch at Montclair, N. J., where we found three different species on *Quercus*. One of these was rather small, green in color, and densely haired; this specimen escaped. The second which died was a very brilliant green and red and possessed a very long anal tube. The third which was the largest of the three, developed into an adult female on May 26; its abdominal prominences were more strongly developed than in the case of the nymph next described and differed also as an adult, but in my opinion it is probably a variant and not a distinct species.

Cyrtolobus sp.

Plate XXX, Fig. 12.

Size $5\frac{1}{2}$ mm., of a green and red-brown color. On June 4 or 5 I found a nymph of this form in addition to three adult insects, all males, on the same oak tree at Elizabeth, from which during the previous year only females were taken. It was the only nymph that could be discovered and was doubtless of the same species as the adults. Similar insects had been found on *Quercus* at Newark, which varied only slightly in so far as prominences were somewhat thinner. The adults had the same colors and pattern with the dark marking on apex of prothorax a little larger. The first insects were found on May 22 and although most of them died, the members of a series collected on May 29 and 30, with very few exceptions, matured on May 30

to 31, giving both sexes. The figure represents the specimen collected at Elizabeth which is between the nymph from Montclair and the nymph from Newark.

Cyrtolobus sp.

Plate XXXI, Fig. 13.

The figure represents a specimen of another species of *Cyrtolobus* which is larger than the foregoing to the extent of 6 mm. This I collected at the same time as the former on the same plant at Newark. The insect differs as regards the abdominal prominences; the entire body is densely hairy and is lighter in color. The specimens were fewer in number but none the less I obtained both sexes on May 30 to 31.

Cyrtolobus (*Atymna* Stål) **querci** Fitch.

Plate XXXI, Fig. 14.

Size 6 mm., of a vivid light green color. These were collected at Newark on May 22 with the foregoing specimens and were found on *quercus*. The first two specimens had died on the 25th, while the other became mature females on May 26. I intended to keep the latter until this green color became fixed, but it escaped during feeding. More were collected on May 30 and 31, all of which matured producing three females and five males. This insect stands in the list of the insects of New Jersey as "not yet found in the State"; hence this is the first record of its occurrence.

Ophiderma Fairm. (not determined).

Plate XXXI, Fig. 15.

Size $5\frac{1}{2}$ mm., of a green and brown color. Only a single nymph was found among the specimens of *Cyrtolobus* on *Quercus* on May 30, at Newark; this specimen matured the next day as a female.

Vanduzee Godg. **arquata** Say.

(Plate XXXII, Fig. 16.)

Size $4\frac{1}{2}$ mm. of a more or less lighter or darker brown color. I found the nymphs of this species on July 31 at Newark on *Robinia pseudacacia*, on the lower branches of which they occurred in great abundance, when male adults had been only sparsely represented. On August 14, nymphs in all stages were taken together with adult insects males still predominating.

On August 27 another extensive series of nymphs of different stages were collected, and from these adults of both sexes were obtained. As already known this species of Membracidae is one of the greatest favorites of ants; I uniformly found them to be herded by the latter.

Campylenchia Stål curvata Fabr.

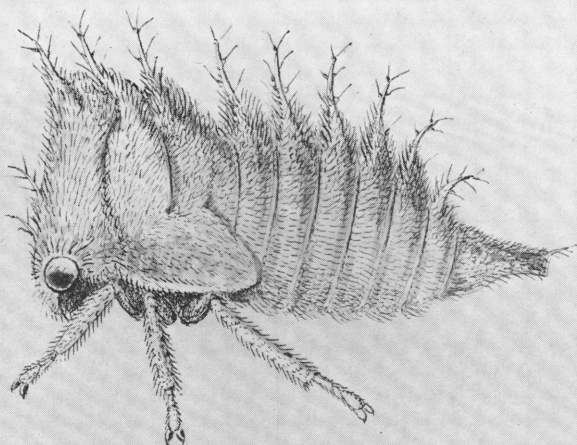
Plate XXXII, Fig. 17.

Size 6 mm., of a green and brown color. This I found in 1910, only here and there an adult insect, on *Solidago*. I received two from Mr. H. Mueller, taken in the Bronx, New York City, which after several days developed into female adults on July 1.

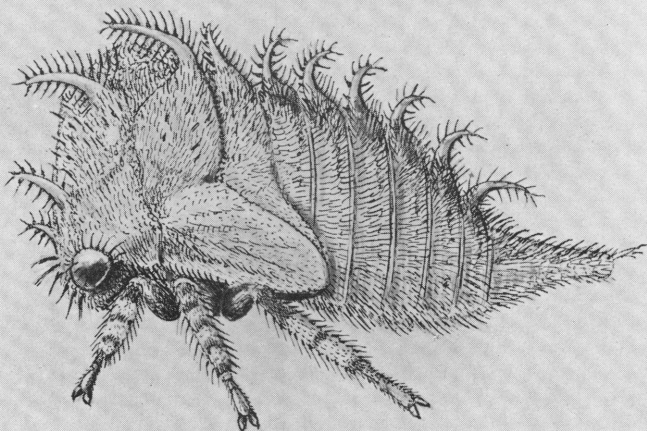
Enchenopa binotata Say.

I found this species near Newark on *Quercus* and *Juglans* as reported in the 'Journal' of the New York Entomological Society, Vol. XX, pp. 58-67. Not having time to color the drawing of nymphs from life, I had to use the shed skins for the many features and to put in the colors from memory. Like the green examples, so the darker nymphs for the ventral part of abdomen are more or less dull green, as a rule. The insects with more than one color usually have the abdomen green; the prothorax wing pads and abdominal prominences and the anal region exhibit darker colors. After shedding its nymphal skin the adult insect seems at first to display a light yellow, green or whitish coloration, but after a short time it assumes its characteristic darker colors.

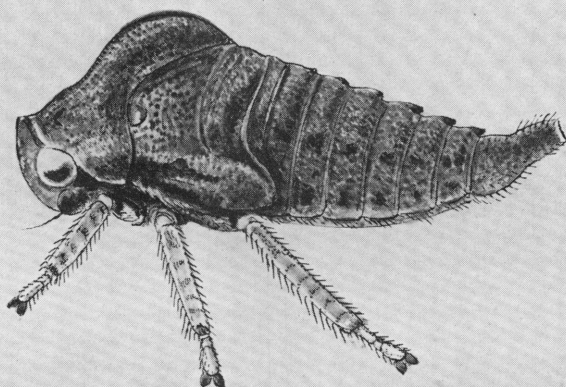
In the season of 1910 I obtained altogether specimens of some twenty-eight species at Newark, Montclair, and Elizabeth, N. J., and at Woods Hole, Mass.; through the kindness of Prof. W. M. Wheeler, I also received specimens of *Entylia sinuata* Fabr. in different variations. One *Telamona ampelopsidis* Harr., a female, was collected by Mr. C. Buchholz in August. Mr. R. Dow favored me with Membracidae collected by him in New Mexico. Among these I found a variation of *Glossonotus univittatus* (Harr.) including four examples equally divided as to sex; a very interesting species of a small *Telamona* represented by five examples of which one was a male; two different species of *Stictocephala* (Stål) both represented by a single male, and three other exceedingly small insects, two males and one female, which I could not determine. From Mr. C. L. Pollard I also received several interesting insects collected in the Ramapo Mountains, and at Lakehurst, N. J.



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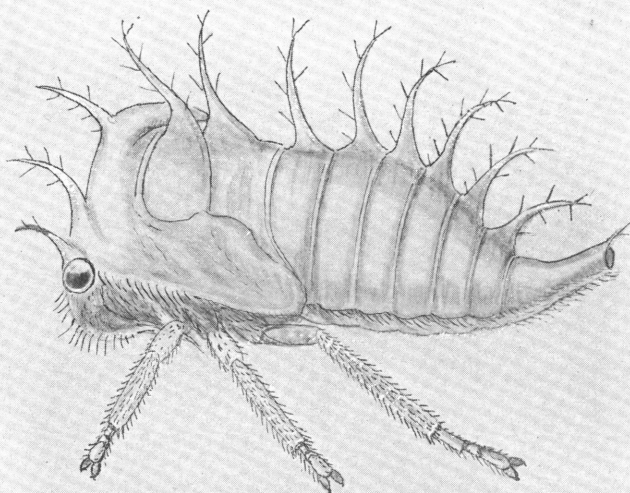
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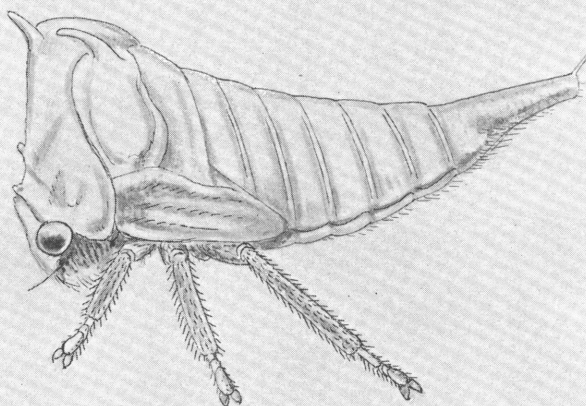
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NYMPHAL STAGES OF NORTH AMERICAN MEMBRACIDÆ.

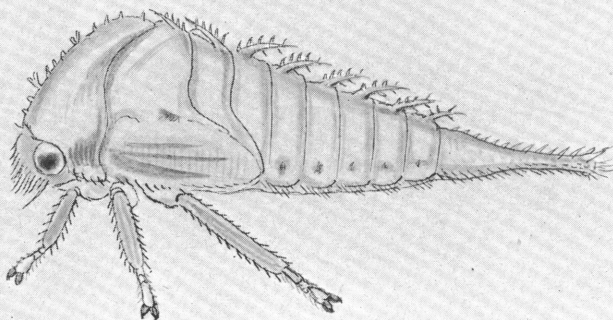
1. *Ceresa albescens* Van D. Size 7 mm. 2. *Ceresa bubalus* Fabr. Size 8 mm.
6. *Carynota mera* Say. Size $7\frac{1}{2}$ mm.



3



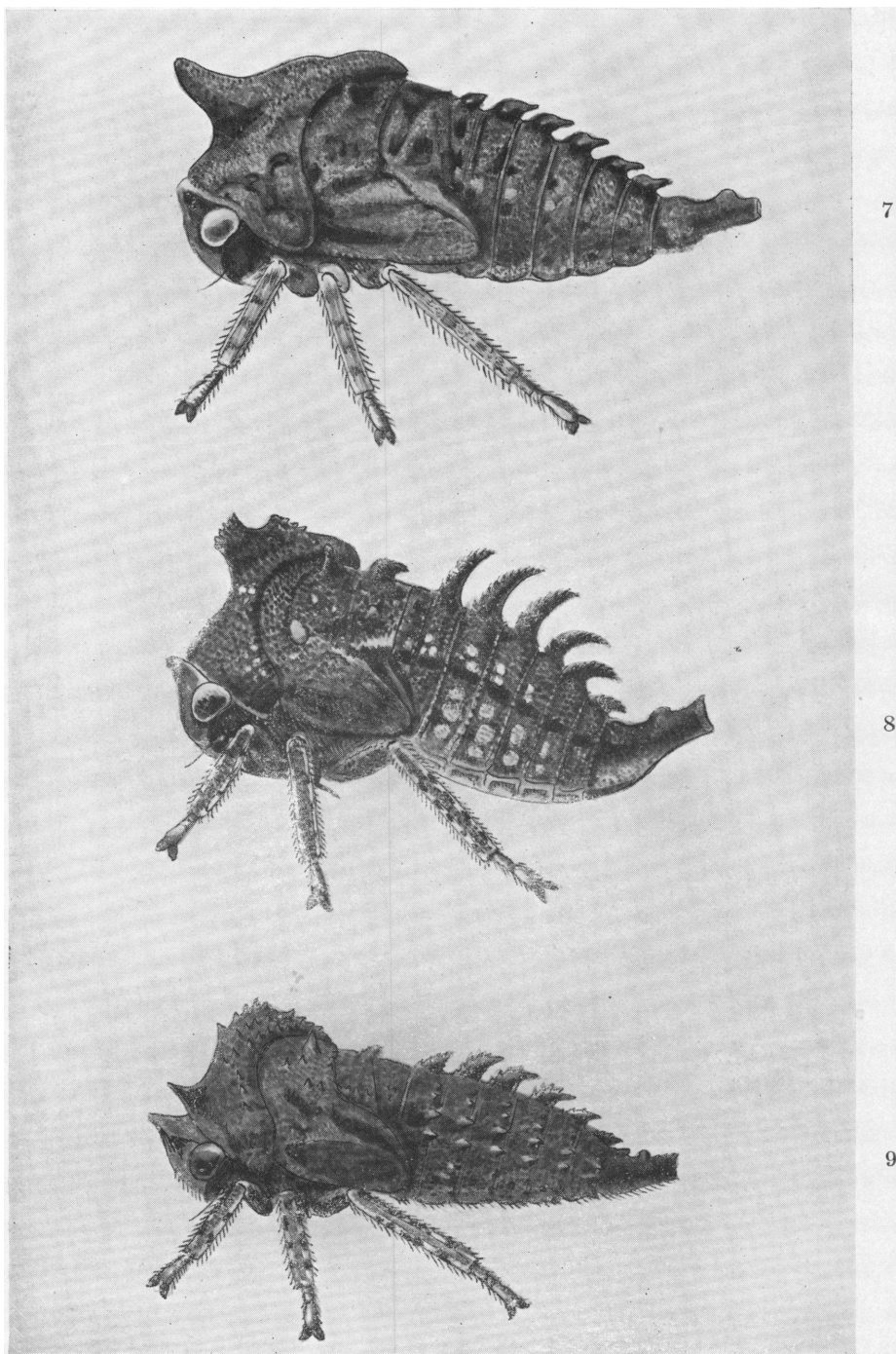
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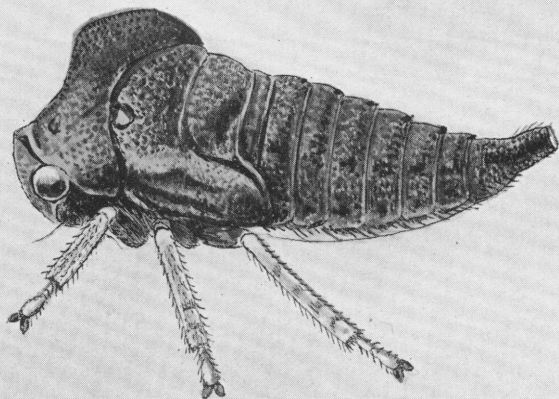
NYPHAL STAGES OF NORTH AMERICAN MEMBRACIDÆ.

3. *Ceresa taurina* Fitch. Size $7\frac{1}{2}$ mm. 4. *Ceresa palmeri* Van D. Size $6\frac{1}{2}$ mm.
5. *Acutalis semicrema* Say. Size $5\frac{1}{2}$ mm.

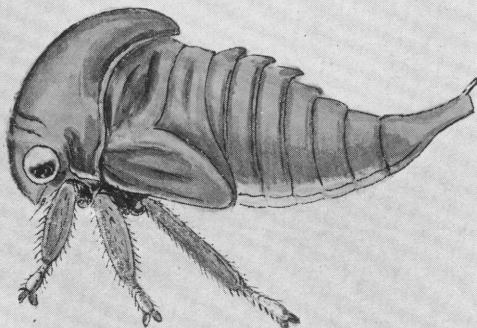


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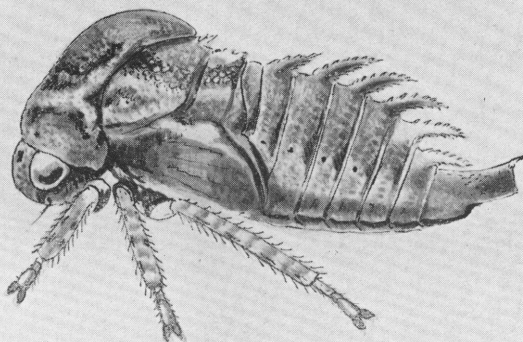
7. *Thelia bimaculata* Fabr. Size $8\frac{1}{2}$ mm. 8. *Telamona* sp. Size, $8\frac{1}{2}$ mm.
 9. *Telamona barbata* Van D. Size 7 mm.



10



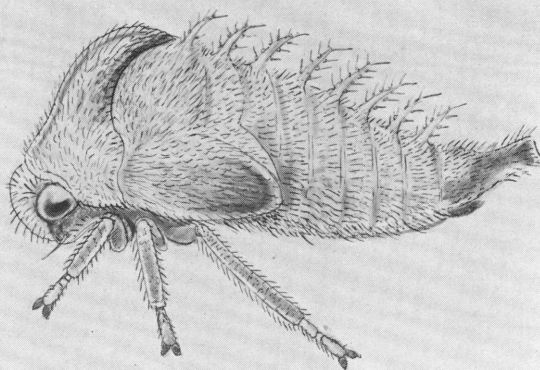
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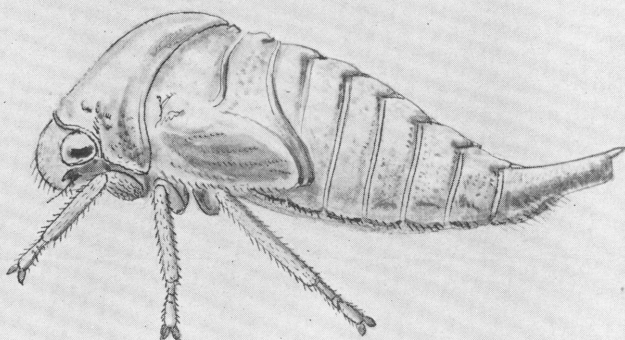
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NYMPHAL STAGES OF NORTH AMERICAN MEMBRACIDÆ.

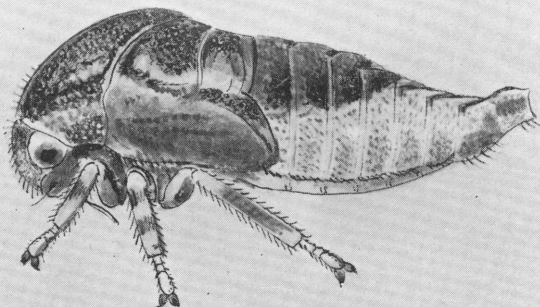
10. *Telamona unicolor* Fitch. Size $7\frac{1}{2}$ mm. 11. *Cyrtolobus* sp. Size $4\frac{1}{2}$ mm.
12. *Cyrtolobus* sp. Size $5\frac{1}{2}$ mm.



13



14



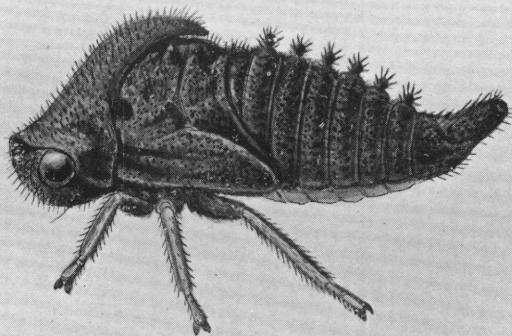
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NYMPHAL STAGES OF NORTH AMERICAN MEMBRACIDÆ.

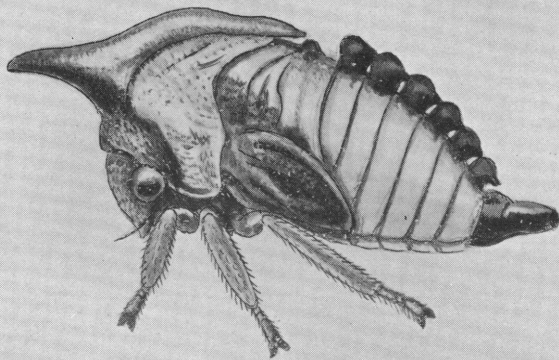
13. *Cyrtolobus* sp. Size 6 mm.

14. *Cyrtolobus querci* Fitch. Size 6 mm.

15. *Ophiderma* sp. Size $5\frac{1}{2}$ mm.



16



17

Figuren gezeichnet nach meinen von der
Natur gemalten Wasserfarbenbildern

Ignaz Matausch

NYPHAL STAGES OF NORTH AMERICAN MEMBRACIDÆ.

16. *Vanduzeeia arquata* Say. Size $4\frac{1}{2}$ mm. 17. *Campylenchia curvata* Fabr. Size 6 mm.

