pupæ should then be introduced from time to time to insure having an abundance of fresh material for the parasites to attack. It is very essential that the cage be kept in direct sunlight, for at least part of the day, and in a warm room. A temperature of 75 to 80° F. is desirable. In a week or two after the first pupæ have been exposed to the parasites they should be gathered together and placed in a separate place and more fresh pupæ added. The original stock of parasites should be secured by collecting puparia in localities where the parasites are known to occur in greatest numbers. Where great numbers of pupæ can be obtained they may be placed together. To facilitate the separation of the puparia from the material in which they pupated, and to eliminate the dead pupæ, they may be placed in a vessel of water. All of the living or parasitized pupæ float and may be removed with a section lifter or a skimmer. A parasitized pupa can be quite readily recognized by its being much darker than normal and by one side of the puparium appearing almost black while the other portion is somewhat translucent and of lighter color. These puparia should be placed in glass tubes containing a very humid atmosphere and kept in a warm room. As the parasites emerge they should be transferred into breeding boxes as described above.

When a sufficient number of parasites has emerged to proceed with breeding the other puparia parasitized in the cages should be examined. When it is found that most of the parasites are in the pupal stage the entire lot should be removed to a refrigerator or cold storage room in which the temperature is kept uniformly between 50 and 55° F. These temperatures check development and retard emergence a few weeks before it is planned to liberate the parasites in the field. The puparia should be removed from the refrigerator so they may complete their development. Parasites should always be liberated near barns or straw stacks where flies are known to be breeding.

The developmental period can be shortened greatly, probably less than half the time required in the experiments reported herein, by increasing the temperature under which they are propagated. Under natural conditions breeding must be greatly stimulated by the heat produced by rotting straw and manure which surround the parasitized puparia.
Ancistrocephalus kelloggi sp. nov.  (Fig. 1.)

A single male specimen taken from the skin of a ground dove, *Chæmepelia rufipennis* (Rio Indio, Canal Zone, March 8, 1911)

Fig. 1. *Ancistrocephalus kelloggi* sp. nov., male.  *a*, dorsal view;  *b*, anterior lateral angle of head;  *c*, lateral spine on head.
in the collection of the Biological Survey, United States Department of Agriculture, at the National Museum. A minute species with short, broad body.

Description of male: Head two-thirds as long as broad. Front flattened, almost straight, set in between the prominent hook-like anterior lateral angles; these angles projecting forward slightly beyond the clypeal front, are heavily chitinized and bent backward to form sharp hooks with finely serrated outer margins (Fig. 1, b). Front between hooks with a narrow marginal band bearing four hairs on each side, the second from the center being the longest; also several hairs projecting from the ventral surface, not shown in the figure, and a hair on the anterior extremity of the lateral hooks. A hair on each side on the dorsal surface near the anterior margin, another in front of the antennæ and a longer one near the inner extremity of the lateral emarginations. Sides of head before the middle deeply emarginate for the reception of the antennæ. Antennæ long, first segment enlarged, about as long as the second, with third a little shorter and diminishing in thickness; last two segments missing. Antennal bands forming the basal marginal portion of the lateral hooks. Eyes indefinite, located on the anterior, forward projecting angles of the temples with a small occular fleck. Occular blotch small, colored. Temples squarish, but little rounded and slightly narrowing behind; one very long marginal hair just behind the eye and two still longer ones arising about half way back, these latter reaching onto the third segment of the abdomen; a short spine near the posterior angle, another between the two long hairs just mentioned, and a peculiar, long, heavy spine just behind the anterior hair (Fig. 1, c). Occiput broad, straight, with broadly separated occipital blotches; two hairs on each side, the outer, shorter one near the lateral angles of the head; occipital bands and signature absent.

Thorax long, slightly wider than head. Prothorax with sides straight, diverging, and posterior margin rounded at the sides but straight across the middle. Lateral angles probably with a long hair, broken off in the specimen at hand, leaving definite pustule. Metathorax quadrilateral with anterior lateral angles protruding, bearing two prominent pustules from which the hairs have been broken; this segment much narrower than the first segment of the abdomen and embraced by it, extending to its posterior margin and dividing it into two lateral, triangular portions; posterior margin of metathorax not visible. A dorsal hair on each side, midway between the anterior and posterior margins. Legs with femora broad, those of hind legs not projecting beyond the sides of the abdomen, their articulation being well in toward the meson; tibiae long and narrow.

Abdomen circular, a little wider than long, widest at third segment, with broad lateral bands and faint transverse blotches. Posterior lateral angles of segments two to six produced into a chitinized, slightly in-curved appendage which extends inward and forward as an internal chitinized band to the anterior margin of the segment. First segment longest with uncolored, diverging sides; seventh segment much reduced, shorter than the preceding one and bearing a very long hair; last segment rounded, entire, bearing two very long hairs on the dorsal surface and four shorter ones on the posterior margin. Segments three to six with very long lateral hairs arising before the lateral appendages. An extremely long dorsal hair on the