

Kapala sp. early stages
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prominent protuberances beneath, and the length of the body is 10.5 to 11.1 mm.

OVIPOSITION HABITS AND EARLY STAGES OF A EUCHARID (KAPALA SP.) (Hymenoptera)

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In January 1945 the writer observed a eucharid, *Kapala* sp., ovipositing on the under surface of a leaf of malvaceous plant near Rio de Janeiro, Brazil. Further search for adults, egg masses, and host was made, but additional material was not found in the limited time available. The female was observed closely for a few minutes and then captured and killed. The leaf containing the eggs was placed in a tin box, and a few days later moist cotton was added in order to maintain the humidity. The eggs developed satisfactorily up to the completion of the fully formed first-instar larva within the shells, but unfortunately the larvae did not rupture the egg shells and they had to be teased out of the confining membrane in order to make good mounts for further study.

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The female, when ovipositing, walks slowly over the leaf surface, gently feeling it with her antennae and, at the same time, constantly tapping it with her abdomen, apparently depositing one or more eggs at each contact. When interrupted she had deposited a few thousand eggs, which were placed horizontally and at random on the leaf surface.

The egg is oblong oval with a rather strong stalk. The stalk is relatively short, measuring slightly less than one-third the length of the entire egg. These measurements and the drawing (fig. 1) were made from an egg shell from which the embryo had been extracted, and do not represent exactly the ovarian or freely deposited egg. The proportions of egg stalk to body of egg are approximately correct, however, and the egg is of this general appearance when first deposited. The freshly deposited egg, as viewed under a hand lens, is white and without sculpturing.

The first-instar larva is of the well-known planidium type, and the body lies in the egg with the head pointing towards the stalk, as is usual in this group. It is composed of the head and twelve body segments, the last appearing as a fleshy lobe bearing two caudal cerci. It is black except for the fleshy parts between the sclerites.

The head is heavily sclerotized dorsally and laterally, and has two more or less triangular, heavily sclerotized areas that almost meet ventrally. It bears two small fleshy lobes and two sensory setalike processes dorsally on the anterior part. The mouth is oval and has a fleshy part around the opening. *sach* The mandibles are of the usual comma shape. On the ventral side is a heavily sclerotized anchor-shaped area, the hooks of the anchor being below the mandibles and the other point between the mandibles almost to the mouth opening. There are two small triangular sclerotized areas on each side of the head near the hooks of the anchor. One pair of small sensory setae is located somewhat forward on the dorsum of the head and three pairs near the posterior part of the head.

The first segmental band is collar-shaped, the points approaching each other ventrally and directed caudad. The second segmental band is also collar-shaped and rounded at the centroposterior angle. The third band is shaped more or less like the second except that it has an indentation near the centroanterior angle and from this a heavy spine points caudad. The fourth to sixth segments are similar in that they terminate ventrally in long, pointed, spinelike processes that are directed posteriorly. The seventh segment is rounded at the anterior-ventral angle and has a short, spinelike process directed caudad near the posterior angle. Slightly posterior to this spine is a long, spinelike process extending posterior-

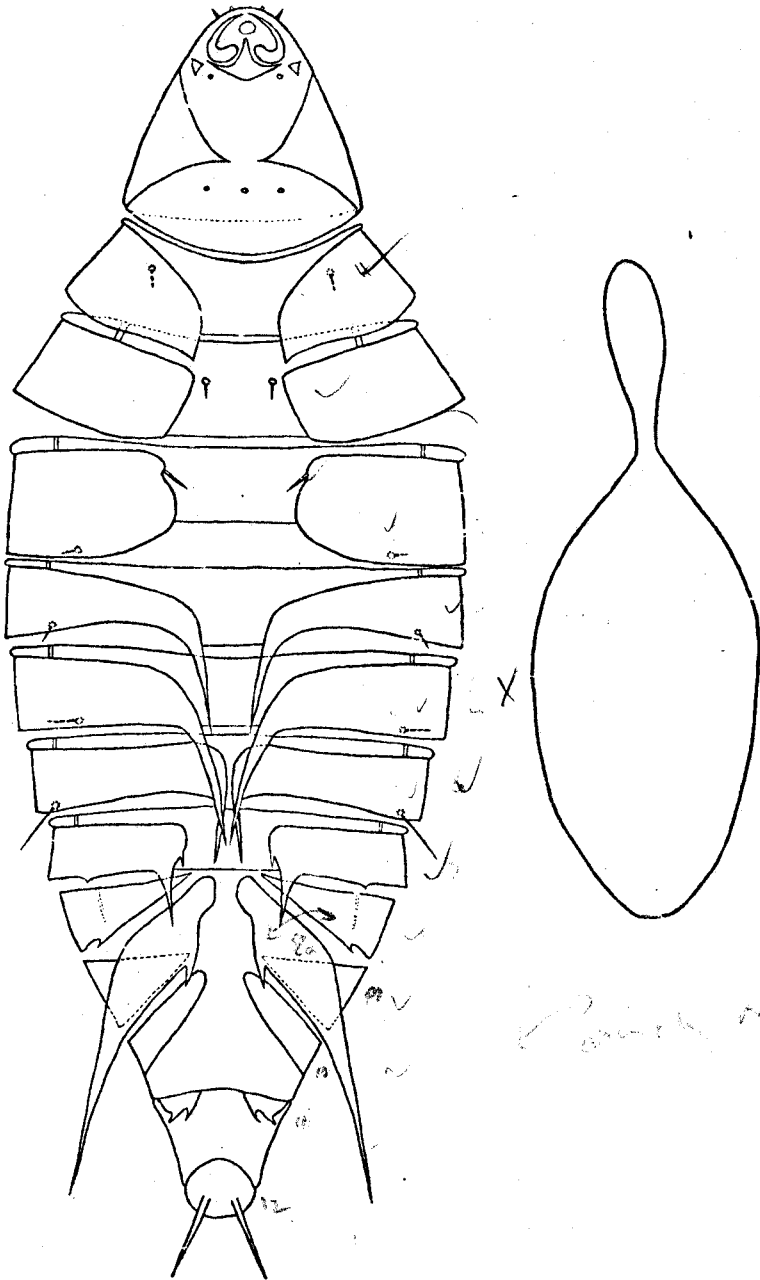


Fig. 1. Egg and first instar larva of a eucharid, *Kapala* sp.

ly, and further out laterally from the end of the ventral termination is a small toothlike protusion of the band directed caudad. Segment 8 consists of a sclerotized triangular band, that appears to terminate ventrally, with a hooklike indentation some distance from the ventral termination. Segment 9 also consists of a sclerotized band that apparently terminates ventrally in triangular plates. Segments 8, 9, and 10 were not so distinct as could be desired, but were the best that could be obtained from larvae teased out of the egg shell, and it is believed that they are represented accurately in the description and drawing. The plate of segment 10 is rounded or oval at the ventral termination. Segment 11 has a small sclerome on each side, each provided with two toothlike processes, the whole being somewhat the shape of a molar tooth. The last, or twelfth segment, consists simply of a fleshy lobe with two long cerci extending posteriorly.

Segments 1 to 6 each bears a pair of sensory spines dorsally, those on segment 5 being heavier and longer than on the preceding segments, and those on segment 6 much longer and heavier than those on segment 5. On the second to the eighth segments the lines of demarcation between the pleural and dorsal plates are faintly visible. Two seal-shaped structures originate in the area of the eighth and ninth segments, the knoblike anterior portion being heavily sclerotized. Posteriorly to the knoblike areas these structures broaden out considerably, and at the greatest width a pointed process is directed somewhat ventrally. From this wide point there is a gradual tapering to a sharp point near the tip of the last abdominal segment. The function of these structures is not known, but they may serve in locomotion, possibly for standing erect while waiting for a host, or to assist in jumping when a moving object approaches. It is not possible to demonstrate the exact use of these structures without live material.