

- 21 d *Diabrotica duodecimpunctata*. Eighth, ninth and tenth abdominal segments, ventral view.
- 22 l *Diabrotica longicornis*. Head capsule and prothoracic shield, dorsal view.
- 23 Ps *Psylliodes chrysocephala*. Head capsule, dorsal view.
- 24 Ps *Psylliodes chrysocephala*. Typical abdominal segment, lateral view.
- 25 v *Diabrotica vittata*. Eighth and ninth abdominal segments, dorsal view.
- 26 v *Diabrotica vittata*. Ninth and tenth abdominal segments, lateral view.
- 27 v *Diabrotica vittata*. Eighth, ninth and tenth abdominal segments, ventral view.
- 28 v *Diabrotica vittata*. Head capsule and prothoracic shield, dorsal view.
- 29 Ps *Psylliodes chrysocephala*. Larva, lateral view.
- 30 Ps *Psylliodes chrysocephala*. Eighth and ninth abdominal segments, dorsal view.

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## A NEW MIDGE INJURIOUS TO PINEAPPLES (DIPTERA, CERATOPOGONINAE).

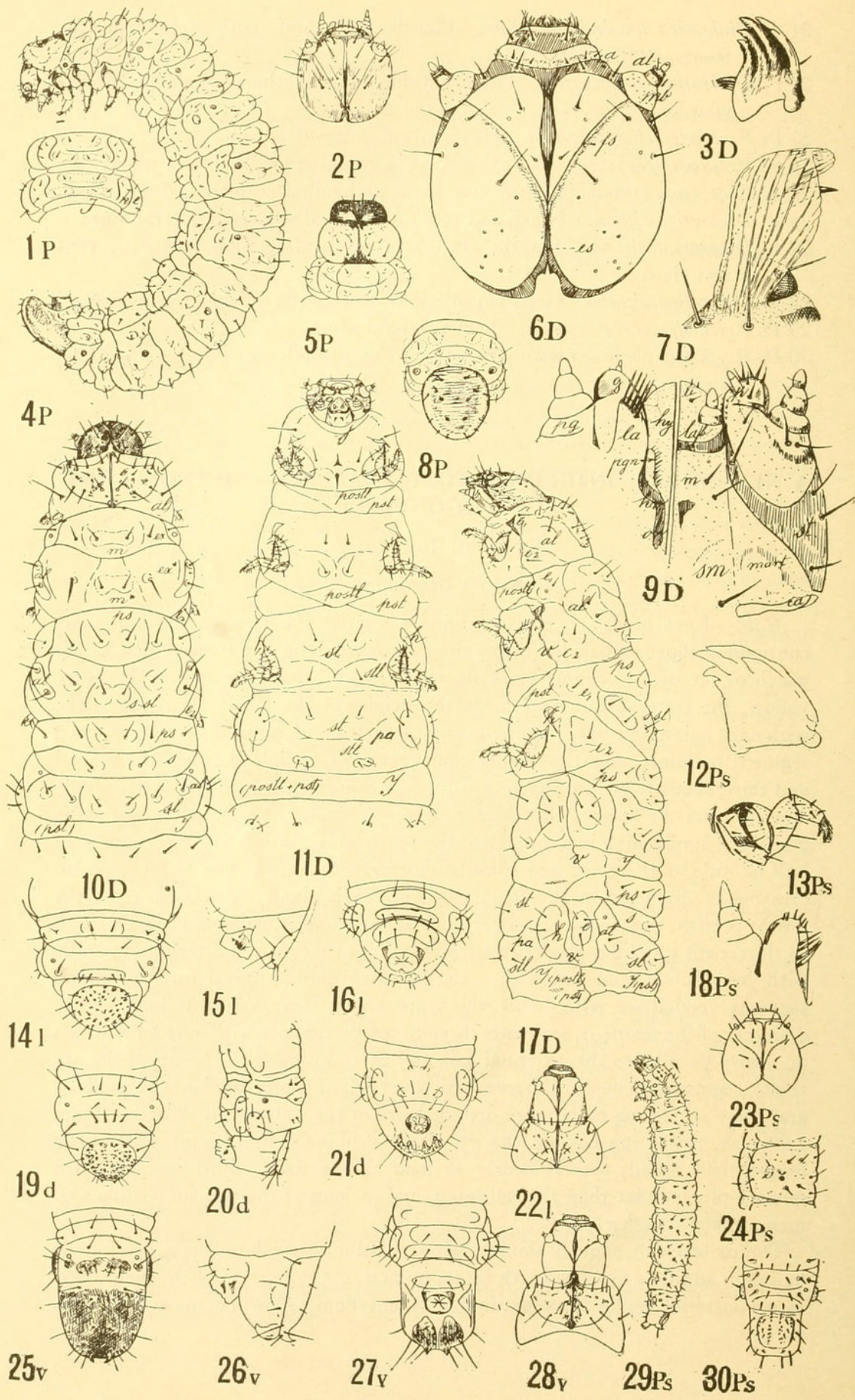
BY O. A. JOHANSEN.

***Apelma brevis* n. sp.**

*Male*.—Eyes bare, strongly emarginate around the base of the antennae, contiguous above, separated below the mouth-parts by a distance equal to the width of the eye. Occiput blackish, hairs dusky. Face and proboscis dusky yellow, the latter about two-thirds the height of the head. Antennae dark with dark hairs; first basal segments large, nearly contiguous, transverse; second segment petiolate, slightly smaller than the third, petiole between the second and third about two-thirds as long as broad; segments three to ten nearly sessile and subequal in length, the third nearly spherical, the succeeding segments gradually diminishing in diameter to the tenth which is only slightly more than half as wide as the third and slightly shorter, segments eleven to fourteen increasing in diameter to the fourteenth, eleventh about twice as long as the tenth; twelfth, thirteenth and fourteenth slightly longer, subequal, the eleventh to thirteenth tapering, the fourteenth elongate oval, bearing a terminal papilla with constricted neck and with a shallow longitudinal apical furrow; second segment verticillate with hairs which are about three times as long as the diameter of the segment, segments three to ten verticillate with long hairs which lie nearly parallel to the antennal axis and extend almost to the tip of the antenna, segments eleven to thirteen with a verticil of projecting hairs at the base and some scattering hairs more distad, hairs of the fourteenth shorter. Palpi yellowish, projecting beyond the tip of the proboscis; first segment but little longer than broad; second nearly as long as the third; third segment with sensory pit, broader than the following, and as long as the two succeeding segments taken together.

Thorax blackish, slightly shining, with indistinct grayish pollen, sparsely pale haired in addition to a few black setae; humeri, upper portion of the pleura, extreme posterior angles of mesonotum, and scutellum yellow; pectus and metano-







tum blackish; scutellum margined with black setae. Abdomen blackish with sparse pale brownish hairs. Hypopygium of the same general character as described for other members of this genus (Cf. Saunders, Parasitology, 17:260, 1925) resembling most closely that figured for *A. edwardsi* with respect to form of the internal chitinized parts; the last tergite however has its posterior margin rather more pointed and covered with long stout setae whose bases show conspicuously even when the setae are rubbed off; side pieces of the claspers, which also are provided with long setae do not extend as far caudad as the tip of the tergite; the claspers are slender, slightly curved, broadest at base, tapering, slightly broadening again toward the tip where they become flattened and somewhat spoon-shaped.

Legs including coxae pale brown with hairs of a more yellowish sheen, longer hairs not sharply differentiated in color; first segment of the hind tarsus about equal to the combined length of the next three; last three segments subequal; claws large, simple, strongly curved; empodium vestigial. Wings 1 mm. long, width 0.33 mm., grayish hyaline, with slender decumbent hair-like scales which cover the wing surface, surface finely punctate, fringe hairs as long as those of the disc, with some scattered longer ones especially along the posterior margin on the basal half. Sub-costa indistinct; costa ends at 0.58 the wing length measured from the basal articulation or equidistant from the arculus and the wing tip; cells  $R^1$  and  $R^2+^3$  apparently subequal, the latter especially narrow; the r-m crossvein arched;  $M^1+^2$  ending slightly nearer the wing tip than does  $M^3$ ; base of  $M^3$  evanescent; Cu forks opposite the tip of the costa. Halteres with yellowish white knobs, stem more dusky. Length of insect 1.3 mm.

*Female*.—Rather paler than the male. Occiput yellowish. Antennae dark with dark hairs; basal segment transverse, slightly broader than long; second segment nearly cylindrical, nearly 1.5 times as long as broad; third and fourth subequal, a fourth less in diameter than the second, two-thirds as long as broad; fifth, three-fourths as long as broad; sixth, seventh, eighth and ninth subequal, each slightly longer than third to fifth combined, broadest at base then tapering toward apex; tenth (terminal) slightly longer and broader than the ninth, cylindrical, tapering at tip, with terminal papilla as in the male. Palpi yellowish, about as long as the proboscis, segments subequal, except the third which is distinctly broader and a third longer than the next. Thorax brown, sparsely yellow haired, laterally with a few stout black setae; humeri, posterior angles of the mesonotum, scutellum, and upper portion of the sides yellow; pectus and metanotum brown. Abdomen dark brown, venter pale, with sparse pale brownish hairs. Legs dusky yellow, with fine yellowish hairs and longer, darker ones; empodium well developed, nearly as long as the claws. Wing 0.85 mm. long, 0.32 mm. wide; venation as with the male.

*Larva*.—Length 3.5 mm. Alcoholic specimens which are white in color including the head, possess the usual characteristics of the larvae of this genus having the axis of the head in line with that of the body and with small anterior and posterior prolegs. The head is 0.3 mm. long, about two-thirds longer than wide, eye spots indistinctly geminate, situated very slightly caudad of the middle of the head. Body provided with two or three pairs of long simple setae on each segment; the rubbed condition of the specimens prevents a more precise statement. Lateral setae not finned at the base. Posterior margin of



the penultimate segment with a pair of long bristles. Four simple blood gills, apparently not arranged in pairs, apices rounded. The lanceolate pale amber colored blade-like modified hairs with serrate margins situated at the apex of the abdomen are similar to those figured by Saunders (l. c.) for *A. edwardsi* but apparently relatively larger, measuring .075 mm. in length.

*Pupa*.—Length 2.5. Exuviae white. Head with two pronounced papillae situated on the median triangle. Prothoracic horns nearly cylindrical, tapering at the base, imbricate except toward the tip. Thorax with two pairs of small dorsal tubercles and inconspicuous pits. Each intermediate segment of the abdomen with a lateral spinose tubercle which in turn has a long seta anteriorly at the base, three pairs of ventro-lateral spinose tubercles, dorsally with two fine setae and more posteriorly two small tubercles one on each side of the median line. Genital sacks slender, tapering, the surface covered with small tubercles which give them an imbricate appearance; ventrally there is a small seta at the base of each.

This species resembles in many particulars *A. keilini* but differs from it as well as from other members of the genus in possessing the following combination of characters. Small size, wing length 1 mm. and eleventh antennal segment only slightly shorter than the twelfth in the male; in the female with but ten antennal segments. The simple not finned lateral setae, the white head two-thirds longer than wide and the four simple blood gills characterize the larva. The exuviae of the pupa are uncolored and there are two strong papillae on the median triangle.

It may require a study of the early stages of the type species of *Apelma* Kieffer and of *Euforcipomyia* Malloch to determine their relationships.

The holotype and allotype of this species have been deposited in the U. S. National Museum; paratypes in the Cornell University collection.

The specimens upon which the descriptions are based were collected in Hawaii by Dr. J. F. Illingworth who writes concerning the species: "This fly is a troublesome pest of pineapple plants. It breeds in the water-pockets in the axils of the leaves. The maggots make slight scars on the very tender, white tissue of the leaf, and bacteria entering these scars cause a rot of the whole plant."

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