MOSQUITO STUDIES (Diptera, Culicidae)

III. TWO NEW SPECIES OF AEDES FROM TONGA AND SAMOA[1]

By Shivaji Ramalingam[2] and John N. Belkin[3]

The two new species described here were discovered in connection with studies on the mosquito fauna of Samoa and Tonga and its relation to subperiodic Bancroftian filariasis. Keys, collection data and more detailed discussions of the systematics, bionomics and disease relations will be presented in a forthcoming publication by Ramalingam on these investigations. We are very grateful to Peter F. Mattingly for the loan of some material from Tonga and for reexamining the type of Aedes tongae. We also wish to acknowledge the assistance of Rainer Beck and Anne Acevedo in the preparation of the final figures for publication.

The terminology of Belkin (1962, Mosq. So. Pacific) is used throughout the descriptions except for hair branching in the immature stages. For the latter, if only one numeral is given in parentheses following the hair number it represents the only number of branches encountered in the sample; if 2 sets of figures are given, the first represents the mean number of branches rounded to the nearest whole number and the second, the range encountered in the sample. The chaetotaxy of the immature stages was determined from a sample of 10 individuals.

1. Aedes (Stegomyia) tabu, new species

(Figure 1)

Aedes (Stegomyia) tongae in part of Edwards 1926, B. Ent. Res. 17: 103; Belkin 1962, Mosq. So. Pacific 475-476, figs. 349, 350; Ramalingam and Belkin 1964, Nature 201: 105-106.

In general as described and figured by Belkin (1962, loc. cit.) for "tongae," with the following distinctive features and restrictions.

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Female: Abdominal tergite VII with lateral silvery markings usually connected by a complete or dotted transverse dorsal silvery band; one or more additional tergites with a complete or dotted transverse dorsal silvery band.

Male Genitalia (fig. 1b): Apical hairs of claspette extending basad to about 0.34 of length of entire claspette; specialized setae relatively long, average length 0.053 mm.

Pupa (fig. 1a): The following additions and corrections should be made to Belkin's description and figure which were based on a single damaged specimen.

Cephalothorax: Hair 1 (1, 1-2), 2 (2), 3 (1), 4 (2, 1-2), 5 (2, 1-2), 6 (1), 7 (2, 1-2), 8 (3, 2-4), 9 (1), 10 (3, 2-4), 11 (1), 12 (1, 1-2).

Abdomen: Dorsum of segments I-III darkened, other segments gradually paler distad. Hair 0 and 14 single on all segments. Segment I: hair 1 (dendritic), 2 (1), 3 (1), 4 (3, 2-3), 5 (2, 1-2), 6 (1), 7 (2, 1-2), 9 (1). Segment II: hair 1 (5, 4-7), 2 (1), 3 (1), 4 (2, 1-3), 5 (2, 1-3), 6 (1), 7 (2), 9 (1). Segment III: hair 1 (2, 1-4), 2 (1), 3 (1, 1-2), 4 (2, 1-3), 5 (2, 1-3), 6 (1), 7 (2, 1-2), 8 (2, 1-3), 9 (1), 10 (1), 11 (1). Segment IV: hair 1 (1, 1-2), 2 (1), 3 (2, 1-3), 4 (1, 1-2), 5 (1, 1-2), 6 (1), 7 (1, 1-2), 8 (2, 1-3), 9 (1), 10 (1), 11 (1). Segment V: hair 1 (1), 2 (1), 3 (1), 4 (2, 1-2), 5 (1, 1-2), 6 (1), 7 (1, 1-3), 8 (2, 1-3), 9 (1), 10 (1), 11 (1). Segment VI: hair 1 (1), 2 (1), 3 (1), 4 (2, 2-3), 5 (1), 6 (1), 7 (1, 1-2), 8 (2, 1-2), 9 (1), 10 (1), 11 (1). Segment VII: hair 1 (1), 2 (1), 3 (1), 4 (1), 5 (1), 6 (1), 7 (1), 8 (1, 1-2), 9 (1, 1-2), 10 (1), 11 (1). Segment VIII: hair 4 (1), 9 (with 2 primary and several secondary branches). Paddle as figured; apex slightly produced; marginal spicules long, filamentous and hairlike; pigmentation light yellowish brown, with darker midrib.

Larva: Both hairy and nonhairy larvae are known.

Type: ♂ (234-25) with associated larval and pupal skins and genitalia slide, Eua Island, Tonga, from leaf axil of taro (Colocasia), 17 June 1963, S. Ramalingam (USNM).

Paratypes: All from Eua Island, Tonga, collected by S. Ramalingam. 1♂ (223-102) with associated pupal skin, from leaf axil of taro (Colocasia), 14 June 1963 (BMNH). 1♀ (228-101), 1♂ (228-102) with associated pupal skins, from leaf axil of giant taro (Alocasia), 15 June 1963 (UCLA). 1♂ (234-101) with associated pupal skin (Ramalingam), 2 whole larvae (UCLA, Ramalingam), same data as holotype. 1♀ (235-26) with associated larval and pupal skins (USNM, allotype), 1♂ (235-109) with associated pupal skin (UCLA), 1♂ (235-3) (QUEEN), 4 whole larvae (235) (BMNH, USNM, UCLA, QUEEN), from cavity in fern stump in partial shade, 17 June 1963.

Specimens: 955; 320♀, 165♂; 130 pupae; 340 larvae; 13 individual rearings (6 larval, 7 pupal).

Systematics: The presence of 2 distinct species of the scutellaris group of Aedes (Stegomyia) in the Tonga Islands has been established through individual rearings from larvae and pupae made by Ramalingam. Both species have been reported in the past as Aedes (S.) tongae Edwards, 1926 by numerous investigators.

One of the species is tongae itself and is known at present only from the Haapai and Vavau groups. It is very similar to cooki Belkin, 1962 from Niue Island based upon reexamination of the claspette of the type of tongae from Haapai by Mattingly (in litt.) and a comparison with limited topotypic material of cooki. A decision as to the taxonomic status of cooki, however, must be postponed until more material of all stages is available for detailed study.

The second species from Tonga, described and figured in considerable detail as "tongae" by Belkin (1962, loc. cit.), is the only species of the group

known at present from Tongatabu group but occurs also in the Haapai group. It is further described here and given the name, Aedes (S.) tabu. This is the species which has been most commonly collected in Tonga since it occurs on the principal island of Tongatabu.

The separation of the two species is relatively clear-cut in all known stages. In the females, true tongae differs from tabu (as diagnosed above) in the absence of a complete or dotted transverse dorsal silvery band connecting the lateral silvery markings on abdominal tergite VII; it also has less distinct transverse dorsal bands on the more proximal abdominal tergites. In the male genitalia, tongae (fig. 1c) is differentiated from tabu (fig. 1b and as diagnosed above) by the relatively shorter apical hairs of the claspette extending basad only about 0.25 of the length of the entire claspette and by relatively shorter specialized setae (average length 0.046 mm). In the pupal stage, tongae has cephalothoracic hair 10-C usually double instead of with 3 or more branches and abdominal hairs 5-II, IV usually double instead of single. In the larval stage, tongae differs from tabu most conspicuously in hair 4a-X of the anal segment being double or triple instead of single.

Bionomics and Disease Relations: The immature stages of tabu have been collected in the leaf axils of taro (Colocasia) and giant taro (Alocasia), in tree-holes and tree fern stumps, in coconut shells and spathes on the ground and in artificial containers. A. tabu appears to be a semidomestic form and bites primarily during the day in the bush surrounding villages. This species (as tongae) has been reported to be naturally and experimentally infected with Wuchereria bancrofti on the island of Tongatabu (Ramalingam and Belkin 1964, op. cit.).

Distribution: TONGA: Tongatabu Group, Tongatabu, Eua; Haapai Group, Tofua, Matuku. Not known elsewhere.

2. Aedes (Finlaya) tutuilae, new species

(Figures 2 and 3)

Female: Wing: 2.71 mm. Proboscis: 1.58 mm. Forefemur: 1.64 mm. Abdomen: about 2.46 mm. With the general characters of the kochi group as described by Belkin (1962, Mosq. So. Pacific 357-359); coloration intermediate between oceanicus Belkin, 1962 and samoanus (Grünberg, 1913).

Head: Light scaling of head capsule dingy white, beige, or with yellowish tinge; dark scaling dark brown, extensive; median longitudinal light stripe of vertex broad, with narrow whitish or beige scales anteriorly and broader scales posteriorly; erect scales dark brown. Clypeus dark brown. Median light ring of labium broad with pure white to dingy white scales in the center and yellowish scales toward the ends; a wide patch or incomplete ring of white or beige scales on apex of labium. Palpus about 0.2-0.3 of proboscis length, with dark brown scales except for a few whitish ones on apex. Torus beige to light brown, with pale flat scales on mesal surface; flagellar segments brown, intersegmental areas paler.

Thorax: Integument brown to dark brown. Mesonotum with indefinite pattern of white and golden scales not contrasting with bronzy dark scales; prescutellar area with caudal patch of light scales; scutellar scales white to beige, midlobe with apical patch of dark scales, occasionally 1-2 dark scales on lateral lobes. Paratergite with white scales; apn and ppn with whitish to beige scales, ppn with a few dark scales above; remainder of pleural scales white;

psp sometimes with a few scales; pra with scales above and below bristles.

Legs: Light scaling of femur and tibia of foreleg and midleg usually strongly yellowish, of hindleg usually largely white. Subapical tufts of all femora moderately developed, largely dark. Light scaling of tarsi largely white, some yellowish scales on segment 1 of foretarsus. Foretarsus and midtarsus with rather wide basal, variable median and wide apical light bands and ventral surface completely light on segments 1 and 2; apical light band broadest on segment 1; segment 2 with basal and apical light bands subequal; segment 3 usually with a few white scales apically; segment 4 completely dark; segment 5 completely light. Hindtarsal segment 1 with subequal basal and apical broad light rings and a smaller median light ring, dark scaling forming complete rings; segments 2 and 3 with apical light ring about 0.35-0.45 of segment length; segment 4 all dark; segment 5 all light.

Wing: Predominantly light; light scaling dingy white caudally and light yellowish anteriorly on dorsal surface. Prehumeral light spot always present; humeral light spot very large, sometimes fused with prehumeral; base of vein C largely light. Accessory subcostal pale area always very strongly developed on both veins C and R_1.

Haltere: Knob dark-scaled.

Abdomen: Integument brown. Dorsum of tergites I-VI mostly dark-scaled, with light scales in discrete patches; dorsum of tergites VII, VIII with large patch of buff and yellowish scales; sternites entirely yellowish-scaled except for small apical dark scale tufts on VI, VII.

Male: Wing: 2.31 mm. Proboscis: 1.68 mm. Forefemur: 1.52 mm. Generally similar to female in coloration. Head: median light stripe of vertex wide, with broad scales predominating. Labium: with very narrow complete median light ring; apical light patch reduced and inconspicuous. Palpus: exceeding proboscis by less than length of segment 5; pale scaling white to yellowish; segment 2 with wide subbasal and apical light bands; segment 3 with two small submedian light patches; segment 4 white in basal half; segment 5 largely light except for a narrow submedian dark ring; remainder of palpus with dark scales. Abdomen: dorsum with pale scaling more extensive than in female.

Male Genitalia (fig. 2): As figured; lateral scales of sidepiece all dark; inner sternal scales and basal tergomesal hairs pale yellowish to light brown.

Segment IX: Tergite lobe relatively prominent, with 1-3 hairs.

Sidepiece: Moderately long and broad. Basal tergomesal patch of hairs sparse, extending nearly to postmedian central mesal patch; basal hairs less curved than distal, latter with lanceolate apex. Specialized basal mesal seta very prominent; its distal part bent, flattened and tapering to a point. A row of 4-5 setae with flattened, expanded translucent apex, extending from the specialized basal mesal seta toward the postmedian central mesal patch of hairs and joining the distal end of the basal tergomesal patch of hairs; the most proximal seta with large circular apex, the distal with progressively smaller and more lanceolate tips. Specialized median mesal patch very distinct, setae shorter than in adjoining patches. Postmedian central mesal patch dense; individual hairs pointed and curved at apex. Inner sternal scales usually 11-13, all striated, the distal narrower and longer.

Claspette: Nearly as long as sidepiece; appendage predunculate, expanded portion broad, bladelike and with obtuse basal angle.

Clasper: Moderately long, usually distinctly widened in the middle; 1-2 minute subapical hairs. Spiniform relatively short, slightly curved at distal third.

Phallosome: Aedeagus mushroom-shaped and truncate apically.

Proctiger: 1-2 pairs of cercal setae.

Pupa (fig. 2): Abdomen: 3.29 mm. Trumpet: 0.4 mm. Paddle: 0.69 mm. Chaetotaxy as figured; hairs lightly to very lightly pigmented. In life a very conspicuous dorsal pattern of moderate to strong pigmentation embracing the trumpets, mesonotum, metanotum and abdominal tergites I-IV contrasting very sharply with the rest of the body which is a uniform light lemon yellow color; the dark pigmentation with numerous clear unpigmented spots and light blotches as described and figured.

Cephalothorax: Mesonotum moderately pigmented between trumpets, with many clear unpigmented areas caudad and at base of wing case. Metanotum with darkly pigmented caudolateral area broken by a clear unpigmented lateral spot; middle and anterior part with many clear unpigmented areas and small blotches and spots of dark pigmentation. Trumpet very darkly and uniformly pigmented and contrasting very sharply with rest of cephalothorax. Hair: 1 (2), 2 (2), 3 (2, 2-3), 4 (6, 5-7), 5 (4, 3-5), 6 (3, 2-3), 7 (4, 3-5), 8 (2), 9 (2, 2-3), 10 (4, 3-5), 11 (1), 12 (6, 5-7).

Abdomen: Tergite I uniformly darkly pigmented except for usual membranous areas and a pair of submedian clear unpigmented spots cephalomesad of hair 1. Tergite II darkly pigmented along caudal border and on a pair of large triangular sublateral areas connected by broad base to caudal border; area between dark triangles moderately to lightly pigmented and blotched with darker pigmentation and dark spots at base of larger hairs. Tergites III, IV moderately pigmented on broad median trapezoidal areas widened caudad; central area of trapezoids blotched with lighter pigmentation and clear unpigmented spots, particularly cephalad on II and caudad on III. Sternites II-IV moderately and rather uniformly pigmented in the middle, progressively less widely and strongly caudad. Segment I: hair 1 (16-19 primary branches, subequal in length to tergite, each with several secondary branches), 2 (2, 1-4), 3 (1), 4 (7, 5-8), 5 (4, 3-5), 6 (2, 1-2), 7 (3, 2-4), 9 (1, 1-2), 10 (1), 11 (2, 1-4). Segment II: hair 0 (1), 1 (2, 1-4), 2 (1), 3 (1), 4 (4, 3-6), 5 (2, 1-3), 6 (2, 1-2), 7 (4, 3-4), 8 (2, 1-3), 9 (1), 10 (1, 1-2), 11 (1). Segment III: hair 0 (1), 1 (2, 1-3), 2 (1, 1-2), 3 (1), 4 (4, 3-5), 5 (3, 2-4), 6 (2, 1-2), 7 (3), 8 (3), 9 (1), 10 (2, 1-3), 11 (1), 14 (1). Segment IV: hair 0 (1), 1 (2, 2-3), 2 (1), 3 (4, 3-5), 4 (2, 1-4), 5 (2), 6 (2, 1-3), 7 (3, 2-3), 8 (3), 9 (1), 10 (1), 11 (1), 14 (1). Segment V: hair 0 (1), 1 (2, 1-3), 2 (1), 3 (2, 1-2), 4 (4, 3-5), 5 (2), 6 (2, 1-2), 7 (4, 3-5), 8 (3, 2-4), 9 (1), 10 (1, 1-2), 11 (1), 14 (1). Segment VI: hair 0 (1), 1 (2, 1-2), 2 (1), 3 (2, 1-2), 4 (3, 2-4), 5 (2), 6 (2, 1-4), 7 (3, 2-4), 8 (3, 2-4), 9 (1, 1-2), 10 (3, 2-5), 11 (1), 14 (1). Segment VII: hair 0 (1), 1 (2, 1-3), 2 (1), 3 (2, 1-2), 4 (2, 1-2), 5 (3, 2-5), 6 (4, 3-5), 7 (1, 1-3), 8 (1, 1-4), 9 (3, 2-4), 10 (3, 3-4), 11 (1, 1-2), 14 (1). Segment VIII: hair 0 (1), 4 (2, 1-2), 9 (12, 11-15), 14 (1).

Paddle: Uniformly lightly pigmented, midrib darker; apex distinctly emarginate; external margin with short dorsal spicules; hair 1 slender. Male genital lobe extending to about 0.56 of paddle, female genital lobe to 0.31.

Larva (fig. 3): Head: 0.68 mm. Siphon: 0.72 mm. Anal saddle: 0.2 mm. Chaetotaxy as figured, hairs lightly to moderately pigmented. In life the larvae are light lemon yellow in color and appear moderately hairy.

Head: Width about 1.12 of length. Ocular bulge prominent; collar well developed. Pigmentation light except in area around mouth where it is slightly darkened; integument smooth. Mental plate with a strong median tooth and 9 (8-10) distinct teeth on each side, often a smaller detached tooth at base. Hair 1 (3), 4 (8, 7-11; not in line with 7, 6-C; all branches in one plane), 5 (1;slender),

6 (5, 4-6; branches in one plane), 7 (14, 9-18; stellate), 8 (2, 2-3), 9 (3, 3-4), 10 (1, 1-2), 11 (11, 8-13; stellate), 12 (2, 2-3), 13 (1), 14 (11, 9-13; stellate), 15 (4, 4-5; minute, inconspicuous).

Antenna: Length about 0.25 of head. Shaft gradually narrowing from base; width at middle about 0.2 of length; uniformly lightly pigmented, without spicules. All hairs single; hair 1 at 0.6 from base.

Thorax: Apices of long hairs attentuate; barbs present on some hairs. Prothorax: hair 0 (19, 17-21), 1 (20, 19-22), 2 (1, 1-2), 3 (16, 13-18), 4 (2, 1-2), 5 (13, 10-15), 6 (1), 7 (3, 2-3), 8 (13, 12-16), 9 (17, 13-20), 10 (6, 5-8), 11 (2), 12 (1), 14 (2). Mesothorax: hair 1 (23, 16-25), 2 (3, 2-3), 3 (1), 4 (2, 2-3), 5 (1), 6 (9, 5-11), 7 (1), 8 (7, 6-9), 9 (11, 9-14), 10 (1), 11 (10, 8-12), 12 (1), 13 (13, 11-16), 14 (9, 6-11). Metathorax: hair 1 (22, 15-28), 2 (1), 3 (16, 13-18), 4 (4, 4-5), 5 (15, 13-19), 6 (1), 7 (12, 8-16), 8 (12, 10-15), 9 (11, 9-14), 10 (1), 11 (11, 10-12), 12 (1), 13 (30, 21-33).

Abdomen: Stellate hairs with branches of equal length; hair 14 single on all segments. Segment I: hair 1 (25, 21-29), 2 (22, 18-27), 3 (1), 4 (14, 11-17), 5 (14, 11-17), 6 (8, 6-9), 7 (2), 9 (8, 7-10), 10 (2, 2-3), 11 (21, 19-24), 12 (1), 13 (21, 17-26). Segment II: hair 0 (1), 1 (25, 20-28), 2 (21, 18-23), 3 (1), 4 (4, 2-5), 5 (15, 13-17), 6 (7, 5-9), 7 (3, 2-4), 8 (1), 9 (9, 7-11), 10 (7, 6-8), 11 (3, 2-3), 12 (1), 13 (18, 13-23). Segment III: hair 0 (1), 1 (24, 19-27), 2 (20, 17-22), 3 (1), 4 (2, 2-3), 5 (15, 13-18), 6 (3, 2-3), 7 (13, 10-16), 8 (1), 9 (10, 8-12), 10 (1), 11 (2, 2-3), 12 (1), 13 (19, 16-25). Segment IV: hair 0 (1), 1 (24, 20-27), 2 (20, 17-23), 3 (1), 4 (1, 1-2), 5 (16, 13-21), 6 (3, 2-3), 7 (14, 12-17), 8 (1), 9 (12, 10-14), 10 (1), 11 (3), 12 (1), 13 (19, 14-23). Segment V: hair 0 (1), 1 (23, 20-25), 2 (20, 17-23), 3 (1), 4 (2, 2-3), 5 (17, 13-21), 6 (2, 2-3), 7 (16, 14-18), 8 (1), 9 (13, 10-16), 10 (1), 11 (3, 2-4), 12 (1), 13 (20, 17-27). Segment VI: hair 0 (1), 1 (22, 18-25), 2 (20, 17-25), 3 (1), 4 (2, 1-2), 5 (16, 13-19), 6 (3, 2-3), 7 (16, 14-18), 8 (2, 1-3), 9 (12, 10-13), 10 (3, 2-3), 11 (15, 13-18), 12 (1), 13 (21, 17-24). Segment VII: hair 0 (1), 1 (17, 15-19), 2 (18, 17-22), 3 (1), 4 (1), 5 (16, 13-19), 6 (13, 10-15), 7 (1), 8 (16, 11-19), 9 (12, 9-14), 10 (17, 14-23), 11 (2, 2-3), 12 (1), 13 (19, 17-21).

Segment VIII: Comb scales numerous and arranged in 4-5 rows, poorly pigmented and difficult to see; those in posterior row with base of free part elongate, with 1-2 pairs of sharp denticles, distal part flattened and expanded, apex with sharp point. Hair 0 (1), 1 (19, 16-23), 2 (1), 3 (3, 2-4), 4 (1), 5 (18, 16-21), 14 (1).

Siphon: Index about 3.25-3.85. Very lightly pigmented; spicules short but numerous and uniformly distributed except on ventral surface between the pecten teeth of the 2 sides. Pecten extending to 0.45; teeth 8 (7-10) in number, as figured. Hair 1 (4, 3-5; barbed), 2 (1), 3-5, 7 not visible, 6 (1), 8 (1), 9 (1).

Anal Segment: Saddle lightly pigmented; uniformly covered with short spicules except on caudolateral border where spicules are of varying sizes and much longer. Gills as figured, ventral pair about 0.68 length of dorsal. Hair 1 (4, 3-4), 2 (5, 4-5), 3 (1), 4a (4, 4-5), 4b (5, 4-5), 4c (6, 5-7), 4d (6, 5-7), 4e (7, 6-7).

Type: ♂ (270-10) with associated larval and pupal skins and genitalia slide, Aoloau, Tutuila, American Samoa, elev. 1500 ft, from leaf axil of a smooth-leafed Pandanus, 22 July 1963, J. N. Belkin, S. Ramalingam and N. Spencer (USNM).

Paratypes: 9♀, 11♂, 1 pupal skin, 18 whole pupae, 159 whole larvae, all from same collection (270) as holotype. 1♀ (270-13) with associated larval and pupal skins (allotype), 1 whole larva (USNM). 1♀ (270-15) with associated

larval and pupal skins, 1♂ (270-101) with associated pupal skin, 1 whole larva (BMNH). 1♀ (270-109) and 1♂ (270-18) with associated pupal skins, 1 whole larva (QUEEN). 1♀ (270-18) with associated larval and pupal skins, 1♂ (270-100) with associated pupal skin, 1 whole larva (Ramalingam). 3♀ (270-12, 17, 31) and 1♂ (270-11) with associated larval and pupal skins, 5♂ (270-102, 103, 104, 105, 106), 1♀ (270-107) with associated pupal skins, 1♂ (270-16) without associated skins, 2 sets of associated larval and pupal skins (270-14, 19) without ♂, 1♀ (270-30) with associated larval skin, 2♀, 1♂ (270), 1 pupal skin (270), 10 whole pupae and 155 whole larvae (UCLA).

Specimens: 501; 68♀; 62♂; 27 pupae; 344 larvae; 64 individual rearings (42 larval, 22 pupal).

Systematics: This species is the third member of the kochi group to be described from Samoa. It can be distinguished readily from the other 2 species in all stages except in the female which is extremely similar to samoanus.

In the female, tutuilae and samoanus are separated from oceanicus by the predominantly light-scaled base of vein C. The entire wing is also predominantly light-scaled in these 2 species while it is largely dark-scaled in oceanicus. The separation of tutuilae from samoanus is not at all reliable at present. In tutuilae the abdominal tergites are always largely dark-scaled, the light scales being restricted usually to small discrete patches. In samoanus there is a tendency towards an increase in the amount of light-scaling on the abdominal tergites (especially in Western Samoa, where the tergites may be completely light-scaled) but there is a great deal of overlap with tutuilae (especially in American Samoa). In the wing, tutuilae generally has a well developed accessory subcostal pale area on vein C while in samoanus this pale area is generally smaller and frequently does not extend to vein C; however, there is considerable overlap and this character cannot be trusted.

In the male genitalia, tutuilae is immediately differentiated from both samoanus and oceanicus by the presence of a row of specialized setae with expanded apex between the specialized basal mesal seta and the proximal end of the postmedian central mesal patch of bristles; this row of setae is not differentiated in the other species.

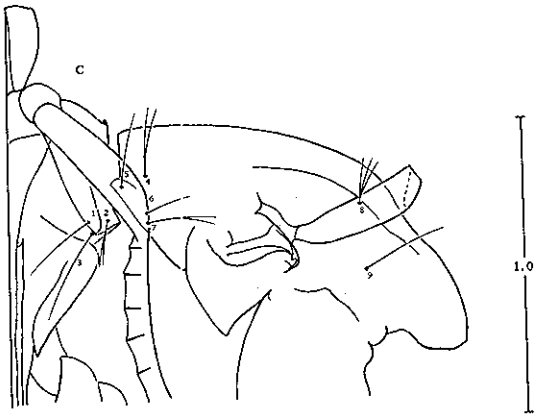
In the pupa, tutuilae has a striking cephalothoracic and abdominal color pattern quite different from any other species of the group. Particularly noticeable are the extremely dark trumpets.

In the larva, tutuilae and samoanus are differentiated from oceanicus by the distinctly spiculose siphon and the flattened, heavily branched head hairs 4, 6-C. A. tutuilae can be separated from samoanus by the smaller number of branches in head hair 4-C (7-11 instead of 14-22), head hair 6-C (4-6 instead of 9-12) and by the shorter simple spicules of the siphon (longer, denser and branched in samoanus).

Bionomics and Disease Relations: The immature stages of tutuilae have been collected primarily in the leaf axils of Pandanus from sea level to elevations of 1500 ft. No definite information is available at present regarding the bionomics of the adults of tutuilae. It is possible that the report (Ramalingam and Belkin 1964, loc. cit.) of 2 specimens infected with Wuchereria bancrofti refers to this species (as Aedes (Finlaya) South Pacific sp. no. 25, UCLA collection) but it is also possible that the specimens in question are true samoanus since the 2 species cannot be differentiated with certainty in the female.

Distribution: SAMOA: Savaii; Upolu; Tutuila, Ofu (Manua group). Not known elsewhere.

AEDES (STEGOMYIA)



Tongatabu a

tabu

(SR 161-15)

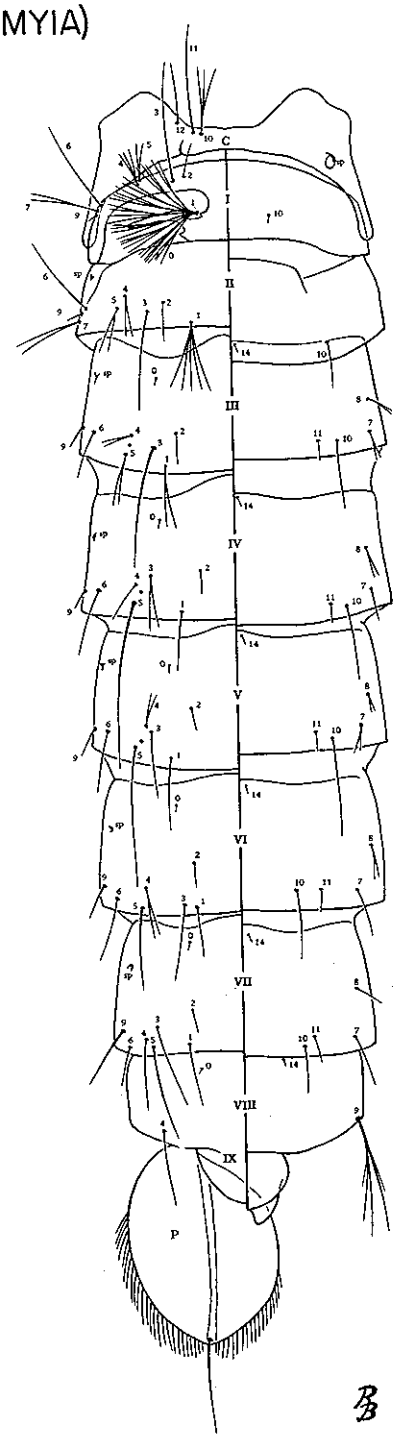
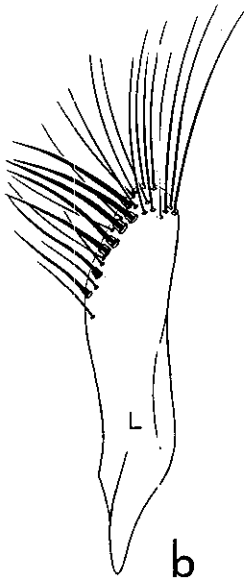


Fig. 1

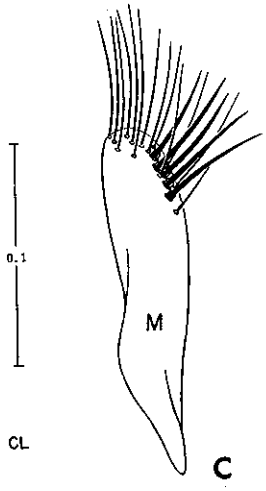


b

Eua

tabu

(SR 235-108)



c

Tofua

tongae

(SR 200-3)

0.1

CL

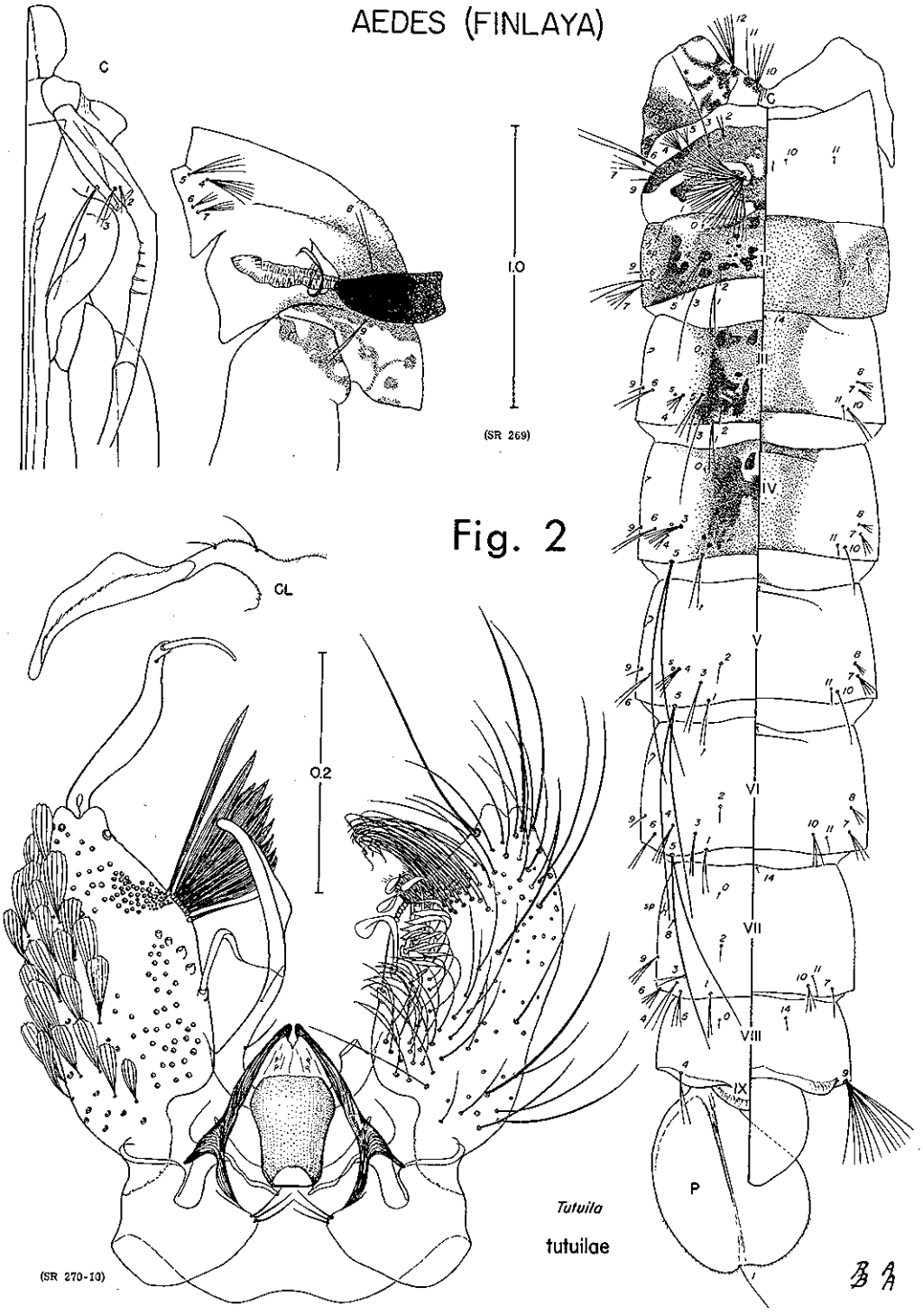

AEDES (FINLAYA)
C
1.0
(SR 269)
CL
0.2
(SR 270-10)
Tutuila
tutuilae
P
I
II
III
IV
V
VI
VII
VIII
IX

Fig. 2

AEDES (FINLAYA)

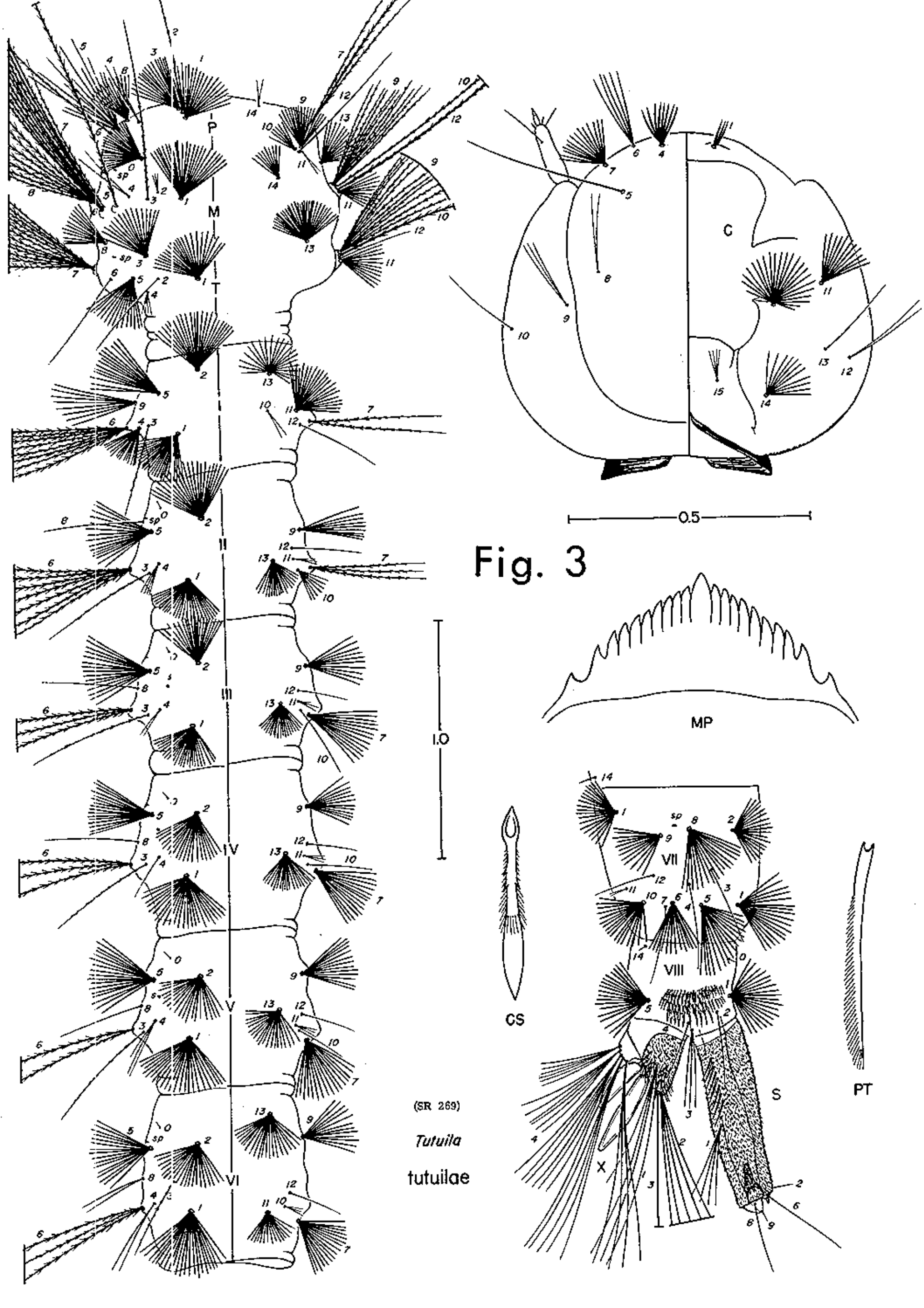


Fig. 3

(SR 269)
Tutuila
tutuilae