NOTES ON THE TANDERIDAE OF THE AUSTRALASIAN REGION.
(Diptera)

PART I

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The uncommon and primitive flies that constitute the family Tanyderidae are better represented in the Australasian region than elsewhere. By far the largest generic group within the family is *Radinoderus* Handlirsch, including about ten species in the Australian and Papuan subregions. In large collections of Tipulidae received from various friends and correspondents a few scattered specimens of these flies were included, representing various species that are discussed in this report. Where not specified to the contrary the types of the new species are preserved in my collection of Tipulidae and allied families. For a consideration of the characters and scope of the Tanyderidae, the latest comprehensive papers may be consulted.[1]

RADINODERUS SOLOMONIS (ALEXANDER)

1924. *Tanyderus* (*Radinoderus*) *solomonis* Alexander, Insec. Inscit. Menst., 12:143.

The type, a female, was from Guadalcanal (Guadalcanar), collected in January, 1921, by J. A. Kusche; preserved in the Bishop Museum, Honolulu. One further female, Solomon Islands (exact island unspecified), November, 1944 (Jean Laffoon).

Radinoderus holwayi Alexander, new species

Size large (wing, female, over 18 mm.); thoracic dorsum chiefly dark brown, the posterior sclerites of the notum and the pleura variegated by gray; antennae, including the flagellum, brownish black; legs yellow, the femoral tips and tibial bases broadly brownish black; wings subfalcate, whitish subhyaline, handsomely patterned with brown, the dark areas in the basal third and along the costal border with pale centers and narrow

[1]Alexander, C. P.
1927. Tanyderidae, Genera Insectorum, Fasc. 189:1-13, pl.
1928. The Tanyderidae of Australia (Diptera). Proc. Linn. Soc. New South Wales, 53:367-374, 4 figs.
1932. The Dipterous family Tanyderidae in Japan (Insecta). Annot. Zool. Japonenses, 13:273-281, 2 figs. (detailed bibliography).

dark borders; oval area in outer end of cell *R* unusually well-marked and delimited by curvature of the enclosing veins; vein R_1 angulated and spurred at outer end; cell M_4 strongly widened outwardly, at margin a little less than three times as wide as cell M_3; abdomen dark brown, the more proximal tergites and sternites variegated by grayish or yellowish spots.

Female. Length about 29 mm.; wing 18.2 mm.

Frontal prolongation of head brownish black, the surface sparsely pruinose, the dorsal surface protuberant; mouthparts black; palpi brownish black, the intermediate segments a trifle paler. Antennae brownish black; flagellum broken at the sixth segment; segments cylindrical, with a dense erect pubescence and sparse elongate unilaterally distributed verticils. Head above on front, anterior vertex, cephalic portion of posterior vertex and the orbits gray, the restricted posterior vertex and occiput dark brown; anterior vertex on its cephalic half very narrow, not much wider than a single row of ommatidia, on the posterior portion becoming about four times as wide.

Cervical sclerites very elongate, dark brown above, somewhat paler on sides. Pronotum dark brown above, paler and more pruinose on sides. Mesonotal præscutum and scutum with the disk occupied by three confluent brown stripes, the humeral and lateral borders yellowish gray; scutellum grayish pruinose, with a central brown line; mediotergite brown on central portion, broadly gray pruinose on the cephalic lateral angles. Pleura and pleurotergite dark brown varigated with light gray, including a major area on posterior sternopleurite and cephalic and dorsal pteropleurite. Halteres with stem light yellow, knob brownish black. Legs with the coxae and trochanters dark brown, sparsely pruinose; femora light yellow, the tips rather narrowly brownish black; remainder of legs light yellow, the tibial bases brownish black, the amount a little greater than the femoral tips. Wings whitish subhyaline, handsomely patterned with brown, the markings arranged about as in *terrae-reginae* yet with all details distinct; dark areas of basal third of wing and along the costal border much paler on their central portions, narrowly bordered by dark brown, the paler centers more or less freckled with pale yellow spots; the subbasal clear band in *terrae-reginae* is here virtually eliminated in the radical and medial fields; ground costal interspace opposite the cord very extensive, wider than either subtending dark area; veins yellow in the ground fields, chiefly darkened in the patterned areas, this including *C*, *Sc* and outer radial veins. Wing outline strongly subfalcate, the margin being strongly emarginate opposite the termination of veins R_5 to M_2, inclusive. Venation: Outer two-fifths of *Rs* and the corresponding portion of vein *M* behind it strongly convex to delimit an unusually distinct oval area in the outer fourth of cell *R*; *Sc* long, Sc_2 terminating nearly opposite the fork of R_{2+3}; distal section of vein R_1 moderately sinuous, angulated and spurred at outer end; cell *1st* M_2 a

little shorter than in *terrae-reginae*, the distal section of vein M_3 more than one-half the length of the basal section; *m* angulated at near midlength; cell M_4 strongly widened outwardly as in *terrae-reginae*, at margin a little less than three times that of cell M_3.

Abdomen elongate; basal tergite dark brown, with a major gray area at the cephalic portion and another less evident one near the posterior border; succeeding tergites dark brown, with a large silvery gray area on the side beyond midlength, this smaller on the outer segments, becoming obsolete at near the sixth tergite; second to fourth tergites, inclusive, with a more yellowish median brightening just before the posterior border; proximal sternites dark brown, the lateral margins patterned with vague, more yellowed areas; outer segments uniformly dark brown.

Habitat. SOLOMON ISLANDS.

Holotype, ♀, GUADALCANAL, May 6, 1943 (R. T. Holway).

Named for the collector, Dr. Richard T. Holway, who served as ensign and naval malariologist in the Pacific area. By my key to the species of *Radinoderus* (Insec. Inscit. Menst., 12:141; 1924), this fly runs to *terrae-reginae* (Alexander), of southern Queensland, with which species it has been compared throughout the above description. The most conspicuous characters of this species include the darkened antennal flagellum and the wing shape, pattern and venation. The oval area set off in cell *R* is more distinct here than in other species known to me.

Radinoderus pictipes Alexander, new species

Legs variegated with brown and yellow, the tibiae medium brown at either end, enclosing a broad yellow band; antennae 23-segmented, flagellum yellow, the incisures a little more darkened; wings relatively broad, whitish subhyaline, conspicuously banded with brown, the areas only inconspicuously margined with still darker brown; outer dark band sending a long arm to the wing-tip in the outer radial cells; major pale areas in outer radial field and beyond cord with smooth margins, the latter marking lying almost transversely to the wing; veins enclosing outer end of cell *R* arcuated to delimit an oval area near the outer end of cell *R*; vein R_1 beyond Sc_2 unusually sinuous, curved at tip; cell *1st* M_2 long, approximately twice vein M_1 beyond it; cell M_4 widened outwardly, at margin fully four times *m-cu*.

Female. Length about 15 mm.; wing 15 mm.

Frontal prolongation of head brown, very sparsely pruinose; mouthparts darker brown, the first segment of palpus paler. Antennae with scape brown, pedicel more yellowed, flagellar segments a trifle darker at the incisures; 23-segmented, including the reduced terminal unit; flagellar segments subcylindrical, with long

outspreading yellow setae that much exceed the diameter of the segment opposite their point of insertion. Head light gray; anterior vertex reduced to a capillary strip that is only about as wide as a single row of ommatidia; eyes relatively large, ommatidia very fine.

Cervical region dark brown; pronotum somewhat paler brown. Mesonotal praescutum and scutum with the restricted ground color light gray, most evident as lateral borders just behind the pseudosutural fovea; posterior interspaces a little paler than three darker brown stripes, the center of the median stripe more brownish gray; interspaces with conspicuous erect setae; scutellum light yellow, gray pruinose, the apex with long yellow setae; mediotergite light brown, paler on sides and on caudal half of pleurotergite. Pleura conspicuously variegated pale yellow and dark brown, the latter including a conspicuous area on sternopleurite, anepisternum and again on meron, leaving an extensive pale mark on the pteropleurite and posterior border of sternopleurite; dorsopleural membrane surrounding the spiracle yellow, darker behind. Halteres with stem pale yellow, knob dark brown. Legs with the fore coxae and trochanters light yellow; middle and hind coxae infuscated; trochanters obscure yellow; femora yellow, with a nearly terminal brown ring that occupies about the outer sixth to eighth of segment; tibiae brown at both ends, enclosing a broad yellow ring, this narrower than the darkened outer portion, provided with pale setae; extreme tip of tibia paling to yellow; tarsi yellow. Wings relatively broad, whitish subhyaline, conspicuously banded with brown, the latter appearing as two broad crossbands, with additional darkenings at base and again at apex; a very small ocelliform mark at origin of *Rs*; the two major crossbands interconnected in cells *C* and *Sc* only; outer band sending an arm obliquely outward to the wing tip, crossing the distal ends of the outer radial cells, extending from vein R_1 to R_4, with pale marginal droplets in ends of all cells; in outer radial field an unusually conspicuous oval pale area extending from costa to vein R_4, pale band beyond cord almost transverse to the wing, both pale areas with almost smooth margins; dark areas very weakly bordered by brown, more conspicuously so in the vicinity of the cord; veins brown, yellow in the patterned areas excepting *C*, *Sc* and *R*, origin of R_3, and most of the elements comprising the cord. Venation: Outer two-fifths of *Rs* strongly arcuate, the corresponding portion of *M* slightly bent, the two enclosing a conspicuous suboval outline at the distal fourth of cell *R*; vein R_1 beyond Sc_2 unusually sinuous, at tip curved strongly cephalad, vein R_2 similarly upcurved; *m-cu* just before midlength of the nearly square M_{3+4}; cell *1st* M_2 very long, approximately twice vein M_1 beyond it; cell M_4 widened outwardly, at margin fully four times *m-cu*.

Abdominal tergites dark brown, segments two to six each with a conspicuous silvery white sublateral spot near base, this smallest on the sixth segment; sternites silvery white on basal lateral por-

tions, the remainder pale brown; outer abdominal segments, including ovipositor, dark brown.

Habitat. NETHERLANDS NEW GUINEA.

Holotype, ♀, HOLLANDIA, May, 1934 (W. Stüber); to be returned to the Zoological Museum, Buitenzorg, Java.

By my key to the species of *Radinoderus* (Insec. Inscit. Menst., 12:141; 1924), the present fly runs to couplet 3, including *ornatissimus* (Doleschal) and *terrae-reginae* Alexander, differing from both, and from the species subsequently described, by the pattern of the legs and wings, and in the venational details, as described. The oval area at the outer end of cell *R* is unusually conspicuous as compared with the related species, with the exception of *holwayi* new species.

A NEW RECORD FOR AULICUS TERRESTRIS LINSLEY

While collecting on the floor of San Joaquin Valley about ten miles north of McKittrick, California, two specimens of *Aulicus terrestris* Linsley were taken on the flowers of a *Phacelia* sp. The *Phacelia* were growing in a damp wash some eight feet below the general surface of the valley floor. The specimens were taken at 4:45 P.M., while overcast and cool. The fact that the adults were feeding upon flowers is interesting, as Linsley[1] has recorded the adults as predaceous upon the larvae of certain moths.

As is pointed out by Linsley[1], *Aulicus terrestris* is found in association with the lubber grasshopper, *Esselenia vanduzeei* Hebard. This grasshopper has been found in Monterey County, on Mount Hamilton, on Mount Diablo, in the Livermore Valley, and in the foothills of Kern County. *Aulicus terrestris* Linsley has been recorded from all the above areas but one, that of Kern County. The new record completes the locality relationship. Although *Esselenia vanduzeei* Hebard was not taken in the same spot with the clerids, the species was found in abundance a few miles to the south.—K. E. FRICK.

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[1] Linsley, E. G., 1936. Studies in the Genus *Aulicus* Spinola. Univ. Calif. Publ., 6(9):249-162.