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Revision of the Oriental Species of Stilobezzia Kieffer (Diptera, Ceratopogonidae)

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FRANK A. TAYLOR
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Introduction

This paper is the second of what we hope will be a series of revisions of Oriental Ceratopogonidae, the first being a revision of the Oriental *Alluaudomyia* by Wirth and Delfinado (1964). The ceratopogonid material which has been sorted and mounted on slides from extensive light trap collections brought to the U.S. National Museum for the study by Wirth and Hubert (in preparation) on the *Culicoides* of southeast Asia provides a source which we hope will facilitate badly needed revisions of other genera of biting midges.

This study is based on a total of 2,617 specimens of which 1,192 are mounted on slides. Types, including paratypes, were selected only from slide-mounted material; the "Additional Specimens" in our lists are also mounted on slides unless noted as "pinned" or "alcohol." In "Distribution" the type locality is given first, followed by a semicolon; then the other localities are listed alphabetically or broadly by general distribution patterns in the case of wide-ranging species. In the locality data lists, the arrangement is alphabetical as far as possible, with the country first (CAPITALIZED), then the State or Province, district or town, etc. The English transliteration of Thailand localities has been done as far as possible according to the Times Atlas of the World.

For their generous cooperation in collecting and sending us Oriental material, we are especially indebted to the following persons and institutions: H. C. Barnett, A. A. Hubert, H. E. McClure, and R. Traub, associated with the Walter Reed Army Institute of Research and the Medical Research Institute at Kuala Lumpur, Malaya; D. H. Colless and R. H. Wharton, Commonwealth Scientific and Industrial Research Organization, Canberra, Australia; M. E. Griffith and D. R. Johnson of the Agency for International Development, Washington, D.C.; J. L. Gressitt, T. C. Maa, L. W. Quate, and C. Yoshimoto of the B. P. Bishop Museum, Honolulu; and J. E. Scanlon and Manop Rattanarithikul formerly of the SEATO Medical Research Laboratory, Bangkok.

The types of our new species are deposited in the U.S. National Museum in Washington and the B. P. Bishop Museum in Honolulu. Paratypes, when available, will be deposited in the Bishop Museum, Honolulu; British Museum (Natural History), London; Indian Museum, Calcutta; School of Public Health, University of Sydney;

and the Commonwealth Scientific and Industrial Research Organization, Canberra, Australia.

This study was made possible by a grant from the United States Educational Foundation to the senior author to permit study at the U.S. National Museum from January until August 1965.

Classification

A systematic list of the 57 known Oriental *Stilobezzia* species is presented in table 1. We can arrange these species conveniently into three subgenera, *Stilobezzia*, *Eukraiohelea*, and *Neostilobezzia*. Within these subgenera, only the first two have lent themselves to a satisfactory breakdown into species groups; most of the *Neostilobezzia*, at least the Oriental fauna, defy attempts at natural arrangement.

The Brevicostalis Group of the subgenus *Eukraiohelea* is unique among the *Stilobezzia* species in having a shortened costa, a stout spine on the trochanter, and an extremely small, lappetlike aedeagus.

In the subgenus *Stilobezzia*, the Boharti Group possesses several neostilobezzian features in having a spacious first radial cell, long costa, and little difference in the lengths of tarsomeres III and IV. The species of the Poikiloptera Group have some eukraiohelean features such as the extreme reduction of the first radial cell, the long, columnar parameres, and linear aedeagal sclerites with their prominent dorsomedian lobes that suggest that *Eukraiohelea* and *Neostilobezzia* are only distantly related to each other though related separately to *Stilobezzia* sensu stricto.

In the appendix we have been only partially successful in assigning the described world species of *Stilobezzia* to proper subgenera and species groups. In the subgenera *Eukraiohelea* and *Stilobezzia*, our eight species groups are well contrasted on the basis of color patterns and body setation as well as by internal genitalic structures, and we are fairly confident of their natural basis.

When it comes to the subgenus *Neostilobezzia*, however, the problem of species groups is quite different. Except for those belonging in the Speculae Group, few group-level similarities could be found in the Oriental species we studied, almost each being novel in its own way. These species have, as a rule, no significant color pattern on their body parts, and the setation, including such a basic subgeneric criterion as the surface macrotrichia of the wing, presents such devious intraspecific variation that even male-female collation from random collection is often difficult. Further study of both sexes of many of the described species and more detailed information on their distribution will be necessary in order to arrive at a natural group classification of this subgenus. For this reason, several group names in *Neostilobezzia*, proposed by Tokunaga and Murachi (1959) and

TABLE 1.—*Systematic list of the oriental* Stilobezzia *and comparison of certain quantitative characters (mean values)*

	Wing length (mm)	Costal ratio	Antennal ratio	No. of mandible teeth	No. of tibial spines	Tarsal ratio	No. hairs, abdominal tergum I hair cluster
Subgenus *Eukraiohelea*							
Africana Group							
1. clarifemorata, n. sp.	1. 26	0. 82	1. 71	7. 00	5. 00	2. 75	12
2. fuscipes, n. sp.	1. 18	0. 73	1. 74	6. 75	6. 00	2. 73	8–12
3. fusciterga, n. sp.	1. 34	0. 78	1. 65	7. 00	5. 50	2. 87	13–16
4. minuta, n. sp.	0. 94	0. 68	1. 63	8. 00	5. 50	2. 60	4–5
5. punctifemorata, n. sp.	1. 23	0. 76	1. 50	7. 10	5. 50	2. 91	10–13
Brevicostalis Group							
6. brevicostalis, n. sp.	0. 85	0. 55	1. 20	71. 0	6. 60	2. 60	2–3
Subgenus *Neostilobezzia*							
Speculae Group							
7. speculae Macfie	1. 72	0. 82	1. 26	5. 50	6. 00	1. 79	12
8. subnebulosa, n. sp.	1. 41	0. 74	1. 10	6. 50	7. 00	2. 20	14
9. venefica, n. sp.	1. 55	0. 79	1. 34	7. 60	8. 10	2. 10	20

(Not Grouped)							
10. artistyla, n. sp. (♂)	0. 95	0. 70			6. 00	1. 88	4–5
11. constans, n. sp.	1. 26	0. 81	1. 09	8. 00	7. 00	1. 91	6
12. crassivenosa, n. sp.	1. 16	0. 67	1. 11	8. 00	6. 70	2. 28	7–8
13. fasciscutata, n. sp. (♂)	1. 20	0. 83			6. 00	2. 44	8–9
14. fortistyla, n. sp. (♂)	1. 40	0. 82			7. 00	2. 27	14–15
15. insolita, n. sp.	0. 82	0. 65	1. 24	7. 30	6. 50	2. 51	3
16. macclurei, n. sp. (♂)	1. 38	0. 79			7. 00	2. 50	7
17. magnitheca, n. sp.	1. 59	0. 82	1. 87	7. 60	5. 00	1. 89	8–9
18. miripes, n. sp.	1. 07	0. 82	0. 82	7. 80	6. 20	1. 80	1
19. obesa, n. sp. (♂)	1. 21	0. 80			8. 00	2. 10	7
20. obesigenitalis, n. sp. (♂)	1. 11	0. 74			6. 50	1. 80	5
21. parvitheca, n. sp.	1. 42	0. 84		7. 00	7. 00	2. 15	7–8
22. parvaeungulae, n. sp.	0. 89	0. 81	1. 03	8. 30	6. 50	2. 10	4
23. robusta, n. sp. (♂)	2. 08	0. 79			8. 00	1. 70	10
24. subalba, n. sp. (♂)	1. 33	0. 74			6. 00	2. 00	11–12
25. xanthogaster, n. sp.	0. 95	0. 76	1. 69	7. 90	6. 60	2. 14	5–6

TABLE 1.—*Systematic list of the oriental* Stilobezzia *and comparison of certain quantitative characters (mean values)*—Continued

	Wing length (mm)	Costal ratio	Antennal ratio	No. of mandible teeth	No. of tibial spines	Tarsal ratio	No. hairs, abdominal tergum I hair cluster
Subgenus *Stilobezzia*							
Boharti Group							
26. fortipes, n. sp. (♂)	1. 56	0. 77			7. 00	1. 80	13
27. rotunditheca, n.sp.	1. 35	0. 84		6. 00	7. 00	2. 10	15
28. spinipes, n. sp.	1. 42	0. 81		7. 00	6. 00	2. 50	10–12
29. subflava, n. sp. (♂)	1. 17	0. 80			6. 00	2. 07	9
30. traubi, n. sp.	1. 30	0. 82	1. 27	6. 00	5. 50	2. 20	10–12
Notata Group							
31. festiva Kieffer	1. 39	0. 68	1. 65	6. 80	10. 90	1. 80	10
32. huberti, n. sp.	1. 42	0. 73	1. 79	6. 60	10. 10	1. 96	11
33. notata (de Meijere)	1. 64	0. 73	1. 86	6. 90	11. 20	2. 20	10
34. pseudofestiva, n. sp.	1. 45	0. 71	1. 71	7. 00	9. 80	2. 10	8
35. pseudonotata, n. sp.	1. 58	0. 72	1. 76	6. 80	11. 00	2. 20	7–8
36. spinitarsis, n. sp.	1. 38	0. 72	1. 62	7. 00	10. 00	2. 00	8
37. subfestiva, n. sp.	1. 41	0. 73	1. 67	7. 04	8. 80	2. 10	8–10
38. supernotata, n. sp.	1. 67	0. 73	2. 07	7. 10	11. 80	2. 10	8–10
Pictipes Group							
39. paucipictipes, n. sp.	1. 11	0. 64	1. 39	7. 50	7. 50	2. 00	7

Poikiloptera Group							
40. inermipes Kieffer	1. 68	0. 76	1. 24	7. 00	7. 00	2. 00	20–25
41. punctivenosa, n. sp.	1. 39	0. 74	1. 38	7. 10	7. 00	2. 00	15–20
42. quatei, n. sp. (♂)	1. 83	0. 73			6. 40	2. 18	35–40
Subviridis Group							
43. eximitarsis, n. sp.	1. 21	0. 76	1. 48	7. 00	9. 00	1. 94	2
44. isthmostheca, n. sp.	1. 03	0. 65	1. 22	6. 50	9. 00	2. 38	3–4
45. nudisthmostheca, n. sp.	1. 41	0. 76	1. 65	7. 00	8. 50	2. 10	
46. spiniterga, n. sp.	1. 61	0. 75	1. 82	7. 00	9. 00	2. 00	7–8
47. subviridis Macfie	1. 49	0. 78	1. 61	7. 00	8. 20	1. 99	6–7
48. tenuicolorata, n. sp.	1. 41	0. 76	1. 70	7. 00	8. 70	2. 01	5–7
49. congestiterga, n. sp. (♂)	1. 30	0. 72			6. 50	2. 27	5
50. crassistyla, n. sp. (♂)					8. 00	2. 33	5–6
51. lasioterga, n. sp. (♂)	1. 32	0. 72			7. 50	2. 38	6
52. claripes, n. sp.	1. 45	0. 73		7. 00	10. 00	2. 06	5–6
53. propristyla, n. sp.	1. 35	0. 73	1. 63	7. 50	8. 40	1. 93	5–6
54. tokunagai n. sp.	1. 58	0. 74	1. 53	6. 90	9. 70	2. 30	5–6
Sybleae Group							
55. debilipes, n. sp.	0. 91	0. 69	1. 59	7. 00	7. 00	2. 07	2–3
56. distinctifasciata, n. sp. (♂)	0. 85	0. 65			7. 00	2. 01	1–2
57. imparungulae	1. 27	0. 76	1. 59	7. 00	7. 60	2. 25	2–3

Tokunaga (1963), have not been utilized in our study except in the appendix.

Because the descriptions do not give the present-day diagnostic characters and the type material has not been available to us for study, we have been unable to place satisfactorily the following *Stilobezzia* species described from the Oriental Region: *bimacula* (Kieffer) from India, a member of the Notata Group; *castanea* Macfie from Sumatra and Malaya (Macfie described the species twice, once (1934, p. 222) from Sumatra, and again (1934, p. 284) from Malaya; it belongs to the subgenus *Neostilobezzia*, but the female cannot be identified specifically with any of our Malayan species.); *crassipes* Kieffer from India, in the Notata Group; *decora* Kieffer from Taiwan, in the Notata Group; *minima* Kieffer from India, possibly in the Brevicostalis Group; *perspicua* Johannsen from Sumatra, in the Notata Group; *soror* Johannsen from Bali, subgenus *Neostilobezzia;* and *viridiventris* (Kieffer) from Burma, unplaced here.

Terminology

For a detailed account of ceratopogonid anatomy and for an explanation of the terminology used in taxonomic descriptions in this family, the reader is referred to the general accounts of Carter, Ingram, and Macfie (1920), Edwards (1926), Lee (1948), Wirth (1952), and Tokunaga and Murachi (1959). We would like to explain several details of terminology and usage in this paper that might otherwise cause confusion.

Antenna: In the females of Ceratopogonidae, the 3 primary segments of the Dipterous antenna—scape, pedicel, and flagellum—form 15 divisions or antennomeres that we number I to XV in our descriptions. The first (I) is the ringlike scape more or less hidden in the head capsule; the second (II) is the large and globular pedicel; the distal 13 divisions (III–XV) form the flagellum of which the distal 5 usually differ in length and structure from the preceding 8. The antennal ratio (abbreviated AR in our descriptions) is the value obtained by dividing the combined lengths of the distal 5 by the combined lengths of the preceding 8 flagellomeres.

Wing: Wing length is measured from the basal arculus to the wingtip; the costal ratio (CR) is the value obtained by dividing the length of the costa, measured from the basal arculus to the end of the second radial cell, by the wing length. In our descriptions, the first and second radial cells are abbreviated 1RC and 2RC, respectively.

Legs: On the hind legs, the tibia bears at the distal end a blunt spur on the flexor side and an oblique row of long tibial spines. The tarsal ratio (TR) is the value obtained by dividing the length of the hind basitarsus by the length of the second hind tarsomere.

Abdomen: Length of the spermatheca is obtained by measuring from the tip of the sclerotized portion of the neck to the apex of the spermatheca. In the male genitalia, we are continuing the traditional use of the term "paramere" for the internal sclerotization between the aedeagal sclerotization and the base of the basistyle, though we are aware of the anatomists' arguments that this term could be applied better to the combined basistyle-dististyle and the term "claspettes" applied to the internal structure. In the genus *Stilobezzia*, the term "submedian lobes" seems preferable for the structures that are ordinarily called "apicolateral processes" in other genera and sometimes even in this genus. Likewise, the processes of the basal portion of the

basistyle, which, in older terminologies based on *Culicoides*, have been called the dorsal and ventral roots of the basistyle, require special terminology as explained in the generic diagnosis.

The illustrations were made by the senior author who normally used an ocular grid and squared paper; a few (i.e., thoracic patterns) were freehand sketches from pinned specimens. No attempt was made to preserve a uniform scale. A careful selection of parts was made to illustrate a species. Within a group, the more common or better known species is selected for detailed illustration, and in other species of that group, only the diagnostic aspects are figured. Thus, the interorbital region, maxillary palpus, femora-tibiae, and last 2 tarsomeres and claws of the female are ordinarily illustrated for only 1 species of each group. Details of the male and female genitalia and the female spermathecae have special taxonomic significance; for this reason, they are figured whenever possible.

Our measurements were made with an ocular micrometer on specimens cleared in phenol and mounted on slides in balsam. The measurements are usually presented in the descriptions in the form "mean (minimum-maximum, n = number of measurements)" unless a single specimen is being described. Characters with unit values such as mandible teeth and tibial spines are given as "range (average, n = number of specimens counted)."

Taxonomic Treatment

Genus *Stilobezzia* Kieffer

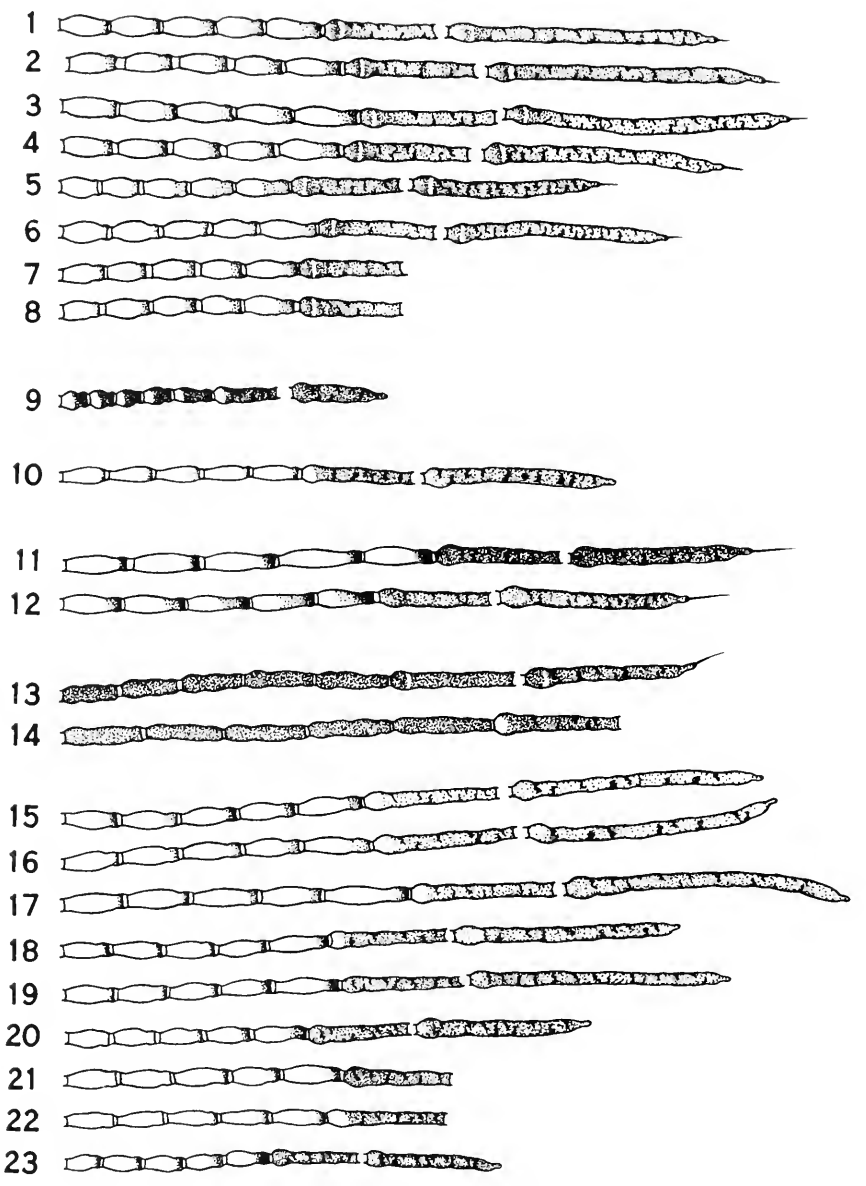
(See detailed illustrations: figures 45, 47, 71, 80; for synonymy, see citations under subgeneric headings.)

GENERIC DIAGNOSIS.—Species usually of moderate to large size, slender, with body hairs not numerous.

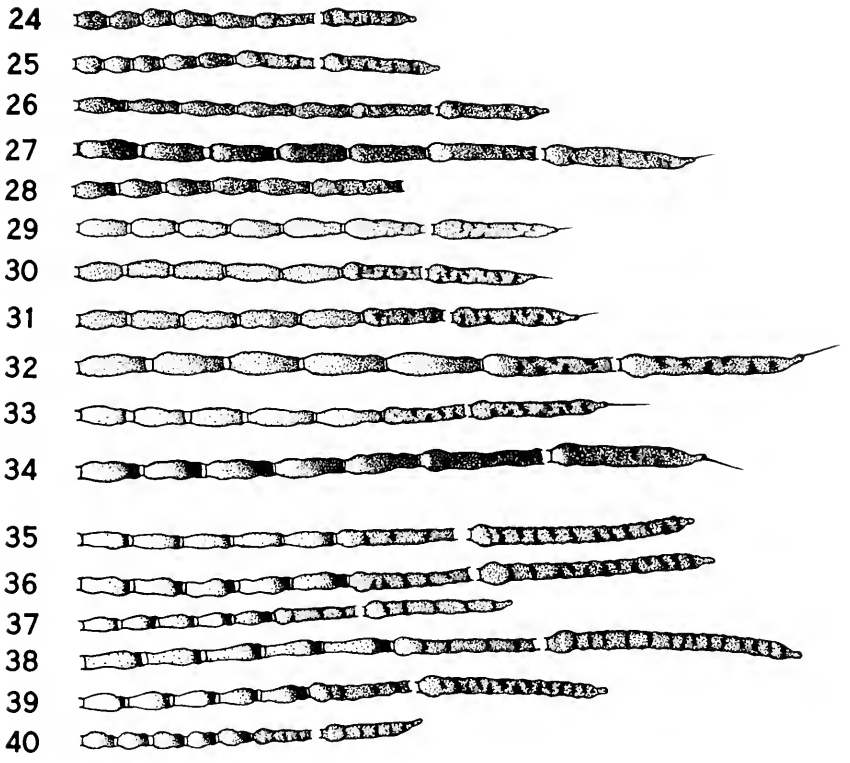
Head: Eyes bare, their inner margins nearly contiguous to broadly separated; interorbital bridge gently curved, bearing a seta in front (female) or shaped as inverted V with no seta in front (male). Female antenna (figs. 1–40) with III–X oval to barely cylindrical with smooth contour, and XI–XV strongly cylindrical with rugose contour. Male antenna with well-developed plumes; XIII–XV long and strongly cylindrical with rugose contour, III–XII oval to a little elongated with vasiform base. Female mandible abruptly tapering on distal third with few strong teeth on inner side; often with fine toothlike serrations on outer margin near apex. Maxillary palpus in both sexes with III and V subequal to slightly unequal, III with short to long sensilla usually borne in a small, round, shallow, subapical sensory pit.

Thorax: With or without color pattern, anterior margin of scutum evenly rounded or sometimes narrowed and more convex with a distinct median tubercle. Humeral pits present but inconspicuous; transverse suture distinct laterally.

Legs: Slender, unicolorous, or ornamented with definite color markings usually indicative of group relations. Claws of female usually large, strongly unequal, sometimes appearing as a single claw with a subbasal tooth (which we interpret as a specialized feature produced by reduction of the small claw and its more complete fusion with the larger); male claws equal (rarely unequal), nearly always with tips bifid a very short way; no visible empodium. Tarsomere V in female unarmed (as in the male) or armed with strong spines sometimes modified into specialized, long, blunt-tipped batonnets, usually 2 in number, rarely more. Tarsomere IV bilobed or cordate distally, sometimes the lobes armed with spines; I–III variably bearing stout, usually dark, sharp spines ventrally, usually distally but sometimes at base and midportions. Tarsomeres I–II of all legs beset with ventral rows of uniformly smaller thorny setae (bulbous setae of Kieffer, Clastrier, etc.) usually in 1 row per tarsomere on fore and midlegs, in 2¼ to 3 rows on I, and 2 rows on II on hind legs.



FIGURES 1–23.—Female antennae of *Stilobezzia* (subg. *Stilobezzia*) species (only antennomeres VI–XI and XV shown). 1–8. Notata Group: 1, *notata;* 2, *supernotata;* 3, *pseudonotata;* 4, *huberti;* 5, *festiva;* 6, *pseudofestiva;* 7, *subfestiva* (XV omitted); 8, *spinitarsis* (XV omitted). 9. Pictipes Group: *paucipictipes.* 10. Sybleae Group: *imparungulae.* 11, 12. Poikiloptera Group: 11, *inermipes;* 12, *punctivenosa.* 13, 14. Boharti Group: 13, *traubi;* 14; *spinipes* (XV omitted). 15–23. Subviridis Group: 15, *subviridis;* 16, *tenuicolorata;* 17, *spinilerga;* 18, *nudisthmostheca;* 19, *propristyla;* 20, *tokunagai;* 21, *claripes* (XV omitted); 22, *eximitarsis* (XV omitted); 23, *isthmostheca.*



FIGURES 24–40.—Female antennae of *Stilobezzia* species (only antennomeres VI–XI and XV shown). 24–34. Subgenus *Neostilobezzia:* 24, *insolita;* 25, *xanthogaster;* 26, *miripes;* 27, *magnitheca;* 28, *parvitheca* (XV omitted); 29, *crassivenosa;* 30, *parvaeungulae;* 31, *constans;* 32, *speculae;* 33, *subnebulosa;* 34, *venefica.* 35–40. Subgenus *Eukraiohelea:* 35, *punctifemorata;* 36, *fusciterga;* 37, *minuta;* 38, *clarifemorata;* 39, *fuscipes;* 40, *brevicostalis.*

Wing: Rather long (in female, well over twice the breadth); microtrichia distinct throughout, usually well sclerotized adding to the wing shading; macrotrichia absent on wing surface (subgenera *Eukraiohelea* and *Stilobezzia*) or present at wingtip and variably in extent toward base of wing (*Neostilobezzia*); radius usually with a seta near basal arculus and often with setae scattered variably along its length and on its branches; venation strong on radius and its branches, on base of media and r-m crossvein, but weak posteriorly. Intercalary fork distinct only in exceptional species; costa extending to two-thirds or more of wing length as a rule, never exceeding tip of vein R_{4+5}; first radial cell (1RC) may be totally absent, poorly formed, or quite spacious but only a third or less of the length of the second radial cell (2RC), which is long and spacious; stem M distinctly petiolate, long, subequal to, or shorter than r-m crossvein,

which is oblique to semierect and placed near middle of wing; anal vein straight, not swollen in middle.

Abdomen: Female spermathecae usually 3 (2 large and functional and 1 rudimentary), rarely 1 spermatheca and never 3 functional. Sclerotization of female genital opening with sternum IX bearing strong hairs on its surface, with a wide but shallow cleft on caudal margin; a pair of internal lamellae extending from side margins mesad toward gonopore, their mesal ends nearly meeting and usually slightly expanded with truncated or foot-shaped tip. Male genitalia with sternum IX usually narrow with shallow caudomedian excavation, the ventral membrane between it and aedeagal sclerites bearing fine spiculation; tergum IX usually with long hairs, usually rounded caudad with a pair of membranous, pubescent, or setigerous submedian lobes just ventrad of caudal margin; basistyle lightly to moderately hairy, basal margin usually with distinct, characteristically formed processes at one or both of two points, termed accordingly mediangular process if arising near caudomesal angle, or basidorsal-process if arising on dorsal margin near base of basistyle; a sclerotized ribbon or distinct bridge, sometimes intensely sclerotized, often present joining the 2 basistyles either at the mediangular process or the basidorsal process; dististyle often arcuate, incurved at middle or beyond and usually tapering toward the distal end, which is frequently bent slightly mesad; aedeagus membranous but with a pair of oblique aedeagal sclerites (sometimes reduced to weak small lappets) appearing as narrow rods, bisinuate or crooked plates with slender ends, and often with distomedian point distinctly bent; a submedian pair of usually lightly sclerotized platelike or rounded submedian lobes usually present arising from dorsal side of aedeagal sclerites; parameres usually well sclerotized, appearing as nearly straight processes directed caudad with distal tips bent or curving ventromesad; from their bases arise a pair of sclerotized apodemes, frequently expanded at their mesal ends or with secondary processes, which extend laterally to base of basistyle.

Immature stages.—The immature stages of *Stilobezzia* are poorly known. Carter, Ingram, and Macfie (1921) included a description and figures of the pupa in their description of *spirogyrae*. Ingram and Macfie (1922) described the immature stages of *poikiloptera* (Ingram and Macfie) from West Africa. Thienemann (1928) published figures of the pupa of the European *gracilis* (Haliday). Mayer (1934) added descriptions of the pupa of *soror* Johannsen and the larva and pupa of *perspicua* Johnannsen from the Dutch East Indies. Thomsen (1937) described and figured the early stages of *antennalis* (Coquillett) and *bulla* Thomsen from New York. Lane, Forattini, and Rabello (1955)

described and figured the pupa of *glauca* Macfie and *wygodzinskyi* Lane from Brazil.

Behavior.—Little specifically has been published on adult habits. Edwards (1920) published records of female *S. gracilis* (Haliday) preying on various small chironomid midges. Species of the Notata Group hold their wings side by side while at rest, not as usual overlapping above the abdomen (Malloch, 1915; de Meillon, 1936). This habit has been reported also for 2 species of the Subviridis Group: *flavirostris* (Winnertz) by Edwards (1926) and *antennalis* (Coquillett) by Malloch (1915).

Bionomics.—Breeding habits have been reported for: *bata* de Meillon and Hardy reared from a swamp (de Meillon and Hardy, 1954); *antennalis* (Coquillett) and *bulla* Thomsen reared from mud in New York (Thomsen, 1937); *africana* (Ingram and Macfie) and *versicolor* (Ingram and Macfie) reared from *Pistia* in a swamp in West Africa (Ingram and Macfie, 1921); *festiva* Kieffer reared from the muddy fringe of water pools in Calcutta (Sen and Das Gupta, 1964); *limnophila* Ingram and Macfie reared from mud and in West Africa (Ingram and Macfie, 1922); *poikiloptera* (Ingram and Macfie) from *Pistia; perspicua* Johannsen reared from larvae in hot springs and in a rice field in Sumatra (Johannsen, 1931; Mayer, 1934); and *spirogyrae* Carter, Ingram and Macfie reared from a washing place in a river and a swamp rich in aquatic vegetation on the Gold Coast (Carter, Ingram, and Macfie, 1921), and from a *Sesuvium* swamp and mud under a mangrove in Gambia (Clastrier and Wirth, 1961).

Key to the Subgenera of *Stilobezzia*

1. Wing with 1RC obliterated and vein R_1 arising at or past r-m; legs with stout spines on fore femur midventrally or at base.
Eukraiohelea Ingram and Macfie
Wing with 1RC present, usually spacious, rarely very small; legs without stout spines on femora 2
2. Wing with macrotrichia on the surface, at least a few at apex near wing margin . . . . . **Neostilobezzia** Goetghebuer
Wing without macrotrichia on surface . . . . . **Stilobezzia** Kieffer

Subgenus *Eukraiohelea* Ingram and Macfie

Eukraiohelea Ingram and Macfie, 1921, Ann. Trop. Med. Parasit., vol. 15, p. 347. [Type-species, *africana* Ingram and Macfie, desig. Macfie, 1940c.]

Diagnostic characters (figs. 35–40, 45, 46).—Small to medium-size species, usually slender with some color pattern in thorax, abdomen, and legs. Eyes moderately to broadly separated; female antenna with III–X often cylindrical, XV without apical seta.

Thorax bluntly rounded in front, without anteromedian tubercle or projection. Wing unmarked; surface without macrotrichia; anal lobe never obtuse; radius with only 1 seta, near basal arculus; marginal fringe complete, alula never bare; microtrichia may be weak or strong, in latter case adding to wing shading; 1RC obliterated and vein R_1 arising at or past r-m; stem M long. Halter at least partly infuscated. Legs usually with weak hairs, except for femur with 2–4 short stout spines midventrally (Africana Group) or stout anteroventral spines at base of fore femur, on hind trochanter, and at proximal third of hind femur (males only of Brevicostalis Group). Tarsomere V with or without batonnets; female claws long, very unequal; male claws large and unequal (Africana Group) or small and equal with cleft tips (Brevicostalis Group).

Abdomen with weak hairs on terga; variable dark color pattern on II to VI. Spermathecae 2 functional, well sclerotized with short slender necks; a third rudimentary spermatheca present. Male genitalia with very narrow sternum IX, caudomedian excavation very broad and shallow with ventral membrane feebly spiculate; tergum IX short and caudally rounded, with pair of setose submedian lobes; basistyles short and stout, with mediangular processes connected by a transverse sclerotized band or bridge, basidorsal process not developed; dististyle stout, tapered to a point or with tip abruptly narrowed to a point; aedeagal sclerites narrow rods or faint liplike sclerotizations; parameres usually elongate.

Distribution.—Fourteen known species from the Nearctic, Ethiopian, Neotropical, and Oriental regions.

Key to the Oriental Species of the Subgenus *Eukraiohelea*

1. Small to medium-size species; wing with costa ending well beyond middle and with closely set setae, surface microtrichia strong; fore femur with 2–4 short, stout spines midventrally, hind tibia with 2–5 distal bristles on extensor side shortened and thickened; male trochanters without any stout spines; male claws as in female, one large and one small on each leg; spermathecal surface without any hyaline perforations; male genitalia with aedeagal sclerites a pair of caudally converging, slender rods with prominent dorsal median lobes; parameres with main body long and linear, well sclerotized, often with spiculose tips; short sclerotized part of bridge between basistylic mediangular processes appressed to parameres in their midpoint (Africana Group) 2

   Small species; wing with costa ending little beyond middle and with widely spaced setae, surface microtrichia weak; femora without any stout spines in female, male fore and hind femora, as well as hind trochanters, bearing a stout black spine; male claws equal, with bifid tips; spermathecal surface with hyaline perforations; male genitalia with aedeagal sclerites inconspicuous and appearing as feebly sclerotized tips to the genital pore; parameres with main body stout, slightly arcuate, and held in midportion by a promi-

nent sclerotized ring that forms a stout bridge between the medianglar processes (Brevicostalis Group) . . . . . **brevicostalis,** new species

2. Abdominal terga from II caudad pale excepting lateral L-shaped brown markings; all femora pale to tips; male genitalia with basistyle dark brown on distal third, dististyle nearly as long as basistyle, stout and only slightly narrowed toward bluntly pointed distal tip; aedeagal tips abruptly constricted caudad and bent ventrocephalad in a slender, curved point. **clarifemorata,** new species

Not as above 3

3. Abdominal terga from II caudad with broad dark brown bands, broken only in middle; fore and mid femora pale, hind femur either brownish from near base, with color intensely dark brown on distal fifth, or totally pale except dark brown on distal fifth, or totally pale except dark apices 4

Abdominal tergum II mostly pale, with dark brown marks on extreme sides forming longitudinal bars; posterior terga covered by broad dark brown bands, broken in middle and sometimes slightly reduced in front; fore and mid femora pale; hind femur mostly pale, with one or both ends broadly dark 5

4. Hind femur brownish from near base, with color intensely dark brown on distal fifth; male genitalia with ninth sternum deeply excavated caudad, mediangular processes and the sclerotized bar between them moderately developed; aedeagal sclerites with foot-shaped caudomesal tips having caudally directed portion rather short; parameres with strongly spiculose, pointed distal expansion having stout neck . . . . **fuscipes,** new species

Hind femur pale, extreme apex dark; male genitalia with ninth sternum slightly depressed caudad; mediangular processes and the sclerotized bar between them strongly prominent; aedeagal sclerites with foot-shaped caudomesal tips having caudally directed portion rather long; parameres each with feebly spiculose, pointed distal expansion having quite narrow neck . . . . . **fusciterga,** new species

5. Medium-size species; halter pale except the brownish neck; hind femur pale with base and tip broadly dark; male genitalia with basistyle quite brownish; mediangular processes short but sclerotized bridge between them very prominent; dististyle rather short and swollen in middle with thin hooked tip; aedeagal sclerites and parameres similar to those of *fusciterga,* but spicules on aedeagal tips relatively stronger with neck less thin and swelling at basal third of main body more prominent . . **punctifemorata,** new species

Small species; halter dark at neck to basal half of knob; hind femur totally pale except extreme apex dark; male genitalia with basistyle feebly brownish; dististyle quite long, stout at base and tapering to slightly hooked tip; mediangular processes and the sclerotized bridge between them feeble; aedeagal sclerites small, forming a low arch, their caudal tips drawn into minute hooks; parameres each having main body quite stout and columnar, slightly expanded distad with distinct transverse rugosity on mesal margin of expansion, tip drawn out in a sharp ventrolateral point. **minuta,** new species

Africana Group

DIAGNOSTIC CHARACTERS (fig. 45, *punctifemorata,* new species).—As in the subgenus with the following additional distinctive features: Eyes moderately separated; vertex with hairs arranged in pairs,

those next to interorbital bridge smallest. Male antenna with dark, well-formed plume; female antenna bicolored, segments strongly cylindrical. Palpal segment III with subapical pit bearing short sensilla. Female mandible with several subequal teeth, smooth on outer margin. Scutellum always very pale with both large and small bristles; scutum with a few dark vittae and pale spots dorsally. Wing unmarked, with faint brownish infuscation, the anterior veins often strongly infuscated and surface microtrichiae well sclerotized; stem M usually slightly longer than r-m; costa with moderately numerous setae, ending well into distal third of wing; R_1 almost in a line with r–m; M_2 totally visible. Legs with hind tibia dark at both ends and usually also broadly dark in middle, other leg segments also frequently dark at ends; hairs weak; fore femur of both sexes with 2–4 short stout spines midventrally; hind male trochanter without stout spine; hind tibia with 2–5 distal bristles on extensor side distinctly shortened and thickened; tarsomere V with ventral batonnets on all legs in both sexes; male claws similar to those of female. Spermathecae without hyaline perforations. Female genital sclerotization with sternum IX produced in 2 triangular submedian lobes; submedian internal lamellae with capitate, concaved mesal ends. Male genitalia with tergum IX bearing subdivided, setose, submedian lobes caudoventrally; basistyle with a broad, flattened, sclerotized lobe produced caudomesally from inner margin toward base; aedeagal sclerites in form of caudally converging rods, their distal tips often forming a foot-shaped process, a broad platelike expansion present on posterior margin; parameres each with moderately long lateral process at base, the connection to main portion of paramere narrowed; main body of paramere long and linear, well sclerotized, with spiculose tip often subapically inflated.

Species included: *Stilobezzia africana* (Ingram and Macfie), West Africa; *amnigena* (Macfie), Brazil; *clarifemorata*, new species, Malaya and North Borneo; *dorsofasciata* (Lutz), Brazil; *elegantula* (Johannsen), North America; *foyi* (Ingram and Macfie), West Africa; *fuscipes*, new species, Thailand; *fusciterga*, new species, Malaya and Thailand; *maculitibia* Lane and Forattini, Panama; *minuta*, new species, Thailand and Malaya; *punctifemorata*, new species, Malaya, Ceylon, and Thailand; *versicolor* (Ingram and Macfie), West Africa.

1. *Stilobezzia (Eukraiohelea) clarifemorata* Das Gupta and Wirth, new species

FIGURES 38, 41

FEMALE.—Length of wing 1.26 mm; breadth 0.48 mm.

Head: Brownish, antenna yellowish on narrow bases of XI–XIV and all except narrow apices of III–X; vertex with 10 hairs. Antenna

(fig. 38) with III–XV lengths as 13– 10–10–10–10–11–11–11–26–26–24–22–44; antennal ratio 1.71. Palpal segments as 5–13–16–10–14; III slightly swollen distad with subapical round sensory pit. Mandible with 7 teeth.

Thorax: Yellowish, with faint color pattern apparently as in *punctifemorata;* scutellum with 4 large and 2 smaller bristles.

Legs (fig. 41*a*): Pale yellowish; coxae and trochanters faintly brownish; all femora pale to tips; fore and mid tibiae with narrow

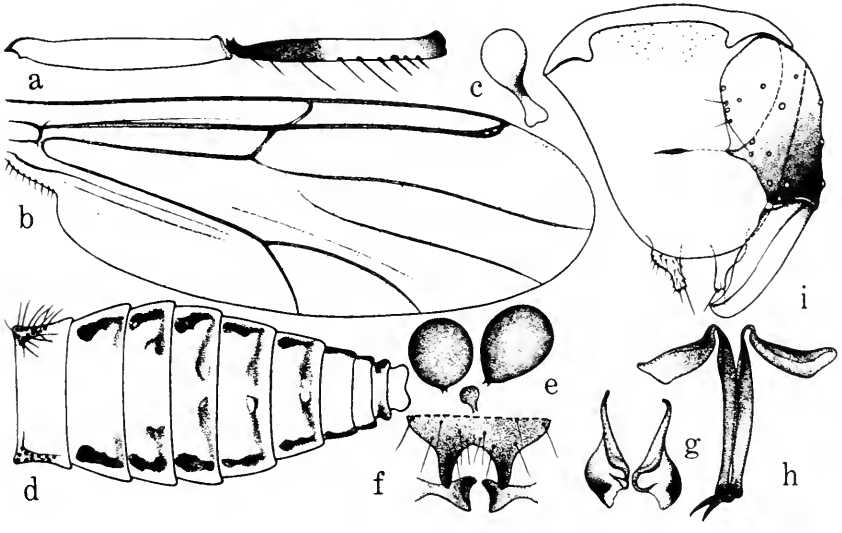


FIGURE 41.—*Stilobezzia clarifemorata*, new species (*a–f*, ♀ ; *g–i*, ♂). *a*, femur-tibia of hind leg; *b*, wing; *c*, halter; *d*, abdominal terga; *e*, spermathecae; *f*, ♀ genitalia; *g–i*, ♂ genitalia.

faint apical brownish rings; hind tibia with proximal third and distal fifth dark brown. Fore femur with 2 stout black anteroventral spines; hind tibia with 4 stronger distal extensor bristles; tarsomere V with 4 batonnets on fore and mid legs, 2 on hind leg; hind leg with femur to V lengths as 88–88–44–16–7–5–18; TR 2.75; hind tibial comb with 5 spines.

Wing (fig. 41*b*): Very faintly infuscated, veins yellowish brown; costa unusually long, CR 0.82; r-m faint in middle; lengths r-m to stem M as 12:14. Halter (fig. 41*c*) pale, brownish at extreme base of knob.

Abdomen: Pale, terga (fig. 41*d*) with lateral L-shaped brown markings, smaller on anterior segments but still distinctly L-shaped on II; I with 12 hairs on each side. Spermathecae (fig. 41*e*) short ovoid, without sclerotized necks, unequal, measuring 0.056 mm by

0.049 mm and 0.049 mm by 0.042 mm. Genital sclerotization as in figure 41*f*.

MALE.—Length of wing 1.19 mm.

Similar to the female with the usual sexual differences; antennal plume yellowish; leg and abdominal markings as in female; thoracic pattern more distinct, as in *punctifemorata;* claws as in the female, tarsomere V with 2 batonnets on each leg. Genitalia (fig. 41*g–i*) yellowish, parameres and apices of basistyles dark brown; sternum IX with very faint, low caudomedian excavation, spiculation very faint; tergum IX rounded with strongly pubescent, elongate caudomedian lobes; basistyle short, mediangular process poorly developed, the faintly sclerotized platelike mesal lobe elongate; dististyle very long, as long as basistyle, only slightly narrowed toward the bluntly pointed tip; aedeagal sclerites forming a high arch, height greater than basal breadth; basal portion of each nearly straight, narrow at base, gradually broadening distally past midsection, with tip abruptly constricted and bent ventrolaterad in a slender, curved point; parameres each with broad basal arm extending laterad; main portion long and slender, nearly straight, extreme tip abruptly bent ventrad and narrowed.

DISTRIBUTION.—Malaya; North Borneo.

TYPES.—Holotype male, Kuala Singgora, Pahang, Malaya, 18 July 1958, R. H. Wharton, light trap (USNM 69443). Allotype female, Labuan Island, North Borneo, Sept.–Oct. 1948, D. H. Colless, at light.

DISCUSSION.—This species is the only known Oriental *Eukraiohelea* with the hind femur entirely pale; it differs from the other Oriental species and resembles the African *foyi* (Ingram and Macfie) in the L-shaped dark bands on abdomen. The elongate, blunt-tipped dististyles and the shapes of the aedeagal sclerites and parameres are also distinctive.

2. *Stilobezzia* (*Eukraiohelea*) *fuscipes* Das Gupta and Wirth, new species

FIGURES 39, 42

FEMALE.—Length of wing 1.18 (1.15–1.24, n=10) mm; breadth 0.48 (0.46–0.49, n=10) mm.

Closely resembling *fusciterga*, new species, and *punctifemorata*, new species, with the following distinctions: A smaller species, with dark markings of thorax, legs, and abdomen more intense and extensive; hind femur (fig. 42*a*) brownish from near base, the color intensely dark brown on distal fifth; wings more deeply infuscated. Antennomeres III–XV (fig. 39) with lengths as 12–8–8–8–8–8–8–8–19–20–20–20–39; antennal ratio 1.74; palpal segment III with sensory pit almost apical; mandible with 6–7 teeth; wing (fig. 42*b*) with cross-

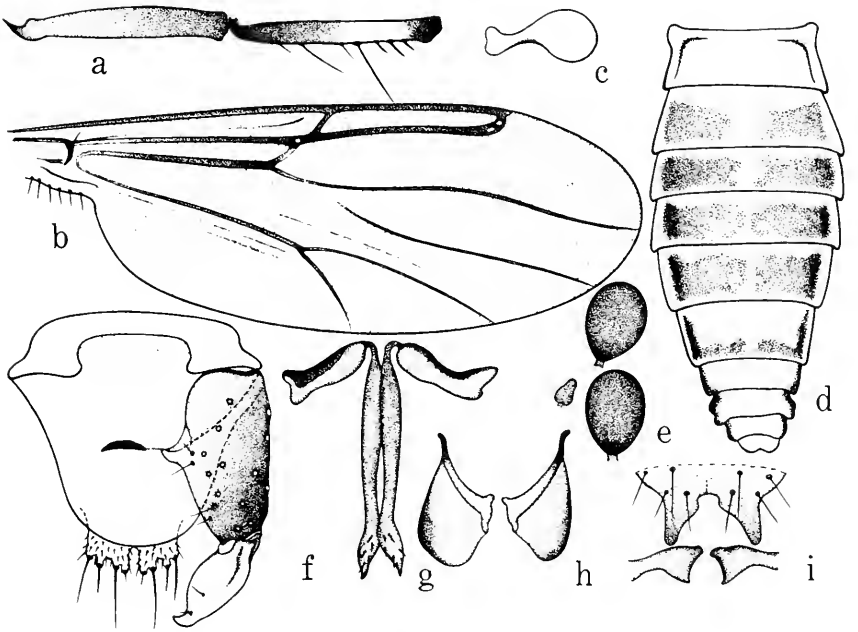


FIGURE 42.—*Stilobezzia fuscipes*, new species (*a–e*, *i*, ♀, *f–h*, ♂). *a*, femur-tibia of hind leg; *b*, wing; *c*, halter; *d*, abdominal terga; *e*, spermathecae; *f–h*, ♂ genitalia; *i*, ♀ genitalia.

vein r-m vague on anterior portion; CR 0.73; halter narrowly dark at neck (fig. 42*c*); hind tibia with 3–4 (av. 3.1, n=24) stouter black extensor bristles distally; TR 2.73. Abdomen (fig. 42*d*) with broad dark band on tergum II broken only on midline of segment; I with cluster of 8–12 hairs on each side. Spermathecae (fig. 42*e*) ovoid, with short sclerotized necks; unequal, measuring 0.054 mm by 0.040 mm and 0.047 mm by 0.036 mm. Female genital sclerotization as in fig. 42*i*.

MALE.—Length of wing 1.11 (1.05–1.15, n=10) mm.

Genitalia (fig. 42*f–h*) practically identical with those of *punctifemorata*, but dististyle shorter with proximal portion comparatively broader and main body of paramere longer.

DISTRIBTUION.—Thailand.

TYPES.—Holotype male, allotype female, Loei Prov., Dan Sai Dist., Thailand, 6–7 June 1959, Manop R. collector, light trap (USNM 69444). Paratypes, 19 males, 39 females, all collected in light traps. THAILAND: Bangkok (Donmuang, Kuaykwang, Pratoomvan, and Thonglo Dists.), Aug.–Sept. 1962, Jan.–Mar. 1963, J. Scanlon, 2 males, 14 females. Cholburi, Bangphra, Jan. 1963 J. Scanlon, 1 male. Khon Kaen (Ban Phai, Chu Phae, and Meung Dists.), 20–30 May 1959, Manop R., 3 males, 2 females. Loei (Dan

Sai, Meung and Thai Li Dists., 1–9 June 1959, Manop R., 5 males, 15 females. Nakhon Ratchasima, Meung Dist., 5–7 June 1959, Manop R., 1 female. Nong Khai, Ta Bo, and Meung Dists., 10–16 June 1959, Manop R., 6 males, 2 females. Sakon Nakhon, Meung Dist., 25–27 June 1959, Manop R., 1 female. Samuthprakan, 22 Dec. 1958, Manop R., 1 female. Udonthani, Ampur Muang, Sept. 1962, J. Scanlon, 1 female; Nong Han and Meung Dists., 17–22 June 1959, Manop R., 2 males, 2 females.

ADDITIONAL SPECIMENS.—THAILAND: Same data as holotype, 1 female (pinned). Samuthprakan, Dec. 1958, Manop R., 1 female (alcohol).

DISCUSSION.—This species is readily distinguished by the extensive infuscation of the hind femur and the second abdominal tergum.

3. *Stilobezzia (Eukraiohelea) fusciterga* Das Gupta and Wirth, new species

FIGURES 36, 43

FEMALE.—Length of wing 1.34 (1.26–1.47, n=10) mm; breadth 0.53 (0.47–0.57, n=10) mm.

Closely resembling *punctifemorata*, new species, with the following distinctions: A larger species on the average; hind tibia with more numerous stout black bristles, 3–5 (av. 4.0, n=24); 5–6 hind tibial spines; TR 2.87; distal antennomeres (fig. 36) longer, lengths of III–XV as 14–10–10–10–10–10–10–10–24–24–24–22–45; AR 1.65; palpal segment III with sensory pit located slightly more proximad; wing (fig. 43*a*) slightly darker, vein r-m usually vague on all of anterior half; CR 0.78; scutellum with 4 large and 0–3 smaller bristles; abdomen (fig. 43*g*) with tergum II bearing a broken dark band only slightly more reduced than on III; I with cluster of 13–16 hairs on each side. Spermathecae (fig. 43*d*) measuring 0.063 mm by 0.045 mm and 0.053 mm by 0.039 mm. Genital sclerotization as in figure 43*e*.

MALE.—Length of wing 1.14 (1.07–1.19, n=10) mm. Genitalia (fig. 43*b*, *c*, *f*) practically identical with those *punctifemorata*, but the basal arm of the paramere stouter.

DISTRIBUTION.—Thailand; India, Malaya.

TYPES.—Holotype male, allotype female, Nong Khai Prov., Meung Dist., Thailand, 10–14 June 1959, Manop R., collector, light trap (USNM 69445). Paratypes, 12 males, 21 females, all collected in light traps. MALAYA: Selangor, Kuala Lumpur, July–Oct. 1958, Jan.–May 1959, Jan.–April 1960, R. Traub and H. E. McClure collectors, 2 males, 12 females. Singapore, Chantek, Bahru, 9 Nov. 1959, D. H. Colless, 1 male. THAILAND: Bangkok, Thonglo, Aug.–Sept. 1962, Jan.–Mar. 1963, J. Scanlon, 1 male, female. Chiang Mai, Apr.–May 1958, V. Notananda, 1 female. Cholburi, Bangphra, Oct. 1962, Jan. 1963, J. Scanlon, 2 females. Khon Kaen, Ban Phai,

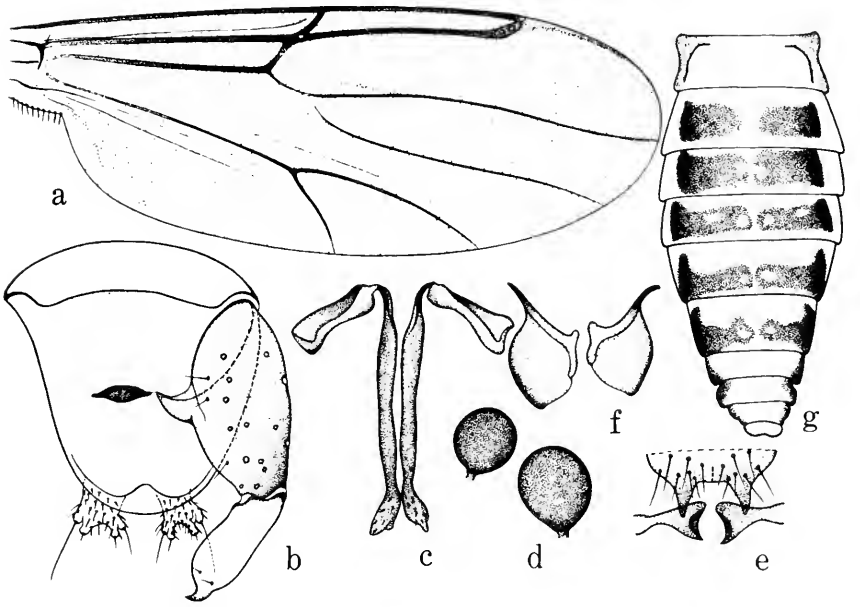


FIGURE 43.—*Stilobezzia fusciterga*, new species (*a*, *d*, *e*, *g*, ♀; *b*, *c*, *f*, ♂). *a*, wing; *b*, *c*, *f*, ♂ genitalia; *d*, spermathecae, *e*, ♀ genitalia; *g*, abdominal terga.

28–30 May 1959, Manop R., 2 males. Loei, Thai Li, 8–9 June 1959, Manop R., 1 male. Nakhon Prathom, 18 Dec. 1958, Manop R., 1 female. Nong Khai, same data as types, 1 male, 1 female. Pechaburi, 27 Dec. 1958, Manop R., 1 female. Sakon Nakhon, 25–27 June 1959, Manop R., 1 male, 1 female. Udonthani, Ampur Muang, Sept. 1962, J. Scanlon, 1 female.; Meung and Nong Han Dists., 17–22 June 1959, Manop R., 3 males.

ADDITIONAL SPECIMENS.—INDIA: Assam, Rupsi, 15 mi. NW. Dhubri, 3 Nov. 1943, D. E. Hardy, 1 female (pinned). MALAYA: Selangor, Kuala Lumpur, same data as above, 8 males, 26 females (alcohol).

DISCUSSION.—This species can be recognized by the narrow dark apex on the hind femur and the broadly dark second tergum.

4. *Stilobezzia (Eukraiohelea) minuta* Das Gupta and Wirth, new species

FIGURES 37, 44

FEMALE.—Length of wing 0.94 (0.86–1.00, n=10) mm; breadth 0.39 (0.36–0.40, n=10) mm.

Closely resembling *punctifemorata*, new species, except for its much smaller size and with the following additional characters: Antenna

(fig. 37) with lengths of III–XV as 9–6–6–6–6–6–6–6–14–14–14–14–27; AR 1.63; palpal segments lengths as 3–9–11–7–12; mandible with 8 teeth; thorax darker yellowish with less distinct brownish markings; leg markings (fig. 44*a*) fainter, the distal dark band on hind femur sometimes quite faint; fore femur with 2, quite often with 3, anteroventral black spines; hind tibia with 2–3 (av. 2.8, n=24) short, stout, black extensor bristles on distal portion; hind leg with lengths of femur to V as 57–55–28–11–6–5–10; 5–6 hind tibial spines; TR 2.6. Wing (fig. 44*c*) faintly infuscated, the veins concolorous; usually narrow; CR 0.68; lengths of r–m to stem M as 6:14, medial petiole thus unusually long. Halter (fig. 44*b*) pale, stem and basal half of knob dark

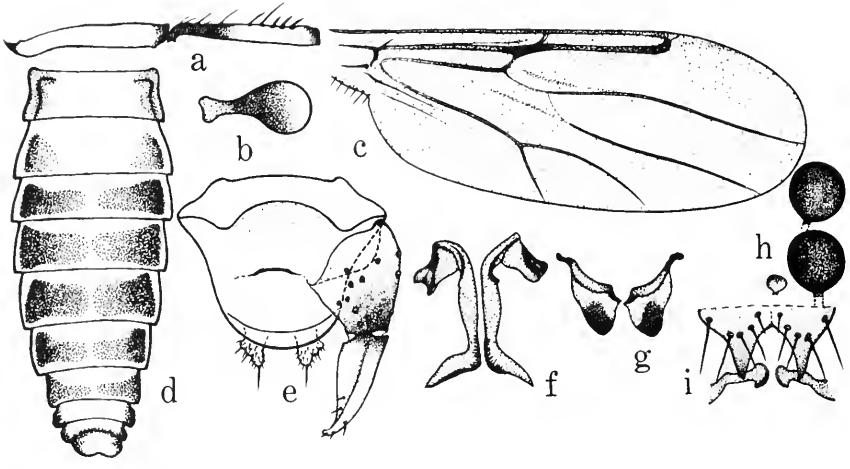


FIGURE 44.—*Stilobezzia minuta*, new species (*a–d*, *h–i*, ♀; *e–g*, ♂). *a*, femur-tibia of hind leg; *b*, halter; *c*, wing; *d*, abdominal terga; *e–g*, ♂ genitalia; *h*, spermathecae; *i*, ♀ genitalia.

brown. Abdomen (fig. 44*d*) with large brown lateral patches on terga, much smaller on II; 4–5 hairs in each lateral cluster on I. Spermathecae (fig. 44*h*) subspherical, subequal, without sclerotized necks, very small, measuring 0.037 mm by 0.029 mm and 0.033 mm by 0.027 mm. Female genital sclerotization as in figure 44*i*.

MALE.—Length of wing 0.86 (0.79–0.88, n=10) mm.

Tarsal claws shorter than in female, but distinctly unequal. Genitalia (fig. 44*e–g*) short and broad; sternum IX with blunt membranous lobes; basistyle stout, its mediangular process connected to a slender mesal sclerotized bar; dististyle stout and tapered on proximal portion, abruptly narrowed distally to a slender point; aedeagal sclerites slender, nearly straight, the short sharp distomedian points meeting mesad; parameres short and stout, each with stout lateral

arm at base, arm with distinct anterior expansion at mesal end; main portion of paramere columnar, slightly expanded distally with distinct transverse rugosity on mesal margin of expansion, tip drawn out in a sharp ventrolateral point.

DISTRIBUTION.—Thailand; Malaya.

TYPES.—Holotype male, allotype female, Udonthani Prov., Meung Dist., Thailand, 17–20 June 1959, Manop R., collector, light trap (USNM 69446). Paratypes, 19 males, 17 females, all collected in light traps. MALAYA: Pahang, Kuala Singgora, 18 July 1958, R. H. Wharton, 1 male. Selangor, Kuala Lumpur, Aug. 1958, R. Traub, 1 male. THAILAND: Khon Kaen, Ban Phai, 28–30 May 1959, Manop R., 1 male. Loei, Dan Sai, and Thai Li Dists., 6–9 June 1959, Manop R., 11 males, 10 females. Nong Khai, Meung, and Ta Bo Dists., 10–16 June 1959, Manop R., 1 male, 3 females. Udonthani, Meung, and Nong Han Dists., 17–22 June 1959, Manop R., 4 males, 4 females.

ADDITIONAL SPECIMENS.—MALAYA: Selangor, Kuala Lumpur, Aug. 1958, R. Traub, 6 males, 17 females (alcohol).

DISCUSSION.—This species is much smaller and more poorly marked than the other known Oriental species, with narrower wings and duller and more of a grayish ground color. The genitalia are similar to those of *maculitibia* Lane and Forattini from Panama in the structure of the parameres, but the dististyles of *maculitibia* are blunt tipped.

5. *Stilobezzia* (Eukraiohelea) *punctifemorata* Das Gupta and Wirth, new species

FIGURES 35, 45

FEMALE.—Length of wing 1.23 (1.15–1.34, n=10) mm; breadth 0.49 (0.46–0.54, n=10) mm.

Head: Vertex (fig. 45*a*) with 10 hairs. Antenna (fig. 35) with III–X pale, clindrical, slightly swollen subapically with indistinctly defined, dark brown collar; XI–XV dark with narrow pale bases; lengths of III–XV as 14–10–10–10–10–10–10–10–22–22–22–20–40; AR 1.50. Palpal segments (fig. 45*d*) dark brown, I–II and extreme tip of V paler; III slender, with small round subapical pit with several short sensilla. Mandible with 6–8 (av. 7.1, n=24) teeth.

Thorax (fig. 45*b*): Yellowish, scutum with dark brown pattern as figured; pleuron with dark brown spot below wing base and dark brown near coxae; scutellum with 4 large and 0–3 small bristles.

Legs: Pale yellowish, with dark brown bands as in figure 45*c*; coxae and trochanters brownish; knees indistinctly dark on fore and mid legs; fore and mid tibiae with narrow distal dark brown ring; hind femur with narrow basal and apical dark brown ring, hind tibia

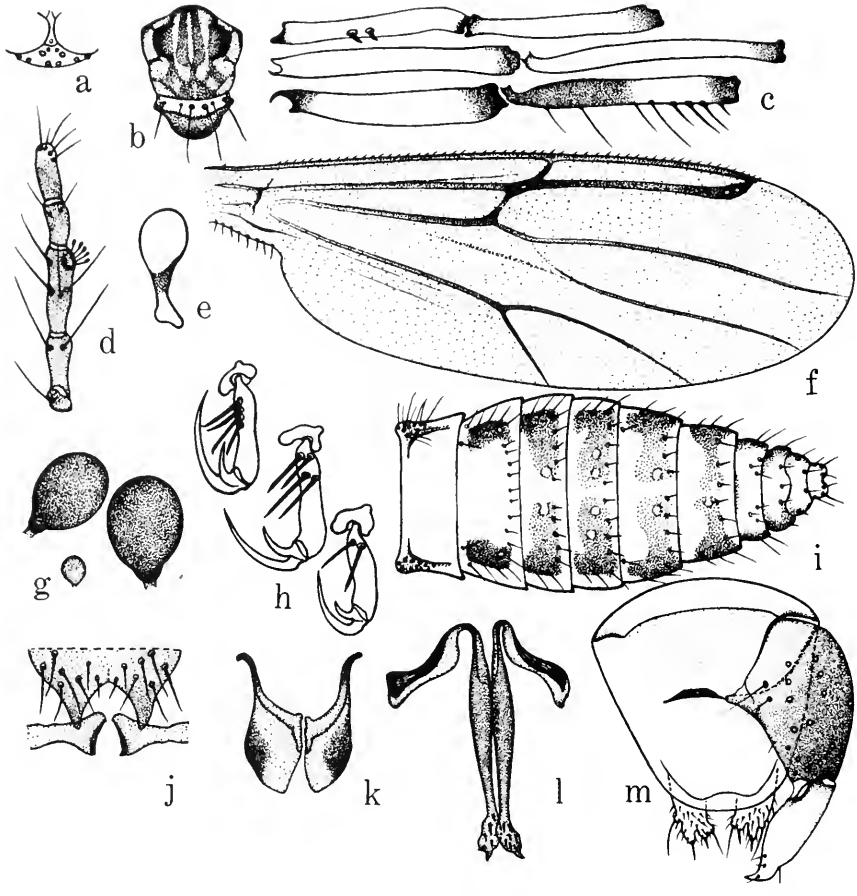


FIGURE 45.—*Stilobezzia punctifemorata*, new species (*a–j*, ♀; *k–m*, ♂). *a*, frontovertex; *b*, thorax; *c*, femora-tibiae (in all similar figures, the first in the series belongs to fore leg and the last to hind leg); *d*, palpus; *e*, halter; *f*, wing; *g*, spermathecae; *h*, last 2 tarsomeres and claws (in all similar figures, the first in the series belongs to the fore leg and the last to hind leg); *i*, abdominal terga; *j*, ♀ genitalia; *k–m*, ♂ genitalia.

dark brown on proximal half and distal fifth; tarsomeres IV and V slightly infuscated. Fore femur with 2 (rarely 3) stout, black, anteroventral spines on midportion; hind tibia with 7–8 long extensor bristles, of which the distalmost 2–5 (av. 3.4, n=24) are much shorter and stronger; tarsomere V (fig. 45*h*) with 4 batonnets on fore and mid legs, 2 on hind leg; claws as in figure 45*h*; black ventral spines on tarsomeres I–III as: fore leg 0–0–1, 0–0–1, 0–0–1; mid leg 1–0–2, 0–0–2, 0–0–2; hind leg 1–0–1, 0–0–1, 0–0–1. Hind leg with lengths of femur to V as 79–76–42–14–6–4–14; TR 2.91; hind tibial comb with 5–6 spines.

Wing (fig. 45*f*): Without pattern but distinctly infuscated, especially along veins; r-m nearly always weak in midportion; CR 0.76; r-m to stem M lengths as 10:17. Halter (fig. 45*e*) brownish at neck, otherwise dull whitish.

Abdomen: Ventral and lateral aspects yellowish; tergum I with cluster of 10–13 hairs on each side; terga with brown color pattern as in figure 45*i*; II dark on extreme sides only as longitudinal bars; III–VI each with broad brown bands, narrowly broken in middle; distal terga almost totally pale; terga sparsely setose, as figured. Spermathecae (fig. 45*g*) ovoid, distinctly tapering to the short sclerotized necks, slightly unequal, measuring 0.060 mm by 0.044 mm and 0.051 mm by 0.039 mm, rudimentary third spermatheca minute, spherical in shape. Female genital sclerotization as in figure 45*j*.

MALE.—Length of wing 1.07 (1.03–1.15, n=10) mm.

Similar to the female with the usual sexual differences; antennal plume yellowish brown; claws resembling those of female, one long claw with long basal tooth; tarsomere V with 2 subbasal batonnets on all legs. Genitalia (fig. 45*k–m*) with submedian lobes of tergum IX each with 4 papilliform subdivisions; dististyle with slender, bent, sharp distal point; aedeagal sclerite with large expansion at distomedian end; main body of paramere elongate, slender and straight, with strongly spiculose, pointed, distal expansion.

DISTRIBUTION.—Malaya; Ceylon, Thailand.

TYPES.—Holotype male, Kuala Lumpur, Selangor, Malaya, Jan. 1960, H. E. McClure, light trap (USNM 69447). Allotype female, same but 8 Aug. 1958, R. Traub. Paratypes, 21 males, 34 females, all collected in light traps. CEYLON: Colombo, Kulataluwewa, 19 Feb. 1958, Med. Res. Inst., 3 females. MALAYA: Pahang, Kuala Singgora, 18 July 1958, R. H. Wharton, 1 male. Pahang, Kuantan, Gudang Rasan, Jan.–Feb. 1959, R. Traub, 1 female. Pahang, Tasek Bera, 11 Oct. 1961, R. H. Wharton, 1 male, 1 female. Perlis, Kangar Rest House, 12 July 1958, R. Traub, 1 male. Selangor, same data as types, except dates Aug. 1958, Apr.–Sept. 1959, 5 males, 3 females. THAILAND: Bangkok, Thonglo, Jan.–Mar. 1963, J. Scanlon, 3 males, 1 female. Chiang Mai, Apr.–May 1958, V. Notananda, 1 female; Ampur Muang, Nov. 1962, J. Scanlon, 1 male. Cholburi, Bangphra, Jan. 1963, J. Scanlon, 3 females. Khon Kaen, Ban Pai, and Choom Pae Dists., May 1959, Manop R., 1 male, 4 females. Loei, Dan Sai, and Thai Li Dists., June 1959, Manop R., 4 males, 2 females. Minburi, 24 Dec. 1958, Manop R., 2 females. Nakhon Prathom, 18 Dec. 1958, Manop R., 2 females. Nakhon Ratchasima, 5–7 July 1959, Manop R., 1 male, 1 female. Nonthaburi, 20 Dec. 1958, Manop R., 1 male, 1 female. Pechaburi, 27 Dec. 1958, Manop R., 1 male. Sakon Nakhon, 25–27 June 1959, Manop R., 1 male. Udonthani, Ampur Muang,

Sept. 1962, J. Scanlon, 1 male, 1 female; Meung and Nong Han Dists., June 1959, Manop R., 1 male, 3 females.

Additional specimens.—16 males, 56 females, same data as above, in alcohol, from: CEYLON: Colombo, 1 female. MALAYA: Selangor, Kuala Lumpur, 14 males, 48 females. THAILAND: Chiang Mai, 1 male; Minburi, 1 female; Nakhon Prathom, 1 female; Nonthaburi, 1 female; Pechaburi, 1 female.

Discussion.—This species has male genitalia nearly identical with *fusciterga*, new species and *fuscipes*, new species, but the former can readily be distinguished by the extensive infuscation on the second abdominal tergum; the latter has the hind femur totally dark.

Brevicostalis Group

Diagnostic characters (fig. 46).—Differing markedly from other *Eukraiohelea* by the short costa (0.55 of wing length); the stout femora and tibiae; the male fore and hind femora and hind trochanter which bear a prominent stout black spine; palpal segment III with subdivided pit bearing long sensilla; antennomeres III–X elliptical in shape without preapical collar; wing with weak surface microtrichia; costa having widely spaced setae; R_1 well beyond r–m, the two not in a line; r–m short and stem M comparatively long; tarsomere IV not unduly bilobed; V without ventral batonnets; female genital sclerotization with elongate sternum IX, the internal lamellae much attenuated and bent anteriorly with mesal knob; spermathecae pyriform with hyaline perforations. Male genitalia with parameres not as long as in most *Eukraiohelea*, with large lateral lobe and narrower anterior arm; parameres confined within a dark bandlike sclerotized bridge extending between caudomesal angles of the stout basistyles; aedeagal sclerites inconspicuous, appearing as faintly sclerotized lips to the genital pore.

Species included: *Stilobezzia brevicostalis*, new species; S. *minima* Kieffer from India may possibly belong here.

6. *Stilobezzia* (*Eukraiohelea*) *brevicostalis* Das Gupta and Wirth, new species

Figures 40, 46

Female.—Length of wing 0.85 (0.77–0.91, n=10) mm; breadth 0.34 mm.

Head: Brownish, antennomeres III–X paler basally, palpal segments IV–V paler. Eyes (fig. 46*a*) broadly separated; vertex with 10 hairs. Antenna (fig. 40) with III–XV lengths as 11–5–5–5–6–6–6–6–10–11–11–12–16; AR 1.20; III–X elliptical without distinct preapical collar; XV without terminal seta. Palpal segments (fig. 46*d*) with lengths in proportion of 4–8–12–7–11, length of IV variable, some-

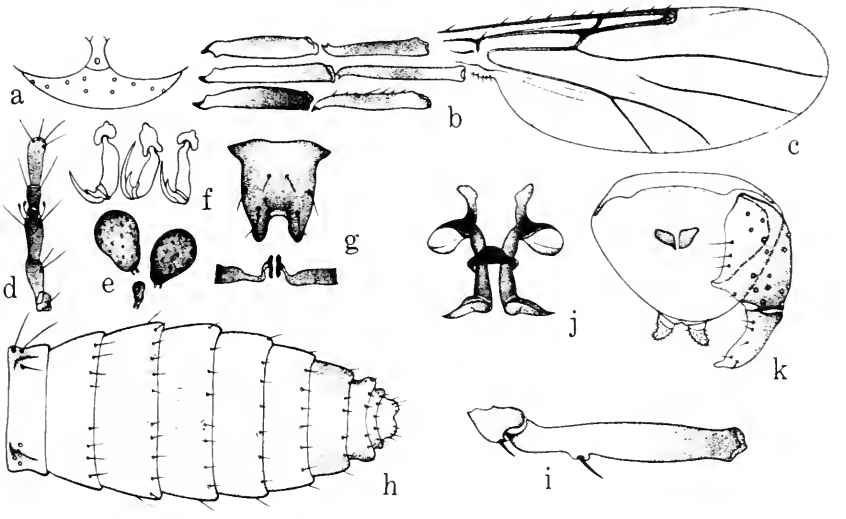


FIGURE 46.—*Stilobezzia brevicostalis*, new species (*a–h*, ♀, *i–k*, ♂). *a*, frontovertex; *b*, femora-tibiae; *c*, wing; *d*, palpus; *e*, spermathecae; *f*, last 2 tarsomeres and claws; *g*, ♀ genitalia; *h*, abdominal terga; *i*, trochanter-femur of ♂ hind leg; *j–k*, ♂ genitalia.

times short; III with subdivided pit bearing 3–4 long sensilla. Mandible with 7–8 teeth (av. 7.1, n=18).

Thorax: Dark brown, scutellum and middle of pleuron paler; scutellum with 4 large bristles.

Legs (fig. 46*b*): Pale grayish to straw colored; coxae, trochanters, and distal half of hind femur dark brown; tibiae and fore and mid femora variably pale brownish in broad midportions; tarsomeres IV–V brownish. Legs stout, hairs weak and sparse, hind tibia with 7 stronger bristles in extensor series; IV and V unarmed ventrally; claws (fig. 46*f*) nearly as long as V, each with sharp basal tooth about half as long; stouter ventral spines on tarsomeres I–III as: fore leg 0–0–1, 0–0–1, 0–0–2; mid leg 1–0–2, 0–0–2, 0–0–2; hind leg 0–0–1, 0–0–2, 0–0–2. Hind leg with lengths from femur to V as 52–50–26–10–5–4–11; TR 2.6; tibial comb with 6–7 spines (av. 6.6, n=10).

Wing (fig. 46*c*): Hyaline, anterior veins brownish; CR 0.55; costa with widely spaced marginal setae; r-m to stem M lengths as 7:19. Halter pale brownish throughout.

Abdomen (fig. 46*h*): Pale grayish; terga dark brown except I pale except on side margins and II pale at midline; I with 2–3 hairs on each side; distal terga each with row of setae along caudal margin. Spermathecae (fig. 46*e*) heavily sclerotized with minute hyaline perforations, pyriform with short sclerotized slender necks, slightly unequal, measuring 0.046 mm by 0.032 mm and 0.039 mm by 0.028 mm. Genital sclerotization as in figure 46*g*.

MALE.—Length of wing 0.90 (0.83–1.03, n=5) mm. Similar to the female except for the usual sexual differences, but differing remarkably in the armature of the legs as follows: an extremely strong black spine arising ventromesally near base of fore femur; a similar spine arising at distal margin anteriorly on hind trochanter (fig. 46*i*); a similar spine arising from a strong tubercle ventrally at proximal third of hind femur. Legs otherwise with hairs as in the female but much longer and bristlelike, a few dark spinelike bristles at apices of femora; fore femur with anterodorsal row of 5–6 strong spinelike bristles. Hind TR 2.2; claws equal with bifid tips. Genitalia (fig. 46*j*, *k*) with tergum IX short and rounded caudad, the submedian setose lobes prominent; dorsal surface with only 4 long bristles in a subapical transverse row; sternum IX narrow, ribbonlike; basistyle stout, mesal margin produced posteriorly to an angle (=mediangular process) near sclerotized bridge ringing the parameres; dististyle short, stout, with pointed tip; aedeagal sclerites modified, with a rounded hyaline anterior lobe terminating the spiculate ventral membrane, just dorsad with a pair of faintly sclerotized submedian plates connected caudally with the transverse ring mentioned previously; parameres each with large, platelike lateral lobe, a slender anterior arm; main body stout, slightly arcuate, and held in midportion by the sclerotized ring mentioned previously, distally expanded to an obliquely flattened tip with a long laterally directed point.

DISTRIBUTION.—Malaya; North Borneo, Thailand.

TYPES.—Holotype male, Pulau Pangkor, Perak, Malaya, 1 Apr. 1959, R. Traub, light trap (USNM 69448). Allotype female, Tasek Bera, Pahang, Malaya, 11 Oct. 1961, R. H. Wharton, light trap. Paratypes, 5 males, 9 females. MALAYA: Pahang, Kuala Singgora, 18 July 1958, R. H. Wharton, light trap, 2 males. Selangor, same data as allotype, 1 female. Selangor, Kepong Forest Res., Mar. 1960, H. E. McClure, light trap, 1 female. Selangor, Kuala Lumpur, July, Sept. 1958, R Traub, light trap, 1 male, 2 females. NORTH BORNEO: Labuan Isl., Nov. 1958, D. H. Colless, swept, 1 male. THAILAND: Chiang Mai, Apr.–May 1958, V. Notananda, light trap, 2 females. Loei Prov., Thai Li and Meung Dists., 1–9 June 1959, Manop R., light trap, 1 male, 1 female. Nong Khai Prov., Meung and Ta Bo Dists., 10–16 June 1959, Manop R., light trap, 2 females.

DISCUSSION.—The sexual dimorphism in the leg armature is most remarkable, but unusual only to the degree to which it is developed in this species. The close correlation in general coloration, palpus, vertex and eye separation, wing features, especially the sparse setation of the costa, abdominal terga, and the similarly stout femora and tibiae assures us that the sexes have been correctly associated.

Subgenus *Neostilobezzia* Goetghebuer

Stilobezzia subg. *Neostilobezzia* Goetghebuer, 1934, *in* Linder, Die Fliegen der Palaearktischen Region, Lief. 78, p. 53.—Wirth, 1953, Proc. U.S. Nat. Mus., vol. 103, p. 63. [Type-species, *Ceratopogon ochraceus* Winnertz, desig. Wirth, 1953, p. 63.]

Diagnostic characters (figs. 24–34, 47).—Usually moderate size to large species with yellowish or brownish color, unmarked wings (except in Speculae Group), and legs often with well-developed bristles. The species of the North and South Temperate Zones are usually larger and more bristly. Eyes usually narrowly separated; female antenna usually with III–X cylindrical, XV with or without apical seta; segment III of palpus usually with a subapical sensory pit, I sometimes without a seta. Thorax bluntly rounded on anterior margin of scutum, with or without dorsomedian tubercle or projection. Halter often pale. Wing bearing at least a few macrotrichia on its surface, in some species only a few distally in cell R_5, often copiously on distal portion of wing as far as vein Cu_1, usually fewer macrotrichia in males; anal lobe seldom obtuse and alula seldom lacking fringe; microtrichia strong, adding to the wing shading; costal margin with fringe setae dense and not strictly in a row. Wing venation usually strong anteriorly; 1RC spacious, usually subquadrangular, 2RC widely open; costa usually extending to more than two-thirds of wing length; stem M usually subequal to r-m length. Legs without stout spines on trochanters or femora, though frequently the bristles are quite numerous and strong, especially on tibiae; tarsomere IV cordate, its length simulating the length of III; V without ventral batonnets; female claws unequal, the longer one well curved, slender, and usually relatively long; male claws equal and bifid at tips, sometimes imperfectly. Abdomen without prominent color pattern on terga, with weak to moderately strong hairs on terga. Spermathecae 1 or 2 functional, a rudimentary third not always present; the functional spermathecae sometimes with hyaline perforations. Male genitalia with narrow sternum IX, the caudomedian excavation broad and shallow, and ventral membrane feebly to strongly spiculate; tergum IX usually rather elongate, caudal margin often with median indentation, pubescent membranous submedian lobes small to large; basistyle usually with only mediangular process present, basidorsal process rare and transverse sclerotized bridge often absent; dististyle usually not strongly bent or curved; basal apodemes of parameres always prominent, the main body variously modified; aedeagal sclerites usually bisinuate, with outer expansion at midlength, rarely with submedian caudal membranous accessory lobes present.

Distribution.—In the appendix, we have assigned 102 species to this subgenus, with additional species provisionally referred here.

This subgenus becomes dominant in the temperate regions and especially in southern South America.

Key to the Oriental Species of the Subgenus *Neostilobezzia*

1. Large dark species with broadly banded legs; wing with obscure color pattern consisting mainly of dark areas over 1RC, tip of R_2, and distally in cell R_5; vein M_2 not interrupted at base; several setae on radius; a few macrotrichia on wing surface close to distal margin (Speculae Group) 2

   Small to large species without definite banding on legs or dark markings on wing; vein M_2 obscure at base; setae absent on radius or if present, macrotrichia are present on other vein tips as well and may occur on wing surface sparsely to densely 4

2. Very large species; scutum without anterior tubercle, with color pattern of dark and silvery white patches; palpal segment V pale; wing spots feebly dark; abdominal terga dark with scattered silvery white patches. **speculae** Macfie

   Large species; scutum with anteromedian tubercle present; scutum and abdominal terga without white patches 3

3. Scutum brownish with indistinct paler variegations; anterior tubercle prominent; palpal segment V dark; wing spots moderately dark. **subnebulosa,** new species

   Scutum uniformly dark brown without color pattern; anterior tubercle blunt; palpal segment V intensely dark; wing spots very dark. **venefica,** new species

4. Antennomere XV with an apical seta; palpal segment I with a hair . . 5

   Antennomere XV without apical seta; palpal segment I with or without hair 15

5. Abdominal tergum I with more than 10 hairs in addition to the 2 lateral hair clusters; spermathecae large, oval without necks, with clear hyaline perforations; male genitalia with massive basistyle; mediangular processes reduced, faintly sclerotized; parameres clublike; aedeagal sclerites stout-tipped . . . . . **magnitheca,** new species

   Abdominal tergum I with 2–5 hairs in addition to those in the 2 lateral clusters; spermathecae and male genitalia not as above 6

6. Abdominal tergum I with only a pair of weak hairs in addition to those in the 2 lateral clusters 7

   Abdominal tergum I with 4–5 hairs in addition to those in the 2 lateral clusters 12

7. Medium size, yellowish brown species; wing with 1RC small, r-m and distal sector of R1 almost in a line; legs with sparse, weak setae; male genitalia with mediangular processes stout, short; paramere body long, slender, straight for most of its length and tapering to abruptly bent, filiform tip . . . . . **artistyla,** new species

   Medium to large size, brownish species; wing with 1RC large, r-m and distal sector of R_1 not in a line; leg bristles numerous to abundant; male genitalia not as above 8

8. Wing length less than 1 mm; scutum, postscutellum, and abdomen brown to brownish; female tarsal claws strikingly small, sharp, and nearly straight; spermathecae elongate oval, unequal, with hyaline perforations. **parvaeungulae,** new species

   Wing length 1 mm or more; female claws not unusually small; otherwise not as above 9

9. Wing length more than 2 mm; scutum, postscutellum, and abdomen dark brown; male genitalia with basistyle quite elongated, mediangular process not developed, but basidorsal process long and slender; dististyle quite short; aedeagal sclerites bisinuate, slender with abrupt expansion on outer margin at midlength; parameres each with detached long, slender, arcuate basal lobe, main body long, moderately stout at base, slender distally and abruptly bent distad to a sharp ventrally directed point.
robusta, new species

Wing length 1–2 mm; thorax pale brown to brown; spermathecae and male genitalia not as above 10

10. Wing with several to many setae on radius; surface macrotrichia at apex of wing extending nearly to vein M_2 or behind; scutellum with 6 large bristles; spermathecae ovoid without necks, slightly unequal, with hyaline perforations; male genitalia with inconspicuous mediangular processes; aedeagal sclerites with prominent caudomesal expansion; parameres each with broad basal lobe, main body stout at base, slightly narrowed in midportion, distally flattened and expanded in a platelike tip produced caudoventrad . . . . . **constans,** new species

Wing with 1 seta on radius, at base; surface macrotrichia at apex of wing scarcely extend behind vein M_1; scutellum with 4 large bristles; spermathecae and male genitalia not as above 11

11. Lateral cluster of abdominal tergum I with 5 hairs; male genitalia without bridge between mediangular processes; dististyle stout to blunt tip; aedeagal sclerites with inconspicuous caudomesal expansion; parameres each with winglike basal lobe, and main body rather stout and short, gradually curved ventrad toward apex with blunt-pointed tip . **obesigenitalis,** new species

Lateral cluster of abdominal tergum I with abundant hairs; male genitalia with medial bridge, sclerotized at center, between mediangular processes; aedeagal sclerites with prominent caudomesal expansion, their arch high; parameres each with basal lobe expanded at tip, main body abruptly narrowed toward tip, sharply bent ventrocephalad to a point.
fortistyla, new species

12. Wing with anterior veins, particularly radius and its branches, unusually thick, 1RC and 2RC spaces small; setae abundant on radial vein and its branches; macrotrichia present distally on veins M_1, M_2, and M_{3+4} and in distal third of cells R_5 and M_1, a few also in cells M_2 and M_4; spermathecae ovoid, without necks or hyaline perforations; male genitalia with basistyle elongated, dististyle almost straight to blunt tip; aedeagal sclerites with poor caudomesal expansion, their arch rather high; parameres each with main body poorly sclerotized, distally stouter with an oblique subapical concavity bearing a short peg on lateral margin, the mesal margin produced into a filiform process . . . . . **crassivenosa,** new species

Wing with anterior veins prominent but not unusually thick; radial cell spaces prominent with distal sector of R_1 slightly shorter than r-m; few setae on radius; macrotrichia sparser, usually not extending caudad of vein M_2 and mostly close to apical margin; spermathecae and male genitalia not as above 13

13. Wing with more than 1 seta on radius; scutellum with 6 large bristles; spermathecae oval and unequal, without hyaline perforations; male genitalia with basidorsal process prominent; aedeagal sclerites with prominent caudomesal expansion, their arch high; parameres each with main body long, straight, and stout . . . . . **parvitheca,** new species

Wing with only 1 seta on radius, at base; scutellum with 4 large bristles; spermathecae and male genitalia not as above 14

14. Tarsomere III of fore leg with 1 stout ventral spine; abdominal tergum I with 7 hairs in each lateral cluster; male genitalia with stout basistyle expanded mesad into a strong mediangular process; aedeagal sclerites bisinuate, slender, oriented nearly transversely, forming extremely low arch, with outer margin at midlength having a sclerotized point marking lateral attachment of caudal accessory lobes; parameres each with main body bifid apically . . . . . **macclurei,** new species

Tarsomere III of fore leg with 2 stout ventral spines; abdominal tergum I with 11–12 hairs in each lateral cluster; male genitalia with basistyle markedly truncated basomesad with weak mediangular process; dististyle straight to blunt tip; aedeagal sclerites with prominent caudal accessory lobes, their arch quite high; parameres each with main body sickle shaped. **subalba,** new species

15. Palpal segment I with a hair 16

Palpal segment I without a hair 18

16. Abdominal tergum I with only 4 central setae; caudal terga each with characteristic setation—sparsely set weak setae, shortest at middle, more or less in a subcaudal row; wing with distal sector of vein R_1 short and almost in a line with r-m, 1RC small; vein R_{4+5} with conspicuous distal swelling; more than 1 seta on radial vein . . . . . **xanthogaster,** new species

Abdominal tergum I with 5 or more central setae; caudal terga each with the usual subcaudal row of larger setae; wing with distal sector of vein R_1 and r-m not in a line; 1RC quite spacious, and vein R_{4+5} not swollen distad; just 1 seta on radial vein, close to base 17

17. Abdominal tergum I with 8–9 hairs in each lateral cluster and 8 hairs in center; setae on caudal terga not quite in a row; hind tibial comb of 6 spines; male genitalia with basistyle elongated; mediangular processes prominent, pointed, with membranous bridge between; aedeagal sclerites slender without any caudomesal expansion, their arch quite high; each paramere with strikingly elbowed basal lobe, its free end directed caudad, main body stout at base, gradually tapering distad into a filiform process with a short, hyaline process at base . . . . **fasciscutata,** new species

Abdominal tergum I with 7 hairs in each lateral cluster and 5 hairs in center; setae on caudal terga in straight posterior row; hind tibial comb of 8 spines; male genitalia with elongate basistyle; mediangular processes short without any bridge between; aedeagal sclerites bisinuate, slender at both ends with prominent caudomesal swelling; parameres each with slender arcuate basal lobe, main body stout and nearly straight in middle, bifid distally with short lateral subapical point and a long slender, caudally directed mesal branch . . . . . **obesa,** new species

18. Smaller species; eyes widely separated; wing with 1RC very small, almost a nodule; female with larger tars 1 claw on all legs well developed; spermatheca 1, intensely sclerotized with numerous hyaline perforations, peculiarly retort-shaped to U-shaped with a slender, long neck. **insolita,** new species

Larger species; eyes narrowly separated; wing with 1RC spacious; female with larger tarsal claw well developed only on fore leg, quite small on other legs; 2 functional spermathecae, weakly sclerotized without hyaline perforations, third rudimentary spermatheca present. **miripes,** new species

Speculae Group

DIAGNOSTIC CHARACTERS (fig. 47).—Large, dark species of *Neostilobezzia* with broadly banded legs and wings with obscure color pattern consisting mainly of dark areas over 1RC, tip of RS, and distally in cell R_5. Eyes narrowly separated, a seta located just below the interocular bridge. Antenna long and slender, most antennomeres strongly bicolored; III–X with distinct distal constriction; XV with terminal seta. Palpal segment III robust with strong bristles, usually with a definite apical pit bearing short sensilla. Thorax with or without anterior tubercle on scutum. Wing with 1RC small to large, rhomboidal in shape; vein M_2 not interrupted at base; stem M as long as r-m or shorter; macrotrichia moderate in number on distal surface of wing. Claws of female long and slender with moderately long basal tooth, in male equal with bifid tips as usual; tarsomere III about twice length of IV, the latter cordate on fore and mid legs with a spine on each of the two lobes; V without batonnets. Abdominal terga moderately setose. Female with 2 subequal, highly sclerotized, functional spermathecae and a third one rudimentary; genital sclerotization with moderately deep mesal cleft and well-developed, pointed submesal lobes on sternum IX, internal lamellae bluntly expanded mesad with small anterior point directed caudad. Male genitalia with tergum IX short, the pubescent membranous caudoventral lobes small; sternum IX narrow, basistyle with short mediangular process; dististyle curved; parameres fused at base in the single species whose male is known.

This is the only group of the subgenus *Neostilobezzia* with a characteristic color pattern of the wings.

Species included: *Stilobezzia centripictura* Tokunaga, New Guinea; *nebulosa* Tokunaga, New Guinea; *speculae* Macfie, Malaya; *subnebulosa*, new species, Thailand; *venefica*, new species, Thailand.

7. *Stilobezzia (Neostilobezzia) speculae* Macfie

FIGURES 32, 47

Stilobezzia speculae Macfie, 1934a, Ann. Trop. Med. Parasit., vol. 28, p. 284 [female; Malaya].

FEMALE.—Length of wing 1.72 mm; breadth 0.62 mm.

Head: Eyes narrowly separated; vertex dark brown (fig. 47*a*), with 16 hairs mesad plus 6 at each posterolateral angle. Antenna (fig. 32) brownish, antennomeres III–XV each with base narrowly pale; III–XV lengths as 18–11–11–11–12–12–14–15–23–24–26–27–31; AR 1.26. Palpal segments (fig. 47*d*) as 6–20–28–15–24; I–IV dark brown, V pale; III with scattered long hairs, slightly swollen in

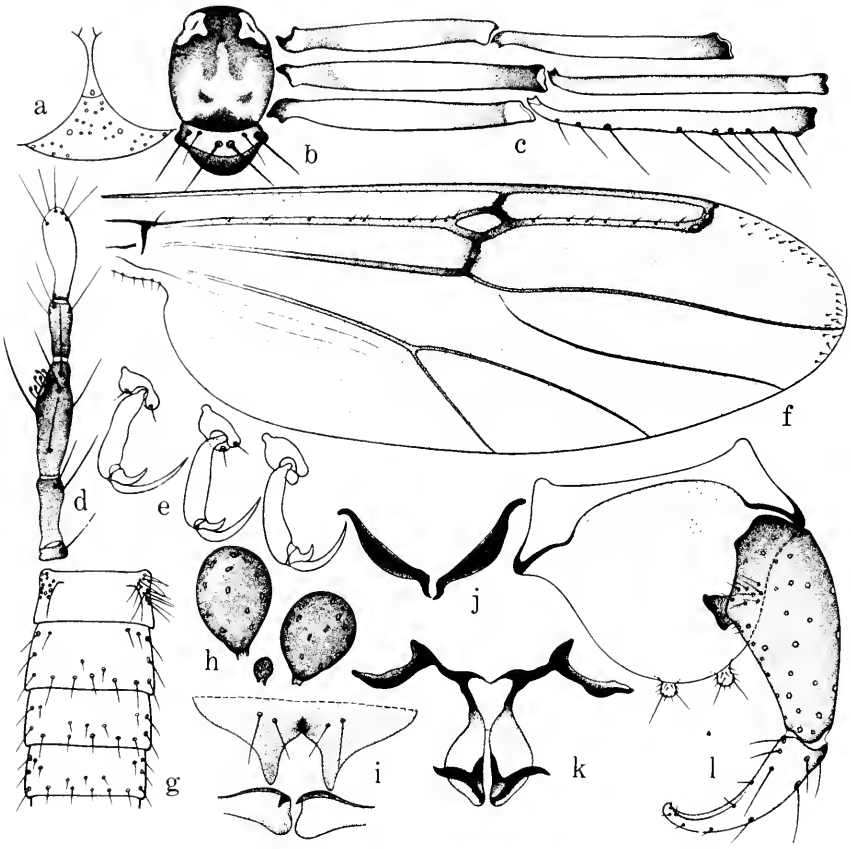


FIGURE 47.—*Stilobezzia speculae* Macfie (*a–i*, ♀; *j–l*, ♂). *a*, frontovertex; *b*, thorax; *c*, femora-tibiae; *d*, palpus; *e*, last 2 tarsomeres and claws; *f*, wing; *g*, abdominal terga I–IV; *h*, spermathecae; *i*, ♀ genitalia; *j–l*, ♂ genitalia.

midportion, with shallow round sensory pit at distal third bearing many small sensilla. Mandible with 5–6 teeth.

Thorax (fig. 47*b*): With darker patches on scutum; humeri and membrane between scutum and postscutellum with silvery white patches; scutellum paler in middle, with 4 large and 2–4 smaller bristles; scutum smooth in front, without tubercle.

Legs: Yellowish brown with faint broad darker brown bands as in figure 47*c*; bristles of moderate size except extensor row of 6 long bristles on hind tibia; claws (fig. 47*e*) moderately long; tarsomere V without batonnets; IV cordate, each lobe with a short spine on fore and mid legs; I–III with stout ventral spines as: fore leg 1–3–1, 0–0–2, 0–0–2; mid leg 1–2–2, 0–0–2, 0–0–2; hind leg 1–0–1, 0–0–2,

0–0–2; basal spine of hind basitarsus slightly shorter than thickness of segment. Hind leg with lengths of femur to V as 110–111–63–35–11–7–18; TR 1.79; hind tibial comb with 6 spines.

Wing (fig. 47*f*): Faintly brownish, a faint preapical clouding in cell R_5, veins yellowish except r-m, R_1, tip of R_{4+5}, and distal halves of M_1, M_2, M_{3+4}, and Cu_1, which are brown to dark brown; CR 0.82; r-m to stem M lengths as 12:11; macrotrichia as figured, ending well before tip of vein M_2; radius and vein R_{4+5} with scattered setae. Halter dark brown.

Abdomen: Moderately slender and straight; dark brown, terga II and caudad each with posterior half silvery white; I with 12 hairs on each side, posterior terga with setal pattern as in figure 47*g*, each segment with a caudal row plus 2–5 weaker setae in front. Spermathecae (fig. 47*h*) ovoid, without necks, slightly unequal, measuring 0.084 mm by 0.060 mm and 0.070 mm by 0.056 mm. Genital sclerotization as in figure 47*i*.

MALE.—Length of wing 1.56 mm.

Similar to the female with the usual sexual differences; antennal plume dark brown. Genitalia (fig. 47*j–l*) with sternum IX provided with shallow, broad caudomedian excavation, the ventral membrane finely spiculate; tergum IX short and rounded caudad, with long bristles; its 2 submedian lobes being unusually small; basistyle moderately stout and tapered, without mesal swelling, with some fine hairs near mediangular process which is short but stout; dististyle markedly curved, tapering to slender tip; aedeagal sclerites slightly arched, slightly broader in midportion, distomesal tips slender and contiguous; parameres fused on proximal halves into a broad plate; lateral lobe at base in each side sinuate with a short anterior process in midportion; distal portion of paramere robust and inflated and bearing a strongly sclerotized, ventrolaterally directed appendage from distomesal corner.

DISTRIBUTION.—Malaya; Viet Nam.

SPECIMENS EXAMINED.—4 specimens. MALAYA: Selangor, Kuala Lumpur (Traub), 1 male, 2 females. VIET NAM: DiLinh (Quate), 1 female (pinned).

DISCUSSION.—Our material is in complete agreement with Macfie's original description of a female from Kedah Peak (3300 ft.), Malaya. Macfie's comparison of *speculae* with *biroi* Kieffer and *aberrans* Johannsen (now synonyms of *inermipes* Kieffer) was based on the superficial similarity of wing pattern, whereas the distal wing macrotrichia, spacious 1RC, tarsomere III twice length of IV, and prominent tooth on the claw are features of the subgenus *Neostilobezzia*.

8. *Stilobezzia (Neostilobezzia) subnebulosa* Das Gupta and Wirth, new species

FIGURES 33, 48

FEMALE.—Length of wing 1.41 mm; breadth 0.55 mm.

Head: Eyes (fig. 48*a*) narrowly separated; head, palpi, and antennae brown, broad bases of V–X pale; vertex with 11 hairs. Antenna (fig. 33) with lengths of III–XV as 11–8–8–9–9–11–12–12–15–16–16–18–23; AR 1.10. Palpal segments as 5–17–20–12–17; III short and slightly broadened, with numerous long dark bristles and bearing a subapical sensory pit. Mandible with 6–7 teeth.

Thorax (fig. 48*b*): Brownish, without distinct pattern but indistinctly paler variegated; scutum with anterior tubercle prominent, 3–4 hairs around base of tubercle; scutellum with 4 large bristles and 0–4 small admedian setae.

Legs: Yellowish brown with moderately prominent broad dark brown bands as figured (fig. 48*c*); trochanters, distal halves of coxae, and basal half of hind tarsomere I dark brown; femora and tibiae with fine hairs except extensor row of 10 long bristles on hind tibia, the distal 5 stouter; basal spine of hind tarsomere I stout, slightly longer than thickness of segment; V without batonnets; IV with 2

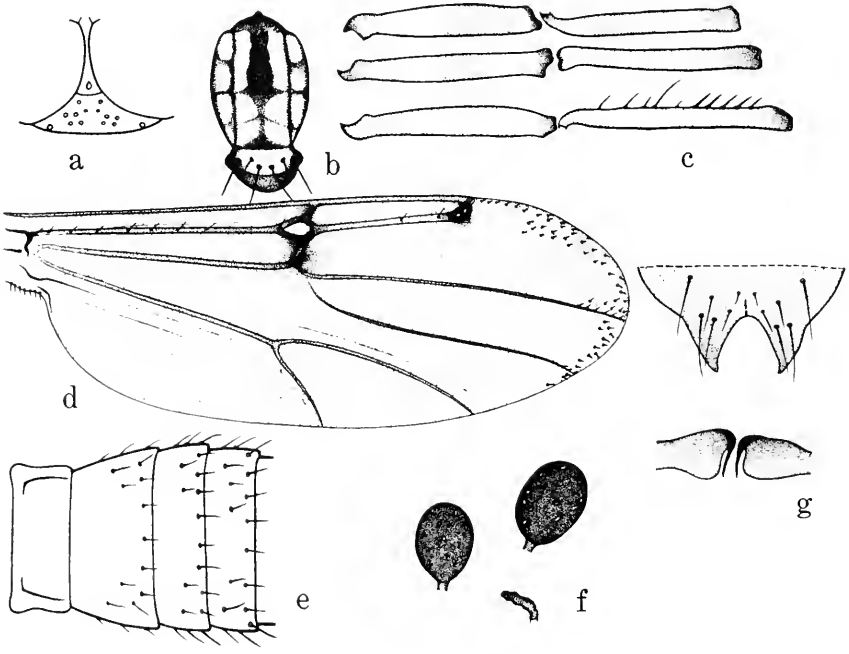


FIGURE 48.—Stilobezzia subnebulosa, new species (♀). *a*, frontovertex; *b*, thorax; *c*, femora-tibiae; *d*, wing; *e*, abdominal terga I–IV; *f*, spermathecae; *g*, ♀ genitalia.

fine spines on fore and mid legs; I–III with strong ventral spines as follows: fore leg 1–1–1, 0–0–1, 0–0–1; mid leg 1–1–2, 0–0–2, 0–0–2; hind leg 1–0–1, 0–0–2, 0–0–2. Hind leg with lengths from femur to V as 80–85–47–22–9–4–11; TR 2.2; hind tibial comb with 7 spines.

Wing (fig. 48*d*): Faintly brownish, with 2 dark spots, 1 over r-m, 1RC and R_1, the other at tip of R_{4+5}, and distal clouding in cell R_5; veins darker brown except radius and proximal portion of media; 1RC clear, rhomboidal; CR 0.74, r-m to stem M lengths as 2:1; radius with scattered setae; macrotrichia present at wing margin between R_{4+5} and vein M_2, a few in cell M_2. Halter bark brown, base of stem paler.

Abdomen: Moderately slender, terga II–X almost totally dark brown, but intermediate segments with pale anterior margins; terga moderately setose, I with 14 setae on each side; setae in 2 uneven rows on each tergum, longer laterally (fig. 48*e*). Spermathecae (fig. 48*f*) ovoid, with short necks, slightly unequal, measuring 0.053 mm by 0.042 mm and 0.046 mm by 0.035 mm; rudimentary spermatheca minute, tubular. Genital sclerotization as in figure 48*g*.

Male.—Unknown.

Distribution.—Thailand.

Types.—Holotype female, Udonthani Prov., Meung Dist., Thailand, 17–20 June 1959, Manop R. collector, light trap (USNM 69449). Paratypes, 5 females. THAILAND: Loei, Meung and Dan Sai Dists., 1–7 June 1959, Manop R., light trap, 4 females. Udonthani, Ampur Muang, Sept. 1962, J. Scanlon, light trap, 1 female.

Discussion.—*Stilobezzia nebulosa* Tokunaga from New Guinea differs, according to the original description, in its larger size (wing 1.92 mm long), in lacking the distal infuscation in wing cell R_5, the "thorax is almost entirely black," and antennomeres III entirely dark, IV–IX dark brown basally and gradually paler toward apical segments, becoming pale brown.

9. *Stilobezzia* (*Neostilobezzia*) *venefica* Das Gupta and Wirth, new species

Figures 34, 49

Female.—Length of wing 1.55 (1.50–1.67, n=10) mm; breadth 0.57 (0.54–0.62, n=10) mm.

Head: Dark brown, III–X of antenna with broad bases pale, narrow bases of XI–XV pale; vertex (fig. 49*a*) with 14 hairs. Antenna (fig. 34) with lengths of III–XV as 14–9–10–11–11–11–12–12–23–25–23–22–28; AR 1.34; palpal segments as 7–19–28–11–19; mandible with 7–8 teeth (av. 7.6, n=13).

Thorax: Uniformly dark brown, a blunt tubercle present on anteromesal margin of scutum, 2–3 stiff hairs at base of tubercle; scutellum with 4 large and 4 small bristles.

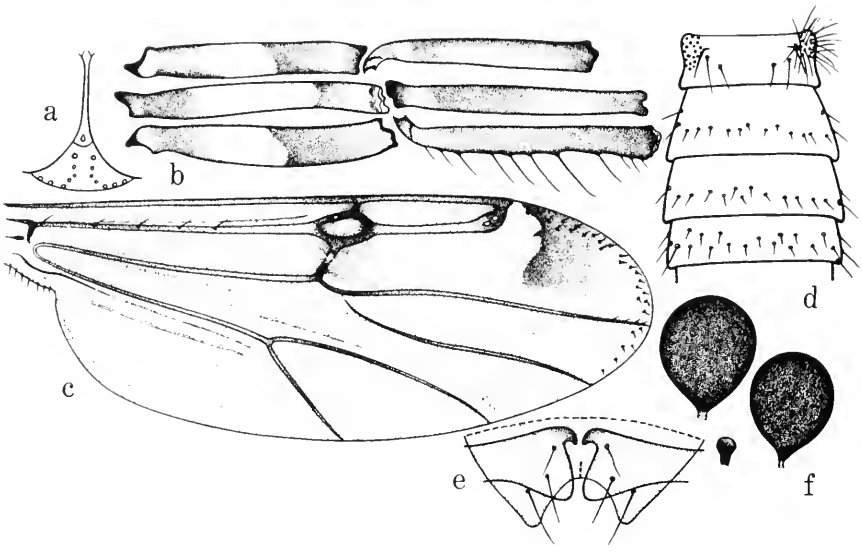


FIGURE 49.—*Stilobezzia venifica*, new species (♀). *a*, frontovertex; *b*, fermora-tibiae; *c*, wing; *d*, abdominal terga I–IV; *e*, ♀ genitalia; *f*, spermathecae.

Legs (fig. 49*b*): Dark brown; femora with broad pale bands at midportions, especially on mid leg, and narrow subapical pale rings; tibiae with narrow subbasal pale rings, and obscure pale bands midway on fore and mid legs; tarsomeres I–III pale. Legs rather stout, with rather stout extensor bristles on mid and hind tibiae; stout ventral spines on I–III as: fore leg 1–3–1, 0–0–0, 0–0–2; mid leg 1–4–2, 0–0–2, 0–0–2; hind leg 1–0–1, 0–0–2, 0–0–2; basal spine on hind basitarsus about as long as segment thickness. Hind leg with lengths of femur to V as 103–102–50–24–10–8–17; TR 2.1; hind tibial comb with 7–10 spines (av. 8.1, n=8).

Wing (fig. 49*c*): Grayish brown with veins darker brown and 3 intense brown areas anteriorly, across R_1 to r-m, at end of R_{4+5}, and at distal margin of cell R_5; radius with 5 scattered setae proximally; a hyaline dot on R_1 at 1RC and 2 at distal thickening and bend of vein R_{4+5}; CR 0.79; r-m to stem M lengths as 13:9; 1RC large; macrotrichia present at wing margin between end of costa and tip of vein M_2. Halter dark brown.

Abdomen (fig. 49*d*): Intensely dark brown, concolorous with thorax; tergum I with cluster of 20 hairs on each side; posterior terga lightly setose in 1–2 irregular rows on each. Spermathecae (fig. 49*f*) subspherical, slightly tapering to the short slender neck, measuring 0.091 mm by 0.074 mm and 0.074 mm by 0.067 mm. Genital sclerotization as in figure 49*e*.

MALE.—Unknown.

DISTRIBUTION.—Thailand.

TYPES.—Holotype female, Loei Prov., Meung Dist., Thailand, 1–5 June 1959, Manop R., collector, light trap (USNM 69450). Paratypes, 5 females, same data; 2 females, same data except Dan Sai Dist., 6–7 June 1959.

DISCUSSION.—This species is the darkest and most intensely patterned of all in the Speculae Group.

10. *Stilobezzia* (*Neostilobezzia*) *artistyla* Das Gupta and Wirth, new species

FIGURE 50

FEMALE.—Unknown.

MALE.—Length of wing 0.95 mm.

A rather uniformly yellowish brown species; legs pale straw colored, only knee spots brownish; abdomen concolorous with legs; wing grayish hyaline, veins pale brownish; halter whitish. Distal antenno-

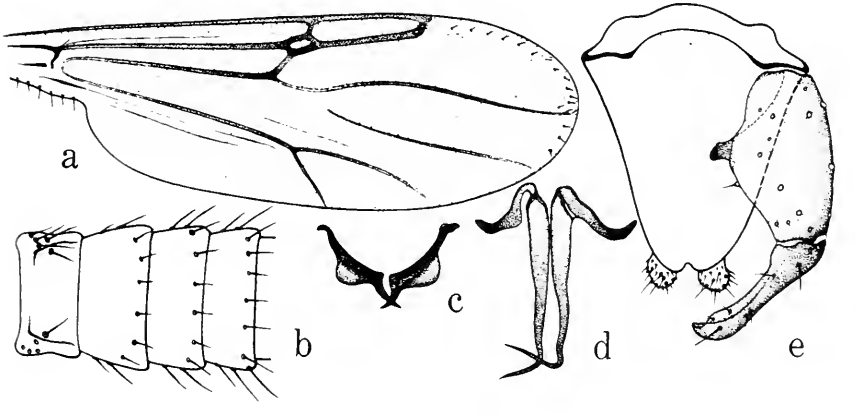


FIGURE 50.—*Stilobezzia artistyla*, new species (♂). *a*, wing; *b*, abdominal terga I–IV; *c–e*, ♂ genitalia.

mere tipped by a stiff hair; palpal segment III long and slender, without distinct pit, a few small sensilla on distal fourth. Legs with sparse weak hairs, 5 long bristly hairs dorsally on hind tibia; tarsomeres I–III with strong ventral spines as: fore leg 0–0–1, 0–0–1, 0–0–2; mid leg 0–0–2, 0–0–2, 0–0–2; hind leg 0–0–2, 0–0–2, 0–0–2; TR 1.88; hind tibial comb with 6 spines; claws short, equal, with bifid tips. Wing (fig. 50*a*) with macrotrichia narrowly bordering margin between 2RC and vein M_2; radius with 1 seta near basal arculus; CR 0.70. Abdomen (fig. 50*b*) with 4–5 hairs on each side of tergum I; posterior terga with sparse row of hairs on caudal and lateral margins as in figure. Genitalia

(fig. 50*c–e*) with sternum IX narrow, caudomedian excavation very slight, ventral spiculation inconspicuous; tergum IX long, tapering to narrow rounded, slightly bilobed apex, pubescent caudal lobes not greatly developed; basistyle rather long, tapering distally, mediangular process small, blunt tipped; dististyle long, slender, slightly curved, tip pointed; aedeagal sclerites slender at each end, outer margin with broad angulate swelling at midlength, distomedian points sharp; parameres each with rather narrow, detached lateral lobe from base, main portion long and slender, slightly enlarged toward base, straight for most of its length and tapering to abruptly bent slender tip.

Distribution.—Thailand.

Type.—Holotype male, Udrontani Prov., Pen Dist., Thailand, 23–24 June 1959, Manop R., light trap (USNM 69451).

Discussion.—This species is similar to *fusciscutellata* Tokunaga and Murachi and *longistyla* Tokunaga from Micronesia in general appearance and structure of the male genitalia but can be distinguished as follows: *S. fusciscutellata* (from examination of the holotype male) is characterized by more highly setose abdominal terga, scutellum with 7 large bristles, coxae with highly spinose inner tubercle on subbasal region; parameres with basal lobe broad, distally bent ventrocephalad just beyond middle where there is a distinct sclerotized bridge between them. *S. longistyla*, according to the original description, may be distinguished by brownish halter; Y-shaped basal lobe of paramere, aedeagal sclerite without angulate outer expansion on midportion, and much shorter, broader basistyle.

11. *Stilobezzia* (*Neostilobezzia*) *constans* Das Gupta and Wirth, new species

Figures 31, 51

Female.—Length of wing 1.26 mm; breadth 0.51 mm.

Head: Yellowish brown; eyes narrowly separated, vertex (fig. 51*a*) with 16 hairs. Antenna (fig. 31) pale brownish, narrow bases of antennomeres pale; III–XV lengths as 14–9–9–9–9–9–9–10–15–15–17–17–21; AR 1.09; III–X subcylindrical; XV tipped by a stiff hair. Palpal segments (fig. 51*b*) not measured, III slender with a distinct sensory pit, I with a hair. Mandible with 8 teeth.

Thorax: Pale brownish, midportion of pleuron yellowish; scutellum slightly paler brown, with 4–6 large bristles.

Legs: Yellowish, joints brownish, extremities of femora and tibiae slightly darker; hairs on femora and tibiae seriate and rather conspicuous; claws long (fig. 51*c*); strong ventral spines on tarsomeres I–III as: fore leg 0–0–1, 0–0–1, 0–0–2; mid leg 1–0–2, 0–0–2, 0–0–2; hind leg 0–0–0, 0–0–2, 0–0–2. Hind leg with lengths from femur to V as 87–83–40–21–8–5–12; TR 1.91; hind tibial comb with 7 spines.

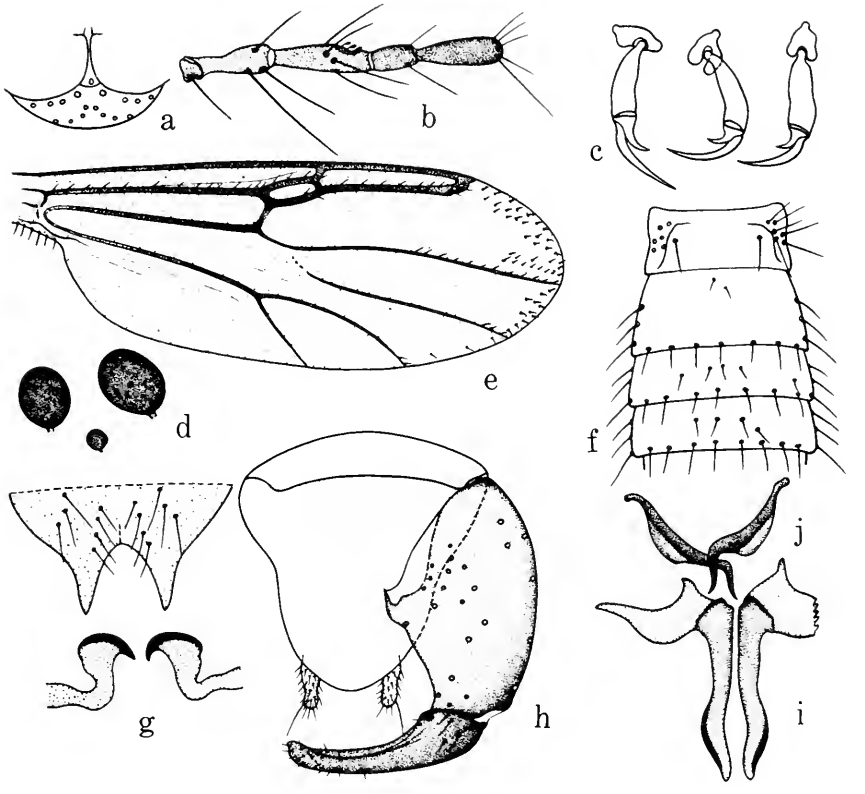


FIGURE 51.—*Stilobezzia constans*, new species (*a–g*, ♀ ; *h–j*, ♂). *a*, frontovertex; *b*, palpus; *c*, last 2 tarsomeres and claws; *d*, spermathecae; *e*, wing; *f*, abdominal terga I–IV; g, ♀ genitalia; *h–j*, ♂ genitalia.

Wing (fig. 51*e*): Pale yellowish brown; M and all branches of R rather stout; CR 0.81; r-m to stem M lengths as 15:13; numerous long setae on base of R, on R_1 at 1RC, and on R_{4+5} behind 2RC; macrotrichia numerous at wing margin in cells R_5 and M_1 and a few extending into cell M_2 at wingtip; anal angle moderately expanded, alula fringed. Halter feebly infuscated.

Abdomen (fig. 51*f*): Pale brown; tergum I with cluster of 6 hairs on each side; II and those behind, each with a posterior row and some scattered long discal setae; VIII–IX fused in a quadrate boxlike structure. Spermathecae (fig. 51*d*) ovoid, without necks, slightly unequal, measuring 0.059 mm by 0.046 mm and 0.047 mm by 0.039 mm. Genital sclerotization as in figure 51*g*.

MALE.—Length of wing 1.11 mm.

Similar to the female with the usual sexual differences; antennal plumes yellowish brown; radius with only 5 setae scattered along

proximal section before 1RC; tarsal claws equal, sharp tips not bifid; ventral spines on tarsomeres I–III of fore leg as 0–0–1, 0–0–1, 0–0–1. Genitalia (fig. 51*h–j*) well sclerotized, brownish, profile nearly circular in ventral view; sternum IX without caudal emargination or spicules on ventral membrane; tergum IX short, narrowed on distal portion, and bearing numerous long bristles on dorsal surface; basistyle broadest at mediangular process, the latter small, a low ventral lobe arising at mesal margin at this point; dististyle long, curved, slenderer in midportion; aedeagal sclerites heavily sclerotized, bisinuate, slender at both ends, the caudomedian end abruptly bent caudad in a slender point; parameres each with large, detached anterolateral plate; main body stout at base, slightly narrowed in midportion, distally flattened and expanded in a platelike tip produced caudoventrad.

Distribution.—Philippines.

Types.—Holotype male, Clark Air Base, Angeles, Pampanga Prov., Luzon, Philippines, 22 Apr. 1957, I. Balatbat, light trap (USNM 69452). Allotype female, 1 female paratype, same data 17 Sept. 1957; 1 female paratype, same data as holotype.

Discussion.—*Stilobezzia brandti* Tokunaga from New Guinea is similar, but is much larger (wing 1.4–1.74 mm long); the hind claw of the female has the shorter ungue nearly as long as the longer; tergum I bears a tuft of 8–16 hairs on each side, and the male dististyle has a stouter tip. *S. thyridofera* Tokunaga from New Guinea has a setose radius in the female exactly as in *constans* and similar male genitalia, but also is a much larger species with a stouter tip to the male dististyle.

12. *Stilobezzia* (*Neostilobezzia*) *crassivenosa* Das Gupta and Wirth, new species

Figures 29, 52

Female.—Length of wing 1.16 (1.06–1.28, n=10) mm; breadth 0.47 mm.

Head: Reddish brown; palpi and antennae brownish, narrow bases of antennomeres III–X paler. Eyes narrowly separated, the interorbital space (fig. 52*a*) broader caudad. Antenna (fig. 29) short, III–XV with lengths as 10–6–6–6–6–6–7–8–10–10–11–12–18; AR 1.11; III–X somewhat elliptical, IX–X with preapical collar, XI–XV cylindrical, XV with apical seta. Palpal segments (fig. 52*e*) with lengths in proportion of 4–12–16–10–18, III slender with a shallow subapical pit with short sensilla. Mandible with 8 teeth.

Thorax: Yellowish brown; scutellum with 4 large bristles.

Legs: Uniformly yellowish; femora and tibiae with hairs moderately strong, hind tibia with 5–6 strong extensor bristles; claws (fig. 52*c*)

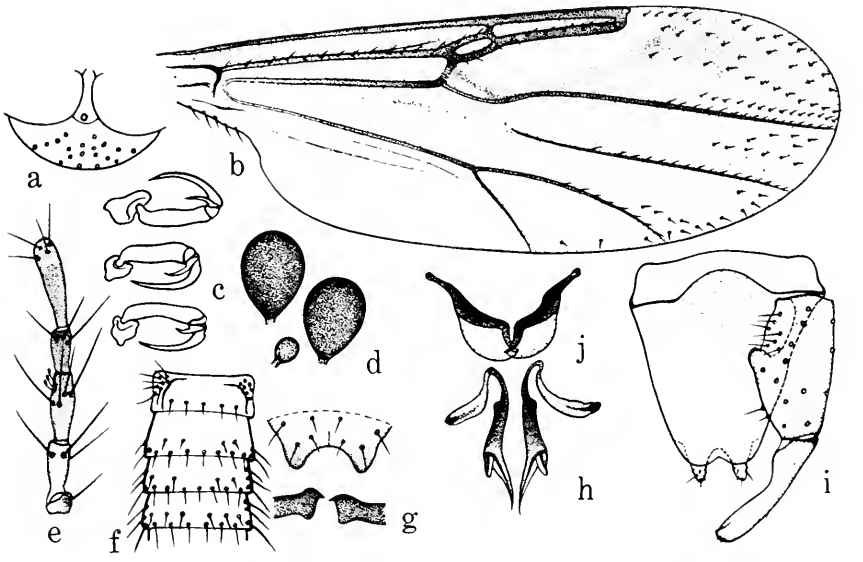


FIGURE 52—*Stilobezzia crassivenosa*, new species (*a–g*, ♀ ; *h–j*, ♂).*a*, frontovertex *b*, wing; *c*, last 2 tarsomeres and claws; *d*, spermathecae, *e*, palpus; *f*, abdominal terga I–IV; *g*, ♀ genitalia; *h–j*, ♂ genitalia.

long and sharp, rather slender, the shorter ungue about half as long as the longer; I–III with strong ventral spines as: fore leg 0–0–1, 0–0–1, 0–0–0; mid leg 1–0–2, 0–0–2, 0–0–2; hind leg 0–0–1, 0–0–2, 0–0–2. Hind leg with lengths from femur to V as 78–88–41–18–9–6–12; TR 2.28; hind tibial comb with 6–8 spines (av. 6.7, n=10).

Wing (fig. 52*b*): Grayish hyaline, veins slightly brownish, anterior veins quite strong; radius with scattered setae to tip of R_{4+5}; CR 0.67: r-m to stem M lengths as 1:2; macrotrichia scattered over distal portion of wing proximad to level of costa tip and nearly to base of vein M_{3+4}. Halter pale, whitish.

Abdomen: Yellowish brown; tergum I with 7–8 hairs on each side; posterior terga (fig. 52*f*) with sparse scattered setae. Spermathecae (fig. 52*d*) ovoid, without necks, slightly unequal, measuring 0.063 mm by 0.046 mm and 0.056 mm by 0.042 mm. Genital sclerotization as in figure 52*g*.

MALE.—Length of wing 1.19 mm.

Similar to the female with the usual sexual differences; wing with macrotrichia limited to the margin between R_{4+5} tip and vein M_2; antennal plume yellowish brown; claws equal, sharp distally with deeply bifid tips. Genitalia (fig. 52*h–j*) elongate, yellowish brown; sternum IX with shallow caudomedian excavation, the ventral spiculation inconspicuous; tergum IX tapered distally, slightly

bilobed caudally, the pubescent membranous lobes small; basistyle not broadened basally, mediangular process moderately developed; dististyle stout, slightly curved, slightly attenuated in midportion with stout, blunt tip; aedeagal sclerites bisinuate, slender, caudal submedian membranous lobes well developed; parameres each with arcuate lateral lobe from base, main body poorly sclerotized, narrower basad at juncture with basal lobe, distally stouter with an oblique subapical concavity bearing a short point on lateral margin, the mesal margin greatly produced in a tapering elongate sharp process.

DISTRIBUTION.—West Pakistan.

TYPES.—Holotype male, allotype female, Peshawar, West Pakistan, 20 June 1958, J. Maldonado, light trap (USNM 69453). Paratypes, 2 males, 6 females, all taken in light traps. WEST PAKISTAN: Peshawar, same data as types, 1 male, 2 females; June 1959, H. Barnett, 2 females. Rawalpindi, Ayub Nat. Park, June 1959, H. Barnett, 1 male, 1 female. Rawalpindi, Dhamyal, June 1959, H. Barnett, 1 female.

DISCUSSION.—*Stilobezzia obesa*, new species, and *macclurei*, new species, are similar to *crassivenosa* in general features and in the bifid gross structure of the male paramere, but both *obesa* and *macclurei* have the male dististyle with slender tip; in *obesa* the aedeagal sclerites are more strongly swollen and sinuate, and in *macclurei* the inner fork of the paramere is short and stout. *Stilobezzia aureola* Clastrier from Algeria has male genitalia nearly identical with *crassivenosa*, but the subapical process on the paramere is free distally from the rim of the concavity.

13. *Stilobezzia* (*Neostilobezzia*) *fasciscutata* Das Gupta and Wirth, new species

FIGURE 53

FEMALE.—Unknown.

MALE.—Length of wing 1.20 (1.15–1.23, n=5) mm.

Head: Yellowish brown, torus brown, antennal plumes dark brown; palpus pale brown; vertex with 10 hairs; eyes contiguous a distance of 3–4 facets. Palpus elongate and slender; segments, including I, with long hairs; III slender with round subapical pit.

Thorax: Greenish yellow on sides, brownish on dorsum; scutum with dark brown vittae as in figure 53*a*; scutellum with 4 large and 0–2 small bristles.

Legs: Uniform straw yellowish, knee spots brownish; femora and tibiae with rather long dark bristly hairs, about 4–5 extensor bristles on hind tibia, each about twice as long as diameter of segment. Tarsomeres I–III with stout ventral spines as: fore leg 0–0–1, 0–0–1, 0–0–1; mid leg 1–0–2, 0–0–2, 0–0–2; hind leg 0–0–2, 0–0–2, 0–0–2

(where 2 are present they are unequal in length); hind tibial comb with 6 spines; TR 2.44.

Wing (fig. 53*b*): Grayish hyaline, veins brownish; 1RC well formed; CR 0.83; r–m strong, stem M with strong base forming a short spur at juncture with r-m; r-m to stem M lengths as 1:1; alula fringed; macrotrichia forming a line near wing margin between tip of R_{4+5} and tip of vein M_1. Halter whitish.

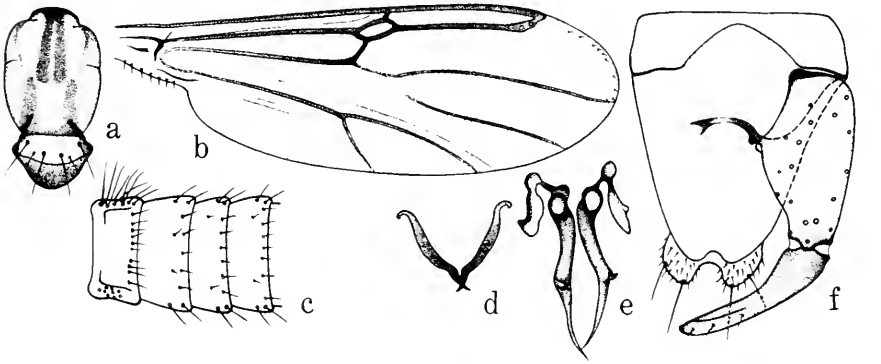


FIGURE 53.—*Stilobezzia fasciscutata*, new species (♂). *a*, thorax; *b*, wing; *c*, abdominal terga I–IV; *d–f*, ♂ genitalia.

Abdomen (fig. 53*c*): Whitish; tergum I with 8–9 long hairs in cluster on each side and a row of 10 hairs on caudal margin between; II–VI each with irregular caudal row of hairs which are longer at sides. Genitalia (fig. 53*d–f*) with tergum IX elongate, slightly bilobate caudally with large setose membranous caudal lobes; sternum IX with deep caudomedian excavation, the spicules on ventral membrane inconspicuous; basistyle broadest at the small pointed mediangular process, the processes on each side connected by a definite narrow sclerotized ribbon; dististyle long, only slightly arched, narrow from near base and only slightly tapering to blunt tip; aedeagal sclerites slender, only slightly arcuate, with short bent caudomedian points; parameres each with striking elbowed anterolateral process with free end directed caudad, main body stout at base, gradually tapering distad, strongly sclerotized for about two-thirds its length, distally fading into sharp hyaline point directed caudad.

DISTRIBUTION.—Malaya.

TYPES.—Holotype male, Kepong Forest Res., Selangor, Malaya, Mar.-Apr. 1960, H. E. McClure, light trap (USNM 69454). Paratypes, 2 males. MALAYA: Negri Sembilan, Pt. Dickson, Telok Pelandok, 18 July 1958, R. Traub, light trap, 1 male. Trengganu, Bukit Besi, Dungun, 6 Aug. 1958, R. Traub, light trap, 1 male.

Discussion.—The male genitalia of *fasciscutata* are similar to those of *miripes*, new species, with important but specific differences in each part; otherwise this species is distinct in its fasciate scutum, pale whitish halteres, and conspicuously hairy tergum I.

14. *Stilobezzia (Neostilobezzia) fortistyla* Das Gupta and Wirth, new species

Figure 54

Female.—Unknown.

Male.—Length of wing 1.40 mm.

A large, robust, uniformly yellowish brown species with strong bristly hairs; legs and abdomen uniformly pale yellowish; wing and

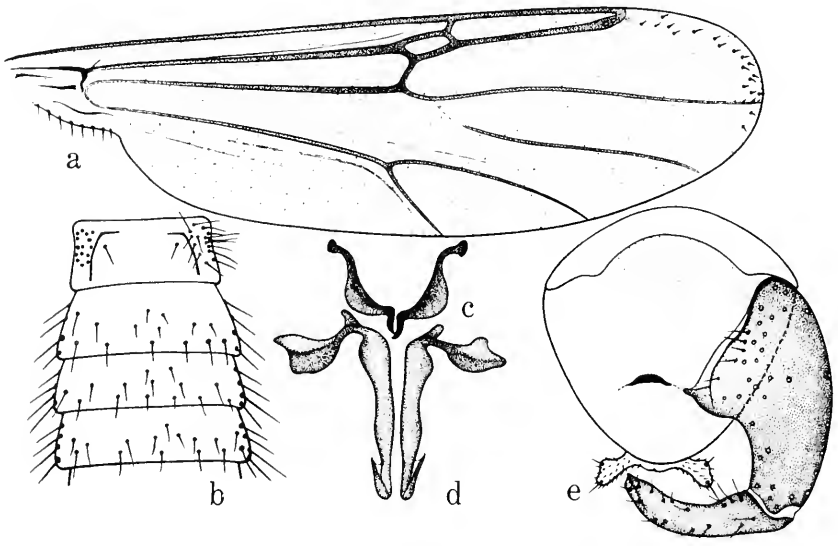


Figure 54.—*Stilobezzia fortistyla*, new species (♂). *a*, wing; *b*, abdominal terga I–IV; *c–e*, ♂ genitalia.

halter yellowish, veins slightly brownish. Vertex with 13 hairs; antennal plumes brownish, distal antennomere tipped by a stiff hair; palpal segment III long and slender, length subequal to V, with a small subapical pit with small sensilla. Scutum with strong bristly brownish hairs; scutellum with 4 large bristles and 0–2 smaller hairs. Legs robust; femora and tibiae with strong bristly hairs arranged in definite series, hind tibia with 11 long extensor bristles; claws strong and curved, equal, with bifid tips; tarsomeres I–III with strong ventral spines as: fore leg 0–0–1, 0–0–1, 0–0–1; mid leg 1–0–2, 0–0–2, 0–0–2; hind leg 0–0–2, 0–0–2, 0–0–2; TR 2.27; hind tibial comb with 7 spines. Wing (fig. 54*a*) with macrotrichia along margin between

2RC and vein M_2 and a few anteriorly at tip of cell M_2; radius with 1 seta at basal arculus; CR 0.82. Abdomen (fig. 54*b*) with numerous strong bristly hairs on terga as figured, I with 14–15 hairs on each side. Genitalia (fig. 54*c–e*) dark brownish, well sclerotized, short and broad, rounded in profile in dorsoventral aspect; sternum IX narrow, with shallow caudomedian excavation, the ventral spiculation scarcely perceptible; tergum IX short, rounded caudad, with small laterally directed pubescent caudal lobes; basistyle greatly expanded mesad on basal portion, expanded portion provided ventrally with dense, long hairs; distal portion slender; mediangular process short, a small sclerotized bridge present; dististyle stout, moderately curved, apex blunt; aedeagal sclerites bisinuate, a broad expansion on outer margin in midportion, distomedian tip pointed; parameres each with long arcuate lateral arm at base, a small anterior process on this basal sclerite, main portion stout, with a rather pronounced swelling at base, stout and fairly straight on midportion, somewhat abruptly narrowed toward tip, then abruptly bent ventrocephalad in a short ventral point.

Distribution.—Malaya.

Types.—Holotype male, King George V. Nat. Park, Pahang, Malaya, 4–6 Nov. 1959, H. E. McClure, light trap (USNM 69455). Paratype, 1 male, same data as type.

Discussion.—This species is distinguished especially by its fairly large size, robust legs, bristly body and legs, uniformly pale color, the densely hairy mesal expansion at the base of the basistyle, and by the strong, nearly straight paramere with short ventrally directed point.

15. *Stilobezzia* (*Neostilobezzia*) *insolita* Das Gupta and Wirth, new species

Figures 24, 55

Female.—Length of wing 0.82 mm.; breadth 0.23 mm.

Head: Yellowish, torus brownish; distal palpal segments and antennae except narrow bases of IV–X brownish. Eyes broadly separated, interocular space (fig. 55*a*) bearing a bristle with transverse suture above and V-shaped suture below. Antenna (fig. 24) with lengths of III–XV as 9–5–5–5–5–6–7–8–11–12–12–12–15; AR 1.24. III–X cylindrical to binodose, without preapical collar; XI–XV with distinct basal node; XV without apical seta. Palpal segments (fig. 55*c*) as 2–6–8–4–9; III short and slightly swollen with distinct subapical pit bearing long sensilla. Mandible with 7–8 teeth (av. 7.3, n=5).

Thorax: Yellowish, scutum and postscutellum brownish; scutellum with 4 large bristles.

Legs: Yellowish white, distal halves of all femora and proximal halves of first 4 tibiae somewhat darkened; claws (fig. 55*b*) long and

sharp, the longer as long as V on fore leg, slightly shorter on others, the smaller claw small and sharp; V without ventral batonnets; IV weakly bilobed, without spines; I–III with rather weak long ventral spines as: fore leg 0–0–0, 0–0–1, 0–0–2; mid leg 1–0–1, 0–0–1, 0–0–1; hind leg 0–0–0, 0–0–2, 0–0–2. Hind leg with lengths from femur to V as 45–43–26–11–4–3–8; TR 2.51; hind tibial comb with 6–7 spines (av. 6.5, n=4).

Wing (fig. 55*e*): Hyaline, unmarked, veins slightly brownish; 1RC small, sometimes poorly formed, vein R_{4+5} thickened from base of 1RC to tip of 2RC; CR 0.65; r–m to stem lengths as 7:17; anal angle obtuse; alula with fringe lacking on proximal half; macrotrichia confined to a row close to margin between 2RC and tip of vein M_1. Halter slightly infuscated.

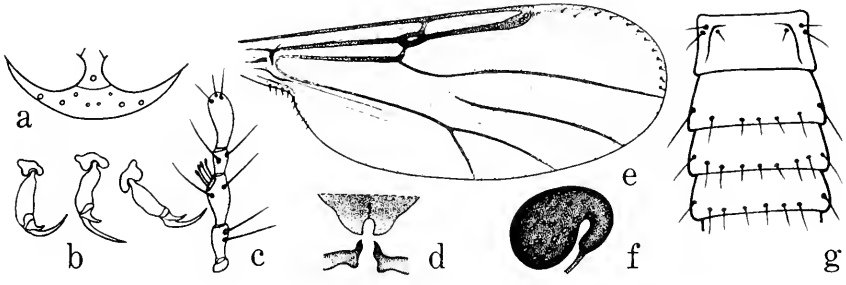


FIGURE 55.—*Stilobezzia insolita*, new species (♀). *a*, frontovertex; *b*, last 2 tarsomeres and claws; *c*, palpus; *d*, ♀ genitalia; *e*, wing; *f*, spermathecae; *g*, abdominal terga I–IV.

Abdomen (fig. 55*g*): Pale brownish, tergum I and extreme distal terga yellowish brown; distal segments with definite tapering conformation; I with 3 setae on each side; II–IV with sparse setae in a caudal row on each tergum. Spermatheca (fig. 55*f*), 1, peculiarly retort-shaped to unequally U-shaped, with slender, long, sclerotized neck; main portion measuring 0.056 mm by 0.035 mm. Genital sclerotization as in figure 55*d*.

MALE.—Unknown.

DISTRIBUTION.—Malaya.

TYPES.—Holotype female, Kuala Lumpur, Selangor, Malaya, July 1958, R. Traub, light trap (USNM 69456). Paratypes, 2 females. MALAYA: Pahang, Kuala Singgora, 18 July 1958, R. H. Wharton, light trap, 1 female. Selangor, same data as type, but 12 June, 1 female.

DISCUSSION.—This species is set off distinctly by the wide eye separation, the reduced anal angle of the wing, and the fringe on the alula, as well as the poorly developed 1RC and thickened R_{4+5}; the long sharp female claw with small sharp smaller claw and the peculiar appendiculate spermatheca are also diagnostic.

16. *Stilobezzia (Neostilobezzia) macclurei* Das Gupta and Wirth, new species

FIGURE 56

FEMALE.—Unknown.

MALE.—Length of wing 1.38 mm.

A dull yellowish-brown species, scutum slightly more brownish; legs straw colored, hind femur slightly brownish on distal half. Distal antennomere with terminal bristle; palpal segment III slender, with preapical round pit bearing short sensilla. Scutellum with 4 large bristles. Femora and tibiae with sparse short hairs, 6 long extensor bristles on hind tibia; claws small, equal, nearly straight with obliquely turned points, tips not obviously bifid; strong ventral spines on

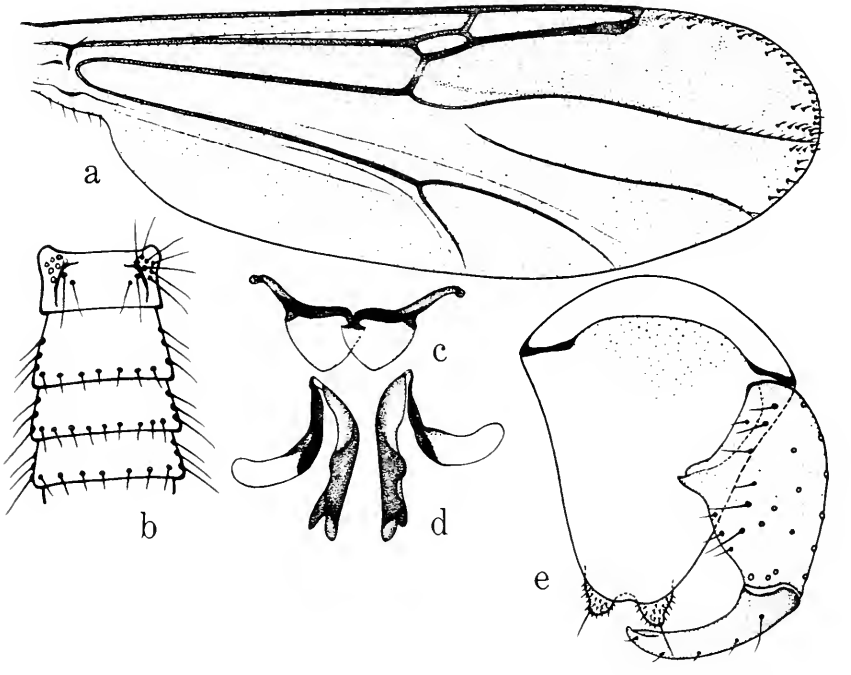


FIGURE 56.—*Stilobezzia macclurei*, new species (♂). *a*, wing; *b*, abdominal terga I–IV; *c–e*, ♂ genitalia.

tarsomeres I–III as: fore leg 0–0–1, 0–0–1, 0–0–1; mid leg 0–0–2, 0–0–2, 0–0–2; hind leg none. Hind leg with lengths from femur to V as 84–82–45–18–6–4–6; TR 2.50; hind tibial comb with 7 spines. Wing (fig. 56*a*) pale grayish hyaline, veins slightly brownish, anterior veins comparatively weak; radius with 1 seta near basal arculus; CR 0.79; macrotrichia sparse along wing margin between 2RC and vein M_2, extending

proximad part way along vein M_1. Halter yellowish brown. Abdomen yellowish brown; tergum I with 7 hairs on each side; posterior terga (fig. 56*b*) with sparse hairs in a row along posterior and side margins. Genitalia (fig. 56*c–e*) broad; sternum narrow with broad, shallow caudomedian excavation, the ventral membrane spiculate; tergum IX moderately narrowed distally, rounded caudad with small pubescent caudal lobes; basistyle stout, expanded mesad with strong mediangular process; dististyle slender, slightly curved with distal point; aedeagal sclerites bisinuate, slender, oriented nearly in transverse position forming a low arch, outer margin at midlength with sharp sclerotized point marking lateral attachment of the well-developed, poorly sclerotized, platelike caudal accessory lobes of aedeagus: parameres each with slender lateral lobe at base, main body narrowed at juncture with basal lobe on proximal half, rather stout distad, apically bifid in 2 short points.

Distribution.—Malaya.

Type.—Holotype male, Mt. Brinchang, 5000–6000 ft., Pahang, Malaya, March 1963, H. E. McClure, light trap (USNM 69457).

Discussion.—We are pleased to dedicate this species to its collector, Dr. H. E. McClure of the U.S. Army Medical Research Unit at Kuala Lumpur, Malaya, to whom we are greatly indebted for extensive collections of Malayan Ceratopogonidae. This species is similar to *obesa*, new species, from Indonesia in its general features, especially the male genitalic structure, but *obesa* is distinguished by prominent dark brown markings on the thorax and legs, the male aedeagal sclerites are more strongly sinuate, broadly expanded, and oriented more obliquely, and the paramere has the mesal point much lengthened.

17. *Stilobezzia* (*Neostilobezzia*) *magnitheca* Das Gupta and Wirth, new species

Figures 27, 57

Female.—Length of wing 1.59 (1.50–1.72, n=6) mm; breadth 0.58 mm.

Head: Eyes (fig. 57*a*) broadly separated, the separation broader above. Head yellowish brown, narrow bases of antennomeres, lower clypeus, and proximal palpal segments pale. Vertex with III–IV lengths as 17–12–12–12–12–12–13–14–21–21–21–22–28; AR 1.87; III–X elongate, cylindrical to binodose; XI–XV elongate, slightly tapering distad; XV tipped by a stiff hair. Palpal segments (fig. 57*c*) as 5–15–24–10–18, slender; with an open irregular depression at distal fourth bearing numerous short sensilla. Mandible with 7–8 teeth (av. 7.6, n=5).

Thorax: Yellowish brown without ornamentation, scutellum and pleuron slightly paler; scutellum with 9 large bristles.

Legs: Yellowish brown, without ornamentation; femora and tibiae with prominent bristle-like hairs, especially strong at apices of femora and dorsally on hind femur and tibia; hind tibia with extensor row of 5–6 long bristles; tarsomere IV (fig. 57*d*) strongly bilobed, each lobe with strong spines; V slender; claws strong, elongate, the longer nearly as long as V, the shorter ungue stout; I–III with strong ventral spines as: fore leg 0–0–1, 0–0–1, 0–0–2; mid leg 1–0–1, 0–0–2, 0–0–2;

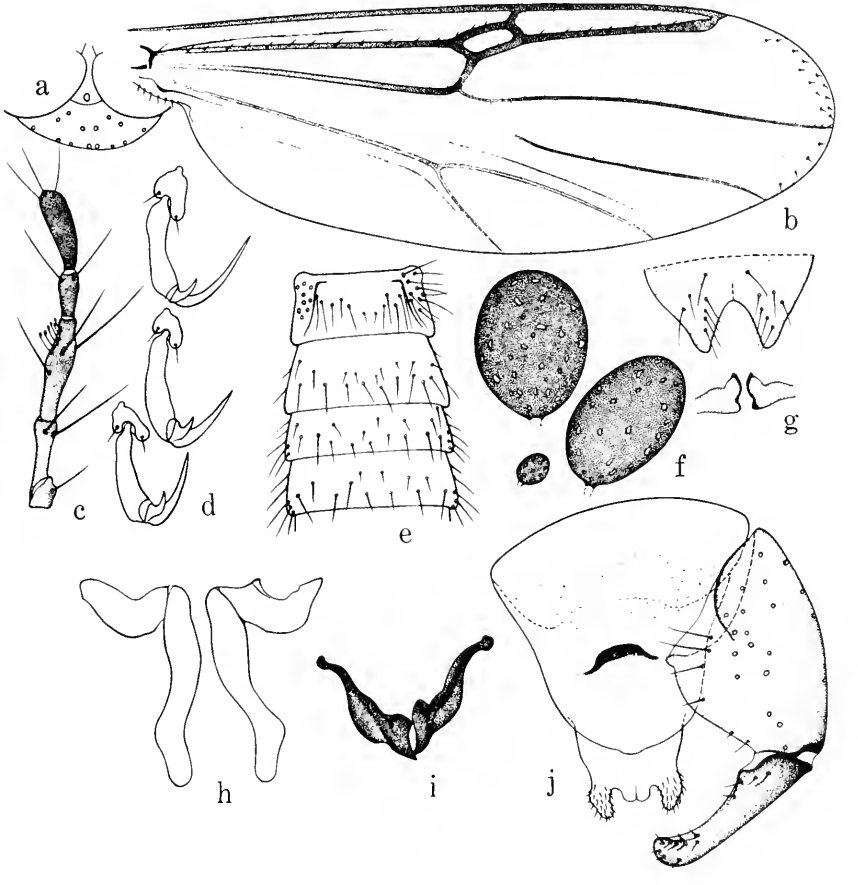


FIGURE 57.—*Stilobezzia magnitheca*, new species (*a–g*, ♀; *h–j*, ♂). *a*, frontovertex; *b*, wing; *c*, palpus; *d*, last 2 tarsomeres and claws; *e*, abdominal terga I–IV; *f*, spermathecae; *g*, ♀ genitalia; *h–j*, ♂ genitalia.

hind leg 0–0–0, 0–0–2, 0–0–2. Hind leg with lengths from femur to V as 98–99–51–27–9–7–18; TR 1.89; hind tibial comb with 5 stronger than usual spines.

Wing (fig. 57*b*): Yellowish brown, the anterior veins strong, slightly darker; CR 0.82; r-m to stem M lengths as 14:13; numerous setae

along proximal of radius, on R_1 bordering IRC, and along R_{4+5} behind 2RC; alula fringed; macrotrichia sparse along wing margin between 2RC and vein M_2. Halter with pale stem, knob yellowish brown.

Abdomen (fig. 57*e*): Yellowish brown, terga slightly brownish; I with cluster of 8–9 hairs on each side; II and beyond each with irregular double row of hairs on posterior half and along side margins. Spermathecae (fig. 57*f*), 2 large functional, highly sclerotized, plus 1 small oval rudimentary, the 2 large ones oval without necks, with small hyaline perforations, slightly unequal, measuring 0.116 mm by 0.088 mm and 0.109 mm by 0.070 mm. Genital sclerotization as in figure 57*g*.

Male.—Length of wing 1.41 mm. As in the female with the usual sexual differences; antennal plumes yellowish brown; claws short, equal, tips blunt, not bifid. Genitalia (fig. 57*h–j*) short, broad, and well sclerotized brownish; sternum IX broad, ventral membrane with minute spicules; tergum IX narrowed distad with long pubescent caudal lobes, the dorsal surface with 8–10 long bristles on distal portion, bare proximally; basistyle stout, broadest at midportion, the mediangular processes suppressed but their locations connected by a narrow sclerotized band; dististyle short, stout, with blunt tip; aedeagal sclerites bisinuate, narrow basally but unusually stout distally, with the knobbed caudomedian ends meeting on midline; parameres faintly sclerotized, with arcuate lateral arm from bases of each, main body stout, clublike, slightly bent toward the blunt, rounded tip.

Distribution.—Sarawak; Malaya.

Types.—Holotype male, allotype female, Limbang, Sarawak, Dec. 1951, D. H. Colless, swept from foliage (USNM 69458). Paratypes, 1 male, 1 female, same data as types. MALAYA: Selangor, Subang Forest Res., 1959, H. E. McClure, trap.

Discussion.—This species appears to be related to *clavicula* Tokunaga and *similisegmenta* Tokunaga in general features and genitalic structure, especially in the shape of the parameres; however, in both related species the aedeagal sclerites have slender, sharp caudomedian points.

18. *Stilobezzia (Neostilobezzia) miripes* Das Gupta and Wirth, new species

Figures 26, 58

Female.—Length of wing 1.07 mm; breadth 0.040 mm.

Head: Yellowish brown, antenna and palpus brownish throughout. Eyes nearly contiguous mesad, but separated by a narrow wedge-shaped interocular space (fig. 58*a*) at upper margin. Antenna (fig. 26)

elongate, III–XV with lengths as 12–8–8–8–9–9–10–10–11–12–12–11–15; AR 0.82; the elongate proximal antennomeres each with slight subapical collar. Palpal segments (fig. 58*c*) as 3–8–12–6–10; III short and slender with small subapical pit. Mandible with 7–8 teeth (av. 7.8, n=4).

Thorax: Yellowish to greenish brown on sides, slightly darker dorsally; scutellum with 4 large bristles.

Legs: Pale grayish brown, femora slightly darker distad; femora and tibiae with sparse, fairly long but weak hairs, about 6 longer extensor bristles on hind tibia; tarsomeres I–III with stout ventral spines as; fore leg 0–0–0, 0–0–2, 0–0–2; mid leg 0–0–2, 0–0–2, 0–0–2; hind leg 0–0–0, 0–0–2, 0–0–2. Claw arrangement (fig. 58*e*) peculiar: long claw with shorter claw half as long on fore leg, short and straight with minute shorter claw on mid leg, and moderately long with small second claw on hind leg; tarsomere V similarly unequal in length on the 3 legs; IV not bilobed, without spines. Hind leg with lengths from femur to V as 68–66–37–12–6–4–9; TR 1.8; hind tibial comb with 5–7 spines (av. 6.2, n=5).

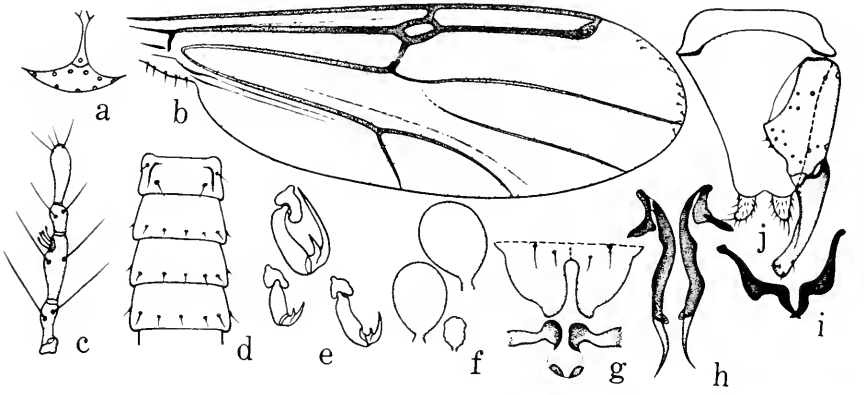


FIGURE 58.—*Stilobezzia miripes*, new species (*a–g*, ♀; *h–j*, ♂). *a*, frontovertex; *b*, wing; *c*, palpus; *d*, abdominal terga I–IV; *e*, last 2 tarsomeres and claws *f*, spermathecae; *g*, ♀ genitalia; *h–j*, ♂ genitalia.

Wing (fig. 58*b*): Brownish hyaline, veins rather indistinct; 1RC well formed; CR 0.82; r-m to stem M lengths as 11:10; alula fringed; macrotrichia in a line from tip of vein R_{4+5} to vein M_1 with 1–2 just past in cell M_1. Halter infuscated, concolorous with thorax.

Abdomen (fig. 58*d*): Slender; pale yellowish brown; hairs short, sparse and inconspicuous; I with 2 hairs on each side, hairs confined to a posterior row on II and behind. Spermathecae (fig. 58*f*) 3, nearly colorless; 2 slightly unequal functional, ovoid with short sclerotized

neck, measuring 0.058 mm by 0.049 mm and 0.051 mm by 0.042 mm. Genital sclerotization as in figure 58*g*; peculiarly formed, with a deep mesal cleft on sternum IX, genital opening flanked by a pair of small sclerotized lips.

MALE.—Length of wing 0.80 mm.

Similar to the female with the usual sexual differences; antennal plumes dark brown. Genitalia (fig. 58*h–j*) with tergum IX elongate, slightly bilobate caudad with long pubescent submedian lobes; sternum IX with shallow caudomedian excavation, the ventral membrane finely spiculate; basistyles apparently without any distinguishable mediangular process or connecting mesal band; dististyle elongate, slightly curved, the distal portion not tapered, with blunt tip; aedeagal sclerites bisinuate in typical *Stilobezzia* conformation, each sclerite nearly straight proximally, with abrupt swelling on outer margin at midlength, the caudomedian tip with sharp point directed caudomesad; parameres each with detached L-shaped lateral sclerite at base, main body with slender base, slightly swollen and crooked in midportion, distally narrowed into sharp hyaline point directed caudad.

DISTRIBUTION.—Malaya.

TYPES.—Holotype female, Bukit Besi, Dungun, Trengganu, Malaya, 6 Aug. 1958, R. Traub, light trap (USNM 69459). Allotype male, same data except collected 26–28 Feb. 1961 by A. A. Hubert. Paratype, 1 female with data same as holotype.

DISCUSSION.—This species is readily distinguished by its uniform yellowish brown color, dusky halteres, faint radial venation, long antenna, short palpus, weak abdominal setation, peculiar female genital sclerotization, and colorless spermathecae. The male genitalia are similar to those of *fasciscutata*, new species, but differ specifically in each part.

19. *Stilobezzia* (*Neostilobezzia*) *obesa* Das Gupta and Wirth, new species

FIGURE 59

FEMALE.—Unknown.

MALE.—Length of wing 1.21 mm. A bright yellowish species with dark brown markings on scutum and apices of femora.

Head: Brownish, antennae and palpi dark; distal antennomere without terminal seta; palpal segment III longest, slender with a definite pit.

Thorax: Yellowish brown, dark brown spot on pleuron above fore coxa; scutum darker on disc and on marks along side margins; postscutellum brownish; scutellum with 4 large bristles.

Legs: Pale yellowish, coxae and trochanters brownish; knee spots dark brown, with brown area extending proximad slightly on hind femur, fore and hind tibia with narrow apices brownish; hairs on

femora and tibiae sparse and weak, 7 long extensor bristles on hind tibia; claws small, equal, nearly straight with obliquely turned points, tips bifid; strong ventral spines on tarsomeres I–III as: fore leg 0–0–1, 0–0–1, 0–0–1; mid leg 0–0–2, 0–0–2, 0–0–2; hind leg 0–0–0, 0–0–2, 0–0–2; TR 2.10; hind tibial comb with 8 spines.

Wing (fig. 59*a*): Pale grayish hyaline, veins slightly brownish, anterior veins comparatively weak; CR 0.80; radius with 1 seta near basal arculus; macrotrichia sparse along wing margin between 2RC and tip of vein M_1. Halter pale yellowish.

Abdomen (fig. 59*b*): Pale yellow, terga faintly brownish; I with 7 hairs on each side; posterior terga with sparse hairs in a row on caudal and lateral margins. Genitalia (fig. 59*c–e*) elongate; sternum IX narrow with shallow caudomedian excavation, the ventral spiculation scarcely perceptible; tergum IX long and tapered, distally

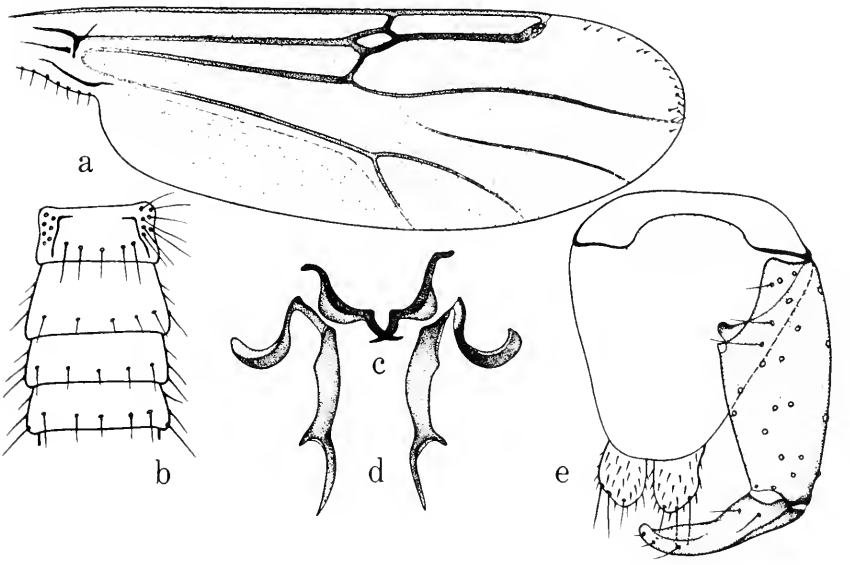


FIGURE 59.—*Stilobezzia obesa*, new species (♂). *a*, wing; *b*, adbominal terga I–IV; *c–e*, ♂ genitalia.

rounded with conspicuous pubescent membranous lobes; basistyle elongate and not broadened basally, with small mediangular process; dististyle slightly curved to slender tip; aedeagal sclerites bisinuate, slender at both ends, a distinct swelling on outer margin in midportion, distomedian point long and curved mesad; parameres each with slender arcuate lateral lobe at base, main body stout and nearly straight in midportion, narrowed at the juncture with the basal lobe, distally bifid, with short lateral subapical point and a long slender caudally directed mesal branch.

DISTRIBUTION.—Indonesia.

TYPE.—Holotype male, Bogor, West Java, 28 Nov. 1959, R. T. Adiwinata, light trap (USNM 69460).

DISCUSSION.—This species is readily distinguished by its bright yellowish color with brown marked thorax and brown tipped femora, weak hairs on body and legs, and elongate male genitalia with stout parameres apically bifid with grossly unequal rami.

20. *Stilobezzia* (*Neostilobezzia*) *obesigenitalis* Das Gupta and Wirth, new species

FIGURE 60

FEMALE.—Unknown.

MALE.—Length of wing 1.11 mm.

Head: Pale brown including palpi and antennal plumes. Distal antennomeres with terminal seta. Palpal segments moderately short, slender, III with small round subapical pit.

Thorax: Brownish dorsally, pleura yellowish, venter between fore and mid coxae conspicuously brownish; scutellum with 4 bristles.

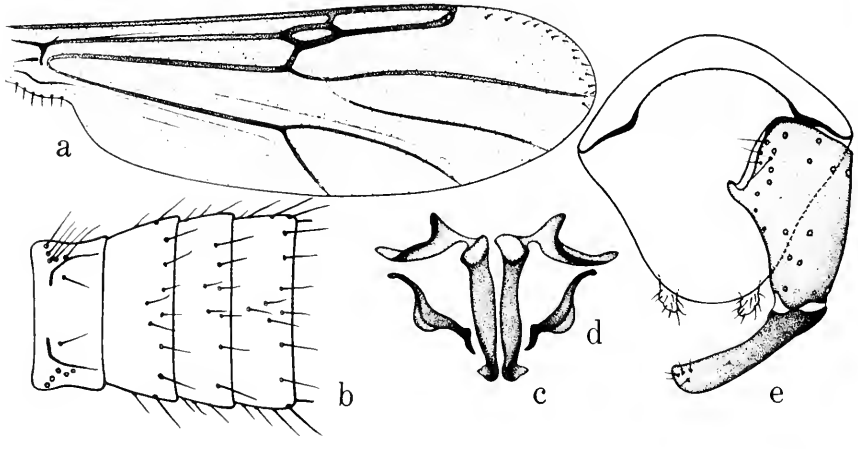


FIGURE 60.—*Stilobezzia obesigenitalis*, new species (♂). *a*, wing; *b*, abdominal terga I–IV; *c–e*, ♂ genitalia.

Legs: Straw colored, joints brownish, femora slightly darker distally; femora and tibiae with conspicuous bristly hairs, especially on hind legs, hind tibia with 7 long extensor bristles; claws short, sharp pointed, not bifid; strong ventral spines on tarsomeres I–III as: fore leg 0–0–1, 0–0–1, 0–0–1; mid leg 1–0–2, 0–0–2, 0–0–2; hind leg none; hind tibial comb with 6–7 spines; hind TR 1.8.

Wing (fig. 60*a*): Pale brownish, the veins scarcely darker; CR 0.74; r-m to stem M lengths as 3:4; radius without setae; macrotrichia in a

row along wing margin from 2RC to vein M_1 with one in cell M_1. Halter pale brownish.

Abdomen: Yellowish brown, terga slightly infuscated; I with cluster of 5 hairs on each side, other terga each with irregular row of long setae (fig. 60*b*). Genitalia (fig. 60*c–e*) brownish, short, and subcircular in profile viewed ventrally; sternum IX narrow and ribbon-like, the ventral membrane minutely spiculate; tergum IX rounded caudad with widely spaced, small, pubescent caudal lobes, with sparse, long bristles on dorsal surface; basistyle stout basally and with small mediangular process, slender distally; dististyle moderately long, nearly straight, stout to the blunt apex; aedeagal sclerites bisinuate, slender, with abrupt expansion on outer margin about midlength, with sharp caudomedian point; parameres each with detached long curved lateral arm from base, main body rather stout and short, gradually curved ventrad toward apex with blunt-pointed tip.

Distribution.—Malaya.

Types.—Holotype male, Dungun, Bukit Besi, Trengganu, Malaya, 26–28 Feb. 1961, A. A. Hubert, light trap (USNM 69461). Paratype, 1 male, same data but collected 6 Aug. 1958 by R. Traub.

Discussion.—This species is similar to *constans*, new species, but the third palpal segment is shorter and stouter, there are fewer macrotrichia on the wing and no setae on the radius, the parameres are shorter and not expanded platelike apically, and the dististyles are much more bluntly tipped. The male parameres of *thyridofera* Tokunaga from New Guinea are shaped much as in *obesigenitalis*, but that species is much larger and differs in other respects.

21. *Stilobezzia (Neostilobezzia) parvitheca* Das Gupta and Wirth, new species

Figures 28, 61

Female.—Length of wing 1.42 mm; breadth 0.56 mm.

Head: Brownish, antennae and palpi unicolorous; vertex (fig. 61*a*) with 10 hairs; eyes narrowly separated. Antenna (fig. 28) with III–XIII lengths as 11–8–8–8–8–8–8–9–16–17–18 (XIV, XV damaged); XV with a stiff apical seta; III–X cylindrical. Palpal segments (fig. 61*e*) as 3–11–17–10–15; III with a subapical pit. Mandible with 7 teeth.

Thorax: Yellowish brown, most of scutum, postscutellum, and venter between fore and mid coxae darker brown; scutellum with 4 large bristles.

Legs: Straw colored, knee spots brownish; femora and tibiae with sparse weak hairs, hind tibia with 7 long extensor bristles; tarsomere IV (fig. 61*b*) bilobed with stiff hair at tip of each lobe; claws long and slender, sharp, the shorter ungue small; I–III with strong ventral

spines as: fore leg 0–0–1, 0–0–1, 0–0–2; mid leg 1–0–2, 0–0–2, 0–0–2; hind leg 0–0–0, 0–0–2, 0–0–2. Hind leg with lengths from femur to V as 83–81–43–20–7–5–12; TR 2.15; hind tibial comb with 7 spines.

Wing (fig. 61*c*): Faintly brownish, anterior veins strong; CR 0.84; r-m to stem M lengths as 14:13; proximal section of radius with 5 scattered setae; macrotrichia along wing margin between 2RC and vein M_2, a number along distal third of vein M_1 and in a row on each side, a few extending into cell M_2 and along vein M_{3+4}; alula fringed. Halter faintly brownish.

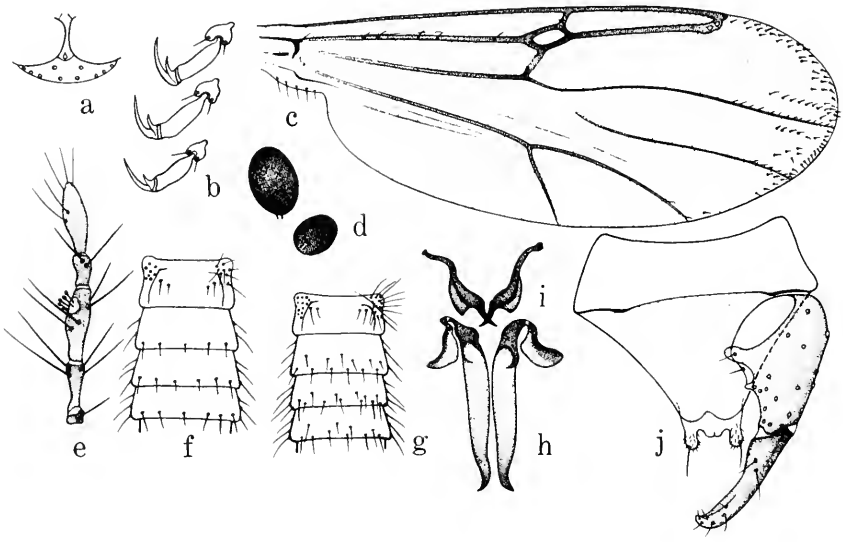


FIGURE 61.—*Stilobezzia parvitheca*, new species (*a–f*, ♀; *g–j*, ♂). *a*, frontovertex; *b*, last 2 tarsomeres and claws; *c*, wing; *d*, spermathecae; *e*, palpus; *f*, abdominal terga I–IV, ♀; *g*, same; *h–j*, ♂ genitalia.

Abdomen (fig. 61*f*): Pale brownish, segments VIII–IX dark brown; tergum I with cluster of 7–8 hairs on each side; II and behind each with sparse row of hairs on hind margin. Spermathecae (fig. 61*d*) 2, rudimentary third absent; strongly sclerotized dark brown, oval without sclerotized necks, unequal, measuring 0.049 mm by 0.035 mm and 0.032 mm by 0.028 mm. Genital sclerotization not in suitable position for observation.

MALE.—Length of wing 1.57 (1.49–1.67, n=8) mm.

Similar to the female with the usual sexual differences; antennal plumes dark brown; hairs on femora and tibiae stronger and bristle-like, strongly seriate; claws equal, sharp with simple tips; abdomen with hairs more numerous (fig. 61*g*), tergum I with 16–17 hairs on each side. Genitalia (fig. 61*h–j*) with sternum IX broad, no caudomedian

excavation, the ventral spiculation weak; tergum IX short, strongly tapered subconically to weakly bilobed apex, submedian lobes small; basistyle stout at base, tapering distad, mediangular process weak, basidorsal process well developed; dististyle moderately long and slender, slightly curved to blunt tip; aedeagal sclerites bisinuate, base slender, strong swelling on outer margin about two-thirds way to caudomedian tip, the latter with slender point; parameres each with detached platelike lateral arm from base, main body columnar, moderately stout, distally curved slightly ventrad with sharp tip.

DISTRIBUTION.—Malaya.

TYPES.—Holotype male, allotype female, Mt. Brinchang, 5000–6000 ft., Pahang, Malaya, March 1963, H. E. McClure, light trap (USNM 69462). Paratypes, 7 males, same data as holotype.

DISCUSSION.—*Stilobezzia nigriapicalis* Tokunaga from New Guinea is similar with nearly identical male genitalia, but is a much larger species (female wing 2.08 mm long) with more elongate male basistyle and more distally attenuated dististyle, and the female spermathecae are subequal in size.

22. *Stilobezzia* (*Neostilobezzia*) *parvaeungulae* Das Gupta and Wirth, new species

FIGURES 30, 62

FEMALE.—Length of wing 0.89 mm; breadth 0.45 mm.

Head: Eyes narrowly separated (fig. 62*a*); vertex with 12 hairs. Head brownish; antennae and palpi pale grayish brown, narrow bases of antennomeres pale. Antenna (fig. 30) with lengths of III–XV as 10–7–8–8–8–9–10–10–13–13–13–14–19; AR 1.03; III–X cylindrical, with indistinct preapical collar; XI–XV slightly tapering, XV with stiff hair at tip. Palpal segments (fig. 62*c*) as 6–14–18–8–15, III slender, narrower distad with a round subapical pit. Mandible with 8–9 teeth (av. 8.3, n=4).

Thorax: Yellowish brown; scutum, postscutellum, and venter between fore and mid coxae dark brown. Scutellum with 4 large bristles.

Legs: Uniformly straw colored, joints brownish; femora and tibiae with rather long but fine, stiff bristly hairs, 8 longer extensor bristles on hind tibia; claws (fig. 62*e*) small, nearly straight with sharp point, the longer about half as long as V, the shorter ungue small; strong ventral spines on I–III as: fore leg 0–0–1, 0–0–1, 0–0–1; mid leg 1–0–2, 0–0–2, 0–0–2; hind leg 0–0–1, 0–0–2, 0–0–2. Hind leg with lengths from femur to V as 68–66–38–18–7–5–9; TR 2.1; hind tibial comb with 6–7 spines.

Wing (fig. 62*b*): Pale brownish, veins darker brown, anterior veins strong; radius with scattered setae to tip of R_{4+5}; CR 0.81; 1RC to 2RC lengths as 18:47; r-m to stem M lengths as 1:1; macrotrichia

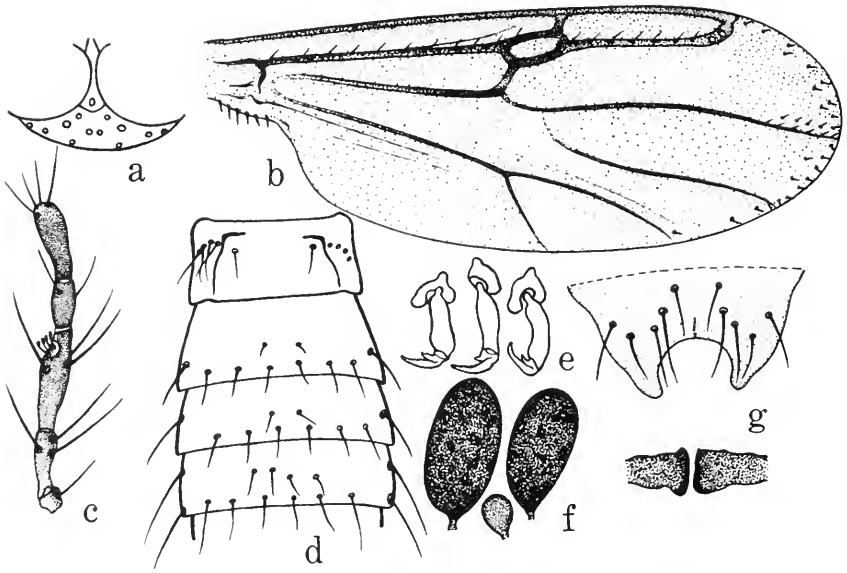


FIGURE 62.—*Stilobezzia parvaeungulae*, new species (♀). *a*, frontovertex; *b*, wing; *c*, palpus; *d*, abdominal terga I–IV; *e*, last 2 tarsomeres and claws; *f*, spermathecae; *g*, ♀ genitalia.

scattered near wing margin between 2RC and tip of vein M_{3+4}, extending proximad on and along vein M_1 about a fourth way to r-m. Halter pale brownish.

Abdomen: Pale brown (fig. 62*d*), sternum IX dark brown; tergum I with 4 hairs on each side plus a sublateral pair; posterior terga with sparse irregular posterior row of fine hairs. Spermathecae (fig. 62*f*) elongate oval, heavily sclerotized with minute hyaline perforations, slightly unequal, measuring 0.060 mm by 0.049 mm and 0.046 mm by 0.039 mm. Genital sclerotization as in figure 62*g*.

MALE.—Unknown.

DISTRIBUTION.—Malaya.

TYPES.—Holotype female, Kuala Lumpur, Selangor, Malaya, July 1958, R. Traub, light trap (USNM 69463). Paratype, 1 female. MALAYA: Pahang, Kuantan, swamp forest, Pekan Road, 3 Apr. 1957, R. H. Wharton, light trap.

DISCUSSION.—This species is distinguished by its small, sharp, nearly straight tarsal claws and by the elongate oval, deeply sclerotized spermathecae.

23. *Stilobezzia (Neostilobezzia) robusta* Das Gupta and Wirth, new species

FIGURE 63

FEMALE.—Unknown.

MALE.—Length of wing 2.08 mm.

Head: Dark brown including palpi, antennae, and their tufts. Distal antennomere with long seta at apex. Palpal segment I with a hair; III slender with subapical pit bearing long sensilla.

Thorax: Pleura, scutellum, and margins of scutum yellowish brown; postscutellum and disc of scutum intensely dark brown; scutellum with 5 large bristles.

Legs: Yellowish brown, knee spots dark brown, distal portion of hind femur and proximal portions of mid and hind tibiae slightly darker; claws short, subequal with bifid tips; strong ventral spines on tarsomeres I–III as: fore leg 0–0–2, 0–0–2, 0–0–2; mid leg 1–0–2, 0–0–2, 0–0–2; hind leg 0–0–1, 0–0–2, 0–0–2; hind tibial comb with 8 spines; hind TR 1.7.

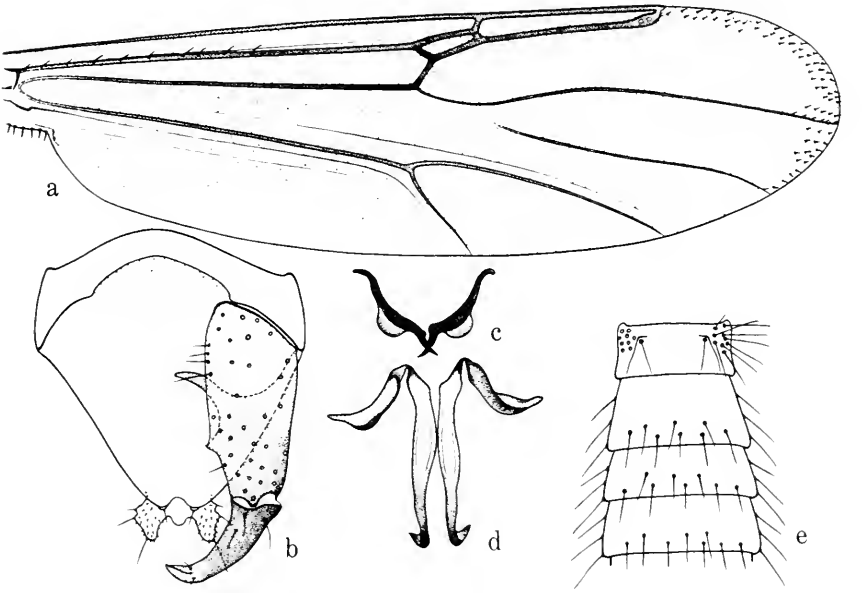


FIGURE 63.—*Stilobezzia robusta*, new species (♂). *a*, wing; *b–d*, ♂ genitalia; *e*, abdominal terga I–IV.

Wing (fig. 63*a*): Brownish infuscated, the veins darker brown; CR 0.79; r-m to stem M lengths as 2:3; 10 setae scattered along proximal section of radius; macrotrichia numerous along wing margin at tips of cells R_5 and M_1. Halter pale.

Abdomen: Pale brown, terga (fig. 63*e*) dark brown; I with cluster of 10 long hairs on each side, other terga with scattered long hairs on posterior portions. Genitalia (fig. 63*b–d*) pale brown, aedeagal sclerites and distal halves of parameres dark brown; sternum IX narrow with slight caudomedian excavation, the ventral membrane

spiculate; tergum IX rather conically tapered distally, with prominent pubescent caudomedian lobes; basistyle elongate, mediangular process not developed but basidorsal process long and slender; dististyle short, curved to mesally pointed tip; aedeagal sclerites bisinuate, slender with abrupt expansion on outer margin at midlength, caudomedian tip sharp pointed; parameres each with detached, long slender arcuate lateral arm at base, main portion long, moderately stout at base, slender distally and abruptly bent distad to a sharp, ventrally directed point.

DISTRIBUTION.—Malaya.

TYPE.—Holotype male, Mt. Brinchang, 5000–6000 ft., Pahang, Malaya, March 1963, H. E. McClure, light trap (USNM 69464).

DISCUSSION.—This species is easily recognized by its large size, dark brown scutum and abdomen, bright yellowish legs, and by the long straight parameres with abruptly bent, pointed tips.

24. *Stilobezzia* (*Neostilobezzia*) *subalba* Das Gupta and Wirth, new species

FIGURE 64

FEMALE.—Unknown.

MALE.—Length of wing 1.33 mm.

Head: Brownish, antenna and palpus grayish brown, antennal plume dark brown; distal antennomere with terminal seta; palpal segment I with a hair, III moderately broad with a round sensory pit.

Thorax: Yellowish brown, scutum brownish; scutellum with 4 bristles.

Legs: Straw colored, femora and tibiae with moderately strong hairs, 9 long extensor bristles on hind tibia; claws short, equal, with bifid tips; tarsomeres I–III with strong ventral spines as: fore leg

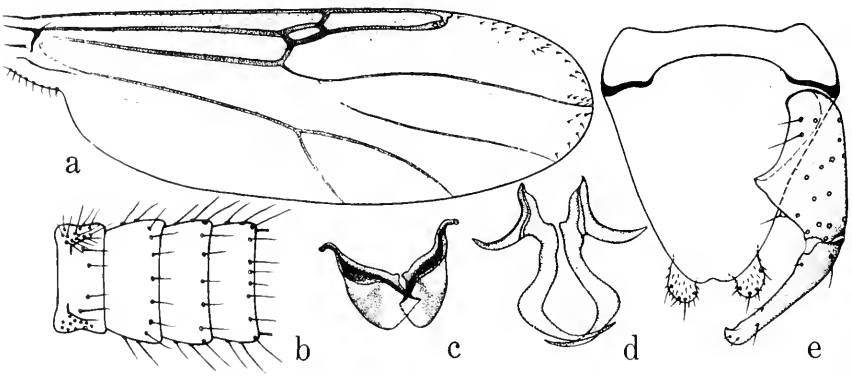


FIGURE 64.—*Stilobezzia subalba*, new species (♂). *a*, wing *b*, abdominal terga I–IV; *c–e*, ♂ genitalia.

0–0–1, 0–0–1, 0–0–2; mid leg 0–0–2, 0–0–2, 0–0–2; hind leg none; hind TR 2.0; hind tibial comb with 6 spines.

Wing (fig. 64*a*): Pale brownish, anterior veins not prominent; CR 0.74; r-m to stem M lengths as 5:7; proximal section of radius with 1 seta at base; macrotrichia scattered along wing margin between 2RC and vein M_2. Halter pale brownish.

Abdomen (fig. 64*b*): Pale brownish; tergum I with 11–12 hairs on each side; II and behind each with sparse row of hairs on posterior margin and on each side margin. Genitalia (fig. 64*c–e*) with sternum IX bearing shallow, wide caudomedian excavation, the ventral membrane distinctly spiculate; tergum IX moderately long, tapering to rounded apex, the pubescent submedian lobes moderately conspicuous; basistyle moderately broad, tapering distally, with inconspicuous mediangular process; dististyle long and slender, only slightly curved; aedeagal sclerites bisinuate, slightly expanded on outer margin just proximad of middle, the caudomedian tip sharp pointed; a pair of thinly sclerotized submedian lobes from caudal margin of aedeagal sclerites; parameres each with detached basal sclerite bearing anterior and lateral points, main body with basal knob tapering anteriorly, caudal portion stout and strongly curved, expanded in midlength and tapering distally to sharp point directed ventromesad.

Distribution.—Malaya.

Type.—Holotype male, Mt. Brinchang, 5000–6000 ft., Pahang, Malaya, March 1963, H. E. McClure, light trap (USNM 69465).

Discussion.—*Stilobezzia alba* Tokunaga from Japan and the Ryukyu Islands is similar, but is a much paler species without brownish scutum, the male parameres taper gradually from the base of the main body, and the apices of the parameres are finely serrulate. *Stilobezzia simulator* de Meillon from Liberia and *cereola* Clastrier from Europe also must be closely related, since the male genitalia closely resemble those of *alba* and *subalba*, especially in the distinctive shapes of the parameres.

25. *Stilobezzia* (*Neostilobezzia*) *xanthogaster* Das Gupta and Wirth, new species

Figures 25, 65

Female.—Length of wing 0.95 (0.92–1.02, n=10) mm; breadth 0.36 mm.

Head: Pale brownish, narrow bases of antennomeres whitish; tori dark brown. Eyes nearly contiguous (fig. 65*a*), vertex with 10 hairs. Antenna (fig. 25) with III–X elliptical without preapical collar, XI–XV elongate; III–XV with lengths as 8–5–5–5–5–5–6–6–14–14–14–14–20; AR 1.69; XV without apical seta. Palpal segments (fig. 65*b*)

as 4–10–13–8–12; III slender with small subapical pit. Mandible with 7–9 teeth (av. 7.9, n=14).

Thorax (fig. 65*d*): Greenish yellow; scutum, postscutellum, and anterior portion above fore coxa brownish; scutellum with 4 large bristles.

Legs: Straw yellowish, knee spots dark brown, hind femur darker distally; hairs weak and sparse, about 6 long extensor bristles on hind tibia; tarsomere IV (fig. 65*e*) tipped by a sharp spinule on each lobe on all legs; V without batonnets; claws long, the longer slightly exceeding V in length, the smaller sharp and slender; strong ventral spines on I–III as: fore leg 0–0–1, 0–0–1, 0–0–1; mid leg 1–0–2, 0–0–2, 0–0–2; hind leg 0–0–0, 0–0–2, 0–0–2. Hind leg with lengths from femur to V as 62–60–30–14–5–3–10; TR 2.14; hind tibial comb with 5–7 spines (av. 6.6, n=10).

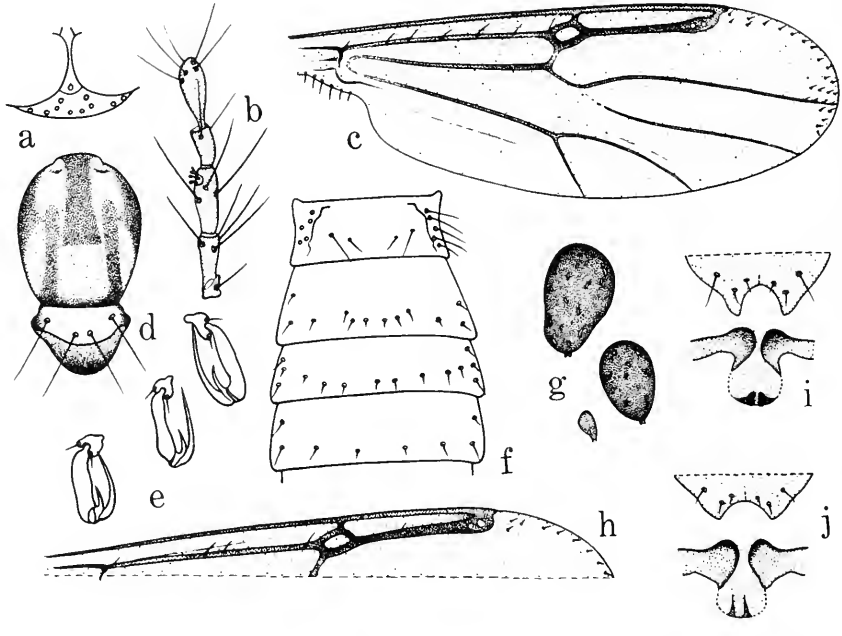


FIGURE 65.—*Stilobezzia xanthogaster*, new species (♀). *a*, frontovertex; *b*, palpus; *c*, wing; *d*, thorax; *e*, last 2 tarsomeres and claws; *f*, abdominal terga I–IV; *g*, spermathecae; *h*, wing, in part (atypical); *i*, ♀ genitalia; *j*, ♀ genitalia (atypical).

Wing (fig. 65*c*): Brownish hyaline, radial veins, base of media, and costa along 2RC strong, distinct; 1RC rhomboidal in shape, rather broad; CR 0.76; r-m to stem M lengths as 9:13, alula fringed; radius with 7 setae from arculus to r-m; macrotrichia in a line along margin

between 2RC and tip of vein M_2, with a few more proximad along tip of vein M_1 and on each side. Halter slightly infuscated.

Abdomen (fig. 65*f*): Pale grayish, tip of abdomen beyond VII dark brown, VII forming a distinctive subconical structure; setae weak, I with 5–6 on each side; each tergum with transverse row of setae just behind midlength and 1–2 on each side. Spermathecae (fig. 65*g*), 2 heavily sclerotized functional and 1 minute rudimentary; the 2 ovoid without necks, unequal, measuring 0.067 mm by 0.042 mm and 0.053 mm by 0.035 mm. Genital sclerotization as in figure 65*i*, gonopore flanked by a pair of small sclerotized teeth.

Male.—Unknown.

Distribution.—Malaya; Laos.

Types.—Holotype female, Kahang Kluang, Johore, Malaya, 7–9 Jan. 1961, A. A. Hubert, light trap (USNM 69466). Paratypes, 35 females, all taken in light traps. LAOS: Vientiane, 3 June 1960, L. and S. Quate, 6 females. MALAYA: Johore, same data as holotype, 7 females. Kelantan, Lambok, Sungei Betis, Ulu Kelantan, 9 Nov. 1961, R. H. Wharton, 2 females. Pahang, King George V. Nat. Park, Tahan River, 4–6 Nov. 1959, H. E. McClure, 16 females. Selangor, Kuala Lumpur, Aug. 1958, R. Traub; May 1959, H. E. McClure, 2 females. Trengganu, Dun Gun, Bukit Besi, 6 Aug. 1958, R. Traub, 2 females.

Discussion.—The specimens from Laos differ from the Malayan specimens in several respects, but in the absence of males, we prefer to retain them provisionally in *xanthogaster*. The Laos specimens differ in possession of a thicker distal portion of vein R_{4+5}, with 2 setae in the midportion of stem R and 1 seta on R_{4+5} at midlength of 2RC (fig. 65*h*); the posterior cleft in sternum IX is more broadly and less deeply cleft, and the internal lamellae are somewhat stouter (fig. 65*j*).

Subgenus *Stilobezzia* Kieffer

Stilobezzia Kieffer, 1911a, Rec. Indian Mus., vol. 6, p. 118; 1913, Rec. Indian Mus., vol. 9, p. 184; 1917a, Ann. Mus. Nat. Hungarici, vol. 15, p. 307; 1919, Bull. Soc. Ent. France, p. 192.—Goetghebuer, 1920, Mem. Mus. Roy. Hist. Nat. Belgique, vol. 8, p. 59.—Carter, Ingram, and Macfie, 1921, Ann. Trop. Med. Parasit., vol. 15, p. 324.—Edwards, 1926, Trans. Ent. Soc. London, vol. 74, p. 411; 1929, Notulae Ent., vol. 9, p. 9.—Johannsen, 1931, Arch. Hydrobiol. Suppl., vol. 9, p. 430.—Ingram and Macfie, 1931a, Dipt. Patagonia and S. Chile, pt. 2, fasc. 4, p. 191.—de Meillon, 1938, Proc. Roy. Ent. Soc. London (B), vol. 7, p. 266.—Tokunaga, 1940b, Tenthredo, vol. 3, p. 154.—Johannsen, 1943, Ann. Ent. Soc. Amer., vol. 36, p. 781.—Lane, 1947, Rev. Ent., vol. 18, p. 197.—Lee, 1948, Proc. Linn. Soc. N.S. Wales, vol. 72, p. 345.—Wirth, 1953, Proc. U.S.Nat. Mus., vol. 103, p. 57. [Type-species, *Stilobezzia festiva* Kieffer, original designation.]

Hartomyia Malloch, 1915, Bull. Illinois St. Lab. Nat. Hist., vol. 10, p. 339. [Type-species, *Ceratopogon pictus* Coquillett, original designation.]

Diagnostic characters (figs. 1–23, 80).—Small to large-size species, often with conspicuous color pattern on body and legs; wings usually hyaline to faintly infuscated, often with pattern of conspicuous dark spots or patches. Eyes narrowly separated; female antenna usually with III–X cylindrical, mostly pale; XV with or without apical seta. Third palpal segment usually with a well-formed subapical sensory pit; segment I always with a seta.

Thorax usually bluntly rounded on anterior margin of scutum but sometimes with an anterior median tubercle. Legs without stout spines on trochanters or femora, otherwise spines and hairs poorly to moderately developed; several stronger spines on extensor side of hind tibia and at apices of some tarsomeres; tarsomere V often with ventral batonnetlike spines; tarsomere IV cordiform to deeply cleft ventrocaudad, its length much less than III; female claws unequal, the longer one slightly incurved; male claws small, equal, sometimes with tips bifid. Wing surface without macrotrichia, one to several setae at most on radial vein; alula seldom lacking fringe; microtrichia usually rather weak; costal margin with fringe setae dense, not quite in row; wing venation stronger anteriorly; 1RC relatively small, occasionally almost obsolete; 2RC usually elongated and not very broad; costa extending more than two-thirds of wing length; stem M usually 2–3 times the length of r-m crossvein.

Abdomen usually with some more or less definite color pattern dorsally; anterior terga sometimes with striking ornamentation and with setae usually moderately strong and often forming medial clusters. Spermathecae, 1 or 2 functional, often a third rudimentary; hyaline perforations rarely present. Male genitalia with sternum IX narrow, caudomedian depression shallow or absent; tergum IX usually tapering caudad with a weak caudomedian cleft and ventral membrane between sternum IX and the aedeagal sclerites always spiculate, the spicules nearer the sternum usually quite prominent; basistyle stout with various relative developments of either the mediangular processes or the basidorsal processes, additional short flanges sometimes present; dististyle usually relatively slender, tapering to a point and strongly incurved at tip; parameres usually bearing short, weak, basal apodemes, main body long and slender with pointed apex usually not specially modified; aedeagal sclerites usually slenderer than parameres, rodlike without any submedian caudal membranous accessory lobes.

Distribution.—The 108 species we have assigned to this subgenus in the appendix are well distributed worldwide but are more numerous in the tropics, especially the American tropics.

Key to the Oriental Species Groups of the Subgenus *Stilobezzia*

1. Medium to large-size species; wing brownish, sometimes interrupted by broad pale areas, often with one to several dark spots, alula always bearing fringing hairs; tarsomere V of female of uniform thickness, unarmed or armed ventrally with one or more pairs of stout spines or batonnets on hind legs or on all legs; abdominal terga mostly dark, sometimes with characteristic color pattern on anterior segments; tergal setae often stout and clustered on anterior segments; spermathecae, usually 1 functional or 2 functional with a third rudimentary 2

   Small to medium-size species; wing clear gray to brownish without markings, alula lacking fringing hairs; tarsomere V of female strongly swollen at base and bearing a pair of stout spines but no batonnets ventrally; abdominal terga pale basad, distal terga dark; tergal setae sparse; only 2 functional spermathecae, very unequal, the rudimentary third absent (fig. 99). Sybleae Group

2. Female antennae with III to X quite cylindrical, almost totally pale, with or without apical setae on XV; wing with one to several dark markings; 1RC small to large but 2RC always well developed, tarsomere V of female with or without batonnets but when present, not more than 1 pair per leg; tarsomeres III and IV very unequal in length; tergal setation though sometimes weak, often including stout setae centrally clustered at least on segments II to IV 4

   Not as above 3

3. Female antenna with III–X strongly cylindrical, nearly uniformly dark, with apical seta on XV; vein R_{4+5} thickened only near apex; tarsomere V of female on all legs with several sharp-tipped ventral batonnets; tarsomeres III and IV slightly unequal in length; abdomen uniformly brown to brownish with terga lightly setose; male genitalia massive with basistyle showing a distinct ventral lobe; mediangular process short and thick, often obliquely extended at apex and bearing basad a group of 3 setigerous tubercles (fig. 70) . . . . . Boharti Group

   Female antenna with III–X somewhat vasiform, short, bicolored; XV without any apical seta; vein R_{4+5} conspicuously thickened in its entire length; tarsomere V of female with a subbasal pair of stout batonnets except on hind leg; tarsomeres III and IV very unequal in length; abdomen pale with showy color pattern on terga, which are moderately setose with conspicuous clumps of long stout setae centrally at least on terga II–IV; male genitalia of moderate bulk, basistyle subrectangular with an additional flange besides the thick, short, basidorsal process (fig. 79) . . . . . Pictipes Group

4. Wing with 2 pale anterior areas and 3 dark spots; tarsomere V in female usually with a pair of ventral batonnets on fore and mid legs; sometimes also on hind leg; abdomen with prominent clusters of strong black setae mesally on terga II–IV in female, to V in male; tergum IV of both sexes dark brown with at least 4 pale spots; female with adjacent terga before and behind IV mostly pale, male with pattern of tergum IV usually repeated to VI, VII, or VIII, though in a weaker form; two functional subequal spermathecae with few indistinct hyaline perforations; male genitalia with basistyle short and stout, basidorsal process foot shaped, parameres long and sickle shaped, aedeagal sclerites simple, slender, and straight without any dorsal median lobes (fig. 71) . . . . . Notata Group

   Not as above 5

5. Wing with more than 3 dark spots; 1RC poorly developed, sometimes nearly obsolete; tarsomere V of female without any ventral batonnets or stout spines; abdominal terga pruinose brownish without any conspicuous pattern, setation weak, mostly concentrated laterad; male genitalia with basistyle elongated and tapering with a poorly developed basidorsal process; parameres long with well-developed basal lobes, aedeagal sclerites bearing prominent dorsomedian lobes (fig. 80) . . . . . Poikiloptera Group

Wing with not more than 1 dark spot (occasionally somewhat vague); 1RC well developed; tarsomere V of female usually with a pair of batonnets on fore and mid legs, sometimes also on hind leg; abdominal tergum I and sometimes base of II with pale area mesad, otherwise these and posterior terga variably dark; terga with abundant scattered stout setae usually as far as segment V, behind which setae are sparse and weak; male genitalia with basistyle usually swollen at base with a hooklike basidorsal process; dististyle short, usually markedly incurved; parameres each a strongly sclerotized sinuate or curved rod with clavate tip and basal lobe in form of small triangular process; aedeagal sclerites usually slender and curved with caudomedian tip sometimes slightly expanded and grooved but without any dorsomedian lobe (fig. 89) . . . . . Subviridis Group

Boharti Group

Diagnostic characters (fig. 70).—Intermediate in many respects between the subgenera *Stilobezzia* and *Neostilobezzia*, but placed in *Stilobezzia* because of the absence of macrotrichia on the wing surface; *Neostilobezzia* features are the well-developed 1RC and the lesser disparity in lengths between tarsomeres III and IV.

Head with eyes narrowly separated. Antennomeres unicolored, III–X without distal constriction and strongly cylindrical. Palpal segment III slender with few bristles and a distinct sensory pit. Mandible with few teeth, outer serrations absent. Thorax with anterior margin of scutum evenly convex, without tubercle. Legs not unusually bristly; claws of female with basal tooth elongate and slender; tarsomere III about 2 times IV in both sexes; IV unarmed; V in female with large number of sharp-tipped ventral batonnets. Wing unmarked; 1RC well-developed; 1RC and 2RC with broad lumen. Abdomen linear and slender, terga lightly setose; 2 functional spermathecae, rounded, well-sclerotized, with hyaline perforations, a small round rudimentary third spermatheca present. Male genitalia with dististyle elongate; basistyle with distinct ventral lobe on broadened basal portion and group of 3 setigerous tubercles on caudal side of mediangular process clearly visible as a rule; aedeagal sclerites straight to markedly sinuate; parameres each with straight columnar main body, a long winglike lateral lobe from base, and often with long whiplike, highly sclerotized distal appendage borne subapically.

Species included: *Stilobezzia boharti* Tokunaga, Ryukyu Islands; *fortipes*, new species, Malaya; *rotunditheca*, new species, Sarawak;

spinipes, new species, Philippines, North Borneo; *subflava*, new species, Malaya; *traubi*, new species, Malaya.

Key to the Oriental Species of the Boharti Group [1]

1. Larger species; legs stout with many spinelike bristles; male genitalia generally massive and heavily sclerotized, though ninth sternum oddly narrow; basistyle stout with a knobbed mediangular process showing no distinct tubercles; dististyle long, stout to tip; aedeagal sclerites slender; parameres quite robust with basal lobe expanded winglike and main body crooked in proximal half with spinulelike process dorsad, distal half strongly expanded laterad but gradually tapered caudad to bluntly rounded tip. **fortipes,** new species

   Medium-size species; legs normal in size and vestiture; male genitalia neither generally massive nor intensely sclerotized; other characters not as above 2

2. Wing with several macrotrichia along radius; male legs with heavy blackish tibial spines; male genitalia with mediangular process of basistyle quite elongate, tip linearly extended and blackish with a group of 3 tubercles basad; dististyle strongly incurved beyond middle, inflated preapically; aedeagal sclerites bisinuate, slender, straight on mesal third, distal tip short and bent; parameres each with main body slender and tapering distad to a fine blackish point . . . . . **spinipes,** new species

   Wing with 1 or 2 macrotrichia along radius; tibial spines never unusually thick; male genitalia not as above 3

3. Yellowish brown species; antennomere XV of female with stout apical seta; wing with 1 seta at base and another at midlength of radius; vein R_{4+5} meeting costa quite obliquely; halter slightly infuscated; legs moderately spinose; male genitalia with mediangular process of basistyle short, thick, with basal group of 3 tubercles; dististyle short and slightly narrowed in middle; aedeagal sclerites bisinuate, with distinct expansion caudomedially; parameres each with main body moderately stout, slightly outflexed, with stout rounded tip . . . . . **rotunditheca,** new species

   Wing with only 1 seta on radius at base; halter pale; otherwise not as above . 4

4. Greenish yellow to greenish brown species; antennomere XV of female without any apical seta; R_{4+5} meeting costa at right angle; legs sparsely spinose; male genitalia with mediangular process of basistyle short, thick, without basal group of tubercles; dististyle quite long, gently incurved, and tapering to a rounded tip; aedeagal sclerites relatively short with slightly caudomedian expansion; parameres each with main body columnar, tip sharp pointed and abruptly bent ventrad with hyaline swelling at the bend. **subflava,** new species

   Dark brown species; antennomere XV of female with a stout apical seta; R_{4+5} meeting costa quite obliquely; legs moderately spinose; male genitalia with mediangular process of basistyle short and thick, obliquely extended mesad with a group of 3 tubercles at base; dististyle rather short, evenly incurved distad with pointed tip; aedeagal sclerites quite elongated and slender, without any caudomedian swelling; parameres each with main body columnar and almost straight, with finely rounded caudal tip bearing a long whiplike appendage . . . . . **traubi,** new species

[1] In the absence of specimens, we are unable to place *boharti* Tokunaga accurately in this key.

26. *Stilobezzia (Stilobezzia) fortipes* Das Gupta and Wirth, new species

FIGURE 66

FEMALE.—Unknown.

MALE.—Length of wing 1.56 mm.

Head: Yellowish, antennal plume yellowish brown distally; palpal segment III without definite sensory pit.

Thorax: Yellowish, without evident pattern; scutum with strong bristly hairs; scutellum with 6 long bristles.

Legs: Yellowish, coxae and knee spots brownish; legs stout with numerous strong spiny bristles on femora and tibiae; tarsomeres I–III with strong ventral spines as: fore leg 0–0–1, 0–0–1, 0–0–2; mid leg 1–0–2, 0–0–2, 0–0–2; hind leg 0–0–1, 0–0–2, 0–0–2. Hind leg with femur to V lengths as 105–105–50–27–10–8–15; TR 1.80; hind tibial comb with 7 spines; claws equal, large, without bifid tips.

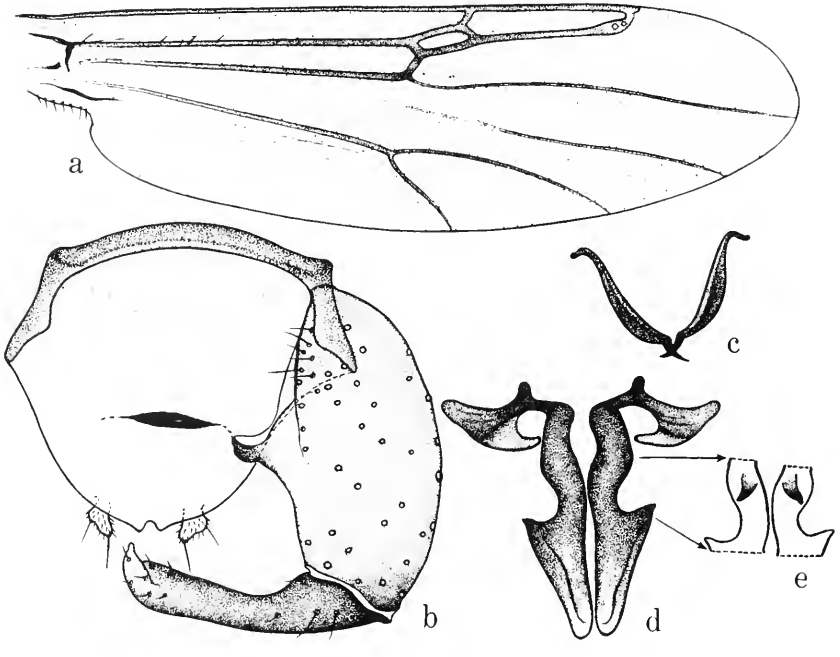


FIGURE 66.—*Stilobezzia fortipes*, new species (♂). *a*, wing; *b–e*, ♂ genitalia (*e*, dorsal aspect of parameres).

Wing: As in figure 66*a*; CR 0.77.

Abdomen: Pale brownish; tergum I with 13 hairs on each side, otherwise setae as in *traubi*, new species. Genitalia (fig. 66*b–e*) heavily sclerotized, brownish, with strong bristly hairs especially on tergum IX and pregenital segments. Sternum IX a narrow ribbon, the ventral

membrane finely spiculate; tergum IX short, rounded caudad with prominent membranous pubescent caudal lobes; basistyle short and stout, inner margin expanded at midlength to prominent, simple mediangular process, setigerous tubercles not developed; dististyle long, only slightly curved, stout to tip; aedeagal sclerites slender, slightly arcuate with slight outer expansion, the caudomedian tip sharp pointed; parameres massive, each with basal arm prominently expanded laterally winglike, main body with proximal half crooked, bearing a short, spinelike process on dorsal side, distal portion strongly expanded laterally at midlength of paramere and gradually tapered to bluntly rounded tip.

DISTRIBUTION.—Malaya.

TYPE.—Holotype male, Singapore, Malaya, 4 Jan. 1960, D. H. Colless, light trap (USNM 69467).

DISCUSSION.—This species is unique in having very stout legs with numerous spinelike bristles and massive genitalia with strongly expanded parameres.

27. *Stilobezzia* (*Stilobezzia*) *rotunditheca* Das Gupta and Wirth, new species

FIGURE 67

FEMALE.—Length of wing 1.35 mm: breadth 0.47 mm.

Head: General features as in *traubi*, new species, antennae and palpi broken. Mandible with 6 teeth.

Thorax: Yellowish brown; postscutellum and scutum dark brown; scutellum with 4 large bristles.

Legs: Yellowish (fore legs missing); tarsomere V with 6 batonnets on mid leg, 4 on hind leg; tibial bristles as in *traubi;* strong ventral spines on I–III as: mid leg 1–0–2, 0–0–2, 0–0–2; hind leg 0–0–2, 0–0–2, 0–0–2. Hind leg with femur to V lengths as 94–97–44–21–7–3–19: TR 2.1; hind tibial comb with 7 spines.

Wing (fig. 67*a*): Faintly brownish, unmarked, veins slightly darker brown; CR 0.84; r-m to stem M lengths as 13: 14. Halter slightly infuscated.

Abdomen: Yellowish brown, terga with sparse, fairly long setae; I with cluster of 15 hairs on each side. Spermathecae (fig. 67*b*) strongly sclerotized, with fine hyaline perforations, subspherical with short, slender sclerotized necks; functional pair unequal, measuring 0.060 mm and 0.049 mm in diameter, exclusive of necks. Genital sclerotization as in figure 67*c*.

MALE.—Length of wing 1.1 mm.

Similar to the female with the usual sexual differences; antennal plumes faintly brownish; inner margins separated by a wedge-shaped space; vertex with 8–9 hairs; palpal segment III with small subapical

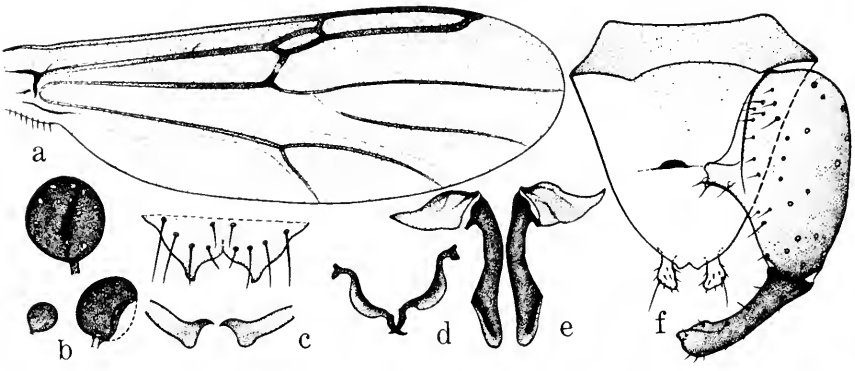


FIGURE 67.—*Stilobezzia rotunditheca*, new species (*a–c*, ♀; *d–f*, ♂). *a*, wing; *b*, spermathecae; *c*, ♀ genitalia; *d–f*, ♂ genitalia.

sensory pit. Genitalia (fig. 67*d–f*) with sternum IX narrow, shallow caudomedian excavation and finely spiculate ventral membrane; tergum IX moderately long and rounded caudad; basistyle with simple mediangular process bearing 3 minute setigerous tubercles, without ventral lobe; dististyle short, stout to tip, slightly narrowed in midportion; aedeagal sclerites bisinuate, expanded on outer side in midportion, with slender, curved distomesal points; parameres each with only moderately sclerotized but rather broad lateral plate at base, main portion moderately stout, slightly curved on proximal third, with slight lateral expansion at distal third, apex stout.

DISTRIBUTION.—Sarawak.

TYPES.—Holotype male, allotype female, 1 male paratype, Kampong Pueh, Lundu Dist., Sarawak, 6–12 June 1958, 700–1500 m, along stream, ? collector (deposited in Bishop Museum, Honolulu).

DISCUSSION.—This species can be recognized by the short, distally stout dististyle and simple columnar paramere without distal modification.

28. *Stilobezzia* (*Stilobezzia*) *spinipes* Das Gupta and Wirth, new species

FIGURES 14, 68

FEMALE.—Length of wing 1.42 mm; breadth 0.47 mm.

Head: Vertex yellowish brown, with 10 hairs. Antenna (fig. 14) brownish; III–XIV lengths as 19–12–12–12–12–12–13–15–22–23–24–24 (XV damaged); III–X not narrowed at apices; XV with terminal seta. Palpus brownish distally; III narrowed on distal fourth, with 3 bristles, with short sensilla borne in a small pit. Mandible with 7 teeth, proximal tooth largest.

Thorax: Dark brown, pleuron and scutellum pale yellow with greenish patches; scutellum with 5 large bristles.

Legs: As in *traubi*, new species, with the following differences: tarsomere V with 8, 6, and 4 sharp-tipped spines plus a few stiff, smaller spines on fore, mid, and hind legs respectively; long black bristles on all tibiae, 2 on fore, 4 on mid, and 12 on hind legs, 7 of the latter on extensor side of hind tibia; I–III with strong ventral spines as: fore leg 0–0–1, 0–0–1, 0–0–2; mid leg 1–1–2, 0–0–2, 0–0–2; hind leg 0–0–1, 0–0–1, 0–0–1. Hind leg with femur to IV lengths (V damaged) as 100–110–50–20–10–5; TR 2.5; hind tibial comb with 6 spines.

Wing (fig. 68*b*): Grayish hyaline, the anterior veins brownish; macrotrichia absent on surface; CR 0.81; r-m to stem lengths as 12:7; radius with several setae. Halter pale, knob slightly greenish.

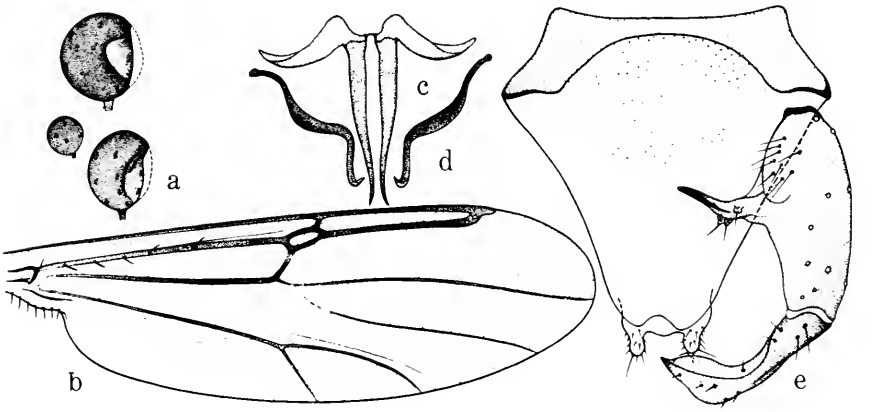


FIGURE 68.—*Stilobezzia spinipes*, new species (*a–b*, ♀; *c–e*, ♂). *a*, spermathecae; *b*, wing; *c–e*, ♂ genitalia.

Abdomen: Pale laterally and ventrally, but terga greenish brown; tergal setae as in *traubi*. Spermatheca (fig. 68*a*), 3, the 2 large nearly equal (not measured, slides poor), the third about a fourth as large, all subspherical, intensely sclerotized, with minute hyaline perforations, distinct slender necks present.

MALE.—Length of wing 1.33 mm.

Similar to the female, with the usual sexual differences. Genitalia (fig. 68*c–e*) as in *traubi*, with the following differences; Mediangular process of basistyle more elongate, with blackish sclerotized, nearly straight mesal point; dististyle with marked distal swelling, greatest on outer margin, giving a humped appearance to outer margin, but with a sharp-pointed tip; aedeagal sclerites bisinuate, slender, the mesal third straight with short bent distal tip; parameres each with lateral arm more curved than in *traubi*, the distal stem slender and

straight, gradually narrowed distally to blackish slender points, without ventral appendage.

DISTRIBUTION.—Philippines; North Borneo.

TYPES.—Holotype male, allotype female, San Francisco, Los Arcos, Agusan, Mindanao, Philippines, 19 Nov. 1959, L. W. Quate, at light (deposited in Bishop Museum, Honolulu). Paratypes, 3 females. Same data as types, 1 female. Same data but collected by C. Yoshimoto, 1 female. NORTH BORNEO: Tawau Residency, Tawau, 19 Nov. 1958, L. W. Quate, 1 female.

ADDITIONAL SPECIMENS.—Same data as holotype, 1 male, 2 females (pinned).

DISCUSSION.—This species closely resembles *traubi* externally, but differs in the heavy blackish tibial spines and the short medial stem. The third spermatheca is much better developed in the female of *spinipes*, and the male genitalia are quite different from either *traubi* or *boharti*, lacking the whiplike ventral appendage of the paramere; the dististyle is markedly expanded and bent subapically.

29. *Stilobezzia* (*Stilobezzia*) *subflava* Das Gupta and Wirth, new species

FIGURE 69

FEMALE.—Unknown.

MALE.—Length of wing 1.17 mm.

Head: Yellowish brown, antennal plumes brownish; vertex with 11 hairs; palpal segment III with small pit located at distal third.

Thorax: Greenish yellow, scutum and postscutellum dark brown; scutellum paler brown, with 6 bristles.

Legs: Straw colored except coxae concolorous with pleuron, knee spots brownish; hairs inconspicuous except on hind tibia where 5–6 long extensor bristles are present; tarsomeres I–III with stout ventral spines as: fore leg 0–0–1, 0–0–1, 0–0–1; mid leg 0–0–2, 0–0–2, 0–0–2; hind leg 0–0–0, 0–0–1, 0–0–1; hind tibial comb with 6 spines; TR 2.07.

Wing (fig. 69*a*): Faintly brownish, unmarked, the veins slightly darker brown; CR 0.80. Halter pale.

Abdomen: Pale brownish with light greenish tinge; setae as in *traubi*, new species, tergum I with 9 hairs on each side. Genitalia (fig. 69*b–d*) dark brown; sternum IX narrow, with finely spiculate ventral membrane; tergum IX moderately long, with long bristles on dorsal surface, pubescent membranous caudal lobes prominent; basistyle moderately stout, mesal margin not expanded, setigerous tubercles not developed, and mediangular process inconspicuous; dististyle long, nearly straight proximally and with slightly curved tip; aedeagal sclerites slightly arched, slender with slight outer expansion, caudomedian tip sharp pointed; parameres each with long, sinuately curved, mesally expanded basal arm, main body columnar,

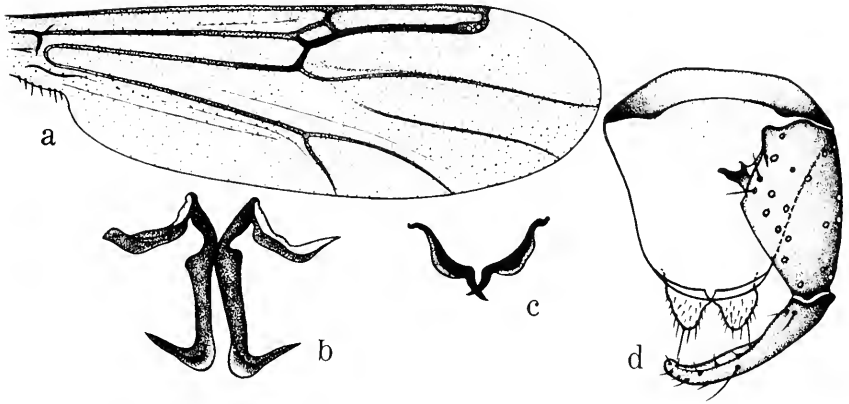


FIGURE 69.—*Stilobezzia subflava*, new species (♂). *a*, wing; *b–d*, ♂ genitalia.

distal portion slightly expanded, with sharp-pointed tip abruptly bent ventrad.

DISTRIBUTION.—Malaya.

TYPE.—Holotype male, Tasek Bera, Pahang, Malaya, 11 Oct. 1961, R. H. Wharton, light trap (USNM 69468).

DISCUSSION.—This species is similar to *traubi*, new species, but the males can be distinguished readily by the shapes of the aedeagal sclerites and parameres.

30. *Stilobezzia* (*Stilobezzia*) *traubi* Das Gupta and Wirth, new species

FIGURES 13, 70

FEMALE.—Length of wing 1.30 mm; breadth 0.48 mm.

Head (fig. 70*a*): Uniformly yellowish brown; antenna (fig. 13) slightly darker brownish, XI–XV with narrow subbasal pale area; III–XV lengths as 16–10–10–10–10–11–12–13–22–22–22–22–29; AR 1.27; XV with apical seta. Palpal segments (fig. 70*e*) as 4–12–20–10–18; I–II pale; III slender, slightly larger in midportion and bearing only 3 long bristles, with distinct small round sensory pit just beyond middle. Mandible with 6 teeth, the proximal 3 larger.

Thorax: Dark brown, paler yellowish on anterior margin, pleuron and scutellum; scutellum with 5 large bristles.

Legs (fig. 70*b*): Uniformly yellowish brown; hind tibia with extensor row of 10 long bristles, some bristly hairs at apices of femora and tibiae, otherwise vestiture short and fine; IV short, not cordate, unarmed; V with 5–6 sharp, long batonnetlike spines ventrally plus smaller hairs; claws (fig. 70*f*) long and slender, the basal tooth one-half claw length on fore and mid leg, one-fourth claw length on hind leg; I–III with strong ventral spines as: fore leg 0–0–1, 0–0–1, 0–0–2;

mid leg 1–0–2, 0–0–2, 0–0–2; hind leg 0–0–2, 0–0–2, 0–0–2. Hind leg with femur to V lengths as 93–97–50–23–8–4–19; TR 2.2; hind tibiae comb with 5–6 spines.

Wing (fig. 70*d*): Faintly brownish, unmarked, veins slightly darker brown; CR 0.82; 1RC to 2RC lengths as 2:7; r-m to stem M lengths as 6:7; 1RC well formed, elongate; r-m oblique, R_1 less oblique; macrotrichia absent; alula fringed. Halter pale yellowish brown.

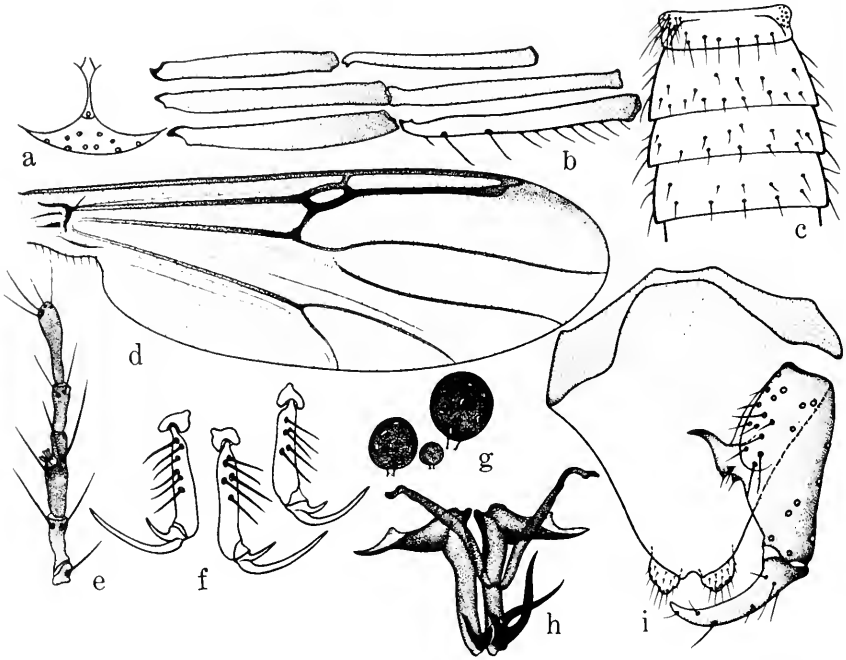


FIGURE 70.—*Stilobezzia traubi*, new species (*a–g*, ♀; *h–i*, ♂). *a*, frontovertex; *b*, femoratibiae; *c*, abdominal terga I–IV; *d*, wing; *e*, palpus; *f*, last 2 tarsomeres and claws; *g*, spermathecae; *h–i*, ♂ genitalia.

Abdomen (fig. 70*c*): Slender, not petiolate or convex; terga with fine, scattered seta, becoming longer at sides and on posterior terga, except sides of I each with 10–12 long hairs; no modified pubescence. Spermathecae (fig. 70*g*) subspherical with short, slender, lightly sclerotized necks; all 3 highly sclerotized with distinct minute hyaline pores; the functional pair unequal, 0.056 mm by 0.053 mm and 0.046 mm by 0.042 mm. Genital sclerotization not shown in available slide mount.

MALE.—Length of wing 1.25 mm.

Similar to the female with the usual sexual differences; antennal plume uniformly dark brown, color of body and appendages slightly

darker brown than in female; palpus III as in female with distinct pit. Genitalia (fig. 70 *h–i*) similar to those of *boharti* Tokunaga, with the following differences: Sternum IX deeply excavated mesad with distinct ventral spiculation; basistyle shaped differently, without additional setation, mediangular process with distinctly constricted base, and the setigerous tubercles slightly more elongate; dististyle evenly curved on distal portion, nearly straight basally, not sinuate, the tip pointed; aedeagal sclerite more elongate with base bent around ventromesal angle of basistyle, not heavier than stem of paramere; paramere shaped as in *boharti*, but both stem (straight midportion) and distal appendage stouter; aedeagal sclerites and parameres heavily sclerotized, remainder of genitalia pale yellowish.

DISTRIBUTION.—Malaya.

TYPES.—Holotype male, Telok Pelandok, Negri Sembilan, Malaya, 18 July 1958, R. Traub, light trap (USNM 69469). Allotype female, Kuala Singgora, Pahang, Malaya, 18 July 1958, R. H. Wharton, light trap.

DISCUSSION.—This species is dedicated to the collector of the holotype male, Colonel Robert Traub who was commanding the U.S. Army Medical Research Unit at Kuala Lumpur, in appreciation of his outstanding work in medical entomology in southeast Asia and his wholehearted cooperation in taking time from a busy schedule to obtain the superb collections of Ceratopogonidae for the U.S. National Museum.

This species is similar to *boharti* Tokunaga from the Ryukyu Islands, but the males may be distinguished by the genitalic characters mentioned above. Characters for the separation of *traubi* and *spinipes*, new species, also similar, are given in the discussion of *spinipes*.

Notata Group

DIAGNOSTIC CHARACTERS (figs. 1–8, 71).—Eyes narrowly separated, bare. Head yellow; palpi dark brown. Antennae slender; XI about 2 times X; XV with short terminal seta; XI–XV dark, III–X with narrow apices dark; male antennal plume yellow proximally, dark on distal third. Vertex with hairs mostly in midportion close to caudal margin. Palpal segments III and V longer than II and IV; III slender, slightly enlarged just beyond middle, with a cluster of 3–4 long-stalked sensilla at distal third to fourth, sometimes borne in an indistinct round pit. Mandible with 5–9 large teeth plus 4–7 fine serrations subapically on outer side.

Thorax pale yellow to greenish yellow; scutum with the disc marked with brown; in *notata* and related species with a narrow darker brown line bordering anterior and lateral margins of these vittae; in *festiva* and related species in addition with a dark brown crossband at pos-

terior margin of the median vitta anterior to the flattened prescutellar area; pleuron with an oblique brown band extending from posterior side of fore coxa to end of scutellum. Scutellum with 5–6 long bristles.

Legs pale yellow, with distinct dark brown markings including narrow bases and apices of tibiae, a subapical band on mid femur, and dark distal half of hind femur with a variable dark anterior line toward its base. Legs long and slender, strong bristles only at apices of femora and tibiae; strong ventral spines on tarsomeres I–III present on mid leg only; IV unarmed, V with 1 pair of ventral batonnets on fore and mid leg, sometimes on hind leg; large claw long and slender, subequal to V, the smaller appearing as a basal tooth about half as long.

Wing brownish with 2 pale anterior areas, one extending from 2RC across cell R_5 to (*notata* type) or past (*festiva* type) stem M, the second at wing margin just distad of costal tip; 2 prominent darker brown spots, one covering vein R_1, 1RC and r-m and the other including distal swelling of vein R_{4+5} and lying just behind it in cell R_5; veins M and Cu also darkened somewhat; 1RC well developed, usually a fifth to third as long as 2RC; stem M long, about 3 times r-m. Halter with stem pale, knob brown, the flat end (distal third) whitish in some species.

Abdomen yellowish with striking pattern of setation and intense dark brown spots, differing specifically. Prominent clusters of strong black setae mesally on terga II–IV in female, to V in male. Basic color pattern fully expressed on IV in both sexes, consisting of a dark brown area nearly covering tergum, containing a pair of oblique pale lateral lines directed caudolaterad and a mesocaudal pair of smaller pale spots. Posteriorly this dark pattern is reduced in extent gradually toward VIII in males but usually only with triangular anterolateral corners present in females. In *festiva* type pattern, II and III each bears a dark mesal spot at the seta clump and a pair of anterolateral spots; in the male the median spot on III is obscure or absent; in *notata* type pattern, the anterolateral spots are absent on III in both sexes. Female sternum IX with short, bluntly pointed submedian lobes on caudal margin; submedian internal lamellae abruptly bent caudad mesally with sharp caudomesal points. Spermathecae, 2 functional plus 1 rudimentary, the two subequal in size and subspherical to slightly ovoid with short, slender, sclerotized necks. Male genitalia with rounded tergum IX, short sternum IX with shallow caudomesal emargination; basistyle short with broad mesal expansion basally, a strong basidorsal process present, the processes connected across midline by a weakly sclerotized band; dististyle usually subequal in length to basistyle and rather stout and blunt distally; aedeagus with lateral sclerites slender basally, gradually expanded distally to laterally rounded apices; parameres subequal in

length to aedeagal sclerites, basal portion of each not markedly swollen or bent, basal apodeme not developed, main body in form of a sinuate or straight blade with tip abruptly bent or gradually curved ventrad and mesad.

Species included: *Stiolbezzia bimacula* (Kieffer), India; *coquilletti* Kieffer, North America; *crassipes* Kieffer, India; *decora* Kieffer, Taiwan; *festiva* Kieffer, West Pakistan to Taiwan, Indonesia, and Ceylon; *fiebrigi* Kieffer, Paraguay; *huberti*, new species, Malaya; *leucopeza* Clastrier, Senegal; *notata* (de Meijere), Malaya to Indonesia, Philippines, and Japan; *perspicua* Johannsen, Indonesia; *pseudofestiva*, new species, Thailand and Malaya; *pseudonotata*, new species, Malaya; *spinitarsis*, new species, Malaya; *spirogyrae* Carter, Ingram, and Macfie, West Africa; *subfestiva*, new species, Thailand and Malaya; *supernotata*, new species, Malaya, Indonesia, and Philippines; *viridis* Goetghebuer, Congo (preocc. *viridis* Coquillett, but may be a synonym of *spirogyrae*).

Key to Oriental Species of the Notata Group [1]

1. Scutum middorsally with bilobed dark band; medium-size species 2
   Scutum without the above band; medium to large size species 4
2. Halter knob totally dark brown 3
   Halter knob whitish on distal third; medium-size species.
   subfestiva, new species
3. Abdomen with 3 dark spots (separated or confluent through weaker punctations) on tergum II; small species . . . . . **festiva** Kieffer
   Abdomen with only 1 central dark spot on tergum II (new species, undescribed from Thailand and Philippines, 2 females).
4. Abdomen with 0–1 central dark spot on tergum II 5
   Abdomen with 3 dark spots on tergum II (may be confluent through weaker punctations in males, or middle spot may be weak occasionally) 9
5. Halter knob totally dark brown 6
   Halter knob pale on distal third 8
6. On tergum IV, mesal pale spot large, and dark spots not forming a conical block in center; female tarsomere V on hind leg without ventral batonnets; large species . . . . . **notata** (de Meijere)
   On tergum IV, pale mesal spot small, and dark spot forming a distinct conical block in center; female tarsomere V with or without batonnets on hind leg 7
7. Female tarsomere V with batonnets on all legs; abdominal terga with admedian pale spots extending to caudal margin of segments; small species.
   huberti, new species
   Female tarsomere V without batonnet on hind leg; admedian pale spots on terga bordered caudad by dark marks; large species.
   supernotata, new species
8. Tarsomere V with batonnets on all legs in female; abdominal tergum IV with pale mesal spots small; male genitalia with bladelike, heavily sclerotized parameres and dististyle slender at middle; small species.
   spinitarsis, new species

[1] We have been unable to include *bimacula* (Kieffer), *crassipes* Kieffer, *decora* Kieffer, and *perspicua* Johannsen because of incomplete descriptions.

Tarsomere V lacking batonnets on hind leg of female; tergum IV with pale mesal spots quite large; male genitalia with rodlike, weakly sclerotized parameres; dististyle not slender at middle; medium-size species.

pseudonotata, new species

9. Halter knob totally dark brown . . . . . **pseudofestiva,** new species
Halter knob pale on distal third.

(new species, undescribed from Malaya, 1 male)

31. *Stilobezzia* (*Stilobezzia*) *festiva* Kieffer

FIGURES 5, 71

Stilobezzia festiva Kieffer, 1911a, Rec. Indian Mus., vol. 6, p. 118 [male, female; Calcutta; fig. wing, tarsi, male genitalia]; 1911c, Zool. Jahrb., vol. 30, p. 516 [notes on male, female]; 1913, Rec. Indian Mus., vol. 9, p. 186 [rec. Bengal; color variation].

Stilobezzia festiva var. *scutellaris* Kieffer, 1912, Spolia Zeylanica, vol. 8, p. 7 [female; Ceylon]. NEW SYNONYMY.

Stilobezzia notata (Meijere).—Tokunaga, 1940a, Philipp. Journ. Sci., vol. 72, p. 280 [Japan, Taiwan; fig. wing; female misident.]; 1962, Pacific Ins., vol. 4, p. 208 [redescr. male, female, fig. male genitalia; Ryukyu Isl.; misident.]

Stilobezzia spirogyrae Carter, Ingram and Macfie.—Ghosh and Das Gupta, 1962, Calcutta School Trop. Med. Bull., vol. 10, p. 120 [descr. male, female; fig. wing, abdominal color pattern, spermathecae, male genitalia; Calcutta; misident.].

FEMALE.—Length of wing 1.39 (1.12–1.54, n=39) mm; breadth 0.50 mm.

Head: Eyes narrowly separated (fig. 71*a*); vertex with 10 hairs. Head yellowish, proboscis pale brown, palpi dark brown, antennomeres XI–XV (except a narrow subbasal pale mark) and narrow apices of III–X slightly infuscated. Antenna (fig. 5) with lengths of III–XV as 14–8–8–8–8–8–8–9–19–21–22–24–31, AR 1.65; X slightly longer than IX, XV with short terminal seta. Palpal segments (fig. 71*d*) as 6–15–21–13–22; III tapered on distal third, with 3–4 long-stalked sensilla from indistinct sensory pit. Mandible with 6–7 (av. 6.8, n=32) coarse teeth, also 5–7 fine outer serrations.

Thorax: Pale yellow with scutal pattern (fig. 71*b*) as figured; scutal vittae pale brown, bordered anteriorly and laterally with dark brown, dark brown crossband present on posterior margin of mesal vitta; pleuron with oblique dark brown band between posterior side of fore coxa and end of scutellum. Scutellum with 5–6 bristles.

Legs (fig. 71*e*): Pale yellow; trochanters, narrow bases and apices of tibiae, and tarsomeres IV and V brown; mid femur with broad subapical brown band, incomplete dorsally; hind femur brown on distal half, with a varying subapical pale area and a brown extension on anterior side to base. Femora and tibiae with sparse weak hairs, except for group of 5–6 strong spinose hairs at apices and extensor line of long bristly hairs distally on hind tibia; strong ventral spines present on I–III on mid leg only, as 1–0–2, 0–0–2, 0–0–2; absent on

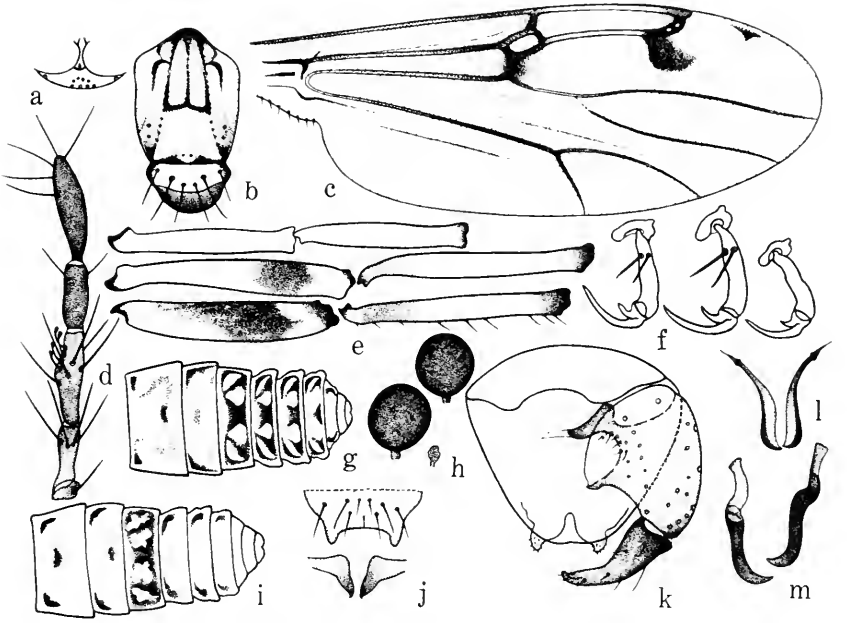


FIGURE 71.—*Stilobezzia festiva* Kieffer (*a–f*, *h–j*, ♀; *g*, *k–m*, ♂). *a*, frontovertex; *b*, thorax; *c*, wing; *d*, palpus; *e*, femora-tibiae; *f*, last 2 tarsomeres and claws; *g*, II to last terga, ♂; *h*, spermathecae; *i*, II to last terga, ♀, *j*, ♀ genitalia; *k–m*, ♂ genitalia.

fore and hind legs; a pair of strong subbasal batonnets (fig. 71*f*) on V of fore and mid legs, claws as figured. Hind leg with lengths from femur to V as 91–85–43–24–8–6–14; TR 1.8; hind tibial comb with 10–12 spines (av. 10.9, n=15).

Wing (fig. 71*c*): Brownish except for 2 anterior pale areas, one extending through 2RC and cell R_5 across stem M halfway through breadth of cell M_2, the second smaller one just past tip of costa and extending halfway to vein M_1; wing veins darker brown except costa, stem M, and R_{4+5} in area of proximal pale spot; 2 prominent dark brown spots anteriorly, the first covering vein R_1, 1RC, and r-m crossvein; the second covering distal swelling of R_{4+5} and extending posteriorly as a rounded spot about half the distance to vein M_1; wing without macrotrichia. CR 0.68; 1RC to 2RC lengths as 15:56; r-m to stem M lengths as 1:3. Halter with stem pale, knob intensely dark brown.

Abdomen: Color yellow with dorsal pattern of intense dark brown markings as in figure 71*i*; terga II and III each with pair of anterolateral spots and a mesal spot; IV dark with 2 pairs of small pale spots; V–VII each with diagonal anterolateral marking. Tergal setae consisting of a cluster of stout setae in middle of II–IV, a cluster of 10 weak setae at each side of I, and rows of sparse weak setae along hind

margin of all segments. Spermathecae (fig. 71*h*), 2 functional and 1 rudimentary, the two subspherical, usually intensely sclerotized, with short slender necks; subequal, each measuring 0.056 mm by 0.048 mm. Genital sclerotization as in figure 71*j*.

MALE.—Length of wing 1.29 (1.17–1.49, n = 31) mm.

Similar to the female with the usual sexual differences; dorsal abdominal pattern (fig. 71*g*) more extensive. Genitalia (fig. 71*k-m*) with tergum IX short and rounded caudad; basistyle stout, the portion distad of mesal swelling short; basidorsal process large and foot shaped; dististyle shorter than basistyle and tapering to apex; aedeagal sclerites shorter than parameres, each with slender base and moderately broad apex; parameres intense sclerotized to apex, sinuate in midportion with stout curved tips.

DISTRIBUTION.—India; West Pakistan to Japan, Indonesia, and Ceylon.

MATERIAL EXAMINED.—459 specimens.

CEYLON: Colombo, Kalutaluwewa (Med. Res. Inst.).

INDIA: Calcutta (Das Gupta), reared from mud.

INDONESIA: Java (Woglum); West Java, Bogor (Adiwinata); Djakarta (Rees).

JAPAN: Kyoto, Midoro Pond (Arnaud).

MALAYA: Pahang, Kuala Singgora (Wharton); Perak, Pulau Pangkor (Traub); Perlis, Kangar Rest House (Traub); Selangor, Kuala Lumpur (Hubert); Selangor, Rantau Panjang. 4 mi. N. Klang (McClure); Singapore, Kg. Agas (Colless).

NEPAL: Katmandu (Maldonado).

NORTH BORNEO: Labuan Island (Colless).

RYUKYU I.: Okinawa, Machinato-Naka Area (Earle); Uchitomari (Roth).

TAIWAN: Koah-siung, Chao-chow (Hu).

THAILAND: Ayudhya (Manop R.); Bangkok (Bangpo, Donmuang, Huaykwang, Pratomvan, Thonglo Dists.) (Scanlon); Chiang Mai (Notananda), Ampur Muang (Scanlon), Ban Tin Doi (Gressitt), Doi Sutep (E. B. Thurman); Cholburi, Bangphra (Scanlon); Khon Kaen (Elbel, Manop R.); Loei, Thai Li (Manop R.); Minburi (Manop R.); Nakhon Prathom (Manop R.); Nonthaburi (Manop R.); Pechaburi (Manop R.); Ratchaburi, Banpong (Manop R.); Samuthprakan (Manop R.); Thonburi (Manop R.); Udonthani (Manop R.); Ampur Muang (Scanlon).

VIET NAM: Saigon (Spencer).

WEST PAKISTAN: Lahore, (Barnett, Maldonado); Peshawar (Barnett); Rawalpindi, Dhamyal (Barnett).

DISCUSSION.—We have given the description of *festiva* in considerable detail since it is the type-species of the genus *Stilobezzia*. Tokunaga's (1940a, 1962) records of *notata* (de Meijere) from Japan, Okinawa, and Taiwan apply at least in part to *festiva* as supported by our examination of material from these countries, though we have also seen *notata* material from Japan. *S. festiva* appears to be more widely distributed than *notata*, especially in the Indo-Chinese faunal subregion; *notata* is a more typical Malaysian element.

32. *Stilobezzia (Stilobezzia) huberti* Das Gupta and Wirth, new species

FIGURES 4, 72

FEMALE.—Length of wing 1.42 (1.28–1.50, n=10) mm.; breadth 0.55 mm.

Similar to *supernotata*, new species, with the following distinctions: Vertex with 16 hairs; antenna (fig. 4) with lengths of III–XV as 16–9–8–8–8–8–8–10–22–23–24–26–39; AR 1.79; palpal segments as 6–16–22–15–18; mandible with 6–7 teeth (av. 6.6, n=14). Scutellum with 5–6 large bristles (av. 5.7, n=10) and 0–2 smaller hairs. Legs with hind femur intensely dark brown distad to the apex; tarsomere V with batonnets on hind leg as well as on fore and mid legs; hind leg with lengths from femur to V as 90–86–47–24–8–6–14; TR 1.96; hind tibial comb with 9–11 spines (av. 10.1, n=13). Wing (fig. 72*a*) with CR 0.73; 1RC to 2RC lengths as 8:25. Abdominal terga (fig. 72*c*) with pattern as figured, on IV differing from *supernotata* in the larger mesal pale spots; I with 11 setae on each side. Spermathecae (fig. 72*b*) as figured, measuring 0.064 mm by 0.051 mm and 0.059 mm by 0.049 mm. Genital sclerotization as in figure 72*d*.

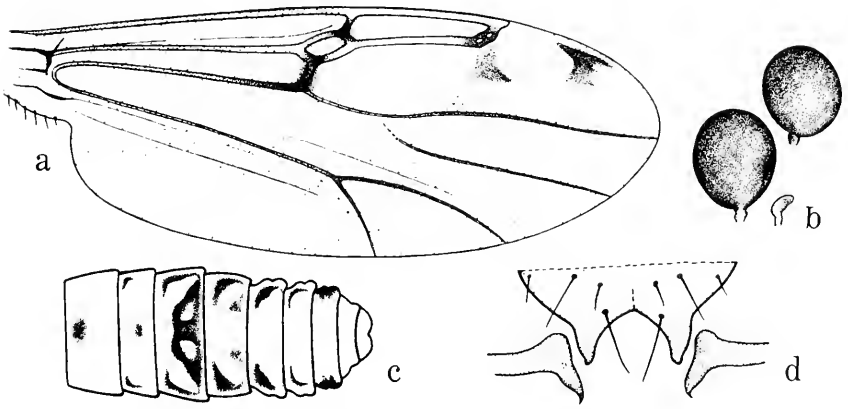


FIGURE 72.—*Stilobezzia huberti*, new species (♀). *a*, wing; *b*, spermathecae; *c*, II to last abdominal terga; *d*, ♀ genitalia.

MALE.—Unknown.

DISTRIBUTION.—Malaya.

TYPES.—Holotype female, Kuala Lumpur, Selangor, Malaya, 8 Sept. 1958, R. Traub, light trap (USNM 69470). Paratypes, 22 females. MALAYA: Pahang, Pahang Tua, Pekan, 6 Sept. 1961, R. H. Wharton, light trap, 1 female. Selangor, Kuala Lumpur, same data as type, but dates also Mar.–Apr. 1960, 20 females. Selangor, Rantau Panjang, Aug. 1960, H. E. McClure, light trap, 1 female.

Additional specimens.—MALAYA: Selangor, same data as type, 56 females (alcohol).

Discussion.—This species differs strikingly from *supernotata* in the presence of batonnets on tarsomere V of all legs instead of only fore and mid legs. The species also differs in abdominal color pattern of tergum IV where the mesal pale spots are larger; by using this character we can pinpoint some males from the type of series of *supernotata* matching *huberti*, but in the absence of striking genitalic differences or copula specimens, we are refraining from making any selection of males of *huberti* at this time. The selection of the male holotype of *supernotata* was made on the basis of close agreement of size and coloration with the female, and a male was selected to fix the important separation of that species from *notata* (de Meijere).

We are pleased to name this species in honor of Major A. A. Hubert, Walter Reed Army Institute of Research, to whom we are greatly indebted for many of our Malayan ceratopogonid collections.

33. *Stilobezzia* (*Stilobezzia*) *notata* (de Meijere)

Figures 1, 73

Ceratopogon (*Ceratolophus*) *notatus* de Meijere, 1907, Tijdschr. v. Ent., vol. 50, p. 210 [male, female; Semarang, Java; fig. wing].

Stilobezzia notata (de Meijere).—Kieffer, 1919, Bull. Soc. Ent. France, vol. 32, p. 192 [combination].—Macfie, 1934, Ann. Trop. Med. Parasit., vol. 28, p. 284 [Malaya records].

Female.—Length of wing 1.64 (1.46–1.90, n=14) mm; breadth 0.62 mm.

Head: Vertex with 9 hairs. Antenna (fig. 1) with III–XV lengths as 14–9–9–9–9–9–9–11–21–23–25–29–49; AR 1.86; X slightly longer than IX. Palpal segments as 6–16–24–14–21; III with a small sensory pit, sometimes indistinct. Mandible with 6–8 teeth (av. 6.9, n=16).

Thorax: Pale yellow to greenish yellow with scutal pattern as in figure 73*a;* vittae yellowish brown with narrow dark brown anterior border. Scutellum with 5–6 bristles (av. 5.7, n=9).

Legs: Color markings as in *festiva*, but hind femur more broadly dark; V tarsomere and claws as in *festiva;* hind leg from femur to V lengths as 102–98–51–23–7–6–17; TR 2.2; hind tibial comb with 10–12 spines (av. 11.2, n=21).

Wing (fig. 73*e*): Membrane brownish except for 2 anterior pale areas, one extending through 2RC nearly to vein M_1, the second smaller one just past tip of costa and extending halfway to vein M_1; wing veins darker brown except costa and R_{4+5} pale in area of proximal pale spot; 2 prominent dark brown spots anteriorly, the first covering vein R_1, 1RC and r-m crossvein; the second covering distal swelling of R_{4+5} and extending posteriorly as a rounded spot about half the

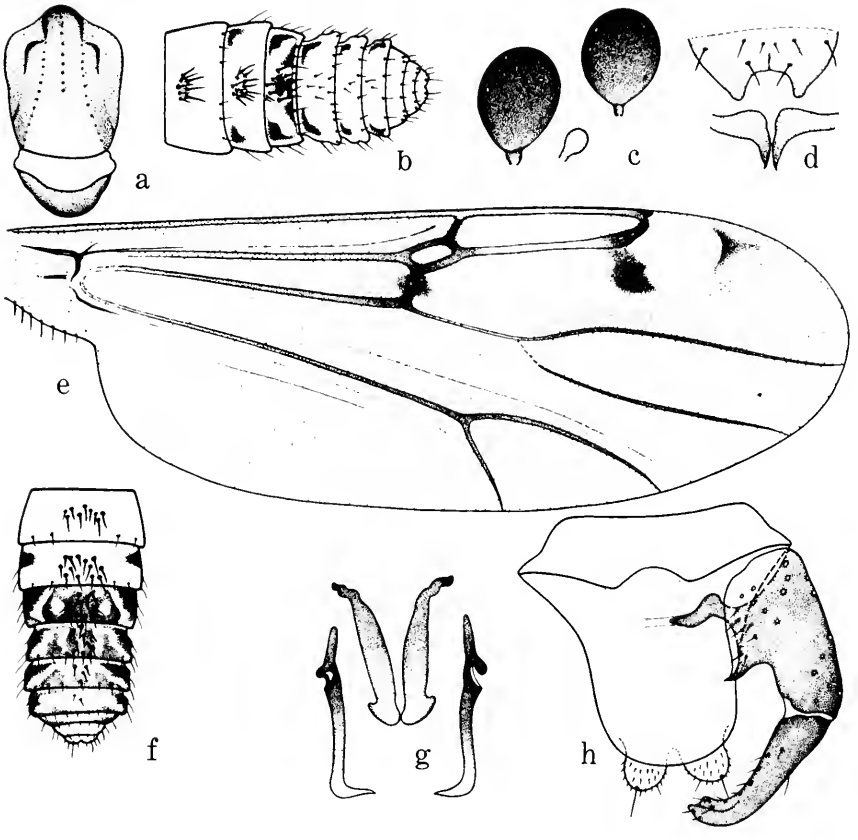


FIGURE 73.—*Stilobezzia notata* (Meijere) (*a–e*, ♀; *f–h*, ♂). *a*, thorax; *b*, II to last abdominal terga, ♀; *c*, spermathecae; *d*, ♀ genitalia; *e*, wing; *f*, II to last abdominal terga, ♂; *g–h*, ♂ genitalia.

distance to vein M_1; CR 0.73; 1RC to 2RC lengths as 1:3; r-m to stem M lengths as 1:3; slightly proximad of and more perpendicular to wing axis than R_1. Halter with stem pale, knob totally and intensely dark brown.

Abdomen: Color dorsally yellow to greenish yellow with pattern of dark brown markings as in figure 73*b*; tergum II with faint cloud to distinct spot at middle, marking rarely absent; III with 2 small triangular spots anterolaterally and often 1 spot in middle of segment; IV with 1 median, 2 submedian, and 2 lateral marks, all often confluent posteriorly; V–VII each with 2 lateral spots, becoming smaller on posterior segments; tergal setae consisting of a cluster of stout setae in middle of II–V, a cluster of 10 weak setae on each side of I, and rows of sparse weak setae along hind margin of all remaining segments (the setal pattern is similar in all the species here

described in the *notata* group). Spermathecae (fig. 73*c*) ovoid with distinct funnel-shaped necks, usually intensely sclerotized; measuring 0.067 mm by 0.054 mm and 0.061 mm by 0.051 mm. Genital sclerotization as in figure 73*d*.

MALE.—Length of wing 1.47 (1.34–1.58, n=15) mm. Similar to the female with the usual sexual differences; abdomen (fig. 73*f*) dorsally with II unspotted, rarely with a median clouding, median and submedian marks on IV fused in a quadrate pattern containing 1 or 2 pairs of small pale spots; pattern on V and VI simulates that on IV, but fainter. Genitalia as in figure 73*g–h*; tergum IX elongate, subquadrate with rounded apicolateral corners; basistyle with large mesal swelling on proximal half, distal portion slender; dististyle elongate, nearly as long as basistyle, gradually tapered to apex; paramere slender and straight, weakly sclerotized, the tip slender and abruptly bent mesad; aedeagal sclerites stouter and shorter than paramere.

DISTRIBUTION.—Indonesia; Malaya to Indonesia, Philippines, and Japan.

MATERIAL EXAMINED.—444 specimens.

CHINA: Hainan Island, Ta Hian (? collector).

INDONESIA: Java, Djakarta (Rees).

JAPAN: Honshu, Kyoto Pref., Midoro Pond (Arnaud); Tokyo (Thaxter).

MALAYA: Pahang, Kuala Singgora (Wharton); Pahang, Pahang Tua, Pekan (Wharton); Perak, Pulau Pangkor (Traub). Selangor, Batu Caves (McClure); Selangor, Kuala Lumpur (Barnett, Hubert, McClure, Traub); Selangor, Rantau Panjang, 5 mi. N. Klang (McClure); Selangor, Segambut (Barnett); Singapore, Kg. Chantek Bahru (Colless); Singapore (Colless), ex hyacinth pond, padi patch.

NORTH BORNEO: Tambunan (Colless).

PHILIPPINES: Luzon, Laguna Prov. Los Banos (Quate); Luzon, Pampanga Prov., Clark Air Base, Angeles (Balatbat).

THAILAND: Ayudhaya (Manop R.); Bangkok (Bangpo, Huaykwang, Pratomvan, and Thonglo Dists.) (Scanlon); Chiang Mai (Notananda); Ampur Muang (Scanlon); Doi Sutep (E. B. Thurman); Khon Kaen, Ban Pai (Manop R.); Pechaburi (Manop R.); Ratchaburi, Banpong (Manop R.); Samuthprakan (Manop R.); Thonburi (Manop R.).

DISCUSSION.—This species and *festiva* Kieffer are the commonest and most widespread of the Notata Group in the Orient. The larger, paler *notata* is not so widespread as *festiva*, and, except for Macfie's (1934) record from Malaya, records attributed to *notata* are mostly erroneous. Tokunaga's (1940) records of *notata* from Japan and Taiwan mention features of scutal and abdominal coloration which would apply only to males of this species. We believe that Tokunaga's (1959, 1963) New Guinea records only partially apply to *notata*. Johannsen's *notata* var. *perspicua* (1931) probably belongs in *notata*, and we consider the morphological variation on which the variety is based of little significance. We do not agree with Tokunaga (1940)

that *decora* Kieffer (1921) from Taiwan is synonymous with *notata;* Kieffer states that the females of *decora* bear no batonnets on tarsomere V. In view of the intraspecific stability of this character, until the types can be reexamined or additional material seems to confirm it, we must provisionally recognize the species.

34. *Stilobezzia (Stilobezzia) pseudofestiva* Das Gupta and Wirth, new species

FIGURES 6, 74

FEMALE.—Length of wing 1.45 (1.38–1.53, n=11) mm; breadth 0.56 mm.

Head: Vertex with 12 hairs. Antenna (fig. 6) with lengths of III–XV as 14–8–8–8–8–8–8–10–20–21–22–24–36; AR 1.71; X longer than IX. Palpal segments as 5–18–21–13–21; III without sensory pit. Mandible with 6–8 teeth (av. 7.0, n=18).

Thorax: Color pattern of scutum of the *notata* type, without posterior dark crossband. Scutellum with 5–6 bristles (av. 5.6, n=10).

Legs: Color pattern as in *festiva,* but the subapical pale ring on hind femur prominent, the dark markings intense on each side. Hind leg with lengths from femur to V as 89–82–41–20–7–5–12; TR 2.1; hind tibial comb with 9–11 spines (av. 9.8, n=13); claws and batonnets as in *festiva.*

Wing (fig. 74*a*): Color pattern as in *festiva;* CR 0.71; 1RC to 2RC lengths as 17:60; r-m to stem M lengths as 11:31; vein M_2 with short basal interruption. Halter with pale stem; knob entirely dark brown.

Abdomen: Dorsal color pattern (fig. 76*d*) of *festiva* type. Spermathecae (fig. 76*b*) oval with short slender necks, moderately to well sclerotized, subequal, measuring 0.059 mm by 0.047 mm and 0.055 mm by 0.045 mm. Genital sclerotization as in figure 76*c*.

MALE.—Length of wing 1.33 (1.23–1.47, n=11) mm.

Similar to the female with the usual sexual differences; dorsal color pattern of abdomen as in figure 76*e*. Genitalia (fig. 76*f–h*) of the *festiva* type, but tergum IX more quadrate (approaching *notata* type); basistyle short, the base of the basidorsal process relatively broad; dististyle subequal in length to basistyle; aedeagal sclerites slender at base, broadening distad to curved tip; paramere a broad, curving, heavily sclerotized blade with curved tip as in *festiva,* but slightly longer.

DISTRIBUTION.—Thailand; Malaya.

TYPES.—Holotype male, allotype female, Pechaburi, Thailand, 27 Dec. 1958, Manop R. collector, light trap (USNM 69471). Paratypes, 20 males, 10 females. MALAYA: Selangor, Kuala Lumpur, Aug. 1958, R. Traub, light trap, 2 males. Selangor, Rantau Panjang, Aug. 1960, light trap, 1 female. THAILAND: Bangkok (Huaykwang, Plukchit,

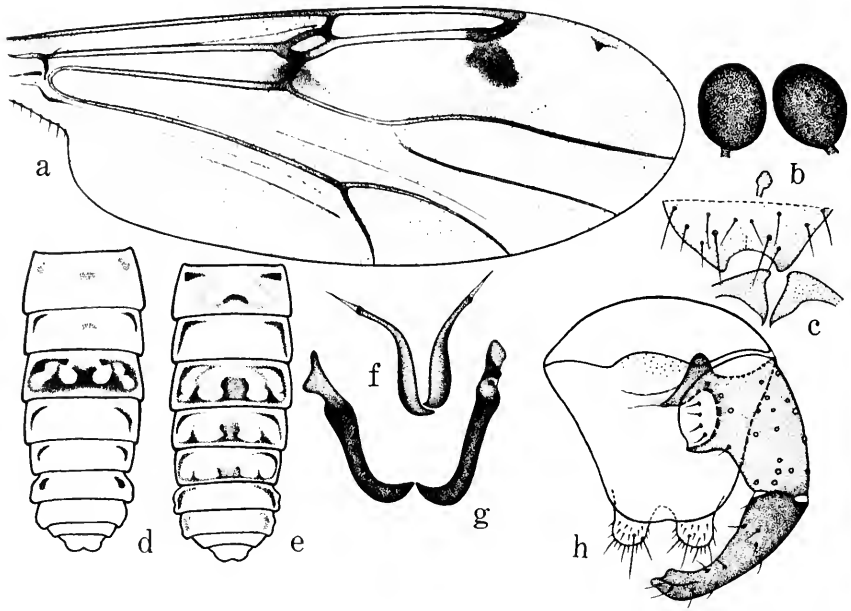


FIGURE 74.—*Stilobezzia pseudofestiva*, new species (*a–d*, ♀; *e–h*, ♂). *a*, wing; *b*, spermathecae; *c*, ♀ genitalia; *d*, II to last abdominal terga, ♀; *e*, II to last abdominal terga, ♂; *f–h*, ♂ genitalia.

and Thonglo Dists.), Aug. 1962 to Mar. 1963, J. Scanlon, light trap, 12 males, 3 females. Pechaburi, same data as types, 5 males, 5 females. Thonburi, 23 Dec. 1958, Manop R., light trap, 1 female.

ADDITIONAL SPECIMENS.—17 males, 45 females, all in alcohol, all taken in light traps. THAILAND: Ayudhaya, Jan. 1959, Manop R., 7 males, 11 females. Bangkok, Makasan, May 1959, Manop R., 1 female. Loei, Thai Li, June 1959, Manop R., 1 male. Minburi, Dec. 1958, Manop R., 1 male. Nakhon Prathom, Dec. 1958, 1 male, Manop R. Pechaburi, Dec. 1958, Manop R., 17 females. Ratchaburi, Banpong, Dec. 1958, Manop R., 5 males, 11 females. Samuthprakan, Dec. 1958, Manop R., 2 males, 3 females. Thonburi, Dec. 1958, Manop R., 2 females.

DISCUSSION.—This species combines features of *festiva* and *notata*, with wing and abdominal patterns of the former and scutal pattern of the latter. In the male genitalia, the aedeagus and parameres are similar to those of *festiva*, but tergum IX is more elongate though not so much as in *notata*.

35. *Stilobezzia (Stilobezzia) pseudonotata* Das Gupta and Wirth, new species

FIGURES 3, 75

FEMALE.—Length of wing 1.58 (1.42–1.72, n=7) mm; breadth 0.57 mm.

Head: Vertex with 11 hairs. Antenna (fig. 3) with lengths of III–XV as 15–9–9–9–9–9–9–9–20–21–23–25–48; AR 1.76; IX and X subequal. Palpal segments as 6–15–26–14–24, III without sensory pit. Mandible with 6–7 teeth (av. 6.8, n=10).

Thorax: Color pattern as in *notata*, but paler. Scutellum with 5–6 bristles.

Legs: Color pattern as in *notata*, but dark markings reduced in extent and intensity; tarsomeres IV and V pale; batonnets and claws as in *notata*; hind leg with lengths from femur to V as 100–92–49–23–8–7–15; TR 2.2; hind tibial comb with 11–12 spines (av. 11.0, n=9).

Wing (fig. 75*a*): Color pattern as in *notata*, but intensity less. CR 0.72; 1RC to 2 RC lengths as 8:29; r-m to stem M lengths as 1:3; vein M_2 with short basal interruption. Halter with pale stem, knob brown, but distal third whitish.

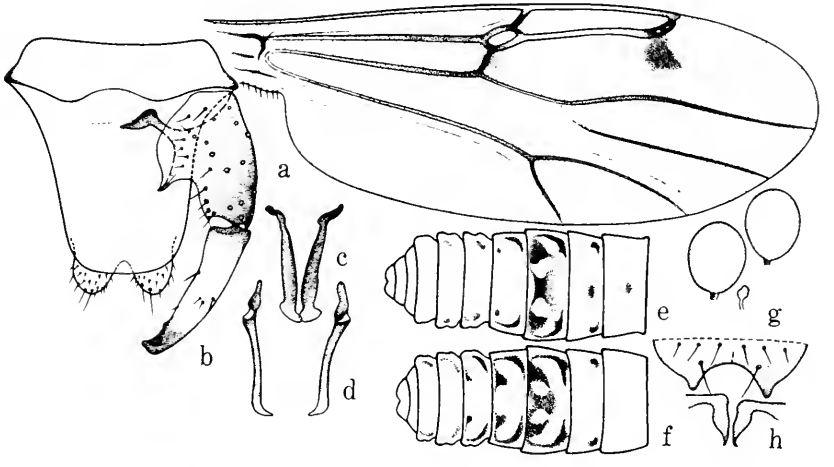


FIGURE 75.—*Stilobezzia pseudonotata*, new species (*a*, *e*, *g–h*, ♀; *b–d*, *f*, ♂). *a*, wing; *b–d*, ♂ genitalia; *e*, II to last abdominal terga, ♀; *f*, same, ♂; *g*, spermathecae; *h*, ♀ genitalia.

Abdomen: Somewhat petiolate, terga II and III not as broad as IV; dorsal color pattern (fig. 75*e*) as in *notata*; setal clumps with fewer bristles, but these are quite strong, about 6 long dark setae on posterior margins of III and IV only. Spermathecae (fig. 75*g*) ovoid, with short slender neck, lightly sclerotized, almost hyaline; slightly unequal, measuring 0.064 mm by 0.054 mm and 0.060 mm by 0.053 mm. Genital sclerotization as in figure 75*h*.

MALE.—Length of wing 1.41 (1.30–1.49, n=9) mm.

Similar to the female with the usual sexual differences; mesal dark spots absent on terga II as well as III (fig. 75*f*). Genitalia (fig. 75 *b–d*) similar to those of *notata*, tergum IX elongate and distal portion of basistyle fairly long and slender; dististyle as long as basistyle, not narrowed in midportion, distal point usually more heavily sclerotized than proximal portion; aedeagal sclerite and paramere subequal in lengths, the aedeagal sclerite slightly stouter distad, both with paler apices slightly bent ventromesally.

DISTRIBUTION.—Malaya; Thailand.

TYPES.—Holotype male, allotype female, Kuala Lumpur, Selangor, Malaya, Aug.–Sept. 1958, R. Traub, light trap (USNM 69472). Paratypes, 8 males, 4 females, same data except 1 male, April 1960, A. A. Hubert, collector.

ADDITIONAL SPECIMENS.—8 males, 7 females (alcohol). MALAYA: Selangor, Kuala Lumpur, July–Aug. 1958, R. Traub, light trap, 6 males, 7 females. THAILAND: Chiang Mai, Apr.–May 1958, V. Notananda, light trap, 1 male. Pechaburi, Dec. 1958, Manop R., light trap, 1 male.

DISCUSSION.—This species is closely related to *notata*, from which it differs essentially in its larger size, having the halter knob whitish apically, the abdomen more petiolate, the male lacking the dark mesal spot on abdominal tergum II, the female spermatheca colorless, the male aedeagal sclerite slenderer, and paramere with shorter distal bent point.

36. *Stilobezzia* (*Stilobezzia*) *spinitarsis* Das Gupta and Wirth, new species

FIGURES 8, 76

FEMALE.—Length of wing 1.38 (1.34–1.42, n=2) mm; breadth 0.51 mm.

Head: Vertex with 10 hairs. Antenna (fig. 8) with III–XV lengths as 14–9–9–9–10–10–10–10–22–22–24–25–38; AR 1.62; IX and X subequal. Palpal segments as 6–15–21–13–25; III unusually short, without distinct pit. Mandible with 6–8 teeth.

Thorax: Color pattern as in *notata;* scutellum with 5–6 bristles.

Legs: Color pattern as in *notata*, but much less intense; hind femur dark nearly to base, but with faint intensity; tarsomeres IV and V pale; V with ventral batonnets on all legs, including the hind pair; claws as in *notata;* hind leg with lengths from femur to V as 86–83–43–22–6–5–15; TR 2.0; hind tibial comb with 9–11 spines.

Wing (fig. 76*a*): Color pattern as in *notata;* CR 0.72; 1RC to 2RC lengths as 8:25; r-m to stem M lengths as 9:29. Halter with pale stem, knob brown, but distal third whitish.

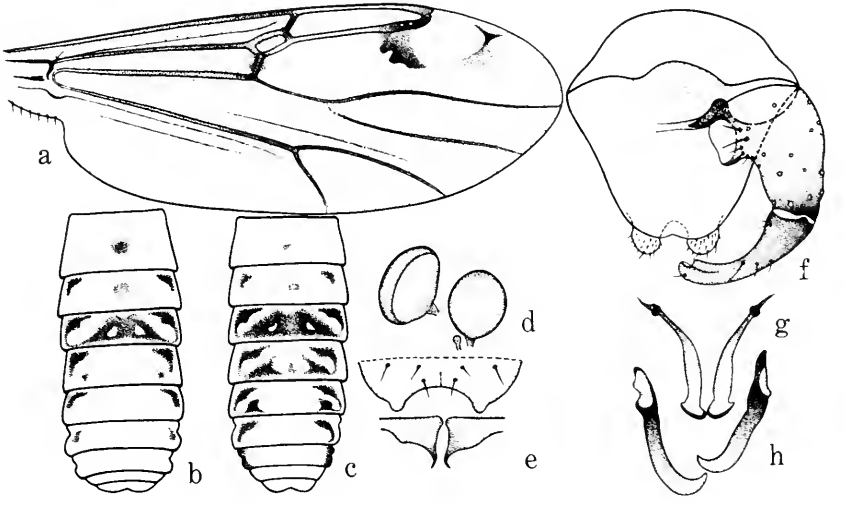


FIGURE 76.—*Stilobezzia spinitarsis*, new species (*a–b*, *d–e*, ♀; *c*, *f–h*, ♂). *a*, wing; *b*, II to last abdominal terga, ♀; *c*, same, ♂; *d*, spermathecae; *e*, ♀ genitalia; *f–h*, ♂ genitalia.

Abdomen: Dorsal color pattern (fig. 76*b*) as in *notata*, but middle spots on IV small. Spermathecae (fig. 76*d*) subspherical, faintly sclerotized, with short slender necks, slightly unequal, measuring 0.066 mm by 0.049 mm and 0.053 mm by 0.049 mm. Genital sclerotization as in figure 76*e*.

MALE.—Length of wing 1.27 (1.26–1.28, n=4) mm.

Similar to the female with the usual sexual differences; mesal spot on tergum II faint (fig. 76*c*). Genitalia (fig. *f–h*) of *festiva* type, with short rounded tergum IX and short basistyle; basidorsal process narrow at base; dististyle as long as basistyle, narrowed in midportion; aedeagal sclerites slender at base, moderately stout distally with caplike tip; paramere as long as aedeagal sclerite, broad and well-sclerotized distally, curving gradually to distomesal point.

DISTRIBUTION.—Malaya.

TYPES.—Holotype female, allotype male, Kuala Lumpur, Selangor, Malaya, Aug.-Sept. 1958, R. Traub, light trap (USNM 69473). Paratypes, 2 males, 1 female, same data.

ADDITIONAL SPECIMENS.—MALAYA: Selangor, Kuala Lumpur, Aug. 1958, R. Traub, 2 males (alcohol).

DISCUSSION.—This species is the only Oriental species in the Notata Group which we have examined that possesses batonnets on the fifth tarsomere of the hind leg. In two other respects it is also not typical of this group—the short third palpal segment and the uniform infuscation of the hind femur. Scutal, wing, and abdominal patterns

are typical of *notata*, but the male genitalia are more like those of *festiva*.

37. *Stilobezzia* (*Stilobezzia*) *subfestiva* Das Gupta and Wirth, new species

FIGURES 7, 77

FEMALE.—Length of wing 1.41 (1.33–1.50, n=9) mm; breadth 0.55 mm.

Head: Vertex with 13 hairs. Antenna (fig. 7) with lengths of III–XV as 13–8–8–8–8–8–8–9–19–20–21–22–35; AR 1.67, X slightly longer than IX. Palpal segments as 5–15–21–13–20; III without sensory pit. Mandible with 5–8 teeth (av. 7.04, n=24).

Thorax: Color pattern of the *festiva* type, scutal vittae pale brown, the brown posterior crossband paler. Scutellum with 4–6 bristles.

Legs: Color pattern typical of Notata Group, but markings paler and less extensive; trochanters and tarsomeres IV and V pale, subapical pale ring on hind femur relatively broad; tarsomere V, batonnets, and claws as in *festiva*. Hind leg with lengths from femur to V as 89–85–43–20–7–5–13; TR 2.1; hind tibial comb with 7–10 spines (av. 8.8, n=17).

Wing (fig. 77*a*): Color pattern similar to that of *festiva*, but fainter, pale area over 2RC extends posteriorly only slightly over stem M into cell M_2. CR 0.73; 1RC to 2RC lengths as 7:30; r-m to stem M lengths as 5:16; vein M_2 narrowly interrupted at base. Halter with distal third of knob whitish, remainder of knob brown, stem pale.

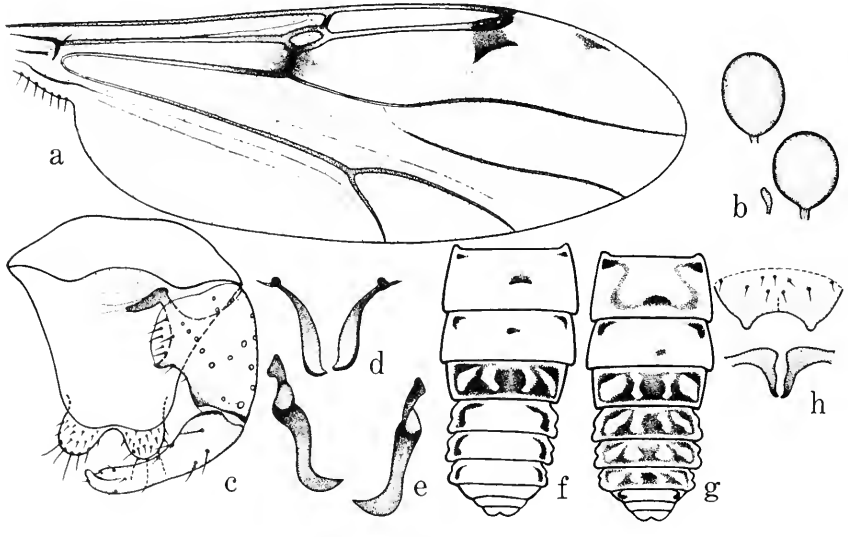


FIGURE 77.—*Stilobezzia subfestiva*, new species (*a–b*, *f*, *h*, ♀; *c–e*, *g*, ♂). *a*, wing; *b*, spermathecae; *c–e*, ♂ genitalia; *f*, II to last abdominal terga, ♀; *g*, same, ♂; *h*, ♀ genitalia.

Abdomen: Dorsal color pattern (fig. 77*f*) of *festiva* type, 3 dark spots each on II and III; mesal cluster of coarse dark setae on II–IV, I with 8–10 hairs on each side. Spermathecae (fig. 77*b*) weakly sclerotized, subspherical with short slender necks, measuring 0.060 mm by 0.052 mm and 0.055 mm by 0.049 mm. Genital sclerotization as in figure 77*h*.

MALE.—Length of wing 1.38 (1.33–1.45, n=8) mm.

Similar to the female with the usual sexual differences; abdominal color pattern (fig. 77*g*) more extensive, complete to margins of terga from IV to VIII. Genitalia (fig. 77*c–e*) with tergum IX short and rounded; basistyle short and stout distad of mesal expansion, basidorsal process slender mesally; dististyle as long as basistyle, moderately stout without middle constriction; aedeagal sclerites subequal in length to parameres, slender basally; parameres moderately stout and heavily sclerotized to tips, more or less sinuate in midportion.

DISTRIBUTION.—Thailand; Malaya.

TYPES.—Holotype male, allotype female, Chiang Mai, Thailand, Apr.–May 1958, V. Notananda, light trap (USNM 69474). Paratypes 4 males, 11 females, all taken in light traps. MALAYA: Pahang, Kuala Singgora, 17 July 1958, R. H. Wharton, 1 female. Perlis, Kangar Rest House, 12 July 1958, R. Traub, 1 female. THAILAND: Chiang Mai, same data as types, 2 males, 9 females. Nonthaburi, 20 Dec. 1958, Manop R., 1 male.

ADDITIONAL SPECIMENS.—6 males, 5 females, THAILAND: Chiang Mai, Minburi, and Nonthaburi Provinces, all taken by Manop R. in light traps, in alcohol.

DISCUSSION.—This species resembles *festiva* Kieffer in its thoracic, wing, abdominal patterns, and in most aspects of the male genitalia, but differs in its paler color, the whitish ends of the halter knobs, and its larger size. Its known distribution includes only western Thailand and northern Malaya.

38. *Stilobezzia* (*Stilobezzia*) *supernotata* Das Gupta and Wirth, new species

FIGURES 2, 78

Stilobezzia notata (Meijere).—Macfie, 1934b, Tijdschr. Ent., vol. 77, p. 221 [male, female; Sumatra; fig. male genitalia].

FEMALE.—Length of wing 1.67 (1.51–1.86, n=10) mm; breadth 0.57 mm.

Head: Vertex with 14 hairs. Antenna (fig. 2) with lengths of III–XV as 18–7–7–7–7–7–7–10–22–24–25–27–47; AR 2.07; X longer than IX. Palpal segments as 5–17–26–16–23; III with small indistinct pit at distal fourth. Mandible with 6–9 teeth (av. 7.1, n=24).

Thorax: Color pattern as in *notata*, except that the mesal vittae are often darker brown. Scutellum with 6–7 bristles.

Legs: Color pattern as in *notata*, but hind femur is more broadly and intensely dark brown; claws, batonnets, and ventral spines as in *notata;* hind leg with lengths from femur to V as 117–106–51–24–8–6–17; TR 2.1; hind tibial comb with 11–14 spines (av. 11.8, n=12).

Wing (fig. 78*a*): Color pattern as in *notata;* CR 0.73; 1RC to 2RC lengths as 4:15; r-m to stem M lengths as 6:17; vein M_2 with relatively broad proximal interruption. Halter as in *notata*, with pale stem and intensely dark brown knob.

Abdomen: Dorsal color pattern (fig. 78*d*) as in *notata*, but on IV the lateral pale spots are large and the mesal pair is reduced to small pale dots. Spermathecae (fig. 78*b*) subspherical, with short

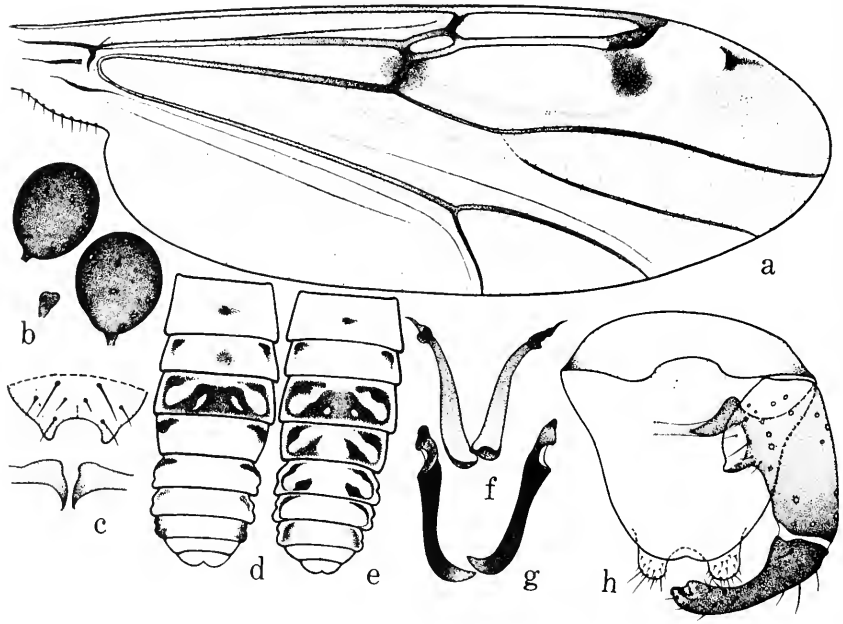


FIGURE 78.—*Stilobezzia supernotata*, new species (*a–d*, ♀; *e–h*, ♂). *a*, wing; *b*, spermathecae; *c*, ♀ genitalia; *d*, II to last abdominal terga, ♀; *e*, same, ♂; *f–h*, ♂ genitalia.

slender neck, weakly to strongly sclerotized, slightly unequal, measuring 0.066 mm by 0.058 mm and 0.062 mm by 0.055 mm. Genital sclerotization as in figure 78*c*.

MALE.—Length of wing 1.42 (1.34–1.58, n=8) mm.

Similar to the female with the usual sexual differences; abdomen (fig. 78*e*) dorsally with dark color pattern more extensive than in female, mesal dark spot present on II, absent on III, lateral spots

absent on II, present on III. Genitalia (fig. 78*f–h*) similar to those of *notata*, but tergum IX not as elongate; basistyle shorter beyond the mesal swelling; dististyle elongate, strongly sclerotized, slightly narrower in midportion with blunt tip; aedeagal sclerites more slender at base; paramere as stout as distal portion of aedeagal sclerite, sinuate and heavily sclerotized except as bent portion of the relatively stout, pointed tip.

Distribution.—Malaya; Indonesia, North Borneo, Philippines.

Types.—Holotype male, Kuala Lumpur, Selangor, Malaya, Sept. 1958, R. Traub, light trap (USNM 69475). Allotype female, same data but Sept. 1959. Paratypes, 16 males, 18 females, all taken in light traps. INDONESIA: West Java, Djakarta, Mar.–June 1958, D. M. Rees, 1 male, 2 females. MALAYA: Perlis, Kangar Rest House, 12 July 1958, R. Traub, 1 male. Selangor, Kepong Forest Res., Mar.–Apr. 1960, H. E. McClure, 1 female. Selangor, Kuala Lumpur, same data as types, but also dates Mar.–Aug. 1958, 1959, 10 males, 9 females. Rantau Panjang, Aug. 1960, H. E. McClure, 1 female. NORTH BORNEO: Tawau, Feb. 1960, D. H. Colless, 1 male, 5 females. PHILIPPINES: Luzon, Pampanga Prov., Angeles, Clark Air Base, 17 Sept. 1957, I. Balatbat, 3 males, 1 female.

Additional specimens.—MALAYA: Pahang, Kuala Singgora, 17 July 1955, R. H. Wharton, light trap, 3 females. Pahang, Pahang Tua, Pekan, 6 Sept. 1961, R. H. Wharton, light trap, 1 female. Selangor, same data as types, 10 males, 54 females (alcohol); 3 males, 4 females (pinned). PHILIPPINES: Luzon, Luna, Mt. Prov., 19 Sept. 1960, S. Fontanilla, 1 female. Luzon, Manila, R. Brown, 1 female (pinned). Mindanao, Agusan, San Francisco, 17 Nov. 1959, L. W. Quate, 2 females (pinned).

Discussion.—This species is closely related to *notata*, and only male individuals can be distinguished from that species with certainty by using the stouter, sinuate, more heavily sclerotized paramere, shorter, more rounded tergum IX, shorter basistyle and stouter, more basally constricted dististyle as distinctions. Typically females of *supernotata* can be distinguished by the extreme reduction of the mesal pale spots on tergum IV, slightly darker lateral borders of the scutal vittae, the more saturate dark markings on the hind femur, and the higher frequency of the lightly sclerotized spermathecae, which also have shorter, slenderer necks.

From his figure of the male genitalia, and assuming that his reference to the abdominal color pattern described by Johannsen for *perspicua* was of a *notata* type pattern, Macfie's (1934) description of *notata* from Sumatra applies to *supernotata*.

Pictipes Group

Diagnostic characters (figs. 9, 79).—Related to the Notata Group, but differs markedly in its unmarked wing and punctate legs. Medium to large species, with showy ornamentation of legs, thorax, and abdomen. Eyes moderately separated. Female antennae with III–X pale except for dark apices which are strongly constricted, XI–XIII with narrow whitish bases, XI–XV otherwise dark. Palpus dark except V pale; III short and bristly, constricted on distal fourth, without sensory pit, a few long sensilla scattered distally. Mandible with 7–8 strong teeth, 3–4 outer serrations. Thorax produced anterodorsally in a small blunt tubercle; scutellum with 4 large bristles. Legs pale, not unusually bristly, femora with narrow subapical dark rings, tibiae with prominent dark speckling; female with moderately long claw and short claw appearing as basal tooth, male claws subequal; tarsomere III slightly longer than IV, V with subbasal pair of stout batonnets on fore and mid legs, unarmed on hind leg. Wing with 1RC well formed, 2RC short and broad, vein R_{4+5} thickened usually from r-m crossvein onward, and with marked expansion where it turns distally to meet the costa; both R_1 and extreme tip of R_{4+5} faint at costa. Abdomen pale with conspicuous dorsal color pattern; terga moderately setose and with conspicuous clumps of long stout setae centrally at least on II to IV. Two sclerotized functional spermathecae plus a rudimentary third, the second much reduced in size. Male genitalia with tergum IX short and rounded distally, sternum IX ribbonlike; basistyle short, mesal margin midway with a conspicuous platelike lobe, basidorsal roots long, nearly meeting mesad; dististyle long, curved and slender distally; aedeagal sclerites slender, rodlike, or curving bladelike, caudomedian tips not modified; parameres stout, bases knobbed and bent, curving distally to bent, bluntly pointed tips.

Species included: *Stilobezzia pictipes* Kieffer, Australia; *paucipictipes*, new species, Indonesia, Philippines, and Taiwan.

39. *Stilobezzia* (*Stilobezzia*) *paucipictipes* Das Gupta and Wirth, new species

Figures 9, 79

Female.—Length of wing 1.11 mm; breadth 0.40 mm.

Head: Brownish, palpal segment V and bases of antennomeres III–XIII creamy; vertex (fig. 79*a*) with 14 hairs. Antenna (fig. 9) relatively short, III–XV lengths as 13–6–6–6–6–6–6–7–14–15–16–17–20; AR 1.39; XV without apical seta. Palpal segments (fig. 79*g*) as 4–13–17–9–13; III scarcely swollen. Mandible with 7–8 stout teeth.

Thorax: Pale brown, irregular darker brown markings on scutum; lower pleuron and postscutellum also dark brown.

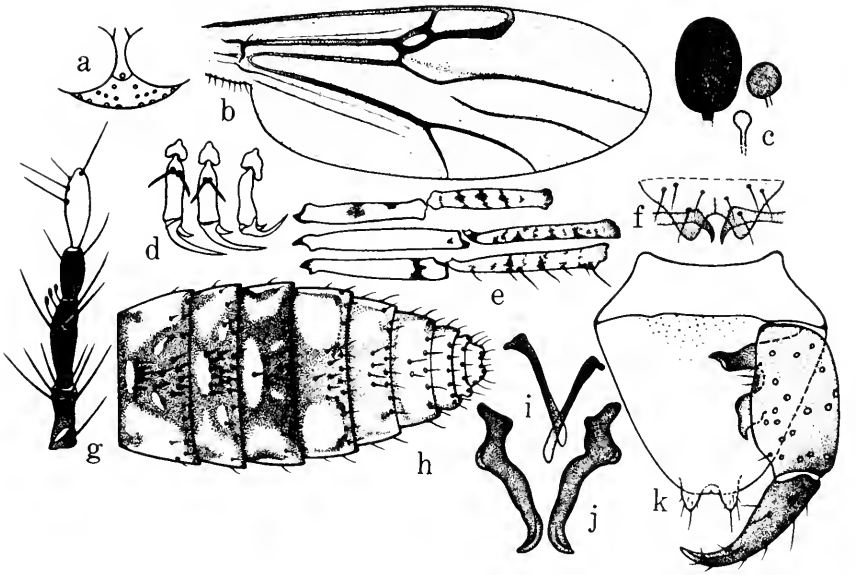


FIGURE 79.—*Stilobezzia paucipictipes*, new species (*a–h*, ♀; *i–k*, ♂). *a*, frontovertex; *b*, wing; *c*, spermathecae; *d*, last 2 tarsomeres and claws; *e*, femora-tibiae; *f*, ♀ genitalia; *g*, palpus; *h*, II to last abdominal terga; *i–k*, ♂ genitalia.

Legs (fig. 79*e*): Yellowish white, coxae and trochanters brownish; femora with narrow subapical dark rings, usually faint on mid leg and often on fore leg; tibiae with dark speckling centering around seta bases; stouter bristlelike hairs at apices of femora and along extensor sides of all tibiae, especially longer on hind tibia; stout black ventral spines on tarsomeres I–III as: fore leg 0–0–1, 0–0–1, 0–0–2; claws and batonnets as in figure 79*d*; mid leg 1–0–2, 0–0–2, 0–0–2; hind leg 0–0–2, 0–0–2, 0–0–2. Hind leg with lengths from femur to V as 60–63–30–15–6–4–11; TR 2.0; hind tibial comb with 7–8 spines.

Wing (fig. 79*b*): Faintly brownish hyaline, anterior veins yellowish; CR 0.64; r-m to stem M lengths as 1:3. Halter pale.

Abdomen: Yellowish brown, terga with variable dark brown patches as in figure 79*h*; tergum I with 7 bristles on each side; II–VII each with central cluster of long blackish bristles as well as row of shorter setae on posterior margin, distal terga with posterior row only. Spermathecae (fig. 79*c*) unequal, the larger heavily sclerotized, oval with short slender neck; the smaller poorly sclerotized and subspherical; measuring 0.070 mm by 0.049 mm and 0.028 mm by 0.027 mm. Genital sclerotization as in figure 79*f*.

MALE.—Length of wing 1.03 mm.

Similar to the female with the usual sexual differences; antennal plume dark brown. Genitalia (fig. 79*i–k*) with aedeagal sclerites long and slender, in some mounts appearing slightly expanded toward tip, in some with short slender extension from the basal knoblike swelling; paramere with basal section stout and knoblike, abruptly bent mesad at proximal fourth, then gradually curved ventrad and laterad and ending in a blunt distal point.

Distribution.—Indonesia; Philippines, Taiwan.

Types.—Holotype male, allotype female, Bogor, West Java, Indonesia, 28 Nov. 1959, R. T. Adiwinata, light trap (USNM 69476). Paratypes, 7 males, 8 females, all taken in light traps. INDONESIA: Java, same data as type, 1 male. Java, Djakarta, May–June 1958, D. M. Rees, 1 female. PHILIPPINES: Luzon Pampanga Prov., Clark Air Base, Sept.–Oct. 1957, I. Balatbat, 6 males, 6 females. TAIWAN: Kaohsiung, Chao-chow, Aug. 1959, S. M. K. Hu, 1 female.

Additional specimens.—PHILIPPINES: Luzon, Laguna Prov., Los Banos, 20 Sept. 1959, L. W. Quate, light, 1 female (pinned).

Discussion.—*Stilobezzia pictipes* Kieffer from Australia is closely related with similar features of structure and coloration, but it is a much larger species, the femora all bear intense subapical dark rings, and in the male genitalia, the aedeagal sclerites are more arcuate, and the parameres are shaped differently with the basal knob directed laterally and bearing an angular platelike anterior process and the distal tip abruptly bent; also the mesal lobe of the basistyle bears a blackish anterior flange turned ventrad.

Poikiloptera Group

Diagnostic characters (figs. 11–12, 80–81).—Eyes narrowly separated. Antennomeres IV–X with bases broadly pale, distal constriction present; XV with terminal seta. Palpi dark brown, tip of V usually paler, III with round sensory pit. Thorax dull, with pattern of whitish pruinose patches and sometimes with pale or brown speckling; scutum projecting anterodorsally with distinct tubercle. Legs moderately slender, hind tibia with strong extensor bristles; hind basitarsus with strong basal spine, I–III with strong black ventral spines; IV bilobed, each lobe with short stout spine; V without ventral batonnets; claw long and slender with long basal tooth. Wing without macrotrichia; 1RC poorly formed, sometimes obsolete; distinctive pattern of dark spots present, including 3 larger ones, over 1RC, near tip of R_{4+5}, and subapically in cell R_5; small linear spots also present subapically on veins M_1, M_2, M_{3+4}, and Cu_1. Two ovoid functional spermathecae plus a linear rudimentary one. Female genital sclerotization with narrow median cleft on sternum IX, internal

lamellae stout. Male genitalia with tergum IX usually rather elongate; basistyle usually elongate with poorly developed basal processes; dististyle long and slender, not strongly curved; aedeagal sclerites varying specifically, aedeagus with well-developed dorsal submedian lobes; parameres with well-developed basal arm; main body columnar with distal tip modified.

Species included: *Stilobezzia inermipes* Kieffer, India to Micronesia and Ryukyu Islands; *poikiloptera* Ingram and Macfie, West Africa; *punctivenosa*, new species, India to the Philippines; *quatei*, new species, Viet Nam and Thailand.

Key to the Oriental Species of the Poikiloptera Group

1. Large size species, with 7 dark spots on wing; veins M_1, M_2, andM_{3+4} with dark spots on tips only 2

   Medium-size species; 11 dark spots on wing; veins M_1, M_2, and M_{3+4} with dark spots on midportions as well as at tips . . **punctivenosa,** new species

2. First radial cell with distinct lumen; distal sector of vein R_1 in a vertical line with r-m crossvein; dark spots at tips of veins M_1, M_2, and M_{3+4} larger; abdominal tergum I with lateral cluster of 35–40 hairs in female; male genitalia with sternum IX not convex caudad, dististyle gently incurved, swollen at base; narrow band between mediangular processes of basistyle intensely sclerotized; parameres each with stout, short basal apodeme, main body stouter caudad, caudal tip obliquely truncated and bearing a stout, heavily sclerotized lobe directed ventrad.

   quatei, new species

   First radial cell nodular; distal sector of vein R_1 quite oblique, the r-m crossvein nearly vertical; dark spots on tips of veins M_1, M_2, and M_{3+4} smaller; abdominal tergum I with lateral cluster of 20–25 hairs in female; male genitalia with sternum IX convex caudad; dististyle strongly incurved from slender base; narrow band between mediangular processes of basistyle membranous; parameres each with long, slender basal apodeme, main body almost straight with slender tip slightly flexed ventrad.

   inermipes Kieffer

40. *Stilobezzia* (*Stilobezzia*) *inermipes* Kieffer

FIGURES 11, 80

Stilobezzia inermipes Kieffer, 1912, Spolia Zeyl., vol. 8, 8 [female; Ceylon.]

Stilobezzia lineata Kieffer, 1913, Rec. Indian Mus., vol. 9, p. 185 [male, female; Bihar Prov., India]; 1918, Ann. Mus. Nat. Hungarici, vol. 16, p. 102 [Singapore].—Johannsen, 1931, Arch. Hydrobiol. Suppl. vol. 9, p. 431 [in key].—Edwards, 1932, Rec. Indian Mus., vol. 34, p. 179 [Orissa Prov., India; notes on scutum]. NEW SYNONYMY.

Stilobezzia biroi Kieffer, 1918, Ann. Mus. Nat. Hungarici, vol. 16, p. 102 [female; Singapore].—Johannsen, 1931, Arch. Hydrobiol. Suppl., vol. 9, p. 430 [in key]. NEW SYNONYMY.

Stilobezzia aberrans Johannsen, 1931, Arch. Hydrobiol. Suppl., vol. 9, p. 431 [male, Java].—Macfie, 1934b, Tijdschr. Ent., vol. 77, p. 222 [male; Sumatra; fig. genitalia]. NEW SYNONYMY.

Stilobezzia esakiana Tokunaga, 1940, Tenthredo, vol. 3, p. 183 [male; Ponape].—Wirth, 1953, Proc. U.S. Nat. Mus., vol. 103, p. 61 [subg. *Eukraiohelea* (*sic*)].—Tokunaga and Murachi, 1959, Ins. Micronesia, vol. 12, p. 364 [male, female redescr.; Marianna, Palau, Yap, and Ponape Isl.]—Tokunaga, 1962, Pacific Ins., vol. 4, p. 208 [male, female; Ryukyu Isl.; fig. male genitalia; syn.: *inusitata* Johannsen]. NEW SYNONYMY.

Eukraiohelea inusitata Johannsen, 1946, Bull. B. P. Bishop Mus., vol. 189, p. 190 [female; Guam; fig. wing].

FEMALE.—Length of wing 1.68 (1.54–1.82, n=23) mm; breadth 0.62 (0.51–0.68, n=23) mm.

Head: Brownish; palpi dark brown, narrow tip of V paler; antennae brown except all but narrow apices of VI–X yellowish. Eyes narrowly separated (fig. 80*a*); vertex with 16 hairs. Antenna (fig. 11) with III–XV lengths as 15–10–10–12–13–14–15–13–21–23–23–24–35; AR 1.24; XV with apical seta. Palpal segments as 8–21–26–16–23; III slightly stouter, with distinct small subapical pit; segments with coarse, semiappressed bristly hairs. Mandible with 7 teeth, outer margin without fine serrations.

Thorax: Dark brown with variable pattern of snow-white and pale yellow to yellowish brown speckling, typically as figured (fig. 80*b*); sides yellowish brown but intercepted by chocolate colored areas extending transversely above coxae and along middle of pleura; scutum dorsally with ground color dark brown intercepted by 4 small, snow-white dots close to front margin, those on anterolateral corner sometimes pale yellow to yellowish brown; snow-white patches usually extensive on scutum posteriorly; scutellum mainly pale yellow to yellowish brown with brownish streak in midportion, front margin, and ends; postscutellum dark brown; dark brown dots sometimes present at bases of scutal setae; scutellum with 6 bristles, 4 strong and 2 weak. Front margin of scutum (fig. 80*c*) highly convex with distinct tubercle projecting dorsomesad.

Legs (fig. 80*e*): Yellowish; coxae, trochanters, and tarsomere IV brownish; femora with brown ring near bases and broader band on midportion, incomplete on mid and hind legs; distal area above on fore and mid legs brownish; tibiae with faint subbasal and dark apical brown rings. Legs with elongate, slender, scattered bristly hairs; hind tibia with extensor row of 12 long bristles arising from distinct small tubercles, strongest in middle of series; claws (fig. 80*d*) nearly as long as V, basal tooth a third to half as long as claw; strong ventral spines on I–III as: fore leg 1–(1–3)–1, 0–0–(1–2), 0–0–(1–2); mid leg 1–(2–3)–(1–3), 0–0–(1–2), 0–0–(1–2); hind leg 1–0–1, 0–0–1, 0–0–(0–2). Hind leg with femur by V lengths as 102–114–62–31–12–9–20; TR 2.0; hind tibial comb with 7 spines.

Wing (fig. 80*h*): Faintly brownish, with 7 dark brown spots as figured; 1 over R1, 1RC, and r-m, 1 just behind tip of R_{4+5}, 1 subapical

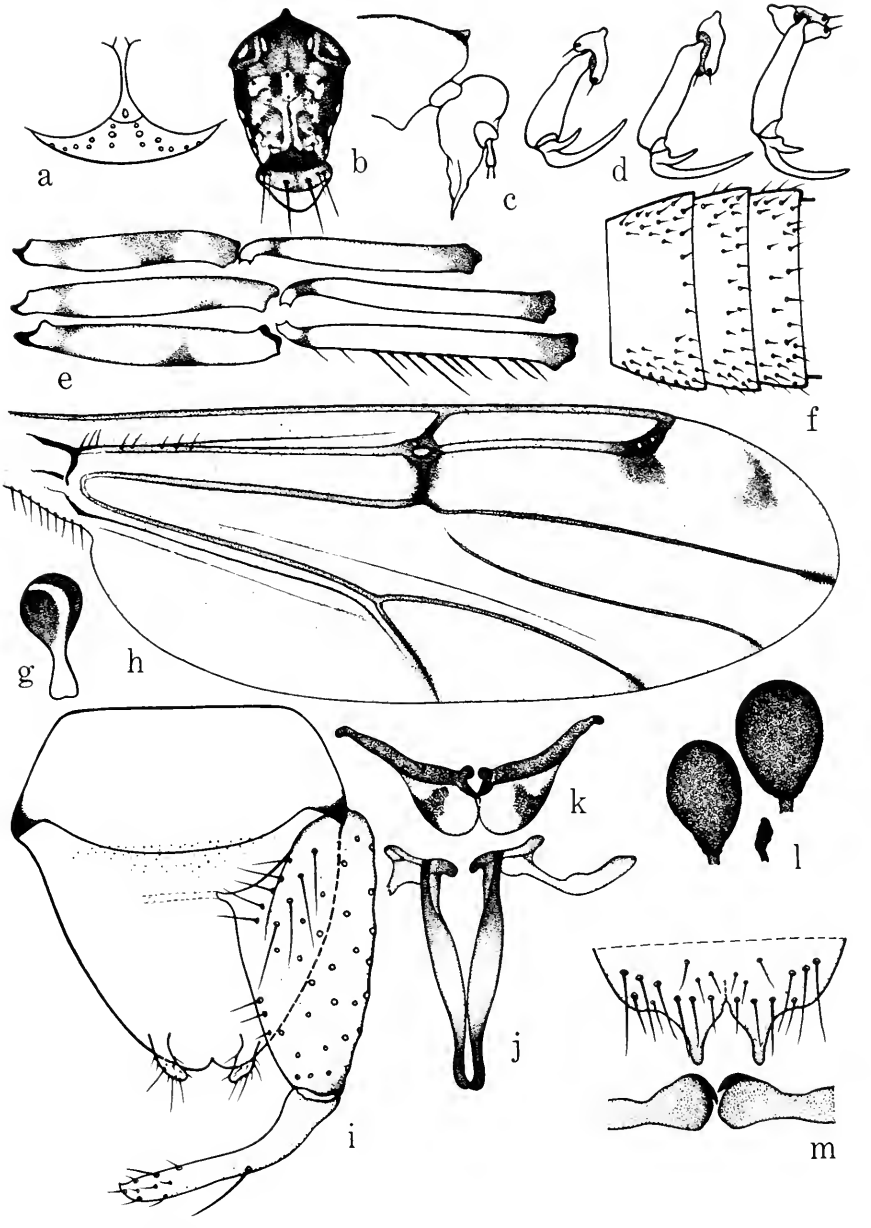


FIGURE 80.—*Stilobezzia inermipes* Kieffer (*a–h*, *l–m*, ♀; *i–k*, ♂). *a*, frontovertex; *b*, thorax; *c*, head to anterior half of thorax (lateral outline); *d*, last 2 tarsomeres and claws; *e*, femoratibiae; *f*, abdominal terga II–IV; *g*, halter; *h*, wing; *i–k*, ♂ genitalia; *l*, spermathecae; *m*, ♀ genitalia.

at wing margin in cell R_5, and 4 linear, fainter than the other 3, along veins M_1, M_2, M_{3+4}, and Cu_1 at apices; all veins yellow except the portions covered by the dark spots. CR 0.76; 1RC highly atrophied, appearing either as a nodule with a median dark mark standing for the cell space, or, often, with a very small lumen, but never indicating total fusion of veins in this area; r-m vertical; R_1 distinctly oblique; r-m to stem M lengths as 10:9; stem M thus very short; macrotrichia absent; 2–4 setae along proximal portion of radius; alula fringed. Halter (fig. 80*g*) with pale stem, knob dark brown except linear pale extension from stem arching across distal third of knob.

Abdomen: Elongate, relatively flattened above, not bent ventrally; without distinct color pattern, pruinose brownish, variable with base paler, pale longitudinal line down the middle to entirely pale, or with narrow apical crossbands on terga; setation (fig. 80*f*) weak, I with cluster of 20–25 hairs on each side; posterior terga with scattered setae, denser laterally. Spermathecae (fig. 80*l*) ovoid, highly sclerotized except neck portion weaker, surface smooth; slightly unequal, measuring 0.067 mm by 0.052 mm and 0.056 mm by 0.038 mm. Genital sclerotization (fig. 80*m*) with lobes of sternum IX elongate, pointed, the emargination filled with a median pair of small detached pubescent plates; internal lamellae lightly sclerotized.

Male.—Length of wing 1.63 (1.52–1.78, n=15) mm.

Similar to the female with the usual sexual differences; antennal plume dark brown throughout; tarsomeres IV and V without spines or batonnets; I–III with strong ventral spines as: fore leg 1–(2–3)–1, 0–0–1, 0–0–1; mid leg 1–2–2, 0–0–2, 0–0–2; hind leg 1–0–1, 0–0–1, 0–0–1; wing infuscation at tip of vein Cu_1 stronger than in female. Genitalia (fig. 80*i–k*) without caudomedian excavation on sternum IX, the ventral membrane spiculate; tergum IX elongate and rounded caudad with faint caudomedian cleft; basistyle elongate without mesal expansion at base, mediangular process not developed; dististyle long and slender, slightly bent toward base, tip slightly pointed; aedeagal sclerites nearly straight, slender, with bilobed caudomesal tips meeting on midline; parameres each with slender lateral arm at base, main body long, moderately slender, nearly straight, with slender tip slightly flexed ventrad.

Distribution.—India and Ceylon east and north to Japan, Java, and Micronesia (Guam and Palau).

Material examined.—233 specimens.

GUAM: Agana (Usinger), holotype of *inusitata* (Johannsen).
INDONESIA: Djakarta, Java (Rees).
JAPAN: Kyoto, Midoro Pond (Arnaud).
LAOS: Vientiane (Quate).
MALAYA: Negri Sembilan, Tampin (Colless, Wharton); Negri Sembilan, Telok Pelandok, Pt. Dickson (Traub); Pahang, Kuala Singgora (Wharton);

Pahang, Kuantan, Gudan Rasan (Traub); Pahang, Kuantan, Telok Sisek (Wharton); Selangor, Kepong Forest Reserve (McClure); Selangor, Kuala Lumpur (Traub, Hubert); Selangor, Subang Forest Reserve (McClure); Trengganu, Dungun, Bukit Besi (Traub).

NORTH BORNEO: Labuan Island (Colless); Tambunan (Colless).

PHILIPPINES: Luzon, Los Banos, Laguna (Quate); Luzon, Pampanga Prov. Angeles, Clark Air Base (Balatbat).

RYUKYU ISLANDS: Okinawa, Chizuka (Bohart and Harnage); Okinawa, Kin (Slater).

THAILAND: Bangkok, Huaykwamg, and Thonglo Dists. (Scanlon); Chiang Mai (Notananda, Scanlon); Cholburi, Bangphra (Scanlon); Loei (Dan Sai, Meung, and Thai Li Dists.) (Manop R.); Khon Kaen, Ban Pai and Chum Phae Dists. (Manop R.); Minburi (Manop R.); Nakhon Prathom (Manop); Nong Khai (Manop R.); Nonthaburi (Manop R.); Pangmakampon, 450 meters (Gressitt); Samuthprakan (Manop R.); Udonthani, Ampur Muang (Scanlon), Meung Dist. (Manop R.).

VIET NAM: Dalat, 37 km SE., 2600 ft. (Leech), Di Linh, 1200 m (Quate).

WEST PAKISTAN: Peshawar (Barnett).

Discussion.—The synonymy of *inusitata* (Johannsen) was confirmed by examination of the holotype kindly loaned by Cornell University through the courtesy of Dr. L. L. Pechuman. The synonymy of *lineata* Kieffer, *biroi* Kieffer, *aberrans* Johannsen, and *esakiana* Tokunaga is established by the similarity in wing pattern taken from the descriptions of Kieffer and Johannsen, and the excellent redescription and figures of Tokunaga (1962) and Tokunaga and Murachi (1959), as well as the figure of the male genitalia of *aberrans* by Macfie (1934b). Special comments: Kieffer's descriptions of *lineata* and *biroi*, and Johannsen's of *aberrans*, indicate a 1RC small and poorly defined which applies to *inermipes* and not to *quatei*, new species, which otherwise is nearly identical except for the distinctive male parameres. An analysis of females showed about equal numbers from nearly all localities having the 1RC as a nodule or small but complete; none showed a 1RC large enough to be considered *quatei*. Keiffer's distinction of *lineata* and *biroi* on eye separation and abdominal color was discounted by Macfie (1934) in his comparison with *speculae* Macfie, and we regard Kieffer's distinctions to be covered by variation in abdominal color, as noted in our material, and by eye separation, as due to mounting techniques. We have been unable to find any consistent pattern in the variation in the thoracic or abdominal color and pruinosity that could be used to recognize distinct taxa. The size of the 1RC and the structure of the male parameres, on the other hand, appear to be important criteria. Johannsen (1946) misinterpreted a long bristle for the subgenerically diagnostic stout black spine on the fore femur of *inusitata*, which is not an *Eukraiohelea* but is typical *inermipes*; Tokunaga (1962) synonymized it with *esakiana* Tokunaga.

41. *Stilobezzia* (*Stilobezzia*) *punctivenosa* Das Gupta and Wirth, new species

FIGURES 12, 81–83

FEMALE.—Length of wing 1.39 (1.23–1.56, n=20) mm; breadth 0.53 mm.

Head: Eyes nearly contiguous (fig. 81*a*); vertex pale yellow, with 10 hairs. Antenna (fig. 12) with I–III and XI–XV dark brown, IV–X pale yellow with narrow apices brown; III–XV lengths as 13–9–10–11–12–12–12–11–21–24–23–23–33; AR 1.38; XV with terminal seta. Palpal segments (fig. 81*d*) as 6–18–20–14–16; dark brown except tip of V pale yellow; III gradually widening from base to near apex, bearing a shallow sensory pit. Mandible with 5–9 teeth (av. 7.1, n=40), proximal tooth largest.

Thorax (fig. 81*b*): Scutum pruinose yellowish brown, speckled with dark brown in 3 longitudinal rows of spots; projecting anterodorsally

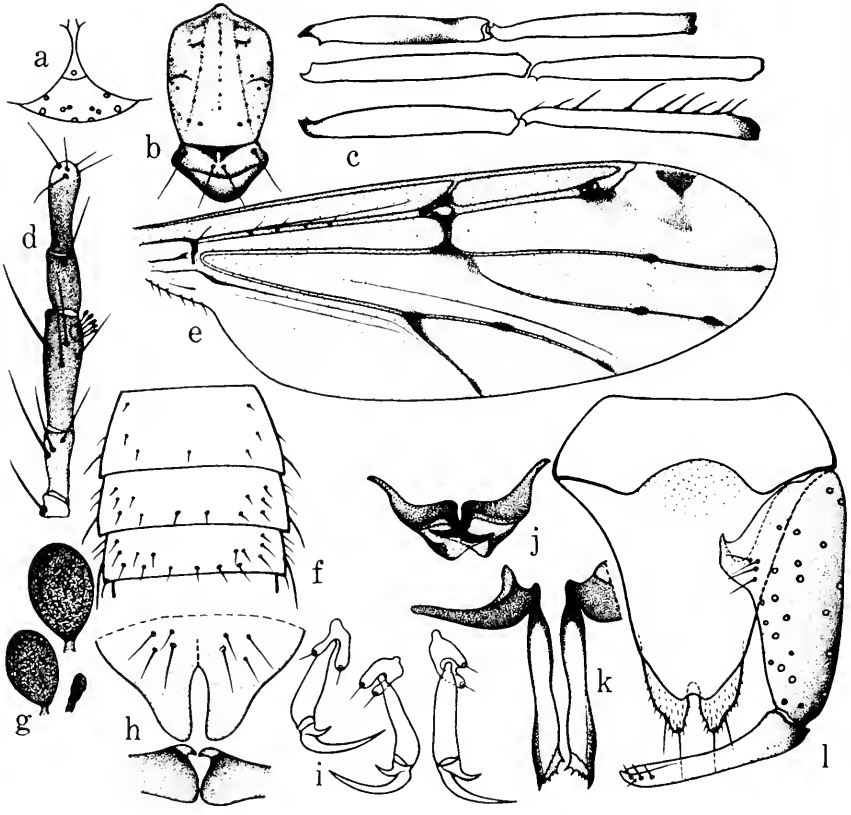


FIGURE 81.—*Stilobezzia punctivenosa*, new species (*a–i*, ♀; *j–l*, ♂). *a*, frontovertex; *b*, thorax; *c*, femora-tibiae; *d*, palpus; *e*, wing; *f*, abdominal terga II–IV; *g*, spermathecae; *h*, ♀ genitalia; *i*, last 2 tarsomeres and claws; *j–l*, ♂ genitalia.

to a distinct tubercle. Scutellum yellowish brown, darker mesad in front and on extreme lateral margins; with 4 large bristles, usually also with 2–3 smaller hairs.

Legs (fig. 81*c*): Yellowish; coxae, trochanters, extreme apices of tibiae, and tarsomere V brownish; fore femur with faint posterodorsal infuscation broadly on midportion; claws (fig. 81*i*) long and slender, as long as V, basal tooth half as long as claw; I–III with strong ventral spines as: fore leg 1–2–1, 0–0–1, 0–0–2; mid leg 1–(2–4)–2, 0–0–2, 0–0–2; hind leg 1–0–1, 0–0–1, 0–0–1. Hind leg with femur to V lengths as 88–98–56–28–11–9–17; TR 2.0; hind tibial comb with 6–8 spines.

Wing (fig. 81*e*): Faintly brownish, with 11 small dark brown spots as figured; 1 over 1RC, r–m and stem M; 1 on and just behind the beadlike swelling near tip of R_{4+5}; a fainter hourglass-shaped spot subapically at anterior margin of cell R_5; 4 linear spots just before apices of veins M_1, M_2, M_{3+4}, and Cu_1; 2 linear spots just beyond midlengths of veins M_1 and M_2; 1 at midlength of M_{3+4}; and 1 at the juncture of the mediocubital fork. CR 0.74; 1RC extremely small, cell space sometimes indistinguishable; vein R_1 oblique, arising slightly proximad of the vertical r-m; r-m to stem M lengths as 5:4; macrotrichia absent; 4–5 setae along proximal half of radius. Halter with stem pale, knob dark brown with a pale subapical ring.

Abdomen: Terga brownish without color pattern; setae (fig. 81*f*) sparse, mainly toward the sides; I with cluster of 15–20 setae on each side. Spermathecae (fig. 81*g*) ovoid with short sclerotized necks, slightly unequal, measuring 0.056 mm by 0.042 mm and 0.053 mm by 0.036 mm. Genital sclerotization (fig. 81*h*) with lobes of sternum IX elongate, triangular; internal lamellae also expanded triangularly caudad.

Male.—Length of wing 1.30 (1.13–1.36, n=20) mm.

Similar to the female with the usual sexual differences; antennal plume dark brown throughout. Genitalia (fig. 81*j–l*) with sternum IX moderately broad, with shallow caudomedian excavation, the ventral membrane spiculose a short distance; tergum IX elongate and tapering on distal portion; basistyle elongate, slightly broadened mesally at the short, anteriorly pointed, mediangular process; dististyle slender, nearly straight distad; aedeagal sclerites distinctively bent bisinuously, each with lateral end slender, broadly rounded outer expansion toward midportion, distomesal end slender, with a long curving neck ending in pointed tip, dorsal submedian lobes moderately sclerotized; parameres each with detached basal apodeme broadened at mesal end and narrowed laterally, main body in form of moderately stout straight column slender at base, slightly narrowed subapically, with distal tip slightly broadened, obliquely truncated with fine irregular serrations.

Distribution.—Thailand; Ceylon, India, Malaya, Philippines.

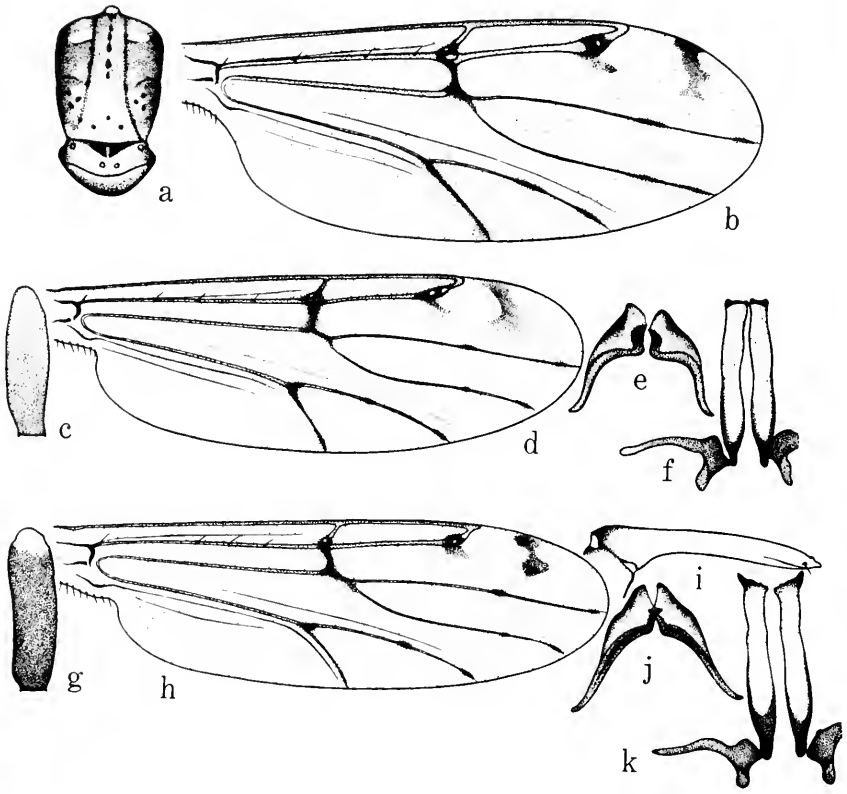


FIGURE 82.—*Stilobezzia punctivenosa*, new species, forms 2–4 (*a–b*, ♀; *c–k*, ♂). *a*, thorax, form 2; *b*, wing, form 2; *c*, palpal segment V, form 3; *d*, wing, form 3; *e–f*, ♂ genitalia, form 3; *g*, palpal segment V, form 4; *h*, wing, form 4; *i–k*, ♂ genitalia, form 4.

TYPES.—Holotype male, allotype female, Bangkok Prov., Thonglo Dist., Thailand, Aug.–Sept. 1962, J. Scanlon, light trap (USNM 69477). Paratypes, 12 males, 8 females, same data as types.

DISCUSSION.—Because of extensive variation in our abundant material (including 58 males and 28 females mounted on slides), we have restricted the type series to the specimens characterized above. Our other material can be only partially correlated by using characters of wing pattern and venation, extent of the pale tip of palpal segment V, and the shapes of the male aedeagal sclerites. We have arranged this material in 7 divisions, which can be characterized with partial success by using the following key (see also measurements in table 2):

1. Vein Cu_1 completely dark, not showing evidence of isolated spots (2 females from Thailand—Udonthani and Loei Provinces) (fig. 82*a-b*) . . Form 2
   Vein Cu_1 bearing 2 dark spots, pale in midportion 2
2. Subapical dark spot in cell R_5 with distal margin not emarginate; palpal segment V vaguely pale at tip 3

Subapical dark spot in cell R_5 distinctly narrowed in middle; palpal segment V distinctly pale at tip 5

3. All wing spots extensive and very dark; male aedeagal sclerities strongly arched and moderately slender, mesal point short and not incurved (20 males, 7 females from Thailand—Loei, Khon Kaen, Nong Khai, Thonburi and Udonthani Provinces) (fig. 83*a–d*) . . . . . Form 5

Not as above 4

4. Vein Cu_2 nearly obliterated near fMCu; palpal segment V extensively pale on distal half; male aedeagal sclerite strongly arched but slender, mesal point short and not incurved (2 males from Thailand—Nong Khai Prov.) (fig. 82*c–f*) . . . . . Form 3

Vein Cu_2 distinct along fMCu; palpal segment V darker than above; male aedeagal sclerite short and broad, slightly arched, mesal point with short neck and distinctly in-turned tip (9 males, 5 females from Thailand—Loei, Nong Khai, and Udonthani Provinces) (fig. 83*i–l*) . . . . . Form 7

5. Vein Cu_2 distinct along fMCu, darkened; 1RC poorly formed and cell space, if any, dark; palpal segment V with only extreme tip pale, sharply so; male dististyle (fig. 82*i*) slender, male aedeagal sclerite slender and nearly straight, mesal neck short, the distal point not incurved (18 males from Thailand—Loei, Bangkok, Ratchaburi, Khon Kaen, and Thonburi Provinces; 2 males from Ceylon—Colombo) (fig. 82*g–k*) . . . . . Form 4

Vein Cu_2 indistinct; 1RC often well formed with clear cell space; palpal segment V pale on distal third; male aedeagal sclerite with long mesal neck . 6

6. Vein M_1 strongly arched caudad between the 2 distal dark spots; 1RC well formed, but the dark spot less conspicuous; male aedeagal sclerities forming a low arch, oriented nearly transversely, midportions broad (type series of *punctivenosa* s. str. from Thailand—Udonthani Province) (fig. 81). Form 1

Vein M_1 almost straight between the 2 distal dark spots; 1RC often indistinct, but the dark spot more conspicuous; male aedeagal sclerites forming a high arched, oriented very obliquely, midportions less strongly swollen (9 males, 12 females from Thailand—Bangkok, Cholburi, Loei, and Thonburi Provinces; 3 males from Ceylon—Colombo) (fig. 83*e–h*) . . . . . Form 6

In addition we have females only from the following additional localities: Form 1, INDIA, Calcutta, 2 females. Form 4, MALAYA, Selangor, Kuala Lumpur, 11 famales. Form 6, MALAYA, Singapore and Kuala Lumpur, 7 females. Form 1 or 6, PHILIPPINES, Mindanao, Pikit, Cotabato Prov., 1 female; THAILAND, Chiang Mai Prov., 1 female.

In alcohol we have 14 males and 59 females, which we have not attempted to sort into forms. These, all taken in light traps, include:

CEYLON: Colombo, Kalutaluwewa, Feb. 1958, Med. Res. Inst., 2 males, 13 females.

MALAYA: Selangor, Kuala Lumpur, July 1958 to Jan. 1959, R. Traub, 20 females.

THAILAND: Ayudhaya, Jan. 1959, Manop. R, 1 female; Bangkok, Pratoomvan, May 1959, Manop, R., 2 males, 8 females; Chiang Mai, Apr.–May 1959, V. Notananda, 1 female; Khon Kaen, Meung Dist., May 1959, Manop R., 2 males, 4 females; Nakhon Prathom, Dec. 1958, Manop R., 1 female; Nakhon Ratchasima, Meung Dist.,

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TABLE 2.—*Measurements of males of forms of S. punctivenosa s. lat. (data in oculometer divisions, 1 div. =0.035 mm; all are averages based on 10 measurements unless otherwise noted)*

Form	Wing length (mm.)	Spines in comb hind tibia	TR hind leg	Height of aedeagal arch	Max. thickness of aedeagal sclerite
1	1. 36 (1. 33–1. 41)	7. 0 (6–8)	2. 04	0. 78	0. 39
3	1. 27 (n=4)	6. 3 (n=3)	1. 88 (n=3)	1. 25 (n=2)	0. 20 (n=3)
4	1. 33 (1. 28–1. 40)	6. 4 (6–7)	1. 86	1. 30	0. 20
5	1. 23 (1. 17–1. 28)	7. 0 (6–8)	1. 87	0. 87	0. 32
6	1. 37 (1. 30–1. 48)	6. 8 (6–8)	2. 08	1. 24	0. 31
7	1. 22 (1. 13–1. 38)	7. 0 (6–8)	1. 79	0. 70	0. 39

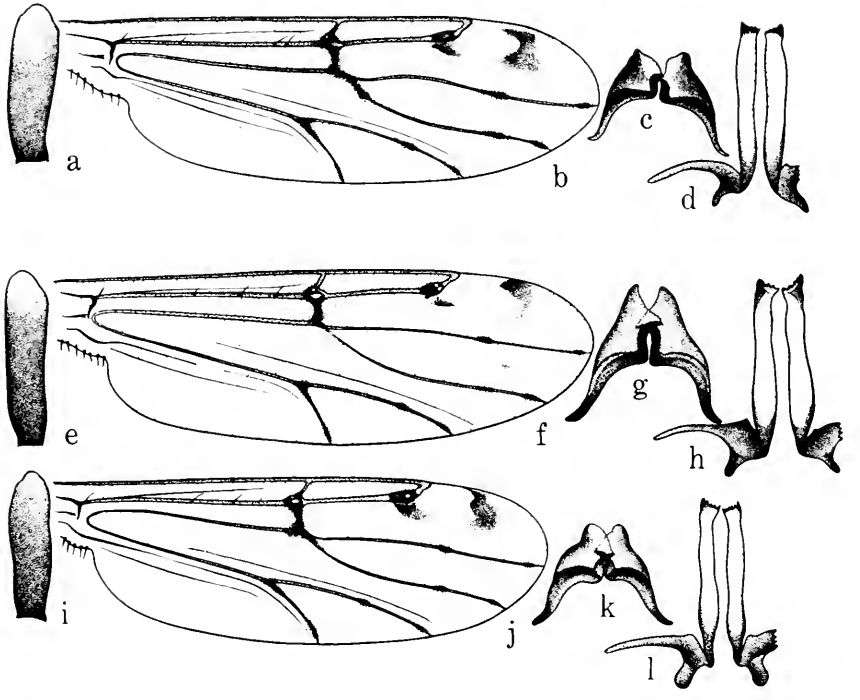

FIGURE 83.—*Stilobezzia punctivenosa*, new species, forms 5–7 (♂). *a–d*, form 5; *e–h*, form 6; *i–l*, form 7; *a*, *e*, *i*, palpal segment V; *b*, *f*, *j*, wing; *c*, *g*, *k*, aedeagus; *d*, *h*, *l*, parameres.

July 1959, Manop R., 2 males, 3 females; Pechaburi, Dec. 1958, Manop R., 1 female; Rachaburi, Banpong, Dec. 1958, Manop R., 1 male; Thonburi, Meung Dist., May 1959, Manop R., 5 males, 7 females.

The African species *poikiloptera* (Ingram and Macfie) is similar in color and general features to *punctivenosa*, but has an additional dark spot on vein Cu_2 at midlength of the anal cell, the wing spots are much more linearly elongate, palpal segment V is nearly entirely pale, and the male parameres are much more elongate, spiculose subapically, with the extreme pointed tips abruptly bent; the basal sclerite of the paramere is not broadly expanded on the mesal portion.

42. *Stilobezzia* (*Stilobezzia*) *quatei* Das Gupta and Wirth, new species

FIGURE 84

FEMALE.—Unknown.

MALE.—Length of wing 1.83 (1.66–1.91, n=6) mm.

Closely resembling *inermipes* Kieffer, with the following differences in the male: Wing pattern as figured (fig. 84*a*), infuscated area around

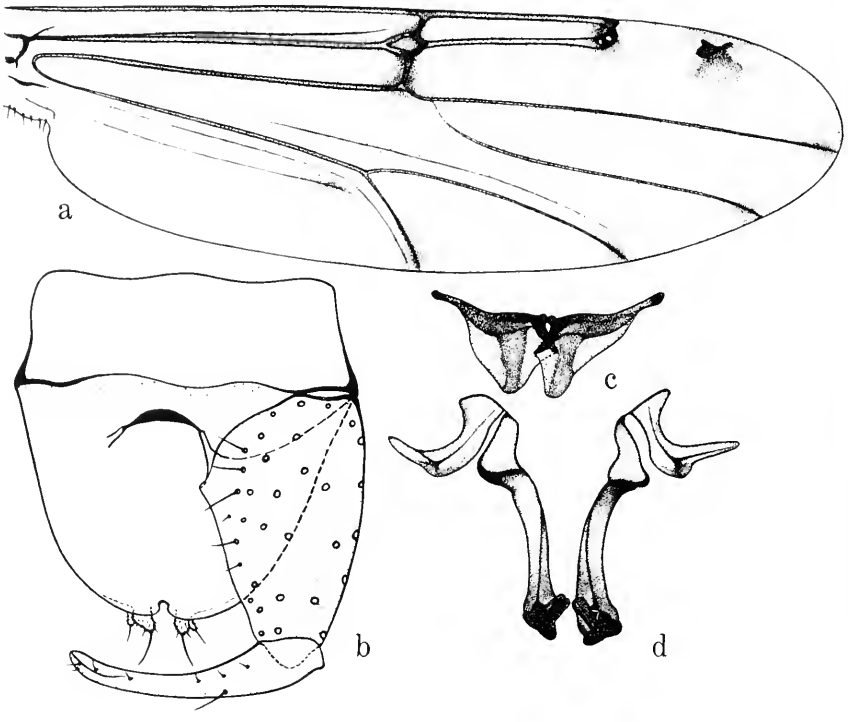

FIGURE 84.—*Stilobezzia quatei*, new species (♂). *a*, wing; *b–d*, ♂ genitalia.

dark vein tips relatively larger than in *inermipes;* distal sector of vein R_1 almost in line with r-m; 1RC always well formed, the inner cell space 0.065 (0.056–0.070, n=6) mm; CR 0.73.

Legs: Tarsomeres I–III with strong ventral spines as: fore leg 1–3–1, 0–0–2, 0–0–2; mid leg 1–0–2, 0–0–2, 0–0–2; hind leg 1–0–1, 0–0–1, 0–0–1, 6–7 spines on hind tibia; hind tibial comb with 6–8 spines (av. 6.4, n=10); TR 2.18. Palpal segment III quite stout, large and slightly tapered on distal fourth only, with distinct sensory pit. Abdominal tergum I with cluster of 35–40 hairs on each side, tergal pubescence weak.

Genitalia (fig. 84*b–d*): As figured, similar to those of *inermipes* except dististyle not bent near base, the tip slenderer; basistyle with narrow band between mediangular processes always highly sclerotized; aedeagal sclerites more strongly arched and stouter in midportion, the mesal ends with ventral arm of the fork longer than in *inermipes;* parameres each with lateral apodeme at base stouter and more abruptly bent, main body becoming stouter distad, obliquely truncated distally and bearing a short, stout, ventrally directed, heavily sclerotized lobe from tip.

DISTRIBUTION.—Viet Nam; Thailand.

TYPES.—Holotype male, Di Linh, 1200 m, Viet Nam, 22–28 Apr. 1960, L. W. Quate, light trap (deposited in Bishop Museum, Honolulu). Paratypes, 5 males. VIET NAM: Di Linh, same data as type, 1 male; same data except dates Sept.–Oct. 1960, 3 males. THAILAND: Chiang Mai, Ampur Muang, July 1962, J. Scanlon, light trap, 1 male.

DISCUSSION.—This species is named in honor of the collector of the type series, Dr. L. W. Quate of the Bishop Museum staff in Honolulu, who collected much of our valuable southeast Asian ceratopogonid material, especially in the strategic Viet Nam-Laos area where our contacts were limited.

We attempted to associate females from the Viet Nam series of *inermipes* with *quatei* on the basis of the size of 1RC, the most consistent nongenitalic character for separation of the males of the 2 species, but all available females fell within the range of *inermipes*. Either 1RC was a mere nodule, or, if open, its length was well below the value of the male of *quatei*, indicating that they were *inermipes*.

Subviridis Group

DIAGNOSTIC CHARACTERS (fig. 89 of *subviridis macfie*).—Medium to large species with shining dark thorax and abdominal terga; legs variably with dark femora and contrasting whitish tibiae, sometimes all pale or with narrow or broad bands; wings not ornamented. Eyes narrowly separated, usually with linear interorbital space, the hairs on vertex crowded along posterior margin. Male antenna with conspicuous dark plume; female antenna long and slender, segments III–X elongate, elliptical with indistinct apical collar, pale except dark apices of distal few; segments XI–XV dark, surface becoming irregular distally, XV without apical seta. Palpal segment III slender, without sensory pit, but with several long sensilla on distal third; V conspicuously darker. Female mandible with proximal teeth larger; a few serrations on outer margin. Thorax broad, scutum less convex than usual, without anteromedian tupercle. Wing unmarked except an increasing brownish cloudiness anteriorly and especially over r-m crossvein; anterior veins strong; 1RC moderately large; stem M about 3 times length of r-m; vein M_2 interrupted at base; no macrotrichia on wing surface; alula fringed. Legs with femora moderately robust; vestiture weak, extensor hairs on hind tibia slender; female claws long and slender, at least half as long as tarsomere V, with long slender blunt basal tooth; in female V with long stout batonnets on fore and mid legs and sometimes on hind leg; tarsomeres I–III with strong ventral spines usually on mid leg only, rarely on hind leg. Male claws equal with bifid tips as usual. Abdominal tergum I and sometimes base of II with pale area mesad, posterior terga dark; abundant scattered

long hairs on terga usually to IV, behind which they are sparse and weak; proximal terga sometimes with modified shagreenlike pubescence on sides. One or 2 functional spermathecae, the first large, the second, if present, always very small. Genital sclerotization of female with sternum IX narrowly cleft, with 2 acuminate caudal processes; genital sclerites foot shaped, with longer caudal points. Male genitalia short and broad, with rounded tergum IX bearing slight caudomedian cleft and prominent pubescent submedian lobes; basistyle usually swollen mesally at base, narrow on distal portion, basidorsal process usually in form of a strong hook; dististyle usually markedly curved with moderately stout, pointed tip; aedeagal sclerites usually slender, curved, with caudomedian tips sometimes slightly expanded and grooved; parameres in form of strongly sclerotized sinuate or curved rods with clavate tips, basal lobe a small triangular process directed caudad.

Species included: *Stilobezzia albicoxa* Lane and Forattini, Brazil: *antennalis* (Coquillett), North America; *atronitens* Goetghebuer, the Belgian Congo; *bizonata* Tokunaga, New Guinea; *chaconi* Macfie, Trinidad; *claripes*, new species, Korea and Japan; *congestiterga*, new species, Malaya; *crassistyla*, new species, Malaya; *dryadum* Macfie, British Guiana; *eximitarsis*, new species, Malaya; *femoralis* Lane and Forattini, Panama; *flavirostris* (Winnertz), Europe; *flavirostroides* (Strobl), Austria; *intermedia* de Meillon, Zululand; *isthmostheca*, new species, Thailand; *lasioterga*, new species, Malaya and Sarawak; *longihamata* Tokunaga, New Guinea; *nasicae* de Meillon, Middle Congo; *nudisthmostheca*, new species, Ceylon, Philippines, and Japan; *palpalis* Tokunaga, New Guinea; *parvula* Goetghebuer, Belgian Congo; *propristyla*, new species, North Borneo; *spiniterga*, new species, Malaya; *subviridis* Macfie, southeast Asia; *tenebrosa* Macfie, the Marquesas Islands; *tenuicolorata*, new species, Malaya and Thailand; *tokunagai*, new species, Japan and Korea; and *tropica* Clastrier, Senegal.

Key to the Oriental Species of the Subviridis Group

1. Hind femur totally dark except for small pale area at base 2
   Hind femur with apical to subapical pale spot or almost totally pale . 6
2. Proximal abdominal terga with special shagreenlike pubescence on sides; medium size, intensely colored species . . . . . **lasioterga,** new species
   Proximal terga with normal weak pubescence; medium to large, intense to light-colored species 3
3. Halter knob paler on flat end; medium-size, light-colored species. **tenuicolorata,** new species
   Halter knob intensely dark brown throughout; medium to large, intensely colored species 4
4. Mid tibia darker basad; female spermatheca oval and not drawn into a basal neck 5

Mid tibia darker distad; female spermatheca tapering to a neck; large species . . . . . **subviridis** Macfie

5. Terga from II caudad with setae lacking from anterolateral corners; medium-size species . . . . . **nudisthmostheca,** new species
Terga from II caudad evenly covered with setae; large species. **spiniterga,** new species

6. Abdomen beyond tergum I with special shagreenlike pubescence . . . 7
Abdomen beyond tergum I with weak, unmodified pubescence 8

7. Mid tibia dark except pale at distal fourth . . **congestiterga,** new species
Mid tibia pale except at extreme tip . . . . . **crassistyla,** new species

8. Hind femur totally pale except dark knee spot . . . **claripes,** new species
Hind femur dark at least in midportion 9

9. Hind femur dark on distal half except narrow subapical pale band. **tokunagai,** new species
Hind femur pale on distal third 10

10. Tarsomere IV of all legs with a pair of spines on each lobe; abdominal terga with sparse, equally strong hairs . . . . **eximitarsis,** new species
Tarsomere IV with spines only on mid leg 11

11. Hind tibia dark at least at base; hairs beyond tergum IV slender compared with those on II–IV . . . . . **propristyla,** new species
Hind tibia entirely pale; terga with equally strong hairs. **isthmostheca,** new species

43. *Stilobezzia* (*Stilobezzia*) *eximitarsis* Das Gupta and Wirth, new species

FIGURES 22, 85

FEMALE.—Length of wing 1.21 mm; breadth 0.40 mm.

As in *subviridis* Macfie, with the following distinctions: A pale brown species; scutum, postscutellum, an area on pleuron above mid and hind coxae, and abdomen behind tergum I moderately dark brown; head yellowish, distal palpal segments and antennomeres XI–XV faintly brownish; legs (fig. 85*a*) pale yellowish; mid tibia except extreme apex, all but extreme base and broad apex of hind femur,

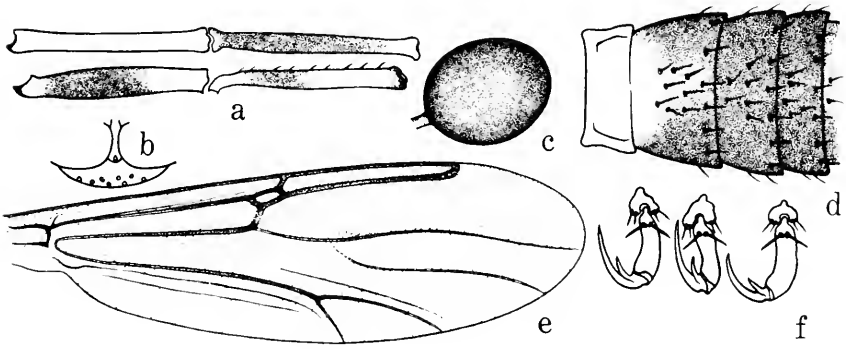

FIGURE 85.—*Stilobezzia eximitarsis*, new species (♀). *a*, femora-tibiae of mid and hind legs; *b*, frontovertex; *c*, spermatheca; *d*, abdominal terga I–IV; *e*, wing; *f*, last 2 tarsomeres and claws.

and broad subbasal band and extreme tip of hind tibia, moderately dark brownish. Wing unmarked, slightly darker brownish anteriorly; halter moderately dark brownish. Vertex (fig. 85*b*) with 8 hairs. Antenna (fig. 22) with III–XV lengths as 16–9–9–8–8–8–8–9–22–18–19–20–32; AR 1.48; palpal segments as 4–10–18–9–13; mandible with 7 teeth. Tarsomeres I–III with stout ventral spines as: none on fore and hind legs, mid leg 0–0–1, 0–0–1, 0–0–2; each lobe of tarsomere IV with 2 stout spines on all legs; V (fig. 85*f*) with sharp-tipped batonnets on all legs. Hind leg with lengths from femur to V as 78–74–33–17–6–4–10; TR 1.94; hind tibial comb with 9 spines. Wing (fig. 85*e*) with costa extending to 0.76 of wing length; r-m to stem M lengths as 1:4; alula fringe lacking. Abdomen (fig. 85*d*) with te gum I and much of II pale; setae sparse and scattered, absent from anterolateral corners of II–IV. Spermatheca (fig. 85*c*) 1, short oval with distinct slender sclerotized neck, measuring 0.095 mm by 0.070 mm.

Male.—Unknown.

Type.—Holotype female, Kuala Lumpur, Selangor, Malaya, Apr. 1959, H. E. McClure, light trap (USNM, 69478).

Discussion.—This is one of the palest members of the Subviridis Group; it differs from *tenuicolorata*, new species, in leg markings and many structural characters, especially the presence of spines on tarsomere IV and batonnets on V on all legs, the absence of alular fringe, the oval spermatheca, and the sparse abdominal setae.

44. *Stilobezzia* (*Stilobezzia*) *isthmostheca* Das Gupta and Wirth, new species

Figures 23, 86

Female.—Length of wing 1.03 mm; breadth 0.40 mm.

Head: Eyes (fig. 86*a*) narrowly separated; vertex with 8 hairs. Antenna (fig. 23) short; III–X pale, dark beyond the subapical collar; XI–XV dark; lengths of III–XV as 18–7–7–7–7–7–7–8–14–14–15–16–24; AR 1.22. Palpal segments as 4–12–18–9–16; III slender, without pit but with 2–5 long sensilla. Mandible with 6–7 teeth.

Thorax: Intensely dark brown dorsally, pleuron pale except brown above mid and hind coxae; scutellum with 5 bristles.

Legs (fig. 86*b*): Yellowish, faint brownish areas on broad midportion of hind femur, on distal half of mid femur, and on proximal half of mid tibia; legs rather stout, especially the hind pair. Stout, dark ventral spines on tarsomeres I–III as: none on fore and hind legs, 1–0–2, 0–0–2, 0–0–2 on mid legs; IV with slender distal spines on mid leg only; V (fig. 86*c*) with stout subbasal batonnets on fore and mid legs, none on hind leg. Hind leg with lengths from femur to V as 69–65–33–13–6–4–12; TR 2.38; hind tibial comb with 9 spines (8–9, n=6).

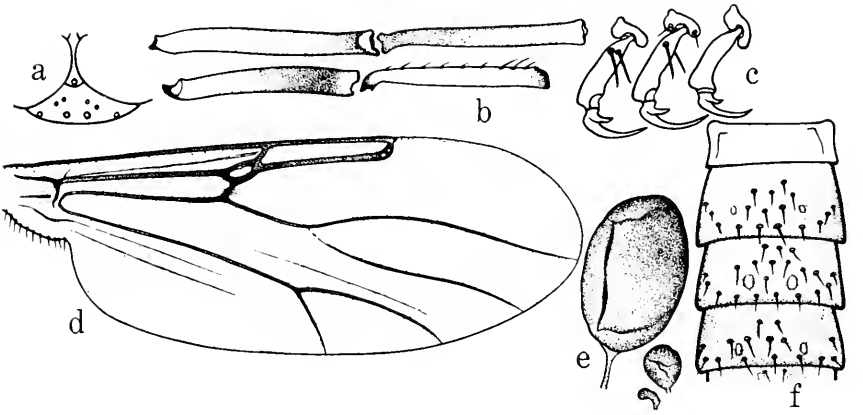

FIGURE 86.—*Stilobezzia isthmostheca*, new species (♀). *a*, frontovertex; *b*, femora-tibiae of mid and hind legs; *c*, last 2 tarsomeres and claws; *d*, wing; *e*, spermathecae; *f*, abdominal terga I–IV.

Wing (fig. 86*d*): Pale, unmarked; CR 0.65; r-m to stem M lengths as 7:25. Halter brown.

Abdomen (fig. 86*f*): Brownish; II–VI dark brown, I and extreme caudal terga pale; setae sparse and scattered, absent from anterolateral corners of II–IV. Spermathecae (fig. 86*e*) 2 functional and 1 vestigial; the large functional oval with long, extremely slender neck, moderately sclerotized, measuring 0.112 mm by 0.084 mm without the neck; the smaller with neck lacking, short-oval, measuring 0.030 mm by 0.019 mm. Genital sclerotization not visible in available preparation.

MALE.—Unknown.

DISTRIBUTION.—Thailand.

TYPES.—Holotype female, Udonthani Prov., Pen Dist., Thailand, 23–24 June 1959, Manop R., light trap (USNM 69479). Paratypes, 2 females, THAILAND: Loei, Thai Li, 8–9 June 1959, Manop R., light trap, 1 female. Nong Kai, Meung Dist., 10–14 June 1959, Manop R., light trap, 1 female.

DISCUSSION.—This species is not closely related to any other Oriental members of the Subviridis Group but comes closest to *tenebrosa* Macfie from the Marquesas Island and *bizonata* Tokunaga from New Guinea, from which it can be distinguished by the long sclerotized neck on the large spermatheca. In coloration it greatly resembles *eximitarsis*, new species, from Malaya, which, however, is a typical member of the Subviridis Group structurally.

45. *Stilobezzia* (*Stilobezzia*) *nudisthmostheca* Das Gupta and Wirth, new species

FIGURES 18, 87

FEMALE.—Length of wing 1.41 (1.32–1.58, n=5) mm; breadth 0.50 mm.

As in *subviridis* Macfie with the following differences: Antenna (fig. 18) with lengths of III–XV as 16–9–9–9–9–9–9–11–22–23–24–25–40; AR 1.65; palpal segments as 4–13–24–13–22; mandible with 6–8 teeth. Legs colored as in *subviridis*, but mid tibia dark brown on proximal two-thirds, yellowish distally (fig. 87*a*); hind leg with lengths from femur to V as 95–85–44–21–6–5–14; TR 2.1; hind tibial comb with 8–9 spines. Wing (fig. 97*c*) with CR 0.76; r-m to stem M lengths as 1:3. Halter knob intensely brownish. Abdomen (fig. 87*b*) with

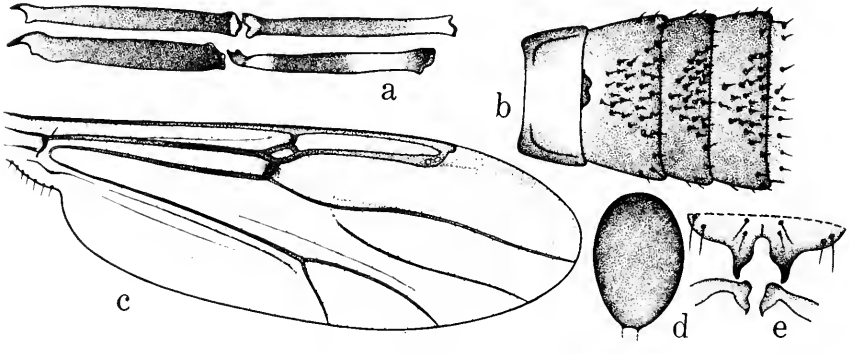

FIGURE 87.—*Stilobezzia nudisthmostheca*, new species (♀). *a*, femora-tibiae of mid and hind legs; *b*, abdominal terga I–IV; *c*, wing; *d*, spermathecae; *e*, ♀ genitalia.

terga intensely dark brown; I with central pale area extending nearly to sides; II–IV with bristly hairs scanty, absent from anterolateral corners of segments. Spermatheca (fig. 87*d*) 1, ovoid without sclerotized neck, measuring 0.900 mm by 0.063 mm. Genital sclerotization as in figure 87*e*.

MALE.—Unknown.

DISTRIBUTION.—Ceylon; Japan, Philippines.

TYPES.—Holotype female, Colombo, Kalutaluwewa, Ceylon, 19 Feb. 1958, Med. Res. Inst. light trap (USNM 69480). Paratypes, 3 females. CEYLON: Same data as type, 1 female. JAPAN: Tokyo, Thaxter collector, 1 female. PHILIPPINES: Mindanao, Agusan, Esperanza, 4–11 Nov. 1959, C. Yoshimoto, light trap, 1 female.

DISCUSSION.—Such scattered distribution on the basis of so few specimens is strange, but there is such good agreement on the distinctive characters given above that we are fairly confident of the

specific identity. Our series of *subviridis* have shown good uniformity in the presence of a neck on the spermatheca and dark tip of the mid tibia, which is almost totally pale.

46. *Stilobezzia* (*Stilobezzia*) *spiniterga* Das Gupta and Wirth, new species

FIGURES 17, 88

FEMALE.—Length of wing 1.61 mm; breadth 0.56 mm.

As in *subviridis* Macfie with the following differences: Antenna (fig. 17) with lengths of III–XV as 15–10–10–10–10–10–11–12–26–27–28–29–50; AR 1.82; palpal segments as 5–16–23–14–26; mandible with 7 teeth. Thorax intensely dark brown, humeral angles of scutum yellowish. Legs (fig. 88*a*) intensely dark brown; fore and mid trochanters, fore femur, and extreme bases of mid and hind femora yellowish brown; fore tibia whitish at base, yellowish distad, mid tibia paler brown at tip; tarsi pale, IV and V brownish. Hind leg with lengths from femur to V as 110–102–50–24–7–6–17; TR 2.0; hind tibial comb with 8–10 spines. Wing (fig. 88*c*) with CR 0.75; r-m to stem M lengths as 1:4. Halter knob intensely dark brown, stem pale. Abdomen (fig. 88*i*) intensely dark brown; terga with strong bristly

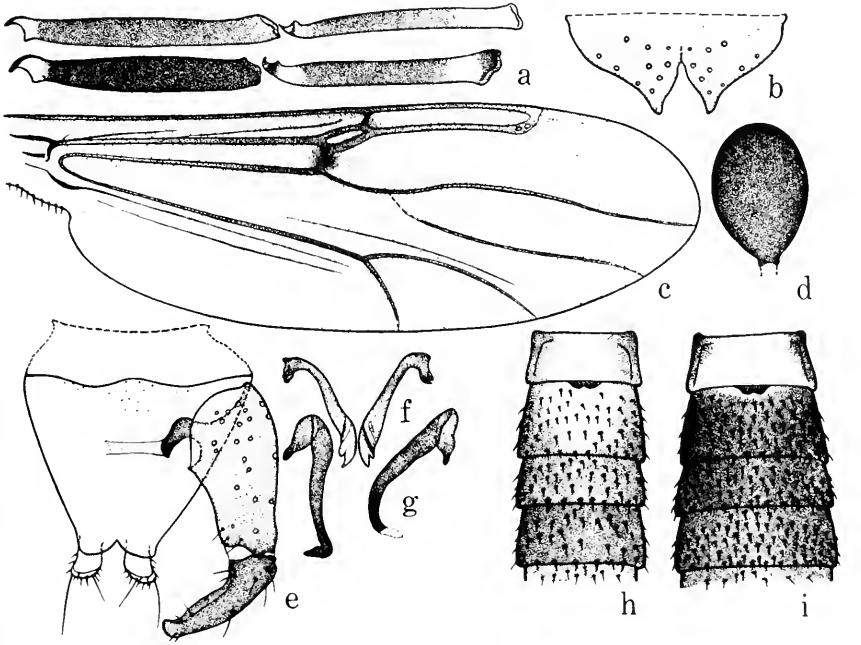

FIGURE 88.—*Stilobezzia spiniterga*, new species (*a–d*, *i*, ♀; *e–h*, ♂). *a*, femora-tibiae of mid and hind legs; ♀ genitalic sclerite; *c*, wing; *d*, spermatheca; *e–g*, male genitalia; *h*, abdominal terga I–IV of ♂; *i*, same, ♀.

hairs, these evenly distributed on II–IV, the pubescence normal; I with pale mesal area nearly reaching sides. Spermatheca (fig. 88*d*) 1, ovoid without sclerotized neck, measuring 0.105 mm by 0.067 mm. Genital sclerotization as in figure 88*b*.

Male.—Length of wing 1.6 mm. Similar to the female with the usual sexual differences; features of abdominal terga as in figure 88*h*. Genitalia (fig. 88*e–g*) as in *subviridis*, but basidorsal process of basistyle strong; dististyle with blunt, bent tip; aedeagal sclerites fairly broad, bases bent, tip with 1 oblique wrinkle; paramere with tip abruptly bent.

Distribution.—Malaya.

Types.—Holotype female, Kuala Lumpur, Selangor, Malaya, Sept. 1959, H. E. McClure, light trap (USNM 69481). Allotype male, same data but collected Aug. 1958 by R. Traub.

Discussion.—This species strongly resembles *nudisthmostheca*, new species, and differs from *subviridis* in the distal paleness on the mid tibia and the absence of a sclerotized neck on the spermatheca, but differs from both in the evenly scattered bristles on the second to fourth abdominal terga.

47. *Stilobezzia* (*Stilobezzia*) *subviridis* Macfie

Figures 15, 89

Stilobezzia subviridis Macfie, 1934b, Tijdschr. Ent., vol. 77, p. 218 [male, female; Sumatra; fig. male genitalia].—Tokunaga, 1962, Pacific Ins., vol. 4, p. 210 [syn.: *esakii* Tokunaga].

Stilobezzia esakii Tokunaga 1940c, Tenthredo vol. 3, p. 183 [female; Caroline Isl.].—Tokunaga and Murachi, 1959, Ins. Micronesia, vol. 12, p. 367 [male, female redescr.; fig. male genitalia].

Female.—Length of wing 1.49 (1.34–1.52, n=23) mm; breadth 0.56 mm.

Head: Yellowish brown, palpi dark brown; antenna with III–X yellowish, XI–XV brown. Vertex with 11 hairs (fig. 89*a*). Antenna (fig. 15) with lengths of III–XV as 15–10–10–10–10–10–10–12–23–24–26–27–40; AR 1.61. Palpal segments (fig. 89*e*) as 4–12–22–13–19. Mandible with 6–8 teeth (av. 7.0, n=26).

Thorax (fig. 89*b*): Entirely subshining dark brown to blackish; scutellum and prescutellar depression and shoulders of scutum paler, often with greenish tinge. Scutellum with 4 bristles.

Legs (fig. 89*c*): All coxae, mid and hind trochanters, and their femora dark brown, mid femur variably paler basad; hind tibia dark brown, with extreme base and a variable subapical band somewhat yellowish; fore femur pale; fore and mid tibiae and all tarsi whitish, tarsomere V brownish. Femora with sparse fine hairs, hind tibia with extensor row of about 10 stronger hairs; tarsomere IV without spines;

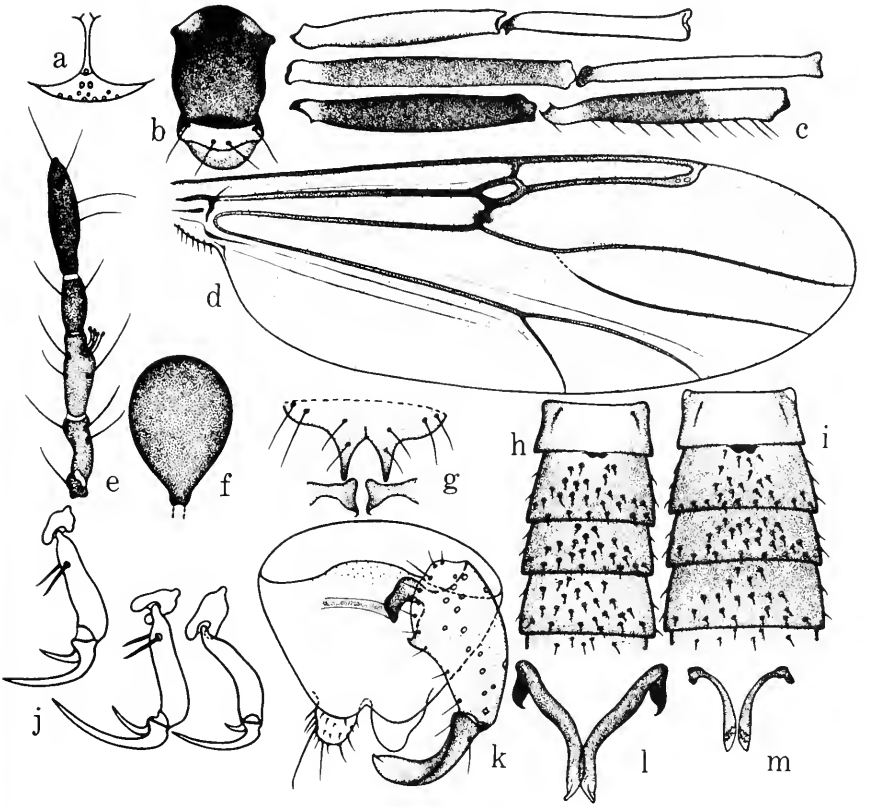

FIGURE 89.—*Stilobezzia subviridis* Macfie (*a–g*, *i–j*, ♀; *h*, *k–m*, ♂). *a*, frontovertex; *b*, thorax; *c*, femora-tibiae; *d*, wing; *e*, palpus; *f*, spermatheca; *g*, ♀ genitalia; *h*, abdominal terga I–IV, ♂, *i*, same, ♀; *j*, last 2 tarsomeres and claws; *k–m*, ♂ genitalia.

V with strong subbasal batonnets on fore and mid legs only; strong dark ventral spines present on I–III as: fore leg none; mid leg 1–0–2, 0–0–2, 0–0–0; hind leg none; claws (fig. 89*j*) long, the shorter forming a blunt basal tooth. Hind leg with femur to V lengths as 95–88–46–23–5–4–16; TR 1.99; hind tibial comb with 7–10 spines (av. 8.2, n=15).

Wing (fig. 89*d*): Wing grayish hyaline, unmarked, but more brownish toward costa and a slightly brown cloud over r-m; CR 0.78; r-m to stem M lengths as 9:28. Halter with stem pale, knob intensely dark brown.

Abdomen (fig. 89*i*): Moderately petiolate, convex dorsally; terga shining dark brown, large central area on I, and sides and venter variably paler to greenish; I with cluster of 6–7 hairs on each side; II–IV with numerous scattered strong hairs, on V and behind these are weaker and sparser. Spermatheca (fig. 89*f*) single, large (0.111 mm

by 0.068 mm), oval in shape, and tapering to a moderately long slender neck, no hyaline perforations. Genital sclerotization as in figure 89*g*.

MALE.—Length of wing 1.41 (1.22–1.45, n=21) mm.

Similar to the female with the usual sexual differences; tergum (fig. 89*h*) as in the female; antennal plumes dark brown; tarsomere V without batonnets; claws small, equal, with bifid tips. Genitalia (fig. 89*k–m*) with tergum IX short, rounded caudad, with small caudomedian cleft, the pubescent caudal lobes well developed; sternum IX with shallow caudomedian excavation, the membrane spiculate a short way; basistyle slender distally but stout at base with stout, hooklike basidorsal process; dististyle stout and curved; aedeagal sclerites slender arcuate blades with clavate caudomedian tips and distinct basal knob; parameres each with small, caudally projecting basal processes, main body intensely sclerotized, moderately stout, sinuate, with distal ends curving mesally and ventrally to end in bluntly pointed tip.

DISTRIBUTION.—Sumatra, Java, Japan, Malaya, North Borneo, Sarawak, Thailand, Viet Nam.

MATERIAL EXAMINED.—408 specimens.

INDONESIA: West Java, Djakarta (Rees).

JAPAN: Honshu, Kyoto Pref., Midoro Pond (Arnaud).

MALAYA: Pahang, Kuala Singgora (Wharton); Perak, Pulau Pangkor (Traub); Selangor, Kuala Lumpur (Hubert, McClure, Traub); Selangor, Subang Forest Res. (McClure); Singapore (Colless).

NORTH BORNEO: Tambunan (Colless); Tawau (Colless).

SARAWAK: Kampong Pueh, Lundu Dist. 700–1500 m (collector ?); Kuching, Santubong, 800–1500 m (Quate).

THAILAND: Ayudhaya (Manop R.); Bangkok, Thonglo (Scanlon); Chiang Mai (Gressitt, Notananda, Scanlon); Cholburi, Bangphra (Scanlon); Khon Kaen (Manop R.); Loei (Manop R.); Minburi (Manop R.); Nakhon Prathom (Manop R.); Nakhon Ratchisrima (Manop R.); Nong Kai (Manop R.); Pechaburi (Manop R.); Ratchaburi, Banpong (Manop R.); Samuthprakan (Manop R.); Thonburi (Manop R.).

VIET NAM: Pleiku (Quate).

DISCUSSION.—The intensely dark hind femur without distal pale markings, the uniform numerous scattered long setae on the proximal abdominal terga, absence of special shagreenlike lateral pubescence in this area, and the intensely dark halter will distinguish *subviridis* from other members of the group. Females from Thailand often have the mid femur paler on most of the proximal portion, but typical specimens have it entirely dark. We have not been able to identify any species in this group corresponding to the one female Macfie mentioned as an exception as "In one female the tibiae are entirely dark brown. This specimen is darker than the others but otherwise apparently indistinguishable from them." We note in Tokunaga and

Murachi's (1959) description of a female, *esakii* Tokunaga, that batonnets are mentioned on tarsomere V of the fore leg only; in the absence of female specimens from Micronesia, we are unable to verify this unusual condition for the group and suspect it is an error of observation. The allotype male of *esakii* in the USNM collection agrees in all respects with *subviridis*. Tokunaga's (1962) description of *subviridis* from the Ryukyu Islands may possibly refer to another species, since he mentions the presence of a second small round colorless spermatheca.

48. *Stilobezzia* (*Stilobezzia*) *tenuicolorata* Das Gupta and Wirth, new species

FIGURES 16, 90

FEMALE.—Length of wing 1.41 (1.25–1.50, n=10) mm; breadth 0.51 mm.

As in *subviridis* Macfie with the following distinctions: General color pattern as in *subviridis*, but the brown of pale to medium intensity; halter dusky, but the flat end of the knob pale. Antenna (fig. 16) with lengths of III–XV as 15–10–10–10–10–10–10–11–25–26–27–27–41; AR 1.70; palpal segments as 5–12–23–13–22; mandible with 7 teeth. Mid and hind legs with femoral-tibial coloration as in figure 90*a*; hind leg with femur to V lengths as 94–89–44–21–7–6–15; TR 2.01; hind tibial comb with 8–10 spines (av. 8.7, n=10). Wing (fig. 90*b*) with CR 0.76. Abdomen (fig. 90*g*) more petiolate, not as convex

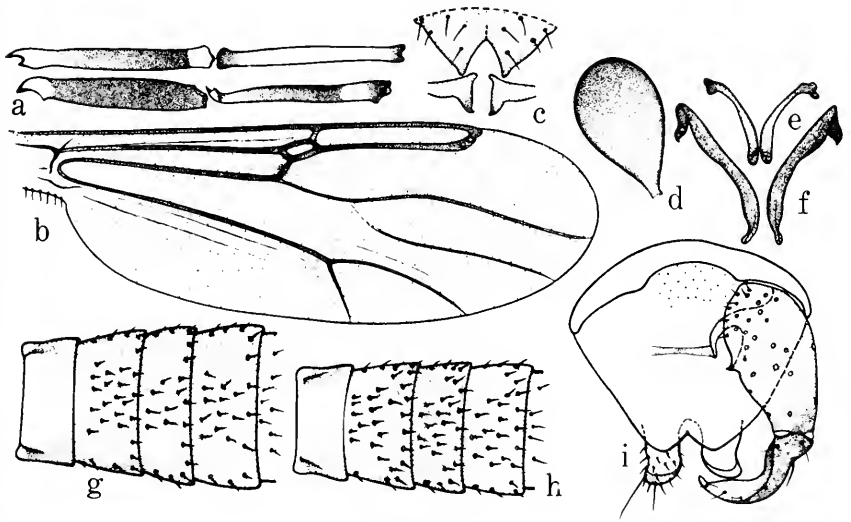

FIGURE 90.—*Stilobezzia tenuicolorata*, new species (*a–d*, *g*, ♀; *e–f*, *h–j*, ♂). *a*, femoratibiae of mid and hind legs; *b*, wing; *c*, ♀ genitalia; *d*, spermatheca; *e–f*, *i*, ♂ genitalia, *g*, abdominal terga I–IV, ♀; *h*, same, ♂.

as in *subviridis*, vestiture and extent of pale area on I similar; I with 5–7 hairs on each side. Spermatheca (fig. 90*d*) 1, elongate oval with base tapering to the slender neck more gradually than in *subviridis;* measuring 0.105 mm by 0.066 mm. Genital sclerotization as in figure 90*c*.

MALE.—Length of wing 1.39 (1.30–1.48, n=10) mm.

Similar to the female, including features of abdominal terga (fig. 90*h*) with the usual sexual differences. Genitalia (fig. 90*e*, *f*, *i*) as in *subviridis*, but with basidorsal process of basistyle and aedeagal sclerites definitely more slender; apex of paramere more strongly bent than in *subviridis*.

DISTRIBUTION.—Malaya; Thailand.

TYPES.—Holotype female, Kuala Lumpur, Selangor, Malaya, 8 Oct. 1958, R. Traub, light trap (USNM 69482). Allotype male, same data except 8 August. Paratypes, 9 males, 11 females, all taken in light traps. MALAYA: Selangor, same data as types, but dates also July to Oct. 1958, Sept. 1959, March 1960, collectors also A. A. Hubert and H. E. McClure, 9 males, 10 females. THAILAND: Nakhon Prathom, 18 Dec. 1958, Manop R., 1 female.

DISCUSSION.—The slight but distinct and well-correlated structural differences noted above lead us to believe that this is not a mere teneral form of *subviridis* Macfie. Its restricted geographic distribution is also indicative.

The following 3 species, *congestiterga*, *crassistyla*, and *lasioterga*, new species, belong to a special section of the Subviridis Group in which the anterior terga of the abdomen have strong modifications of the pubescence. The male genitalia suggest that they are closely related to *subviridis* Macfie despite such a special area of modified pubescence. No females of these species are known, but they should readily be distinguished by features of the leg coloration as well as the special nature of the tergal spinosity.

49. *Stilobezzia* (*Stilobezzia*) *congestiterga* Das Gupta and Wirth, new species

FIGURE 91

FEMALE.—Unknown.

MALE.—As in *subviridis* Macfie, with the following distinctive characters: Length of wing 1.3 mm. Thorax dark brown. Legs with fore coxa, trochanter, and femur pale brown; mid femur and tibia brown, concolorous with fore tibia; mid tibia paler on distal fourth; hind femur and tibia intensely dark brown throughout (fig. 91*a*); TR 2.27; hind tibial comb with 5–8 spines. Wing as in figure 91*c*; halter brownish; CR 0.72. Abdomen dark brown with greenish tinge, with large darker brown area on proximal terga (fig. 91*b*) due to specially modified pubescence, consisting of sharp appressed spinules

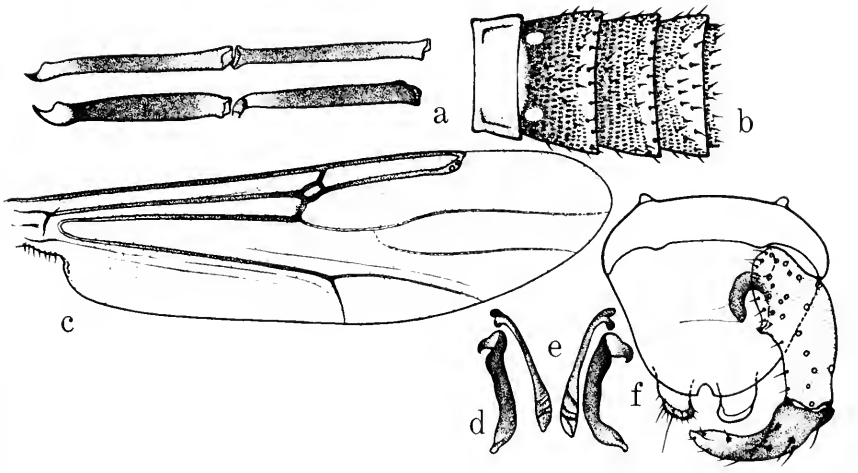

FIGURE 91.—*Stilobezzia congestiterga*, new species (♂). *a*, femora-tibiae of mid and hind legs; *b*, abdominal terga I–IV; *c*, wing; *d–f*, ♂ genitalia.

arising from dark platelets, this area extends onto sides of IV and V; I nearly all clear yellowish, with 5 setae on each side. Genitalia (fig. *d–f*) as in *subviridis*, but basistyle narrower, its basal hook stronger; aedeagal sclerites longer, the distal tips more clavate with several marked oblique wrinkles.

DISTRIBUTION.—Malaya.

TYPES.—Holotype male, Kuala Lumpur, Selangor, Malaya, 12 June 1958, R. Traub, light trap (USNM 69483). Paratype male, Kuala Singgora, Pahang, Malaya, 17 July 1958, R. H. Wharton, light trap.

DISCUSSION.—The paratype differs in its much paler shading of the brownish parts of thorax and legs, but it is structurally the same as the type, and the leg color is arranged in a similar pattern; it is probably a teneral form.

50. *Stilobezzia* (*Stilobezzia*) *crassistyla* Das Gupta and Wirth, new species

FIGURE 92

FEMALE.—Unknown.

MALE.—The single slide preparation is poor, and some parts are lacking, but the following differentiating characters may be noted: Wing damaged, not measured. Thorax paler than in *subviridis*, brownish, hind femur and tibia brownish except at extreme bases, fore and mid femora yellowish, the mid femur brownish at tip, fore and mid tibiae whitish with yellow apices (fig. 92*a*). Head pale brownish, antennal plumes brown. Halter knob grayish, stem paler. Abdomen

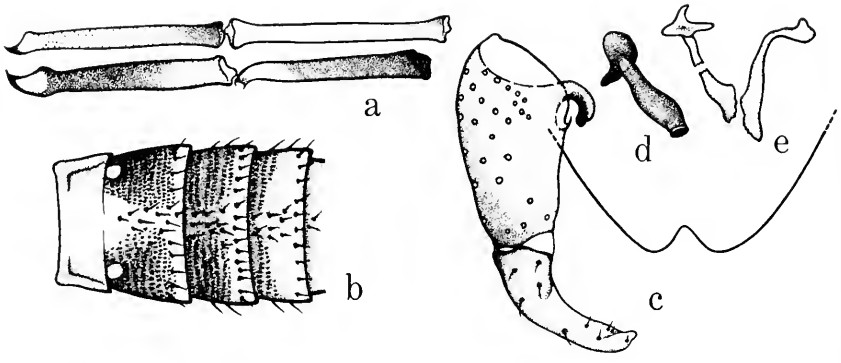

FIGURE 92.—*Stilobezzia crassistyla*, new species (♂). *a*, femora-tibiae of mid and hind legs; *b*, abdominal terga I–IV; *c–e*, ♂ genitalia.

(fig. 92*b*) pale brown with greenish tinge, patches of pubescence modified into sharp, appressed spinules appearing darker brown as figured; tergum I with large whitish clear area, this area extending slightly caudad on to II; I with 5–6 hairs on each side. Hind tibial comb with 8 spines; TR 2.33. Male genitalia (fig. 92*c–e*) damaged, but essentially as in *subviridis*, but dististyle with stout tip and aedeagal sclerites definitely expanded toward caudomedian ends.

DISTRIBUTION.—Philippines.

TYPE.—Holotype male, Lake Balinsasayao, Negros Oriental, Philippines, 30 Sept. 1959, C. Yoshimoto (deposited in B. P. Bishop Museum, Honolulu).

51. *Stilobezzia* (*Stilobezzia*) *lasioterga* Das Gupta and Wirth, new species

FIGURE 93

FEMALE.—Unknown.

MALE.—Length of wing 1.32 mm. As in *subviridis* Macfie, with the following distinctions: Thorax intensely dark brown. Legs with coxae, trochanters, and femora on mid and hind legs intensely dark brown; hind tibia dark brown but extreme base yellowish; fore coxa, trochanter, and femur, and distal third of fore and mid tibiae yellowish, remainder of these tibiae whitish (fig. 93*f*); TR 2.38; hind tibial comb with 6–9 spines. Wing as in figure 93*a*; halter knob intensely dark brown; CR 0.72. Abdomen (fig. 93*e*) intensely dark brown; tergum I pale yellowish only on median third, with 6 setae on each side; the area of modified shagreenlike pubescence covering tergum II, anterior half of III, and on to sides of IV; the appressed spinules sharp and arising from strong platelets as in *congestiterga*, new species. Genitalia (fig. 93*b–d*) as in *subviridis*, but basal hook of basistyle

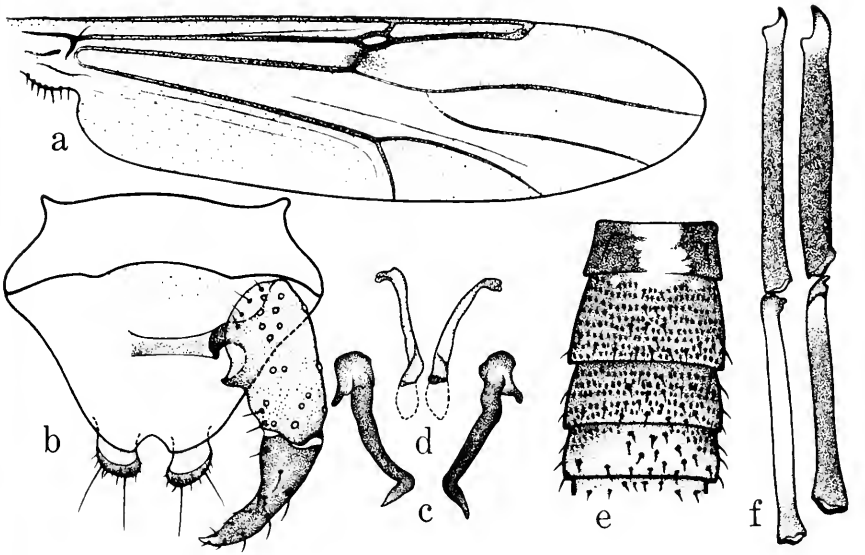

FIGURE 93.—*Stilobezzia lasioterga*, new species (♂). *a*, wing; *b–d*, ♂ genitalia; *e*, abdominal terga I–IV; *f*, femora-tibiae of mid and hind legs.

shorter, aedeagal sclerites in form of straight rods, and parameres with abrupt bend near tips.

DISTRIBUTION.—Malaya; Sarawak.

TYPES.—Holotype male, Kuala Singgora, Pahang, Malaya, 18 July 1958, R. H. Wharton, light trap (USNM 69484). Paratype male, Kampong Pueh, Lundu Dist., Sarawak, 700–1500 m, 6–12 June 1959, ? collector.

The following three species, *claripes*, *propristyla*, and *tokunagai*, new species, are closely related, forming a special section of the Subviridis Group characterized by the more widely separated eyes with a distinct interocular bridge bearing a seta below; tarsomere V with ventral batonnets on all legs; 2 functional spermathecae plus a rudimentary third, the large functional without a neck, the small functional very small with a long filiform neck; legs with pale markings extensive, hind femur with broad apical or subapical pale band; male genitalia with basistyle bearing short basidorsal process not in form of hook, but with posterior accessory lobe forming the sclerotized margin of a broad, platelike mesal expansion from the mesal face of the basistyle; dististyle slender and only gradually curved distad; aedeagal sclerites nearly straight, and parameres heavily sclerotized, distinctly sinuate. The distribution of these species is marginal to the Oriental region with 2 from Japan and Korea, and the third from North Borneo.

52. *Stilobezzia* (*Stilobezzia*) *claripes* Das Gupta and Wirth, new species

FIGURES 21, 94

FEMALE.—Length of wing 1.45 mm; breadth 0.54 mm.

Structurally similar to *tokunagai*, new species, but readily separated from it by the almost totally pale legs (figs. 94*a*,*b*), only the coxae, a narrow knee spot on hind femur, faint broad subbasal band on hind tibia, and faint apices of mid and hind tibiae brownish. Antenna in poor condition, not measured; VI–XI shaped as in figure 21. Mandible with 7 teeth. Wing (fig. 94*c*) faintly brownish anteriorly; CR 0.73; r-m to stem M lengths as 1:3. Halter knob not as dark as in *tokunagai*. Hind tibial comb with 10 spines; TR 2.06. Abdomen (fig. 94*j*) as in *tokunagai*, but hairs on II–IV forming a narrower median line; tergum I with 5–6 setae on each side. Spermathecae (fig. 94*a*) as in *tokunagai;* genital sclerotization as in figure 94*h*.

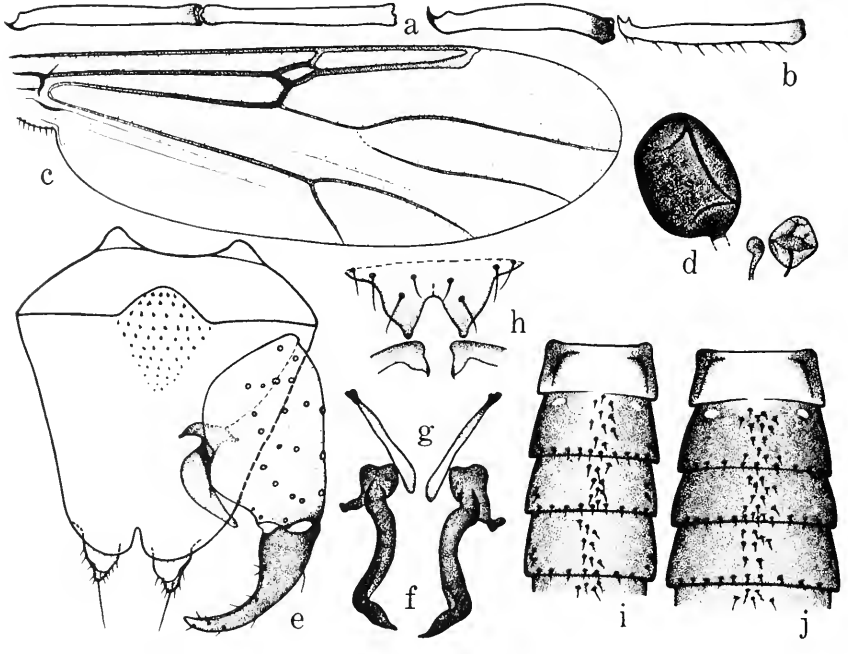

FIGURE 94.—*Stilobezzia claripes*, new species (*a–d*, *h–j*, ♀; *e–g*, *i*, ♂). *a*, femur-tibia, mid leg; *b*, same, hind leg; *c*, wing; *d*, spermathecae; *e–g*, ♂ genitalia; *h*, ♀ genitalia; *i*, abdominal terga I–IV, ♂; *j*, same, ♀.

MALE.—Length of wing 1.5 mm. As in the female with the usual sexual differences, including features of the abdominal terga (fig. 94*i*). Genitalia (fig. 94*e–g*) nearly identical with those of *tokunagai*, but the dististyle more slender distally.

DISTRIBUTION.—Korea; Japan.

TYPES.—Holotype female, allotype male, Seoul, Korea, June 1955, light trap (USNM 69485). Paratypes, 2 males, 1 female. KOREA: Seoul, same data as types, 1 male, 1 female. JAPAN: Tokyo, R. Thaxter, 1 male.

DISCUSSION.—This species is remarkable among the Subviridis Group for its almost entirely pale legs, although structurally it is nearly identical with *tokunagai*, new species, also from Japan and Korea, which has the usual distinctly dark banded legs of the group.

53. *Stilobezzia* (*Stilobezzia*) *propristyla* Das Gupta and Wirth, new species

FIGURES 19, 95

FEMALE.—Length of wing 1.35 (1.32–1.41, n=6) mm; breadth 0.45 mm.

As in *subviridis* Macfie with the following distinctions: Coloration of thorax as in figure 95*a*; similar to *subviridis* except for the legs, all legs dark brown with the following parts pale brown to yellowish (fig. 95*c*): fore coxa and femur; distal third of mid tibia, hind femur and hind tibia; tarsi whitish, tarsomere V somewhat brownish. Eyes narrowly separated; vertex with 8 hairs (fig. 95*b*). Antenna (fig. 19) with lengths of III–XV as 14–9–9–9–9–9–9–11–20–21–22–24–42; AR 1.63; palpal segments as 4–11–18–8–22; mandible with 7–8 teeth. Tarsomeres I–III with strong ventral spines as: Fore leg none; mid leg 1–0–2, 0–0–2, 0–0–0; hind leg 1–0–2, 0–0–2, 0–0–0; IV tipped by strong spine on mid leg only; V with batonnets on all legs (fig. 95*d*). Hind leg with lengths from femur to V as 83–79–41–20–6–4–14; TR 1.93; hind tibial comb with 8–9 spines (av. 8.4, n=6). Wing (fig. 95*e*) without anterior infuscation, the veins pale; CR 0.73; r-m to stem M lengths as 1:4. Halter intensely dark brown including stem. Abdomen (fig. 95*j*) dark brown, tergum I nearly all pale; II–IV with setae absent from anterolateral corners, the setae conspicuous mesad; pubescence not modified; I with cluster of 5–6 hairs on each side. Spermathecae (fig. 95*i*) with the large functional one heavily sclerotized, subspherical, without distinct neck; the second moderately sclerotized, subspherical with a filiform neck as long as diameter of spermatheca, the 2 functional ones measuring 0.080 mm by 0.065 mm, and 0.030 mm in diameter. Genital sclerotization as in figure 951.

MALE.—Length of wing 1.32 mm.

As in the female with the usual sexual differences including features of the abdominal terga (fig. 95*k*); antennal plumes dark brown. Genitalia (fig. 95*f–h*) with the following conspicuous differences from those of *subviridis:* Basistyle with basidorsal process not hooklike but extending straight mesad, a small accessory lobe protruding caudad

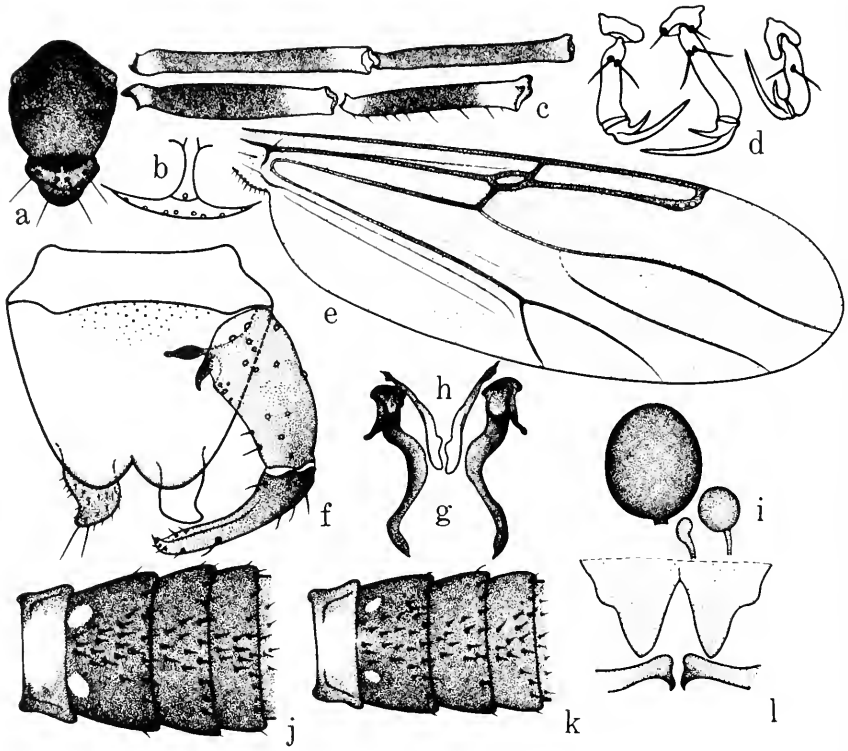

FIGURE 95.—*Stilobezzia propristyla*, new species (*a–e*, *i–j*, *l*, ♀; *f–h*, *k*, ♂). *a*, thorax; *b*, frontovertex; *c*, femora-tibiae of mid and hind legs; *d*, last 2 tarsomeres and claws; *e*, wing; *f–h*, ♂ genitalia; *i*, spermathecae; *j*, abdominal terga I–IV, ♀; *k*, same, ♂; *l*, ♀ genitalia.

at juncture of process and margin of basistyle; dististyle much more slender and only slightly curved on distal two-thirds; aedeagal sclerites only slightly arcuate, slender bars, slightly expanded on distal portion; parameres distinctly sinuate, moderately stout on basal portion but much attenuated on distal third with pointed tip.

DISTRIBUTION.—North Borneo.

TYPES.—Holotype female, Labuan Island, North Borneo, Nov. 1948, D. H. Colless, swept (USNM 69486). Allotype male, Tawau Residency, Tawau, North Borneo, 19 Nov. 1958, L. W. Quate. Paratypes, 5 females. NORTH BORNEO: Labuan Isl., same data as holotype but dates also Feb.–Mar. 1952, 2 females. Tawau, same data as allotype, 2 females. Tawau, Feb. 1960, D. H. Colless, 1 female.

DISCUSSION.—Of the group of 3 species mentioned above, *propristyla* is the darkest, with the hind femur and tibia dark except on the distal third, and the mid legs also mostly dark.

54. *Stilobezzia (Stilobezzia) tokunagai* Das Gupta and Wirth, new species

FIGURES 20, 96

FEMALE.—Length of wing 1.58 (1.50–1.68, n=5) mm; breadth 0.56 mm.

Near *propristyla*, new species, but differing as follows: Antenna (fig. 20) shorter, lengths of III–XV as 13–8–8–8–8–8–8–9–18–18–20–20–31; AR 1.53; palpal segments as 4–16–22–14–24; mandible with 6–7 teeth (av. 6.9, n=8). Legs (fig. 96*b*) much paler; the brown only moderately intense, the following parts pale yellowish: all trochanters, fore femur and tibia, narrow base and broad subapical band on mid femur, distal third of mid tibia, narrow base and broad subapical band on hind femur and tibia; tarsi whitish, IV and V somewhat brownish; IV without spines; I–III with strong spines as: none on fore and hind legs, mid leg 1–0–2, 0–0–2, 0–0–0. Hind leg

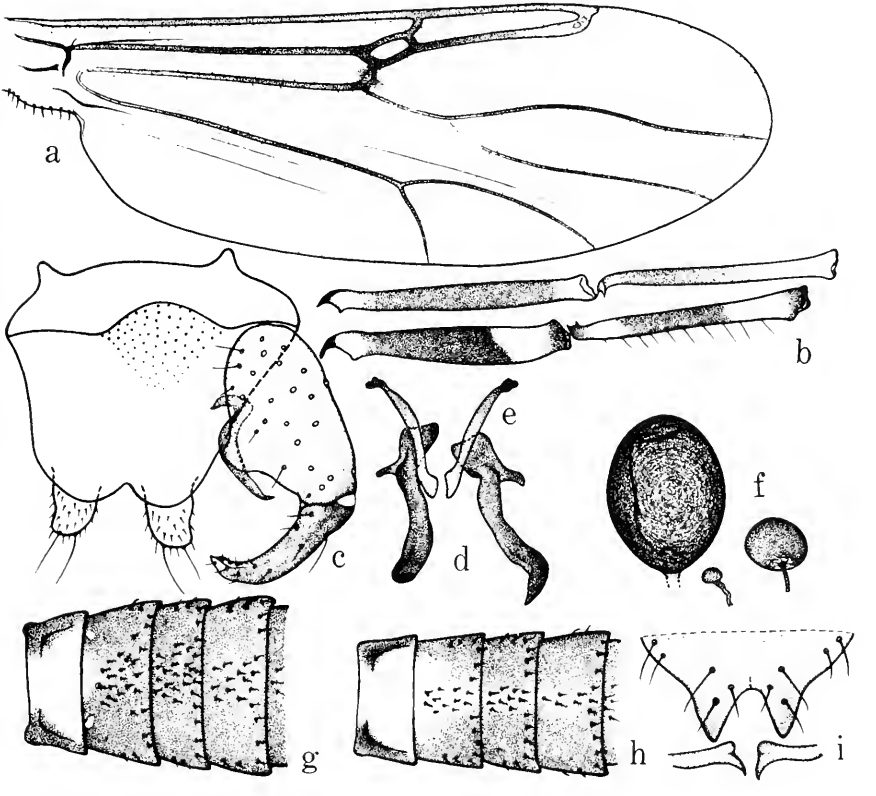

FIGURE 96.—*Stilobezzia tokunagai*, new species (*a–b, f–g, i*, ♀; *c–e, h*, ♂). *a*, wing; *b*, femora-tibiae of mid and hind legs; *c–e*, ♂ genitalia; *f*, spermathecae; *g*, abdominal terga I–IV, ♀; *h*, same, ♂; *i*, ♀ genitalia.

with lengths from femur to V as 93–91–49–21–8–6–14; TR 2.3; hind tibial comb with 9–10 spines (av. 9.7, n=8). Wing (fig. 96*a*) darker than in *propristyla;* CR 0.74; r–m to stem M lengths as 1:3. Abdomen (fig. 96*g*) as in *propristyla,* but on II–IV, the hairs are more restricted to a narrow line down the midline and a row along the posterior border of terga; I with 5–6 hairs on each side. Spermathecae (fig. 96*f*) as in *propristyla,* but the large one more ovoid, the 2 functional measuring 0.105 mm by 0.080 mm and 0.042 mm by 0.035 mm. Genital sclerotization as in figure 96*i*.

Male.—Length of wing 1.56 mm.

As in the female, with the usual sexual differences, including features of the abdominal terga (fig. 96*h*). Genitalia (fig. 96*c–e*) with basistyle bearing a short, simple basidorsal process, the posterior accessory lobe merging into a broad platelike expansion on mesal face of basistyle; dististyle more gradually tapered and curved from base than in *propristyla,* the tip pointed; aedeagal sclerites slender, slightly arched bars, the ventral membrane between them distinctly spiculate nearly to their apices; parameres with stout basal lobe bearing a lateral rather than a caudal process, main body simuate, stout its entire length, with tip abruptly bent and bluntly pointed.

Distribution.—Japan; Korea.

Types.—Holotype female, Midoro Pond, Kyoto Prefecture, Honshu, Japan, June 1955, P. H. Arnaud, light trap (USNM 69487). Allotype male, Tokyo Japan, R. Thaxter collector (dep. Museum Comparative Zoology, Cambridge, Mass.). Paratypes, 2 females. JAPAN: Same data as allotype, 1 female. KOREA: Seoul, June 1955, light trap, 1 female.

Additional specimens.—JAPAN: Tokyo, R. Thaxter, 3 females (pinned). Tsuruga, June 1923, T. D. A. Cockerell, 1 female (pinned). KOREA: Seoul, June 1955, 1 female (pinned.)

Discussion.—The subapical pale banding of the hind femur, the ovoid female spermatheca, and the differences in the male genitalia noted above will distinguish this species from *propristyla,* to which it is most closely related.

We are very pleased to take this opportunity to dedicate this species to Professor M. Tokunaga, distinguished Japanese Dipterist, in appreciation of his outstanding contributions to our knowledge of Pacific Ceratopogonidae.

Sybleae Group

Diagnostic characters (figs. 10, 99, of *imparungulae*).—Small to medium-size species, slender with hyaline wings, pale legs, more or less dark-colored thorax and abdomen. Eyes narrowly separated

with linear interorbital space; vertex with hairs posteriorly only; a small seta at the ocular bridge. Male antenna with inconspicuous plume; female antenna slender, III–X each broadest just distad of middle, only IX and X with preapical collar; III–X pale except faint distal infuscation, XI–XV dark except XI pale at extreme base; XI–XV elongate and XV without terminal seta. Palpal segment III slender, tapered on distal third, no sensory pit but several elongate sensilla arising from inner surface, V oval and darker in color. Thorax evenly convex in front, without anterior tubercle; pleura pale, scutum dark or with dark vittae; scutellum dark at sides, with 4 bristles, the lateral pair small. Wing grayish to brownish hyaline, unmarked; radial cells distinct; stem M about 4 times length of r-m; M_2 narrowly interrupted at base; anal lobe obtuse and alula lacking fringing hairs. Legs pale, slender, without prominent hairs; tarsomere V in female with a strong basal swelling bearing a pair of spines instead of the more typical batonnets; I–III with apical spines; female claws very unequal, elongate, much shorter on posterior leg. Abdomen pale basally, distal terga dark; tergal setae sparse, I with 1–3 lateral setae only. Two functional spermathecae, no rudimentary; the two very unequal in size, the smaller one usually globular. Genital sclerotization with shallow median cleft and 2 short blunt lobes on sternum IX; internal lamellae well developed. Male genitalia short and broad; tergum IX rounded; basistyle stout with prominent basidorsal process, no transverse sclerotized bridge or ribbon; aedeagal sclerites at base, main body more or less sickle shaped.

Species included: *Stilobezzia bata* de Meillon and Hardy, British Cameroons; *debilipes*, new species, Malaya and the Philippines; *distinctifasciata*, new species, Thailand; *flavizonata* Tokunaga, New Guinea; *imparungulae*, new species, Malaya and the Philippines; *sybleae* Wirth, North America; *taufflebi* de Meillon, Middle Congo; *unifasciata* Tokunaga, New Guinea.

Key to the Oriental Species of the Sybleae Group

1. Small, greenish-white species with dark chocolate brown thorax and abdominal terga; abdominal tergum II mostly dark; halter knob pale; tarsomere V and claws extremely reduced on mid and hind legs of female.
debilipes, new species

   Small to medium-size species; brownish to dark brown; halter knob infuscated; abdominal tergum II broadly pale or almost totally pale; tarsomere V and claws well developed on all legs of female 2

2. Smaller species; abdominal tergum II almost entirely pale; parameres somewhat sickle shaped; basistyle with basidorsal process elongated and slender; dististyle abruptly narrowed caudad to a slender, curved, pointed tip.
distinctifasciata, new species

Larger species; abdominal tergum II with brown infuscation in form of 2 bands extending from side to middle; parameres dark brown, rodlike, not greatly curved; basistyle with basidorsal process stout and elongated; dististyle gently tapering caudad and incurved at middle.

imparungulae, new species

55. *Stilobezzia (Stilobezzia) debilipes* Das Gupta and Wirth, new species

FIGURE 97

FEMALE.—Length of wing 0.91 mm; breadth 0.36 mm.

Head: Pale yellowish, distal antennomeres slightly darkened; antennae and palpi similar to those of *imparungulae*, new species, AR 1.59; mandible with 7 teeth; vertex (fig. 97*a*) with 6 hairs, interocular space a little broader than in *imparungulae*.

Thorax: Color chocolate brown including scutellum, postscutellum, and upper half of pleuron; lower pleuron greenish yellow.

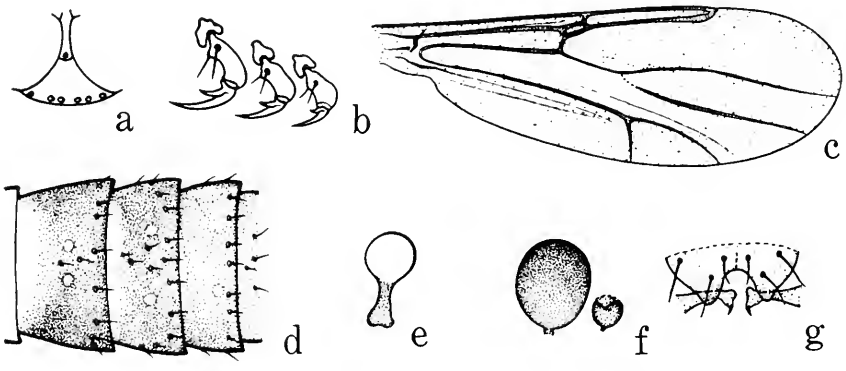

FIGURE 97.—*Stilobezzia debilipes*, new species (♀). *a*, frontovertex; *b*, last 2 tarsomeres and claws; *c*, wing; *d*, abdominal terga I–IV; *e*, halter; *f*, spermathecae; *g*, ♀ genitalia.

Legs: Yellowish white with weak setae; tarsal spines as in *imparungulae*, but ventral spines on V very weak, scarcely distinguishable on mid and hind leg; V (fig. 97*b*) short and somewhat swollen, claws much reduced, especially on mid and hind leg. Hind leg with lengths from femur to V as 61–57–31–15–4–3–6; TR 2.07; hind tibial comb with 6–8 spines.

Wing (fig. 97*c*): Colorless, the anterior veins whitish; CR 0.69; 2RC narrow, especially distad where vein R_{4+5} is somewhat stouter; r-m to stem M lengths as 5:22. Halter (fig. 97*e*) with dusky stem, whitish knob.

Abdomen (fig. 97*d*): Greenish white, terga II–VI completely dark brown; setae as in *imparungulae*. Spermathecae (fig. 97*f*) unequal, the larger oval, heavily sclerotized dark brown, the smaller spherical,

colorless; measuring 0.062 mm by 0.048 mm and 0.025 mm by 0.021 mm. Genital sclerotization as in figure 97*g*.

MALE.—Unknown.

DISTRIBUTION.—Malaya; Philippines.

TYPES.—Holotype female, Gudang Rasan, Kuantan, Pahang, Malaya, Jan.–Feb. 1959, R. Traub, light trap (USNM 69488). Paratypes, 2 females, PHILIPPINES: Mindanao, Agusan, Esperanza, 4–11 Nov. 1959, C. Yoshimoto, light trap; also 10 females (pinned), not paratypes.

DISCUSSION.—This species is distinguished by its general greenish white color with dark chocolate brown thorax and abdominal terga and the extreme reduction of the claws on the mid and hind legs as well as the shortening of tarsomere V.

56. *Stilobezzia* (*Stilobezzia*) *distinctifasciata* Das Gupta and Wirth, new species

FIGURE 98

FEMALE.—Unknown.

MALE.—Length of wing 0.85 mm.

Practically identical in coloration and general features with *imparungulae*, new species; wing as in figure 98*a*, CR 0.65. Abdomen (fig. 98*b*) with tergum I bearing 1–2 setae on each side; II pale except small feebly dark lateral patches; similar patches on III extending

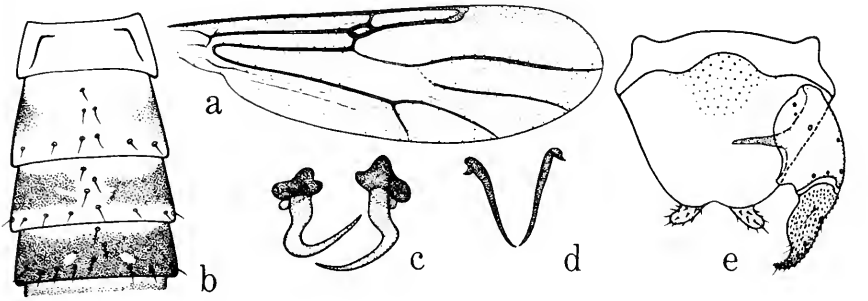

FIGURE 98.—*Stilobezzia distinctifasciata*, new species (♂). *a*, wing; *b*, abdominal terga I–IV; *c–e*, ♂ genitalia.

mesad nearly to midline. Genitalia (fig. 98*c–e*) yellowish, basal knob of paramere brownish; tergum IX short; basistyle short and stout, mesal margin projected distally in a short stout lobe, basidorsal process elongate; dististyle stout basally, abruptly narrowed distally into a slender curved pointed tip; aedeagal sclerites slender straight bars; parameres each with stout basal lobe, main body stout and

fairly straight on basal portion, distally strongly curved and gradually narrowed to slender distal rod.

Distribution.—Thailand.

Types.—Holotype male, Loei Prov., Thai Li Dist., Thailand, 8–9 June 1959, Manop R., light trap (USNM 69489). Paratype, 1 male, Chiang Mai Prov., Thailand, Apr.–May 1958, V. Notananda, light trap.

Discussion.—This species is similar to *unifasciata* Tokunaga from New Guinea, but that species has the abdomen pale except for a dark band covering the distal half of III and all of IV, the halter knob pale, and the male genitalia with dististyle stout to the tip.

57. *Stilobezzia* (*Stilobezzia*) *imparungulae* Das Gupta and Wirth, new species

Figures 10, 99

Female.—Length of wing 1.27 (1.18–1.41, n=10) mm; breadth 0.49 mm.

Head: Vertex (fig. 99*a*) yellowish brown, with 8 hairs. Antenna with torus brown, distal antennomeres pale; III–XV (fig. 10) with lengths as 14–8–8–8–8–8–8–8–20–19–20–20–32; AR 1.59; III–X long, elliptical, without preapical collar. Palpal segments (fig. 99*i*) as 4–10–15–9–13; pale, only V darker. Mandible with 7 teeth.

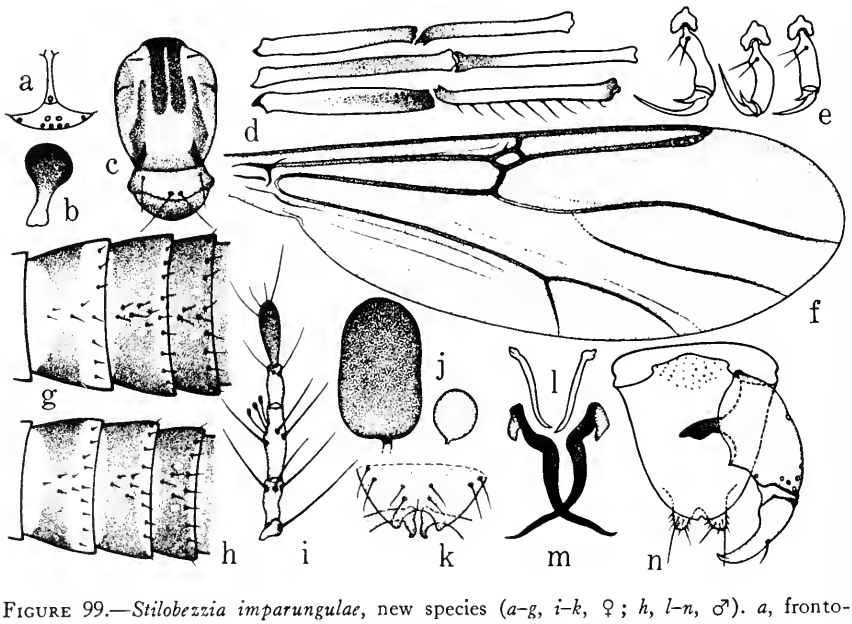

Figure 99.—*Stilobezzia imparungulae*, new species (*a–g*, *i–k*, ♀; *h*, *l–n*, ♂). *a*, fronto-vertex; *b*, halter; *c*, thorax; *d*, femora-tibiae; *e*, last 2 tarsomeres and claws; *f*, wing; *g*, abdominal terga II–IV, ♀; *h*, same, ♂; *i*, palpus, *j*, spermathecae; *k*, ♀ genitalia; *l–n*, ♂ genitalia.

Thorax: Brownish, pleuron yellowish except above mid and hind coxae; scutellum yellowish in middle; scutum (fig. 99*c*), vittate.

Legs (fig. 99*d*): Yellowish, hind femur and extreme tip of hind tibia faintly brownish; hairs weak and inconspicuous; tarsomeres with batonnetlike spines and claws as in figure 99*e;* ventral spines on I–III weak: fore leg 0–0–0, 0–0–0, 0–0–2, mid leg 0–0–2, 0–0–2, 0–0–2; hind leg 0–0–0, 0–0–0, 0–0–2. Hind leg with lengths from femur to V as 78–77–36–16–5–4–10; TR 2.25; hind tibial comb with 7–9 spines (av. 7.6, n=11).

Wing (fig. 99*f*): Faintly brownish hyaline, veins yellowish brown; CR 0.76; r-m to stem M lengths as 7:26. Halter (fig. 99*b*) knob dark brown, stem pale brownish.

Abdomen: Pale brown; terga dark brown as figured (fig. 99*g*), III–VI almost totally dark, II dark on sides; I with 2–3 setae on each side, III–VII with posterior row of setae and also a central cluster of stronger ones. Spermathecae (fig. 99*j*) unequal, the larger oblong in profile, strongly sclerotized except toward the duct, neck not sclerotized; the smaller pale, round; measurements 0.079 mm by 0.054 mm and 0.027 mm diameter respectively. Genital sclerotization as in figure 99*k*.

MALE.—Length of wing 1.03 mm.

Similar to the female with the usual sexual differences; antennal plumes yellowish; abdominal terga as in figure 99*h*; tarsal claws short, equal. Genitalia (fig. 99*l–n*) yellow, the parameres deeply sclerotized dark brown; basistyle broadly expanded mesad at base, with strongly sclerotized long basidorsal process; dististyle long, curved to pointed tip; aedeagal sclerites each slender straight rod; parameres each with large basal knob, sharply twice bent on basal portion, first mesad then caudad, then gradually curved ventromesad to long bladelike tip.

DISTRIBUTION.—Malaya; North Borneo, Phillippines, Sarawak.

TYPES.—Holotype female, Kuala Singgora, Pahang, Malaya, 17 July 1958, R. H. Wharton, light trap (USNM 69490). Allotype male, Labuan Island, North Borneo, Sept.–Oct. 1948, D. H. Colless, at light. Paratypes, 39 females, all collected at light except as noted. MALAYA: Pahang, same data as holotype, 6 females; same except Maran, 6 March 1959, 2 females. Pahang, Kuatan, Gudang Rasan, Jan.–Feb. 1959, R. Traub, 1 female. Pahang, Tahan River, King George V Nat. Park, 6 Nov. 1959, H. E. McClure, 2 females. Selangor, Kuala Lumpur, Aug., Oct. 1958, Apr. 1959, March 1960, Traub and McClure, 9 females. Singapore, Kg. Chantek Bahru, 11 Dec. 1959, D. H. Colless, 1 female. NORTH BORNEO: Kalabakan, Tawau Dist., 14 Nov. 1958, T. C. Maa, 2 females, Tambunan, March 1952, D. H. Colless, sweeping grass, 2 females. PHILIPPINES: Mindanao, Augsan, Esperanza, 4–11 Nov. 1959, C. Yoshimoto, 6 females. SARAWAK:

Kanpong Pueh, Lundu Dist., 700–1500 m., 6–12 June 1958, along stream, 2 females. Tebang, 7 Sept. 1958, MB–300, 1 female.

Discussion.—The reduced dark area on abdominal tergum II, the subrectangular large spermatheca, and the elongate tarsal claws will distinguish females of this species from those of *debilipes*. *Stilobezzia flavizonata* Tokunaga from New Guinea is apparently closely related, but in the male (female unknown), tergum II of the abdomen is entirely pale, and in the genitalia the basistyle lacks the broad basal expansion, the dististyle is stouter, and the paramere only once-bent, that at midlength, before the distal curvature. In *imparungulae* the infuscation of the proximal terga is variable, sometimes as in the male figured, infuscation lacking on I, that on II and III falling short of the caudal line of setae, and that on II restricted to the extreme lateral margins.

Checklist of the *Stilobezzia* of the World

(Synonyms in italics; original genus in parentheses after page citation; type-locality; E, N, S, etc., presently assigned subgeneric or group position; complete citations are given in References)

aberrans Johannsen 1931, p. 431, Java (synonym of *inermipes* Kieffer)
acrotrichis Tokunaga 1959, p. 301, New Guinea (N)
africana (Ingram and Macfie) 1921, p. 347 (*Eukraiohelea*), Gold Coast (E; Africana Group)
alba Tokunaga 1940b, p. 155, Japan (N)
albiabdominalis Tokunaga and Murachi 1959, p. 368, Caroline Isl. (N)
albicornis Kieffer 1919b, p. 84, Hungary (?)
albicoxa Lane and Forattini 1956, p. 210, Panama (S; Subviridis Group)
albocincta Kieffer 1917a, p. 309, Paraguay (S)
americana Kieffer 1917a, p. 310, Paraguay (S)
amnigena (Macfie) 1935, p. 56 (*Eukraiohelea*), Brazil (E; Africana Group)
antennalis (Coquillett) 1901, p. 606 (*Ceratopogon*), District of Columbia (S; Subviridis Group)
antipodalis Ingram and Macfie 1931b, p. 203, New Zealand (N)
areolaris (Kieffer) 1911b, p. 345 (*Sphaeromias*), Seychelles Isl. (S)
armatibiae Tokunaga 1963a, p. 260, New Guinea (N)
artistyla, new species, Thailand (N)
atrichopogon Lane and Forattini 1956, p. 208, Panama (N; Nigerrima Group)
atronitens Goetghebuer 1933, p. 148, Belgian Congo (S; Subviridis Group)
aureola Clastrier 1963, p. 49, Algeria (N)
badia Macfie 1932, p. 41, New Zealand (N)
basizonata Tokunaga 1963a, p. 254, New Guinea (S)
bata de Meillon and Hardy 1964, p. 62, Brit. Cameroons (S; Sybleae Group)
beckae Wirth 1953, p. 69, Florida (S)
biangulata Tokunaga 1963a, p. 274, New Guinea (N)
bicinctipes Ingram and Macfie 1931a, p. 195, Chile (N)
bicolor Lane 1947, p. 208, Brazil (S)
bifurcata Tokunaga 1959, p. 307, New Guinea (N)
bimacula (Kieffer) 1910, p. 201 (*Palpomyia*), India (S; Notata Group)
bimaculata Lane and Forattini 1956, p. 211, Panama (S)
biroi Kieffer 1918, p. 102, Singapore (synonym of *inermipes* Kieffer)

bispinosa Kieffer 1917a, p. 310, Paraguay (S)
bizonata Tokunaga 1963a, p. 256, New Guinea (S; Subviridis Group)
blantoni Lane and Forattini 1956, p. 211, Panama (S; Poikiloptera Group?)
boharti Tokunaga 1962, p. 211, Ryukyu Is. (S; Boharti Group)
brandti Tokunaga 1963a, p. 276, New Guinea (N)
brevicostalis, new species Malaya (E; Brevicostalis Group)
bulla Thomsen 1935, p. 289, New York (S)
calcaris Tokunaga and Murachi 1959, p. 382, Caroline Isl. (N; Calcaris Group)
caribe Lane and Forattini 1958, p. 208, Panama (S)
castanea Macfie 1934b, p. 220, Sumatra (N)
centripictura Tokunaga 1963a, p. 252, New Guinea (N; Speculae Group?)
cereola Clastrier 1963, p. 51, Europe (N)
chaconi Macfie 1938, p. 166, Trinidad (S; Subviridis Group)
clarifemorata, new species, Malaya (E; Africana Group)
claripennis Clastrier 1958, p. 243, Senegal (N)
claripes, new species, Korea (S; Subviridis Group)
clavicula Tokunaga 1963a, p. 270, New Guinea (N)
congestiterga, new species, Malaya (S; Subviridis Group)
constans, new species, Philippines (N)
coquilletti Kieffer 1917a, p. 308 (new name for *Ceratopogon pictus* Coquillett), (S; Notata Group)
coracina Kieffer 1917a, p. 311, Paraguay (S)
crassiforceps Tokunaga 1963a, p. 266, New Guinea (N)
crassinervis Goetghebuer 1920, p. 62 (to genus *Ceratopogon*)
crassipes Kieffer 1918, p. 101, India (S; Notata Group)
crassistyla, new species, Malaya (S; Subviridis Group)
crassinvenosa, new species, West Pakistan (N)
debilipes, new species, Malaya (S; Sybleae Group)
decora Kieffer 1916, p. 89, Formosa (S; Notata Group)
differens de Meillon 1960, p. 406, Liberia (N)
diminuta Lane and Forattini 1958, p. 209, Panama (S)
distinctifasciata, new species, Thailand (S; Sybleae Group)
diversa (Coquillett) 1901, p. 607 (*Ceratopogon*), New Jersey (S)
dorsalis (Zetterstedt) 1850, p. 3644 (*Ceratopogon*), Sweden (synonym of *gracilis* Haliday)
dorsofasciata (Lutz) 1914, p. 96 (*Palpomyia*), Brazil (E; Africana Group?)
douryi Clastrier 1963, p. 42, Algeria (N)
dryadum Macfie 1940b, p. 186, British Guiana (S; Subviridis Group?)
dubitans Lane, Forattini and Rabello 1955, p. 85, Brazil (S)
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edwardsi Ingram and Macfie 1931a, p. 198, Argentina (N)
elegantula (Johannsen) 1907, p. 109 (*Bezzia*), Kansas (E; Africana Group)
eliptaminensis Tokunaga 1963a, p. 265, New Guinea (N)
esakiana Tokunaga 1940c, p. 183, Caroline Isl. (synonym of *inermipes* Kieffer)
esakii Tokunaga 1940c, p. 183, Caroline Isl. (synonym of *subviridis* Macfie)
esmeralda Lane and Forattini 1958, p. 211, Panama (S)
eximitarsis, new species, Malaya (S; Subviridis Group)
fasciscutata, new species, Malaya (N)
femoralis Lane and Forattini 1956, p. 212, Panama (S; Subviridis Group)
festiva Kieffer 1911a, p. 118, India (S; Notata Group)
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fitzroyensis Lee 1948, p. 350, New South Wales (N)
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flavizonata Tokunaga 1963a, p. 263, New Guinea (S; Sybleae Group)
fluminensis Lane 1947, p. 210, Brazil (synonym of *glauca* Macfie)
fortipes, new species, Malaya (S; Boharti Group)
fortistyla, new species, Malaya (N)
foyi (Ingram and Macfie) 1922, p. 270 (*Eukraiohelea*), Nigeria (E; Africana Group)
fulviscuta Tokunaga and Murachi 1959, p. 399, Caroline Isl. (N)
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furva Ingram and Macfie 1931a, p. 200, Argentina (N)
fusca Goetghebuer 1932, p. 125, Belgium (N)
fuscidorsum Kieffer 1921b, p. 58, Schlieswig-Holstein (?)
fuscigenua Tokunaga and Murachi 1959, p. 373, Caroline Isl. (N)
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fusciscutellata Tokunaga and Murachi 1959, p. 376, Caroline Isl. (N; Longistyla Group)
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fuscula Wirth 1952, p. 204, California (N)
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gambiae Clastrier and Wirth 1961, p. 216, Gambia (S; Subviridis Group)
genitalis Lee 1948, p. 349, Tasmania (N)
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goetghebueri Statz 1944, p. 148, Germany: Rott (Oligocene) (?)
gracilis (Haliday) 1833, p. 152 (*Ceratopogon*), Ireland (N)
grandis Lane and Forattini 1958, p. 213, Panama (S)
gressitti Tokunaga and Murachi 1959, p. 372, Caroline Isl. (N)
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hirsuta Ingram and Macfie 1931a, p. 201, Argentina (N)
hollandia Tokunaga 1959, p. 299, New Guinea (? S)
huberti, new species, Malaya (S; Notata Group)
imparungulae, new species, Malaya (S; Sybleae Group)
inermipes Kieffer 1912, p. 8, Ceylon (S; Poikiloptera Group)
insolita, new species, Malaya (N)
intermedia de Meillon 1939, p. 18, Zululand (S; Subviridis Group)
inusitata (Johannsen) 1946, p. 190 (*Eukraiohelea*), Guam (synonym of *inermipes* Kieffer)
isthmostheca, new species, Thailand (S; Subviridis Group)
kiefferi Lane 1947, p. 205, Brazil (S)
lanceloti Macfie 1937, p. 78, Ethiopia (N)
lasioterga, new species, Malaya (S; Subviridis Group)
latiforceps Tokunaga 1959, p. 386, Caroline Isl. (N; calcaris Group)
leucopeza Clastrier 1958, p. 249, Senegal (S; Notata Group)
limnophila Ingram and Macfie 1922, p. 267, Gold Coast (S; Sybleae Group?)
lineata Kieffer 1913, p. 185, India (synonym of *inermipes* Kieffer)
longicornis Goetghebuer 1934, p. 193, Belgian Congo (N)
longiforceps Clastrier 1960, p. 274, Congo (S)
longihamata Tokunaga 1963a, p. 258, New Guinea (S; Subviridis Group)
longistyla Tokunaga 1941, p. 117, Caroline Isl. (N; Longistyla Group)
lutacea Edwards 1926, p. 412, England (N)
lutea (Malloch) 1918, p. 18 (*Hartomyia*), Illinois (N)
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maai Tokunaga 1963a, p. 264, New Guinea (N)
macclurei, new species, Malaya (N)

macfiei Lane 1947, p. 213, Brazil (S)
maculata Lane 1947, p. 207, Brazil (S)
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maculitibia Lane and Forattini 1956, p. 207, Panama (E; Africana Group)
magnitheca, new species, Sarawak (N)
maia Lane and Forattini 1958, p. 204, Panama (N)
mallochi Hoffman 1924, p. 283, New York (synonym of *lutea* (Malloch))
manaosensis Lane and Forattini 1958, p. 205, Brazil (N)
minima Kieffer 1918, p. 100, India (? E; Brevicostalis Group?)
minuta, new species, Thailand (E; Africana Group)
miripes, new species, Malaya (N)
modesta Lane 1947, p. 206, Brazil (S)
monticola Tokunaga 1940a, p. 279, Japan (N)
nasicae de Meillon 1959, p. 9, Middle Congo (S; Subviridis Group)
natalensis de Meillon 1939, p. 20, Zululand (N)
nebulosa Tokunaga 1963a, p. 252, New Guinea (N; Speculae Group)
nigerrima Ingram and Macfie 1931a, p. 196, Argentina (N; Nigerrima Group)
nigriapicalis Tokunaga 1963a, p. 275, New Guinea (N)
nigroflava Lane and Forattini 1958, p. 215, Costa Rica (S)
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nudisthmostheca, new species, Ceylon (S; Subviridis Group)
obesa, new species, Java (N)
obesigenitalis, new species, Malaya (N)
obscura Lane and Forattini 1958, p. 216, Panama (S)
ochracea (Winnertz) 1852, p. 48 (*Ceratopogon*), Germany (N)
ohakunei Ingram and Macfie 1931b, p. 202, New Zealand (N)
okinawensis Tokunaga 1962, p. 211, Ryukyu Is. (N)
ornata Lane and Forattini 1958, p. 206, Panama (N)
ornaticrus Ingram and Macfie 1931a, p. 194, Chile (N)
pallescens Lane and Forattini 1958, p. 218, Panama (S)
pallidicornis Tokunaga and Murachi 1959, p. 366, Palau Isl. (N)
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palpalis Tokunaga 1963a, p. 255, New Guinea (S; Subviridis Group)
panamensis Lane and Forattini 1958, p. 218, Panama (S)
papuae Tokunaga 1963a, p. 272, New Guinea (N)
parvaeungulae, new species, Malaya (N)
parvitheca, new species, Malaya (N)
parvula Goetghebuer 1933, p. 149, Belgian Congo (S; Subviridis Group)
patagonica Ingram and Macfie 1931a, p. 196, Argentina (N; Nigerrima Group)
paucipictipes, new species, Java (S; Pictipes Group)
pauliani de Meillon 1961, p. 21, Madagascar (? S; near Boharti Group)
paulistensis Lane 1947, p. 200, Brazil (S)
perspicua Johannsen 1931, p. 433 (*notata* var.), Sumatra (S; Notata Group)
picta (Coquillett) 1905, p. 60 (*Ceratopogon*) Virginia (synonym of *coquilletti* Kieffer)
pictipes Kieffer 1917b, p. 191, New South Wales (S; Pictipes Group)
poikiloptera (Ingram and Macfie) 1922, p. 276 (*Parabezzia*), Gold Coast (S; Poikiloptera Group)
postcervix Tokunaga 1959, p. 303, New Guinea (N)
propristyla, new species, North Borneo (S; Subviridis Group)
pruinosa Wirth 1952, p. 203, California (S)
pseudofestiva, new species, Thailand (S; Notata Group)
pseudonotata, new species, Malaya (S; Notata Group)

punctifemorata, new species, Malaya (E; Africana Group)
punctipes Wirth 1953, p. 79, Florida (S)
punctivenosa, new species, Thailand (S; Poikiloptera Group)
punctulata Lane 1947, p. 204, Brazil (S)
quatei, new species, Viet Nam (S; Poikiloptera Group)
rabelloi Lane 1947, p. 203, Brazil (S)
rava Ingram and Macfie 1931a, p. 203, Chile (N)
reflexa Tokunaga 1963a, p. 269, New Guinea (N)
robusta, new species, Malaya (N)
rotunditheca, new species, Sarawak (S; Boharti Group)
rufa Kieffer 1921a, p. 23, Cameroun (S)
rufithorax Kieffer 1919b, p. 84, Hungary (synonym of *ochracea* (Winnertz))
sahariensis Kieffer 1923, p. 681, Biskra (N)
samoana Edwards 1928, p. 57, Samoa (N)
sanctibernardini Kieffer 1917a, p. 308, Paraguay (N)
scutata Lane and Forattini 1961, p. 92, Panama (S)
scutellaris Kieffer 1912, p. 7 (*festiva* var.), Ceylon (synonym of *festiva* Kieffer)
scutellata Goetghebuer 1920, p. 111, Belgium (synonym of *ochracea* (Winnertz))
setigera Tokunaga 1959, p. 387 (*latiforceps*, subspecies), Caroline Isl. (N; Calcaris Group)
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setigeriscutellata Tokunaga and Murachi 1959, p. 394, Caroline Isl. (N)
sharpi Edwards 1929, p. 427, England (N)
silvicola Macfie 1940b, p. 185, British Guiana (S)
similans Lane and Forattini 1956, p. 214, Panama (S)
similisegmenta Tokunaga 1959, p. 306, New Guianea (N)
simplex Lane and Forattini 1958, p. 222, Panama (S)
simulator de Meillon 1960, p. 408, Liberia (N)
soror Johannsen 1931, p. 432, Bali (N)
spadicicoxalis Tokunaga and Murachi 1959, p. 397, Caroline Is. (N)
spadicitibialis Tokunaga and Murachi 1959, p. 370, Caroline Is. (N; Longistyla Group)
speculae Macfiie 1934b, p. 284, Malaya (N. Speculae Group)
spinifemorata Tokunaga 1963a, p. 262, New Guinea (N)
spinipes, new species, Philippines (S; Boharti Group)
spinitarsis, new species, Malaya (S; Notata Group)
spiniterga, new species, Malaya (S; Subviridis Group)
spirogyrae Carter, Ingram and Macfie 1921, p. 325, Gold Coast (S; Notata Group)
stonei Wirth 1953, p. 66, Virginia (N)
subalba, new species, Malaya (N)
subfestiva, new species, from Thailand (S; Notata Group)
subflava, new species, Malaya (S; Boharti Group)
subnebulosa, new species, Thailand (N; Speculae Group)
subsessilis Kieffer 1917a, p. 311, Paraguay (E)
subsoror Tokunaga 1941, p. 116, Caroline Isl. (N)
subviridis Macfie 1934b, p. 218, Sumatra (S; Subviridis Group)
succinea Ingram and Macfie 1931a, p. 200, Argentina (N)
supernotata, new species, Malaya (S; Notata Group)
sybleae Wirth 1953, p. 82, Virginia (S; Sybleae Group)
tasmaniensis Lee 1948, p. 347, Tasmania (N)
tauffliebi de Meillon 1959, p. 12, Middle Congo (S; Sybleae Group)
tenebrosa Macfie 1933, p. 101, Marquesas Isl. (S; Subviridis Group)

tenuicolorata, new species, Malaya (S; Subviridis Group)
tenuiforceps Tokunaga and Murachi 1959, p. 384, Caroline Isl. (N; Calcaris Group)
tetragona Goetghebuer 1934, p. 193, Belgian Congo (?)
thomsenae Wirth 1953, p. 83, Florida (S)
thyridofera Tokunaga 1959, p. 304, New Guinea (N)
tibialis Lane and Forattini 1956, p. 209, Panama (N; Nigerrima Group)
tokunagai, new species, Japan (S; Subviridis Group)
tonnoiri Macfie 1932, p. 43, New Zealand (N)
transversa Lane and Forattini 1958, p. 222, Panama (S)
traubi, new species, Malaya (S; Boharti Group)
travassosi Lane 1947, p. 210, Brazil (S)
tropica Clastrier 1958, p. 247, Senegal (S; Subviridis Group)
truncata Tokunaga 1959, p. 389, Caroline Isl. (N; Calcaris Group)
ugandae Ingram and Macfie 1923, p. 62, Uganda (S)
uncinata Johannsen 1943, p. 761, Alabama (synonym of *Parabezzia petiolata* Malloch)
unifasciata Tokunaga 1963a, p. 262, New Guinea (S; Syblae Group)
unifascidorsalis Tokunaga 1959, p. 379, Caroline Isl. (N; Calcaris Group)
varia Ingram and Macfie 1931a, p. 191, Chile (N)
venefica, new species, Thailand (N; Speculae Group)
venezuelensis Ortiz 1950, p. 199 (*glauca* var.) Venezuela (S)
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virescens Kieffer 1919b, p. 84, Hungary (?)
viridis (Coquillett) 1901, p. 607 (*Ceratopogon*), New Jersey (S)
viridis Goetghebuer 1935, p. 179, Belgian Congo (S; Notata Group; ?=*spirogyrae* Carter, Ingram and Macfie or needs new name)
viridiventris (Kieffer) 1910, p. 203 (*Palpomyia*), Burma (?)
vittata Clastrier 1960, p. 276, Congo (?N; Speculae Group?)
vittula Tokunaga 1963a, p. 260, New Guinea (N)
wirthi Lane and Forattini 1956, p. 214, Panama (S)
wygodzinskyi Lane 1947, p. 212, Brazil (S; Subviridis Group ?)
xanthogaster, new species, Malaya (N)
zonata Tokunaga 1963b, p. 43, Japan (? S)

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Index to Species