

Some new or little known genera, subgenera, species and subspecies of Aphididae from India (Homoptera, Aphididae)

by

D. HILLE RIS LAMBERS¹⁾ and A. N. BASU²⁾

Amphicercidus indicus, nov. spec.

APTEROUS VIVIPAROUS FEMALE.

Morphological characters. Body broadly oval, about 2.70—3.40 mm long. Head sclerotic, brownish to blackish pigmented, smooth with fine acute hairs which are about $2\frac{1}{2}$ times as long as basal diameter of ant. segment III; frontal tubercles little developed, front between them almost flat. Eyes normal, with rather small triommatidia. Antennae shorter than body; segment III slightly curved, very faintly imbricated, on basal half somewhat incrassate and there, or to about $\frac{3}{4}$ the length of the segment, on one side with 12—28 irregularly arranged, small, round to oval, rather flat rhinaria with bulging membranes and narrow rims; processus terminalis less than 3 times base of segment VI. Antennal hairs with very fine acute apices, the longest ones on segment III up to 2.5 times as long as basal diameter of the segment. Rostrum reaching to just past hind coxae; apical joint with rather straight sides, about $\frac{2}{3}$ of the long second joints of hind tarsi, with 6—10 hairs besides the 3 subapical pairs. Abdominal dorsum smooth, membranous with small brown, granulated pleural intersegmental sclerites. Dorsal hairs rather regularly arranged, long with acute apices; tergites II and III each with about 16—18 hairs of some 0.08 mm long, tergite VIII with 7—10 hairs of a similar length as on segment III. Conspicuous semiglobular marginal tubercles on abd. segments II—V, constantly present on V but often absent on other tergites. Stigmal plates paler than the pleural sclerites, with transversely oval pori. Siphunculi pale brownish to blackish pigmented, stout, more or less tapering, at base about $\frac{1}{4}$ — $\frac{2}{5}$ of their length, faintly imbricated, with a hardly developed, often inconspicuous flange. Cauda pale brownish to dark, tongue-shaped, basal width $1\frac{1}{2}$ —2 times its length, with 12—19 hairs. Anal and subgenital plate brownish to blackish. Legs long, brownish, with the apices of the tibiae and the tarsi darker; hairs fine and long, first tarsal joints with 3,3,3 hairs; second joints long, hardly imbricated.

Colour. Body yellowish brown, covered with abundant waxy material. Head dusky brown to dark. Antennae brownish, darker at the tip. Legs pale except at the tips. Siphunculi pale brown to blackish.

Measurements in mm and number of rhinaria.

No.	Length body	Ant.	Ant. segments				Siph.	Cau.	Rhin. on III
			III	IV	V	VI			
1.	3.20	2.39	0.90	0.36	0.36	(0.16 + 0.39)	0.64	0.09	14 & 16
2.	2.94	2.14	0.70	0.36	0.30	(0.16 + 0.40)	0.60	0.11	18 & 20
3.	2.73	2.23	0.78	0.38	0.31	(0.16 + 0.38)	0.62	0.08	26 & 28
4.	3.00	1.92	0.67	0.33	0.22	(0.14 + 0.33)	0.52	0.12	15 & 18
5.	2.84	2.06	0.65	0.65	0.36	(0.16 + 0.38)	0.48	0.08	15 & 25
6.	3.39	2.60	0.91	0.46	0.38	(0.16 + 0.45)	0.72	0.11	21 & 24

¹⁾ Bladluisonderzoek T.N.O., Bennekom, Netherlands.

²⁾ Plant Virus Research Substation, Kalimpong, India.

(1—3, 1.IX.1956, leg. A. N. BASU; 4—5, 22.II.1957, leg. S. DAS; 6, 16.VII.1957, leg. A. N. BASU; all on *Lonicera glabrata*, Darjeeling).

ALATE VIVIPAROUS FEMALE.

Morphological characters. Head and pronotum brownish, meso- and metanotum blackish sclerotic. Abdomen with blackish brown sclerotic pattern; segment I with a spino-pleural band; segments II and III with separate spinal bands and intersegmental pleural sclerites; segments IV, V and VI with the spino-pleural bands fused, enclosing two rather large, non-sclerotic areas between IV and V, and V and VI; the spinal sclerite on segment VII fused with that of the preceding tergite, or the spinal and pleural sclerites of segment VI and the spinal sclerites of segment VIII are mutually free. Marginal sclerites small and pale brown on segment I, darker, larger and much more conspicuous on segment II; postsiphuncular sclerites narrow but distinct. Antennae dark brown; segment III darkest, with 136—152 tuberculate rhinaria throughout its length; segment IV with 0—4 rhinaria arranged irregularly near the middle of the segment. Siphunculi blackish, all along their length more distinctly imbricated than in apterae, with very little developed flange. Cauda more elongated than in apterae, its basal width up to 1.2 times its length, with pale basal half, distally blackish sclerotic, with 20—25 hairs. Other characters as in apterae.

Colour. Head and thorax greyish black, antennae brownish, abdomen pale greenish with the sclerotic areas dusky black, siphunculi blackish, legs brownish, with apices of femora and tibiae darker. Body covered with abundant waxy material.

Measurements in mm and number of rhinaria.

No.	Length body	Ant.	Ant. segments				Siph.	Cau.	Rhin. on III		IV
			III	IV	V	VI					
1.	3.82	3.13	1.32	0.56	0.38	(0.17 + 0.43)	0.70	0.16	136 & 140		0 & 4
2.	3.77	3.13	1.31	0.57	0.38	(0.17 + 0.45)	0.65	0.14	145 & 146		3 & 4
3.	3.63	3.02	1.28	0.52	0.38	(0.16 + 0.44)	0.67	0.14	150 & 152		0 & 4

(1—3, on *Lonicera glabrata*, Darjeeling, 27.V.1958, leg. S. DAS).

Distribution: The species has been noted only at Darjeeling at about 6,500 ft. a.s.l.

Biology: The species forms colonies around the stem of *Lonicera glabrata*. Only mild infestations have been noted so far, without any apparent injury to the host. Both the adults and the nymphs are rather sluggish. Ants do not visit this aphid. From field observations it would seem that the species does not produce sexuals and that it reproduces viviparously even during the coldest period.

DISCUSSION: So far 4 species, 3 from North America (PALMER, 1952) and one from Japan (NARZYKULOV, 1957) have been placed in *Amphicercidus* Oestl. *Amphicercidus maxsoni* Palmer, 1936, would seem to belong to another genus, which leaves 3 nearly related species in this genus, all living on *Lonicera*.

Amphicercidus indicus nov. spec. differs from these three species in the very much higher number of rhinaria in alatae. From both *A. pulverulens* (Gillette, 1911) and *A. flocculosus* (Gillette & Palmer, 1929), of which material is available, it differs in the much longer antennal hairs, stouter siphunculi and shorter process terminalis, less than 3 times the base of ant. segment VI. In the latter respect it

agrees with *A. japonicus* (Hori, 1927) from *Lonicera morrowii*, which according to HORI's measurements and description must be very similar. But HORI's figures show that the antennal hairs are very considerably shorter than those in our species, the rhinaria in apterae cover most of the segment and are rather evenly distributed instead of being concentrated on an incrassate, basal part, and the siphunculi are much thinner.

In the literature there is apparently no comment on the conspicuously long second tarsal joints in the members of this genus.

Amphorophora ampullata Buckt. subsp. **bengalensis**, nov. subsp.

APTEROUS VIVIPAROUS FEMALE.

Morphological characters: Differs from *ampullata* Buckt. sensu stricto, as follows: Antennal segment III with very few, 1—6 secondary rhinaria on basal half. Ultimate rostral joint rather long, with 7—10 hairs besides 3 pairs near apex. Siphunculi broadest at base, then nearly cylindrical up to the basal $1\frac{1}{2}$ — $2\frac{2}{5}$; the remainder distinctly swollen, so that the maximum diameter of the swollen area is about $1\frac{1}{3}$ — $1\frac{2}{5}$ times smallest width on basal half.

Measurements in mm and number of rhinaria.

No.	Length body	Ant.	Ant. segments				Siph.	Cau.	Rhin. on III
			III	IV	V	VI			
1.	4.28	5.79	1.44	1.31	0.92	(0.27 + 1.44)	0.88	0.33	3 & 4
2.	3.79	5.20	1.37	1.08	0.86	(0.27 + 1.26)	0.80	0.32	4 & 6
3.	4.08	5.60	1.38	1.18	0.94	(0.27 + 1.44)	0.86	0.33	6 & 6
4.	3.96	5.60	1.39	1.13	0.96	(0.33 + 1.42)	0.80	0.32	1 & 1

(1—2, Kalimpong, 29.VIII.1956, leg. A. N. BASU; 3, Kalimpong, 12.X.1957, leg. A. N. BASU; 4. Soreang, 11.I.1958, leg. S. DAS; on ferns).

Distribution: The species was first collected near Kalimpong (altitude 3,500 ft) and has subsequently been recorded from Soreang (3,000 ft), Darjeeling (6,800 ft—7,000 ft), Ghum (7,400 ft) and Permaguri (6,500 ft), all in the district of Darjeeling. Material from Nepal, Taplejung (6,200 ft) was also examined.

Biology: The aphid feeds on the under surface of the leaves of various ferns. At lower altitudes the species is more or less common throughout the year, while at higher altitudes it has not been observed during the winter months. Observations so far indicate that the species is most abundant during October, both at higher and lower altitudes.

DISCUSSION: It appears that *Amphorophora ampullata* Buckt. within its area of distribution shows subspecific differentiation. HILLE RIS LAMBERS (1949) lists *Amphorophora laingi* Mason, 1925, from North America as a synonym. Later study of fresh and living specimens, however, has shown some differences between North American and European material. The Indian specimens differ from both.

The three subspecies key as follows:

- 1 (2) In apterae second joint of hind tarsi without the claws 3 or more times as long as smallest diameter of the siphunculi on basal half; base of ant. segment III with 1—6 rhinaria. Last rostral segment 0.19 mm and longer. India, Nepal. subsp. *bengalensis* nov. subsp.
- 2 (1) In apterae second joint of hind tarsi $2\frac{2}{5}$ — 7 times as long as smallest

diameter of the siphunculi on basal half; usually more rhinaria present. Last rostral segment 0.18 mm or shorter. Europe and North America.

- 3 (4) In apterae tarsi small, the second joints of the hind tarsi rarely over 0.033 mm long. Oviparae like the viviparae, not reddish coloured. Mainly on *Athyrium felix femina*. Europe subsp. *ampullata* Buckt. sensu stricto
- 4 (3) In apterae tarsi longer, the second joint of the hind tarsi over 0.035 mm long. Oviparae with pink head, two bright pink to reddish brown bands pleuro-marginally and with the tip of the cauda bright pink, remainder opaque whitish to yellowish. On *Onoclea sensibilis*, etc. America subsp. *laingi* Mason

Subsp. *laingi* Mason, 1925, was described as a species from specimens from *Onoclea*, Orono, Maine. MASON (1925) believed that the *Amphorophora ampullata* of VAN DER GOOT (1915), MORDVILKO (1919), etc., was the same, but this now appears to be incorrect. Prof. G. W. SIMPSON made a considerable number of specimens from the type locality available, and the senior author collected oviparae near Presque Isle, Maine U.S.A.

Chaitoregma, nov. gen.

TYPUS GENERIS: *Oregma tattakana* Takahashi, 1925. Apterae with solidly sclerotic tergum, covered with large quite flat warts. Head with frontal horns that from birth are very blunt and semioval. Pronotum with a posterior ridge and pleural depressions as typical for *Oregma* Buckt., sensu TAKAHASHI, 1931. Head plus pronotum, meso- and metanotum, and abd. tergites I and VIII mutually free, the other tergites completely fused without sutures. Siphunculi normal, not on hairy cones. Cauda constricted, much wider than long. Subanal plate bilobed. Legs normal.

DISCUSSION: The species that at some time were placed in *Oregma* Buckt. have been distributed by TAKAHASHI (1931) over three genera. However, the characters used for separating them are not very easy ones.

The following key to the apterous morphs on Gramineae, etc., might be useful:

- 1 (2) No wax-glands in localized groups present. Frontal horns cylindrical with rounded tips from birth. Tergum heavily sclerotic, on the abdomen without segmental borderlines, everywhere with roundish stippled warts, without wax-glands *Chaitoregma* nov. spec.
- 2 (1) Localized wax-glands on the margin of the body, often also spinally and pleurally, particularly on abd. tergite VIII. Frontal horns in new-born larvae normally acute. Tergum always distinctly segmented on abdomen.
- 3 (4) Pronotum with two pleural grooves, running inwards and slightly forwards, separating a posterior ridge. Wax-gland groups consisting of randomly arranged, oval plates. First instar larvae of two kinds, one of them like pseudoscorpions, with heavy forelegs, often immobile fore tarsi and very large frontal horns and claws ... *Oregma* Buckton sensu TAKAHASHI, 1931.
- 4 (3) Pronotum without deep pleural grooves, rather evenly rounded. Wax-gland groups variable. First instar larvae of one kind, always with normal fore legs.
- 5 (6) At least the marginal gland groups partly consisting of transversely oval

- glands lying side by side. Frontal horns in first instar larvae thick and strongly conical *Astegopteryx* Karsch (*Trichoregma* Tak.).
- 6 (5) All gland groups more or less rounded, with irregularly shaped and arranged glands. Frontal horns in first instar larvae long, slender, pointed and curved upward *Ceratovacuna* Zehntner

In *Oregma* a sclerotic, dark tergum is found in *O. pendleburyi* Tak. from Malaya and Java, but it has a few normal wax-glands, the abdomen shows a very distinct segmentation and it has the characteristic two types of first instar larvae, both with very long horns on the front. *Oregma aderuensis* Takahashi, 1935 from Formosa, according to the original description belongs to *Chaitoregma* nov. gen.

Chaitoregma tattakana (Takahashi, 1925)

APTEROUS VIVIPAROUS FEMALE.

Morphological characters. Body oval, about 1.53 to 1.87 mm long, with as maximum width about 0.96 to 1.05 mm. Tergum brown to blackish sclerotic; head and pronotum fused; mesonotum, metanotum and abd. tergite I mutually free; abd. tergites II to VII completely fused; tergite VIII free; the sclerotic areas evenly covered with numerous roundish wax-gland-like warts, that are slightly stippled. Front convex; frontal horns cylindrical with broadly rounded tips, often attenuated near base, about 1.1 to 2.0 times as long as their basal width, smooth, with 3—5 short hairs on distal half. Antennae dark, about 0.15—0.17 times body, 4-segmented; ant. hairs all fine, long and wavy with acute apices; segment III with 2—3 hairs on distal half, the longest about 1.2 to 2 times basal diameter of the segment. Rostrum short, reaching to first pair of coxae; apical segment obchordate, about 0.50—0.66 of second joint of hind tarsi, with only 3 pairs of long hairs near the apex. Eyes of 3 facets. Dorsal hairs numerous, fine wavy, with acute apices; head with a large number of hairs up to 4.5—5.6 times basal diameter of ant. segment III; those on the anterior abd. tergites up to about 3.7—6.3 times the mentioned diameter; tergite VIII with 16—20 hairs, up to 3.6—5.0 times the mentioned diameter. Siphunculi very slightly elevated; siphuncular pore small, about 0.03 mm, roundish to oval. Cauda very small and short, pale, roundish, slightly constricted near base, with about 8—10 hairs. Anal plate pale, bilobed. Legs brownish, with the apices of tarsi and occasionally the distal ends of femora darker; femora and tarsi smooth; hairs on first tarsal joints 3,3,3.

Colour. Body brownish to violet, covered by waxy dust.

Measurements in mm.

No.	Length body	Ant.	Ant. segments		Diam. Siph.
			III	IV	
1.	1.72	0.26	0.10	(0.04 + 0.023)	0.03
2.	1.69	0.26	0.10	(0.06 + 0.024)	0.05
3.	1.76	0.28	0.11	(0.06 + 0.024)	0.03
4.	1.80	0.28	0.10	(0.06 + 0.024)	0.03
5.	1.72	0.28	0.11	(0.06 + 0.024)	0.04
6.	1.87	0.32	0.12	(0.07 + 0.024)	0.04
7.	1.53	0.26	0.10	(0.06 + 0.024)	0.03
8.	1.68	0.28	0.11	(0.06 + 0.024)	0.02

(1—6, on *Arundinaria* sp., Darjeeling, 9.IV.1957, leg. A. N. BASU; 7—8, same host and locality, 24.V.1958, leg. S. DAS).

Host plant: *Arundinaria* sp.

Distribution: The species was observed in Darjeeling, at an altitude of about 6800 ft. Originally described from Formosa.

Biology: The species infests the under side of the leaves of its host and forms large colonies. The infested portions of the leaves show symptoms of withering. Ants do not attend this aphid.

DISCUSSION: Because the original description of *O. tattakana* Tak. is not quite up to modern standards, and as several of its characters are essential for an understanding of the new genus we redescribe it here. Whether subspecific differences are present between the original Formosan material and that found in the Southern Himalayas could not be decided because no type material was available.

Ericolophium Tao, 1963

TAO erected the genus *Ericolophium* for *Macrosiphum itae* Takahashi, 1923 (type-species) and *Macrosiphum holsti* Takahashi, 1935. These two species mutually agree in a distinct median frontal tubercle, the absence of secondary rhinaria in apterae, and an unusually short processus terminalis. In the same paper TAO erects a genus *Neoacyrthosiphon* for *Acyrthosiphon taiheisanum* Takahashi, 1935, a species very nearly related to those mentioned above, but without a distinct median frontal tubercle. All the three species live on *Rhododendron* species in S.E. Asia and clearly are very nearly interrelated too.

The original description of *taiheisanum* reveals, however, that the apterae have "a rounded frontal protuberance, not visible from above" and therefore the differential character used by TAO (1963) for separating *Neoacyrthosiphon* from *Ericolophium* does not hold. On the other hand TAKAHASHI (1935) mentions small dusky patches on the dorsum of *taiheisanum* and this character, refound in an undescribed species from the Ericaceae *Pentapterygium*, can be used for distinguishing *Neoacyrthosiphon* Tao from *Ericolophium* Tao. We consider *Neoacyrthosiphon* Tao, 1963 a subgenus of *Ericolophium* Tao, 1963. To the generic characters we should like to add that the second tarsal joints often have spinules on the imbrications, and that larvae have no spinules on the hind tibiae. The subgenus resembles *Nasonovia* Mordvilko, 1914, in many respects but apterae have no secondary rhinaria and the stigmal pori are reniform.

Ericolophium (*Neoacyrthosiphon*) *setosum*, nov. spec.

APTEROUS VIVIPAROUS FEMALE.

Morphological characters. Body oval, about 1.60 to 2.15 mm long. Tergum membranous with roundish, dark brown, hair-bearing sclerites; tergites VII and VIII spinulose, with more or less developed transverse sclerotic bands; post-siphuncular sclerites blackish brown, spinulose. Dorsal hairs very long, rather thin, on strongly developed, high-conical sockets, with mostly fine and acute, sometimes rather bluntish and just thickened apices, occasionally one or two with furcated apices; longest hair on the anterior abd. tergites about 3.6 to

5.6 times as long as basal diameter of ant. segment III; tergite VIII with 6—8 hairs. Head brown to dark brown sclerotic, quite smooth; frontal tubercles poorly developed; median frontal tubercle distinct, but low; vertex with hairs, similar to those on abd. dorsum, the longest about 3.5 to 4.5 times basal diameter of ant. segment III. Antennae about 0.50 to 0.70 times as long as body, without secondary rhinaria; segment I dark like head; flagellum pale brown, apical half of segment V and base of VI near the primary rhinaria darker; segment III smooth, the rest of the flagellum apicad more distinctly imbricated; antennal hairs acute, the longest on segment III 0.6—1 times basal diameter of the segment. Eyes well developed, with prominent triommatidia. Rostrum long, reaching past the middle of the body; apical segment slender, about 1.5 to 1.6 times second joint of hind tarsi, with 7—12 fine hairs besides the 3 subapical pairs. Siphunculi brown to blackish brown, about 0.14 to 0.18 length of body, tapering to the middle and there about $1\frac{3}{4}$ times as thick as greatest diameter of hind tibiae, smooth, with a few apical transverse striae. Flange small, thin. Cauda brownish to blackish brown, about 0.68 to 0.95 of the siphunculi, tapering, with a faint constriction near the middle and with slightly blunt tip, with 2 pairs of lateral and 1—2 preapical dorsal hairs. Anal plate blackish brown. Legs pale brown, femora and tarsi slightly darker than tibiae; first tarsal joints with 3,3,3 hairs; second joints with few, but long spinules on the ventral imbrications.

Colour. Body green to deep green, with deep brown siphunculi and brown legs.

Measurements in mm.

No.	Length body	Ant.	Ant. segments				Siph.	Cau.
			III	IV	V	VI		
1.	1.89	1.15	0.29	0.16	0.16	(0.11 + 0.30)	0.30	0.21
2.	1.61	1.03	0.23	0.13	0.14	(0.09 + 0.30)	0.27	0.22
3.	1.84	1.01	0.22	0.14	0.11	(0.09 + 0.29)	0.25	0.22
4.	1.92	1.18	0.29	0.17	0.14	(0.11 + 0.32)	0.32	0.24
5.	2.12	1.20	0.30	0.17	0.16	(0.09 + 0.32)	0.33	0.32
6.	2.06	1.19	0.29	0.16	0.14	(0.10 + 0.34)	0.35	0.24

(1—3, 26.V.1957; 3—6, 10.X.1957. On *Pentapterygium*, Permaguri, leg. A. N. BASU).

ALATE VIVIPAROUS FEMALE.

Morphological characters. Body smaller than in apterae, about 1.34 to 1.47 mm long. Abd. sclerotic pattern pale brownish, with separate spinopleural transverse bars on tergites III to V, and separate, small pleural sclerites on tergites I to V; marginal sclerites present on tergites II to V, conspicuous on tergites II to IV, each with a few hairs and minute spinular striae, those on tergite V smaller; post-siphuncular sclerites well developed, conspicuously spinulose. Dorsal hairs much shorter and finer than those in apterae; on anterior abd. tergites up to about 1.3 to 1.7 times as long as basal diameter of ant. segment III; longest hair on tergite VIII up to about 1.6 to 1.7 times that diameter. Head brown, smooth, nearly without frontal tubercles; antennae brown, about 0.70 to 0.85 times as long as body; processus terminalis about 2.8 to 3.1 times as long as base of segment VI; secondary rhinaria small, round, 8 to 12 in number, arranged in a single row along basal $\frac{3}{4}$ — $\frac{4}{5}$ part of ant. segment III, none on the others.

Siphunculi brown, more slender than in apterae. Cauda pale brownish, slender. Legs brownish, bases and apices of tibiae and the tarsi darker. Wing venation normal.

Colour. Head, thorax and siphunculi brownish; abdomen greenish.

Measurements in mm and number of rhinaria.

No.	Length body	Ant.	Ant. segments				Siph.	Cau.	Rhin. on III
			III	IV	V	VI			
1.	1.47	1.17	0.30	0.16	0.14	(0.11 + 0.32)	0.27	0.16	8 & 12
2.	1.39	1.13	0.30	0.16	0.13	(0.09 + 0.32)	0.27	0.16	9 & 11
3.	1.34	1.06	0.27	0.15	0.13	(0.09 + 0.30)	0.25	0.14	8 & 10
4.	1.47	1.09	0.29	0.14	0.13	(0.09 + 0.32)	0.27	0.15	8 & 10

(1—4, on *Pentapterygium serpens*, Permaguri, 10.X.1957, leg. A. N. BASU).

(1—4, on *Pentapterygium serpens*, Permaguri, 10.X.1957, leg. A. N. BASU).

Host plant: *Pentapterygium serpens*.

Distribution: The species has so far been observed only in Permaguri, in the district of Darjeeling, at an altitude of nearly 6,000 ft.

Biology: The aphid infests the tender portions of the shoots and occasionally the under side of the leaves, without visible injury to the host plant. Colonies are usually fairly large but they are seldom dense.

Notes. The species can very easily be distinguished from the type of the subgenus by its very long dorsal hairs, short antennae, longer processus terminalis and smooth siphunculi. While *E. (N.) taiheisanum* infests the upper sides of the leaves, the new species colonizes the young shoots or the under sides of the leaves of its host plant.

Oregma subglandulosa, nov. spec.

APTEROUS VIVIPAROUS FEMALE.

Morphological characters. Body oval, measuring about 1.70 to 2.30 mm. A large number of wax-glands present in spinal, pleural and marginal groups as follows: Head with a pair of marginal groups near the eyes, each consisting of about 9 to 13 glands; pronotum with a pair of spino-pleural groups each of 3 to 6 glands, and a pair of marginal groups each of about 10 to 14 glands; mesonotum similarly with a pair of spino-pleural groups each of about 4 to 11 glands, and a pair of marginal groups each of about 10 to 17 glands; metanotum with a pair of spinal groups each of about 3 to 6 glands, a pair of pleural groups each of about 4 to 6 glands, and a pair of marginal groups each of about 8 to 13 glands; the four anterior abd. tergites each with a pair of spinal groups of about 1 to 6 glands, a pair of pleural groups each of about 2 to 6 glands, and a pair of marginal groups each of about 4 to 10 glands; the spinal and pleural groups on tergite V more or less fused, with a pair of marginal groups of about 7—9 glands; tergite VI with a spino-pleural group of about 10 to 13 glands, and a pair of marginal groups of about 6 to 11 glands; tergite VIII with a spinal group of about 14 to 17 glands; the wax-glands are rounded, variable in shape, well separated from each other and therefore not even in the largest groups squeezed into faceted groups; each gland on a sclerotic pigmented area, but mostly the sclerites per group fused, so that each

group of glands is placed on a pigmented sclerite; breaks in these sclerites often still indicate the borders between spinal and pleural groups, e.g., on tergite VI; the spinal and pleural glands of the six anterior abd. tergites largest, conspicuously larger than the siphuncular rim and about 3 times as large as the smallest ones that are present on the head and on the margin of the pronotum. Dorsum membranous, transversely striate with finely wavy wrinkles. Pleural grooves on pronotum indistinct. Dorsal hairs fine, with just incrassate very apices; those on head and anterior abd. tergites up to about 2.7 times basal diameter of ant. segment III; those on tergite VIII about 3 times as long as the mentioned diameter. Head brownish sclerotic; frontal horns with acute or nearly acute apices, about 1.2 to 1.6 times as long as their basal width, with about 6—12 very small hairs. Antennae about 0.14 to 0.17 times as long as body, 4-segmented; segment III longest, with a few hairs, the longest of which is shorter than to nearly as long as basal diameter of the segment. Siphunculi dark brown, slightly elevated, with a narrow rim. Cauda and anal plate pale, with many hairs. Legs brown, with smooth femora and tibiae; first tarsal joints with 3,3,2 or 3,2,2 hairs, the longest of which are 3 times as long as the median hair, and about as long as the ventral surface of the second tarsal joint.

Colour: Body reddish brown, covered with wax, which projects marginally as distinct waxy fins.

Measurements in mm.

No.	Length body	Ant.	Ant. segments		Front. horn	Diam. Siph.
			III	IV		
1.	2.03	0.32	0.12	(0.08 + 0.024)	0.080	0.05
2.	1.92	0.33	0.13	(0.08 + 0.024)	0.088	0.03
3.	1.96	0.33	0.13	(0.07 + 0.024)	0.080	0.04
4.	1.69	0.29	0.11	(0.07 + 0.024)	0.080	0.04
5.	2.28	0.32	0.11	(0.06 + 0.032)	0.096	0.03
6.	2.30	0.32	0.12	(0.06 + 0.032)	0.080	0.03

(1—4, on *Bambusa* sp., Coochbehar, 28.XII.1956, leg. S. DAS; 5—6, on the same host, Soreang, 9.III.1958, leg. A. N. BASU).

FIRST INSTAR LARVA. Only one kind with normal forelegs and without apparent ridges and furrows on the pronotum. The distribution of the groups of wax-glands more or less as in adult apterae.

Host: *Bambusa* sp.

Distribution: The species was first observed in Coochbehar and was subsequently collected from Soreang, in the district of Darjeeling at an altitude of 3,000 ft.

Biology: The species forms large colonies on the under side of the leaves and young shoots without any marked injury to the host.

DISCUSSION. The new species is morphologically rather like *pseudomontana* Takahashi, 1924, but it is at once separated by the much more numerous wax-glands. In *pseudomontana* the wax-glands are squeezed in the groups and therefore flattening each other, the numbers of glands per group are much smaller, pleural groups are absent and the spinal groups do not fuse mutually.

(to be continued)