SECTION B

BIOSYSTEMATICS
CHAPTER - I - TAXONOMY OF SOUTH INDIAN TINGIDAE

10-I-1. Introduction
Since the publication of the tingifauna of British India including Burma and Ceylon by Distant (1903 & 1910), a large number of species has been added to the list by Drake and Ruhoff (1965) as recorded from India. Drake and Poor (1936); Drake and Maa (1953, 1954 and 1955); Drake and Mohanasundaram (1961) and Drake and Livingstone (1964) are responsible for describing a large number of new species from India and Mohanasundaram (1962, 1973a & b) is responsible for recording the already available species in Southern India. Chopra (1971 & 1976) later made an attempt in the publication of a check list of all the recorded Indian species. It has been the trend among contemporary taxonomists to describe and to annexe species on regional basis and the author considered it expedient to make a similar attempt on the Tingidae of Southern India. Therefore, after describing the new species, an attempt has been made to formulate a comprehensive key for the identification of the South Indian species of Agramma, Haedus and Lasiacantha and to provide a more general key for the identification of the various genera.
Pronotum strongly convex, punctate; unicarinate; collar well developed, areolated; pronotum medially elevated slightly, elevation testaceous; median carina non-areolate, anteriorly extending up to the collar and posteriorly terminating at the well defined areolated triangular scutellum; paranotum slightly reflexed, uniseriate with clear large areolae; margins of the paranotum and median carina beset with small pedicellate blunt spines.

Hemelytra without any tumid elevation; subcostal region biseriate; areolae of equal size, closed and not confluent with the post cubital area; radial area triseriate confluent with sutural area; discoidal area five seriate at the widest part; sutural area narrow, transparent; outer margin of the elytra fringed with small pedicellate blunt spines and with small pedicellate recurved spines; media and cubitus beset with small pedicellate blunt spines; subcostal and radial areas beset with non pedicellate long spines; hypocostal lamina uniseriate; clavus with a single areolet.

Legs rather short; femur swollen, sparsely fringed with small sharp spines; tibia slender, elongate, densely fringed with sharp long spines; tarsi testaceous.

Holotype: Female(Macropterous); Locality: Andipatti, Madurai District, Tamilnadu. Host Plant:
Acalypha alnifolia Klein (Euphorbiaceae), collected on 18-3-80. Allotype: male; paratype many, data same as the holotype. Deposited in Livingstone’s collection, Division of Entomology, Bharathiar University, Coimbatore.

This species is almost of the same size and very much similar in general appearance, to the Ethiopian Afrotingis eumenes Drake and Hill but can be separated readily from the latter by its uniseriate paranotal expansion; narrow radial area and widely expanded discoidal area. This is the only member of the genus recorded from India.

2. Agramma graminii sp. nov. (Fig. 9).

Small; stramineous; length 1.9 mm., width across pronotum 0.49 mm.

Head ferrugineous, armed with a pair of loral tubercles only; antenna moderately long, I & II segments short, stout, testaceous, subequal in length; III segment longest; twice as long as IV, fringed with long stiff hairs; antenniferous tubercles short; proportionate length of the antennomeres – 1 : 0.8 : 2.4 : 1.2; rostrum extending a little beyond the prosternum; bucculae areolated, 2 areolae deep, occluding the first rostral segment.

Pronotum slightly convex, coarsely punctate; unicarinate, median carina non-areolate, anteriorly extending.
upto the collar and posteriorly terminating subapically on the prominently areolated, sharply pointed, stramin- eous medially brown fuscus laterally grading into black fuscus proscutellum; pronotum fringed with long stiff hairs; paronotai expansion wanting.

Elytra extending beyond the abdomen; subcostal area narrow, uniformly uniseriate, confluent with the post-cubitus; areolae quadrate; radial area triseriate, confluent with the sutural area; hypocostal lamina moderately-developed, uniseriate; discoidal area tetraseriate narrowing at both ends into a single areolet, middle expanded portion three rows of areolae deep; areolae of sutural area expanded; clavus uniseriate; subcostal, radial, median and cubitus margins beset with long blunt non pedicellate spines and rest of the elytra bare and transparent.

Legs short, slender, fuscus, tibia fringed with prominent setal combs; distitarsus with spatulate hairs.

**Holotype**: Male (macropterous); Locality Malumichampatti, Coimbatore District, Tamil Nadu. Host plant: *Chrysopogon verticillatus* (Gramineae). **Allotype**; Female; **Paratype** many, data same as the holotype. Deposited in Livingstone's collection, Division of Entomology, Bharathiar University, Coimbatore.
A. graminii sp.nov. can be readily separated from the A. scitulum Drake & Maa, but latter by the presence of distinct median carina, and by the absence of transverse band across the calli. It can be further distinguished from A. therasii sp.nov. by the absence of an uniseriate paranotum and from A. hupehanum Drake & Maa by its smaller size, triseriate radial area and the tetraseriate discoidal area.

Key to the South Indian Species of Agramma

The subfamily Agrammatinae includes the single genus Agramma which is characterized by slender elongated body; presence of only two cephalic tubercles (the loral pair); rostrum extending not beyond the anterior margin of the mesosternum; pronotum with a single, often substantially reduced carina; total absence of paranotum; uni or biseriate costal area and macropterous condition. Four out of the five species so far recorded from India are from Southern India and Drake and Ruhoff (1965) catalogued 63 species from all over the world. A taxonomic review of this subfamily has been discussed further in the Discussion part of this section. In the present study two more species have been described new and added to the list of South Indian record.

Antenniferous tubercle moderate to well developed;
cephalic tubercles moderate to prominently developed;
body almost bare .... 2

Antenniferous tubercles reduced to nodules, cephalic
tubercles reduced to nodules, body with dense
pedicellate spines .... 3
2. Pronotum without distinct carina, radial 
(subcosta), discoidal and sutural areas 
not distinguishable; antenniferous tuber-
cles large and blunt .. .. .. A. scitulum Drake & Maa

Pronotum with distinct carina, radial 
(subcostal discoidal and sutural areas 
well differentiated .. .. .. .. .. 4

3. Antenniferous tubercles and cephalic tuber-
cles very much reduced; antenna fringed/long pedicellate clubbed hairs; paranotum developed 
but narrow, with a single areolation; discoidal 
area four areolae deep, size not less than 2.7 mm. .. .. A. therasii sp.nov.

Antenniferous tubercles moderately developed; 
paranotum wanting, radial area and discoidal 
area three and four areolae deep respectively; body clothed with short pedicellate 
spines; size not exceeding 1.9 mm. .. A. graminii sp.nov.

4. Body without prominent spines, size not 
exceeding 2.1 mm; hemelytra with radial 
and discoidal areas, four and five 
areolae deep respectively. .. A. hupchanum Drake & Maa

3. Agramma therasii sp.nov. (Fig.9).

Small, stramineous, clothed with long stiff 
hairs, body beneath fuscous; length 2.73 mm. width across 
the pronotum 0.58 mm.
Head fuscus, armed with a pair of insignificant nodule type of loral tubercles; eyes fuscus, antenniferous tubercles not prominent; antennæ moderately long, vilose, fringed with long non-pedicellate clubbed hairs, testaceous; I & II segments testaceous, short, slender, slightly expanded, bare; III & IV segments stramineous; proportionate length of the antennomeres 1 : 0.9 : 2.3 : 1.1; rostrum extending upto the anterior margin of the mesosternum, stramineous, tip of the rostrum testaceous; sternal furrow shallow; bucculae areolated, 2 areolae deep, partially occluding the first rostral segment.

Pronotum slightly convex with anterior coarsely punctate region and posterior stramineous areolated region; uncarinate, median carina non-areolate, anteriorly extending prominently upto the collar and posteriorly terminating subapically at the scutellum; pronotum clothed with long stiff spines; paranotal expansion narrow, disrupted at the middle and slightly expanded anteriorly, uniseriate.

Hemelytra extending far beyond the abdomen; subcostal area uniseriate but biseriate at the base, areolae moderately large, transparently clear, quadrangular, confluent with the post-cubitus; radial area tetrameriate confluent with the sutural area; discoidal area tetrameriate; sutural area with large, clear areolae; margin of the elytra, radius and cubitus beset with non-pedicellate long stiff spines; hypocostal lamina uniseriate.
Legs stramineous; femur and distitarus fuscus.

Holotype: Female (macropterous); Locality: Maruthamalai, Coimbatore, Tamil Nadu. Host plant - unidentified shrub; collected on 16.8.78. Deposited in Livingstone's collection, Division of Entomology, Bharathiar University, Coimbatore.

*A. therasii* can be readily distinguished from the other members of the genus especially *A. hupehanum* Drake & Maa, *A. scitulum* Drake & Maa and *A. graminii* sp.nov. by its more elongated body and by the presence of uniareolated paranotum. It can be further distinguished from *A. graminii* sp.nov. by its tetraseriater radial area and from *A. scitulum* Drake & Maa by the presence of uniseriater median carina.

4. *Corythauma gibbossa* sp.nov. (Fig.10).

Moderately large, head almost concealed by the prominently globose hood; length 3.0 mm, width across the pronotum 1.4 mm.

Head dark brown, almost entirely occluded by the hood, armed with five short testaceous tubercles, 2 post genal, 1 frontal and 2 loral; eyes piceous; antenna long, slender, stramineous; I & II segments subequal in length; III segment very long and sparsely clothed with fine hairs; IV segment moderately long, fringed with hairs; proportionate length of the antennomeres -
antenniferous tubercles small, straight, testaceous; rostrum stramineous, extending up to the middle of the mesosternum, tip of the rostrum testaceous; sternal furrow narrow, closed, deep; sternal lamina areolated; bucculae broad, triseriate, occluding almost completely the first rostral segment.

Pronotum ferrugineous, convex, tricarinate; median carina areolated, raised, extending anteriorly up to the hood and posteriorly terminating at the areolated obtuse scutellum; lateral carina parallel, arising a little behind the hood and terminating laterally at the base of the scutellum; collar indistinct; hood massive, areolated, almost entirely covering the head up to the eyes; paranotal expansion slightly reflexed, uniseriate.

Hemelytra extending far beyond the abdomen; constricted subapically, apices overlapping and jointly rounded on repose; subcostal area triseriate with irregular areolae, confluent with the post cubital area; radial area biseriate, confluent with the sutureal area; discoidal area tetraseriate; clavus basally biseriate, distally uniseriate; hypocostal lamina uniseriate, extending up to 3/4 the length of the radius; margin of the elytra, subcostal and discoidal areas sparsely fringed with short hairs; except the middle region of the subcostal area which is stramineous, all the rest of the elytra dark brown.
Legs stramineous; femora slightly swollen; distitarsi dark brown, ventrally beset with a cluster of spatulate hairs.

**Holo type**: Female (macropterous), Locality: Courtrallum, Trinelveli District, Tamil Nadu on 13-6-81; not Host plant identified; **Allotype** - Male; **Paratype**: Same data as the holotype. Deposited in Livingstone's Collection, Division of Entomology, Bharathiar University, Coimbatore.

*C. gibbossa* sp. nov. closely resembles *C. ayyari* Drake & Maa, in its general appearance and the nature of its hood, but can be readily separated from the latter by its larger size and larger size of the hood, proportionate length of the antennomeres, uniseriate paranotum and triseriate subcostal area.

5. **Dictyla karnatica** sp. nov. (Fig.10).

Moderately large; piceous; two spots on the boundary vein separating radial and discoidal areas and the junction of the media and cubitus; length 3.09 mm, width across the pronotum 1.05 mm.

Head piceous, very short, sharply declivent infront of the eyes; with three small stramineous cephalic tubercles, 1 median and 2 post genal; eyes piceous;
antennae moderately long, slender; I & II segments short, subequal in length, III segment 2.3 times longer than the fourth segment; first three segments stramineous, inconspicuously pubescent, fourth segment subclavate, ferrugineous, densely fringed with long stiff hairs; proportionate length of antennomeres - 1 : 1.2 : 7.7 : 3.3; antenniferous tubercles moderately elongated, ferrugineous; rostrum extending beyond the metasternum; sternal lamina areolated, sternal furrow deeply grooved closed; bucculae well developed, broad with five rows of areolae, almost completely occluding the first rostral segment.

Pronotum large, convex, raised, densely punctate at the anterior region, areolate at the scutellar region; tricarinate, median carina uniseriate, anteriorly extending up to the hood and posteriorly merging with the areolated obtuse scutellum; lateral carina sinuous, uniseriate, slightly convergent towards the paranotum, abruptly terminating posteriorly at the base of the scutellum on either side; paranotal expansion much enlarged completely reflexed, six rows of areolae deep; leaving a narrow space medially on either side of the median carina; hood small, 8 - 9 areolae deep on either side, covering the posterior half of the head completely up to the eyes.

Hemelytra extending beyond the abdomen, apices partially overlapping each other; subcostal area narrow, uniseriate but biseriate subapically, transparent, rectangular areolae alternating subquadrate ones, apically
confluent with post cubitus; radial area triseriate, confluent with the sutural area, sloping obliquely downward toward the subcostal area; five to six areolae deep just behind the discoidal area and terminating apically into a single cell; discoidal area five areolae deep at the widest part; media and cubitus with tumid elevation, sutural area infuscated; hypocostal lamina uniseriate; clavus biseriate; leg long slender; femur fuscus; rest of the leg stramineous; tip of the distitarsi ferrugineous.

**Holotype**: Female (Macropterous); **Locality**: Hassarghatta, Karnataka State; Host plant: *Cynoglossum denticulatum* (Boraginaceae). Collected on 28-12-79; **Allotype** Male; **Paratype**: several specimens, data same as the holotype. Deposited in Livingstone's collection, Division of Entomology, Bharathiar University, Coimbatore.

**D. karnatica** closely resembles *D. eudia* Drake & Quadri but differs from the latter by its larger size and the longer 3 & 4 antennomeres.

6. *Eteoncus cinchonii* sp. nov. (Fig.10).

Small, piceous, anterior angle of the pronotum spinous; hemelytra with median cross band; length 2.34 mm; width across pronotum 0.75 mm.

Head fuscus, shiny, absolutely bare; eyes piceous, large, widely separated; antenna slender, pilose;
I & II segments bare, subequal in length; III segment 2½ times longer than the fourth; IV segment black, fringed with long stiff hairs; proportionate length of antennomeres 1:1.6:10.8:4; antenniferous tubercles minute; rostrum stramineous, extending beyond the metasternum; sternal lamina rudimentary, non-areolated, open behind; sternal furrow narrow; bucculae fairly well developed, biseriate fringed with hairs; partially occluding the first rostral segment.

Pronotum slightly convex, coarsely punctate, unicarinate; collar distinct; proscutellar base with a sharply pointed prominent lateral spine on either side; median carina extending anteriorly up to the collar and posteriorly terminating subapically at the base of the scutellum; lateral margin of the pronotum fringed with hairs; paranotal expansion wanting; scutellum with two or three large areolae.

Hemelytra with darkly pigmented subcostal area; subcostal area uniseriate and its pigmented portion with 3–6 smaller cells while the rest of the area with larger areolae, confluent with the post-cubital area; radial area biseriate at the middle three areolae deep at the distal and confluent with the sutural area; discoidal area biseriate with two large cells at the middle and with a single row of incomplete areolae; sutural area narrow, infuscated; radial and discoidal areas almost merged deeply with two
tumid elevations, anterior one at the middle of the media and the posterior one at the junction of the media and cubitus; clavus with one areolet; outer margin of the elytra fringed with filiform hairs; legs stramineous; tarsi elongated; femur and tarsomeres testaceous.

**Holotype**: Male (macropterous); **Locality**: Cinchona - Valparai, Coimbatore District, Tamil Nadu; **Hostplant**: *Colebrookea* sp. (Labiatae); Collected on 8.4.81; **Allotype**: Female; **Paratype**: several specimens, data same as the holotype. Deposited in Livingstone's collection, Division of Entomology, Bharathiar University, Coimbatore.

*E. cinchonii* sp.nov. closely resembles *E. dilatus* Distant in the presence of pronotal spines (not mentioned in the description by Distant) but it can be separated from the latter by its smaller size and the proportinate length of the antennomeres. It can be also separated from *E. angulatus* Drake & Maa by its smaller size, uniseriate subcostal area, and biseriate radial and discoidal areas.

7. **Haedus grewii** sp.nov. (Fig.11).

Small, slender, elongate, blackish fuscus, dorsal surface clothed with short, decumbent hairs; appendages testaceous; body beneath dark fuscus; length 1.32 mm; width across the prothorax 0.49 mm.
Head testaceous, clothed with stramineous moderately elongate, punctate with decumbent hairs; head armed with five long, flavotestaceous cephalic tubercles, two loral, one frontal and two post genal, all of equal in length, exceeding a little beyond the anterior margin of the head; eyes fuscus with punctate hairs arranged in 6-7 transverse rows (combs) in between the ommatidia; antennae long, slender, pilose; scape and pedicel short and stout; third antennal segment 2.4 times longer than the fourth; scape ochraceous, pedicel and third antennal segment stramineous, fourth segment flavotestaceous with long hairs, proportionate length of antennomeres - 1 : 1.5 : 10.75 : 4.5; antenniferous tubercles small, fuscus, extending upto the length of scape; rostrum extending up to the middle of the mesosternum, rostral tip fuscus; bucculae biseriate, fringed with hairs, occluding almost completely the first rostral segment.

Pronotum fuscus, clothed with stramineous punctate decumbent hairs; anterior region punctate, posterior region transparently areolated; tricarinate, median carina raised anteriorly extending a little beyond the collar and posteriorly terminating on the prominently areolated scutellum; lateral carinae parallel, arising a little behind the collar and terminating laterally at the base of the scutellum; paranotum slightly reflexed, uniseriate; carinae and paranotum fringed with long pedicellate decumbent hairs.
Hemelytra extending beyond the abdomen; sub-apically constricted and enlarged near the apex; subcostal area uniseriate with rectangular areolae confluent with the post-cubital area; radial area uniseriate and not confluent with the sutural area; discoidal area narrow, extending up to the middle of the elytra, three areolae deep at the widest part; sutural area with larger areolae; apex of the elytra and some cells at the radial area infuscated; outer margin of the elytra, radial and cubital veins fringed with long pedicellate decumbent spines; hypocostral lamina uniseriate; clavus narrow, uniseriate.

Legs long, slender, sparsely clothed with setose spines, spines on the tibiae and tarsomeres slightly longer and pointed outward.

**Holotype** male, macropterous; **Locality**: Andipatti, Madurai District, Tamil Nadu, Hostplant: *Grewia villosa* Willd (Tiliaceae) collection date 4-5-31.

**Allotype**: female and **Paratype** many data same as the holotype. Deposited in Livingstone’s collection, Division of Entomology, Bharathiar University, Coimbatore.

**H. grewii** sp. nov. closely related to *H. cirratus* Drake & Hill but can be separated from the latter its smaller size and the relative length of the antennomeres. It can be readily separated further from other Indian species namely *H. ruthii* sp. nov., *H. manii* sp. nov. and *H. yacohii* sp. nov,
by its uniseriate paranotum, biseriate bucculae, uniseriate subcostal area and the subapical portion of the hemelytra having prominent constriction.

8. *Haedus ruthii* sp. nov. (Fig. 11)

Small, slender, elongate, fuscus with dorsal surface clothed with short decumbent hairs; appendages testaceous; body beneath dark fuscus; length 2.10 mm, width across the prothorax 0.56 mm.

Head testaceous, clothed with stramineous, moderately elongate, punctate hairs, armed with five long fiovotestaceous cephalic tubercles, two loral, one frontal and two postgenal, all of equal length, exceeding little beyond the anterior margin of the head; eyes fuliginous, with several rows (combs) of punctate hairs in between ommatidia (Plate XVII, Fig. 9); antennae long, slender, pilose; third antennal segment $2\frac{1}{2}$ times longer than the fourth segment; scape short, pedicel, shorter than the scape; pedicel and the third segment stramineous; fourth segment testaceous with long hairs; proportionate length of antennomeres – 1 : 0.75 : 6.4 : 2.6; antenniferous tubercles slender, moderately elongate, testaceous, extending the entire length of the scape; rostrum extending up to the middle of the mesosternum, tip of the rostrum testaceous; bucculae triseriate fringed with hairs, occluding almost completely the first rostral segment.
Pronotum fuscus, clothed with stramineous punctate decumbent hairs; anterior region punctate, posterior region transparently areolate; tricarinate; all carinae raised, foliaceous, uniseriate; median carina more elevated anteriorly a little beyond the collar and posteriorly terminating apically on the prominently areolated scutellum; lateral carina parallel, originating a little behind the collar and terminating at the base/scutellum; paranotal expansion slightly reflexed, biseriate; carina and paranotum fringed with long pedicellate decumbent hairs.

Hemelytra extending beyond the abdomen, outer-margin of the elytra without constriction; subcostal area biseriate with hexagonal areolae, confluent with post cubital area; radial area biseriate, not confluent with the sutural area; radial vein beset with short blunt spines; discoidal area narrow, extending up to the middle of the elytra, triseriate at the widest region; sutural area with enlarged areolae; margin of the elytra, media and cubitus veins beset with long pedicellate decumbent spines; subcostal, radial and discoidal areas beset with non pedicellate long spines; hypocostal lamina uniseriate, terminating at the middle of the radius.

Legs long, slender, stramineous, sparsely clothed with setose spines; tarsus testaceous; spines on the tibia and tarsomeres long and pointed outwards.
Holotype (male), macropterous; Locality:
Coutrallum, Tirunelveli District, Tamil Nadu; Host plant
Pterospermum obtusifolia Wight (Sterculiaceae), collected
on 13-6-81; Allotype: female and Paratype several
specimens, data same as the holotype. Deposited in
Livingstone's collection, Division of Entomology, Bharathiar
University, Coimbatore.

H. ruthii sp.nov. can be readily distinguished
from the other South Indian representatives of the genus
by its biseriate paranotum, triseriate bucculae and by
the biseriate arrangement of the subcostral area. It can
be further separated from H. yacobii by its longer anten-
niferous tubercles and the hemelytra without constriction.
It can also be separated from H. manii by its triseriate
bucculae.

9. Haedus yacobii sp.nov. (Fig.11).

Moderately long, slender, elongate, dark
fuscus, with dorsal surface clothed with hairs; appendages
testaceous; body beneath fuscus; length 2.73 mm., width
across the prothorax 0.7 mm.

Head testaceous, minute hairs sparingly distri-
buted on the head and antennae; head armed with five slightly
curved flavotestaceous cephalic tubercles, two loral,
one frontal and two post genal, none except the frontal
tubercle, extending beyond the anterior margin of the head; eyes fuscus with punctate hairs; antennae long, slender, stramineous, IV segment testaceous; scape short and slightly expanded; pedicel shorter than the terminal expanded segment; proportionate length of antennomeres — 1 : 0.6 : 6 : 2.5; antenniferous tubercles very short, fuscus, reaching upto 1/3 the length of the scape; rostrum long, extending upto the middle of the mesosternum, tip of the rostrum testaceous; bucculae well developed, fringed with hairs, triseriate, occluding almost completely the first rostral segment.

Pronotum fuscus, moderately convex, anterior region punctate, posterior region transparently areolated, clothed with minute, decumbent hairs; tricarinate, carinae raised, foliaceous, uniseriate; median carina extending anteriorly a little beyond the collar and posteriorly terminating on the prominently areolated scutellum; lateral carina parallel, arising a little behind the collar; paranotal expansion moderately wide, slightly reflexed; slightly expanded more at the anterolateral region terminating into a long spine, paranotum triseriate anteriorly and biseriate posteriorly.

Hemelytra extending beyond the abdomen; outer margin subapically constricted, wider near the apex; subcostal area biseriate with irregular cells posteriorly.
confluent with the post cubital area; radial are biseriate; discoidal area extending up to the middle of the elytra, three areolae deep at the widest part; sutural area with larger areolae; apex of the elytra infuscated; outer margin of the elytra, radial and discoidal areas, radial, median and cubitus veins all sparsely beset with minute decumbent hairs; pterostigmal elevations on the middle of the median vein and at the junction of the median and cubital veins; anterior pterostigmal elevation more prominent.

Legs long, slender, sparsely clothed with setose spines; those on tibia and tarsomeres slightly longer.

**Holotype**: (male), macropterous; **Locality**: Pechiparai, Kanyakumari District, Tamil Nadu; **Hostplant**: *Triumfetta pilosa* (Tiliaceae), collected on 12-5-79; **Allotype**: female and **Paratype**: several specimens, data same as the holotype. Deposited in Livingstone's collections, Division of Entomology, Bharathiar University, Coimbatore.

*H. yacobii* sp.nov. can be easily distinguished from the other Indian members of this genus by the presence of irregular areolations in the subcostal region. It differs from *H. ruthii* sp.nov. by the relative length of the antenniferous tubercles (not extending beyond 1/3 of the length of the scape) and from *H. manii* sp.nov. by the presence of the anterior pterostigmal elevation.
10. *Haedus manii* sp.nov. (Fig. 11)

Moderately long and slender; fuscus with dorsal surface clothed with hairs; body beneath dark fuscous; length 2.6 mm, width across the prothorax 0.56 mm.

Head testaceous with stramineous pedicellate decumbent hairs, armed with five long flavotestaceous cephalic tubercles—two loral, one frontal and two postgenal, all extending beyond the anterior margin of the head; eyes fuscous with punctate hairs, arranged in definite pattern of comb rows; antennae long, slender, stramineous, closely fringed with small decumbent hairs; scape short; pedicel shorter than the scape; third antennal segment 3.3 times longer than the fourth; the latter segment elongate, broad and fringed with long hairs; proportionate length of antennomeres - 1 : 0.75 : 11.4 : 3.5; antenniferous tubercles testaceous, long, extending up to the base of the pedicel; rostrum, long, extending up to the middle of the mesosternum, tip of the rostrum testaceous; bucculae broad, quadriseriate, occluding almost completely the first rostral segment.

Pronotum fuscus, clothed with stramineous pedicellate decumbent hairs; tricarinate, all carinae raised, foliaceous, uniseriate; median carina extending anteriorly beyond the collar and posteriorly terminating on the areolated scutellum; lateral carinae parallel, arising a little behind the collar; paranotum moderately expanded, slightly
reflexed, outermargin slightly expanded in the anterolateral region which terminates into a moderately long spine, triseriate anteriorly and biseriate posteriorly.

Hemelytra extending beyond the abdomen, outermargin subapically constricted and wider near the apex; subcostal area biseriate with hexagonal cells, interspersed with subquadrate cells; radial area uniseriate; discoidal area narrow, extending up to the middle of the elytra, three areolae deep at the widest part; sutural area with larger areolae, infuscated; outer margin of the elytra, radial, median and cubitus all beset with long pedicellate spines; subcostal area with non-pedicellate decumbent spines; pterostigmal elevations on the middle of the median vein and at the junction of the media and cubitus vein, both elevations similar and prominent; hypocostal lamina uniseriate, clavus narrow and uniseriate.

Legs long, slender, sparsely clothed with setose spines, stramineous, spines on the tibia and tarsomeres longer and outwardly pointed.

**Holotype**: Male (macropterous); Locality: Manimutharu, Trinelveli District, Tamil Nadu; collected on 20-3-80; Hostplant: - unidentified shrub. **Allotype**: female and **Paratype**: Several specimens data same as the holotype. Deposited in Livingstone's collection, Division of Entomology, Bharathiar University, Coimbatore.
H. manii sp. nov. resembles H. grewii sp. nov. but it differs from the latter by the presence of quadri-seriate bucculae and by the presence of anterior and posterior pterostigmal elevation. It can be readily distinguished from H. yacobii sp. nov. also by the presence of anterior and posterior pterostigmal elevation and the subcostal area with its hexagonal areolation, interspersed with subquadrate cells.

Key to the identification of the South Indian species of Haedus:

Paranotal expansion uniseriate or biseriate but without anterolateral spine; hemelytra with or without sub-apical constriction; hemelytral pterostigmal elevation absent

Paranotal expansion always biseriate with prominently developed anterolateral spine; hemelytra with constriction; anterior and posterior pterostigmal elevation present

2. Paranotal expansion uniseriate; bucculae biseriate; antenniferous tubercles not extending beyond 3/4 the length of the scape; subcostal area uniseriate with rectangular areolations; subapical constriction prominent.

Paranotal expansion biseriate; bucculae triseriate; antenniferous tubercles extending throughout the length of the scape; hemelytra without any constriction; subcostal area biseriate with hexagonal areolations
3. Paranotal expansion biseriate; bucculae triseriate; antenniferous tubercles not extending beyond 1/3 the length of the scape; subcostal area biseriate with irregular areolations, anterior pterostigmal elevation prominent. . . . . H. yacobii sp. nov.

Paranotal expansion biseriate; bucculae quadriseriate; antenniferous tubercles extending beyond the scapal limit; subcostal area biseriate with hexagonal areolation, interspersed with subquadrate areolations; anterior and posterior pterostigmal elevations similar and prominent. . . . . H. manii sp. nov.

11. Lasiacantha justiciai sp. nov. (Fig. 12)

Large, testaceous; a narrow transverse band in the middle of the subcostal area and another median oblique band in the apical portion of the elytra; length 3.6 mm, width across the pronotum 1.32 mm.

Head testaceous, armed with five long porrect stramineous spines, 2 loral, 1 frontal and 2 post genal, median cephalic tubercle longest; antenna moderately long; testaceous, densely beset with long pedicellate spines; proportionate length of antennomeres - 1 : 1.2 : 5 : 2.1, I segment short, subequal to II segment in length, third segment moderately long, slender, about 2\(\frac{1}{2}\) times longer than IV, last segment fuscal; eyes ochraceous; antenniferous tubercles moderately developed, extending up to the scape; rostrum stramineous, tip of the rostrum testaceous, extending up to the anterior half of the mesosternum; sternal lamina nonareolate; bucculae broadly elongate, biseriate.
FIG. 12

Lasiacantha justiciae sp. nov.

Lasiacantha oeristrophi sp. nov.

Lasiacantha ruellii sp. nov.
Pronotum moderately convex, punctate anteriorly; scutellum areolate; tricarinate, median carina biseriate, disrupted midway by the anterior prominent vertically elevated hump like median hood and posteriorly terminating at the scutellum; lateral carina long, uniseriate, slightly diverging at the posterior region; paranotum strongly reflexed, wide, basally fused with the lateral margin of the proscutum and then vertically reflexed, marginally spinous and 5-6 areolae deep, anterolateral region of the paranotum and the subapical region of the carinae darkly pigmented.

Hemelytra extending beyond the abdomen; sub-apically constricted; subcostal area biseriate with larger areolae, confluent with the post cubital area; a transverse darkly pigmented band in the middle; radial area wide and triseriate, confluent with the sutural area; discoidal area broad, five areolae deep at the widest region; sutural area broad, apically infuscated; margin of the elytra, media and cubitus all beset with long pedicellate blunt spines; rest of the elytra with long non-pedicellate recurved spines; clavus proximally triseriate, distally biseriate; middle of the media darkly pigmented; hypocostal lamina uniseriate.

Femur fuscus, fringed with long pedicellate spines; tibia stramineous, beset with long pedicellate sharp spines.
Holotype : Male (macropterous); Locality : Malumichampatti, Coimbatore, Tamil Nadu; Host plant : *Justicia simplex* (Acanthaceae); collected on 12-2-79; Allotype Female; Paratype : several specimens, data same as the holotype. Deposited in Livingstone's collection, Division of Entomology, Bharathiar University, Coimbatore.

*L. justiciai* sp.nov. resembles *L. peristrophii* sp.nov. but differs from it by the shorter III and IV antennal segment and the extent of antenniferous tubercles up to the scape. The presence of biseriate bucculae, biseriate subcostal area and triseriate radial area are the other distinguishing features. It can be readily differentiated from *L. ruellii* sp.nov. by the presence of nonbifurcated nature of the postgenal pair of cephalic tubercles and it differs from *L. cuneata* (Distant) by the presence of more compressed pronotal hood, longer III & IV antennal segments and stout femora.

12. *Lasisantha peristrophii* sp.nov. (Fig.12)

Moderately large, stramineous, clothed with non-pedicellate spines; length 3.09 mm. and width across the pronotum 1.14 mm.

Head fuscus, armed with five cephalic tubercles, 2 loral, 1 frontal and 2 postgenal, median tubercle longest, erect, post genal pair bifurcated; antenna
moderately long, stout, testaceous, densely clothed with long pedicellate spines; I & II segments short subequal in length; III segment $\frac{1}{2}$ times longer than the fourth segment; proportionate length of antennomeres - 1 : 1.2 : 3.4 : 2.3; eyes ferrugineous; antenniferous tubercles short, extending up to middle of the scape; rostrum extending up to the middle of the mesosternum, stramineous; tip of the rostrum testaceous, fringed with hairs; rostral lamina broad, non-areolate; bucculae tetraseriate.

Pronotum convex, punctate at the proscutum, areolate at the scutellum; tricarinate, median carina disrupted midway by the anterior prominent vertically elevated hump like median hood and posteriorly terminating at the scutellum; paranotal expansion vertically deflected, three areolae deep.

Hemelytra extending beyond the abdomen, sub-apically constricted; subcostal area biseriate with rectangular cells confluent with post-cubital area; a transverse darkly pigmented region at the middle of the subcostal area; radial area wide, tetraseriate, confluent with the sutural area; discoidal area very wide, 6 areolae deep at the widest part; sutural area broad, few of its cells at the apical region infuscated; hypocostal lamina uniseriate; clavus proximally triseriate and distally biseriate; middle of the median vein darkly pigmented.
Femur feebly testaceous, fringed with long pedicellate blunt spines; rest of the leg stramineous; proximal part of the tibia with two dark brown patches.

**Holotype**: Female (macropterous); **Locality**: Andipatti, Madurai District, Tamil Nadu; **Host plant**: *Peristrophe bicalyculata* (Acanthaceae); collected on 4-5-91; **Allotype**: male; **Paratype**: several specimens data same as the holotype. Deposited in Livingstone's collection, Division of Entomology, Bharathiar University, Coimbatore.

*L. peristrophi sp.nov.* differs from *L. justiciaii* sp.nov. by the presence of tetrateriate bucculac; paranotum three areolae deep; bisriate subcostal; tetrateriate radial area and the presence of bifurcated post genal pair of cephalic tubercle. It differs further from *L. ruthii* sp.nov. by the relative length of the antennomers and the tetrateriate radial area.

13. *Lasiacantha ruellii* sp.nov. (Fig.12).

Moderately large; stramineous; darkly pigmented band in the middle of the subcostal area and the apical region of the elytra; length 3.9 mm, width across the pronotum 1.2 mm.

Head stramineous, pubescent, armed with 5 moderately long, stramineous, cephalic tubercles, 2 loral
1 frontal and 2 postgenal, frontal tubercle longest, post-gena
tubercles bifurcated; antenna moderately long, strami-
neous; I & II segments short, stout, subequal in length;
III segment long and slender; I, II & III segments beset
with long pedicellate blunt spines; IV segment fringed with
long pedicellate and non-pedicellate hairs; proportionate
length of antennomeres – 1 : 0.9 ; 4.1 : 1.8; eyes reddish
brown; antenniferous tubercles short, testaceous, not
extending beyond the middle of the scape; beset with long
pedicellate blunt spines; rostrum stramineous, tip of the
rostrum testaceous, extending up to the anterior margin
of the mesosternum; sternal furrow shallow, sternal lamina
non-areolate, broad; bucculae broadly elongate, triseriate
and pubescent.

Pronotum convex with a dense vestiture of long
hairs; coarsely punctate at the proscutum; tricarinate,
median carina abruptly disrupted by the anterior region
developing into broadly areolated hood, 5-6 rows of arseolae
deep on each side; surface of the pronotum pubescent; lateral
carinae uniseriate; paranotal expansion wide almost vertically
reflexed, six areolae deep at the widest region, marginally
spinous; margin of the paranotum and median carina testace-
ous, scutellum coarsely areolate.

Hemelytra extending beyond the abdomen, contri-
cted subapically; subcostal area proximally triseriate,
distally biseriate, confluent with the post cubital area; 
radial area triseriate, confluent with the sutural area; 
discoidal area six areolae deep at the widest region; 
hypocostal lamina uniseriate; clavus proximally triseriate, 
distally uniseriate; sutural area with larger areolae; outer 
margin of the elytra, media and cubitus with dense vestiture 
of long pedicellate spines; subcostal, radial and discoidal 
areas pubescent; sutural area sparsely beset with nonpedicellate spines.

Legs testaceous with swollen femur; femur and 
tibia fringed with long pedicellate and sharp spines.

**Holotype**: Female (macropterous); Localities: 
Semponvilai, Kanyakumari District, Tamil Nadu; Host plant: 
*Ruellia prostata* (Acanthaceae), collected on 9-5-81; 
**Allotype**: Male; **Paratype**: several specimens, data same 
as the holotype. Deposited in Livingstone's collection, 
Division of Entomology, Bharathiar University, Coimbatore.

*L. ruellii* sp. nov. differs from *L. justiciaii* 
sp. nov. by the presence of bifurcated post genal pairs of 
cephalic tubercles and the antenniferous tubercles not 
extending beyond the middle of the scape. It can readily 
recognised further from *L. peristrophii* sp. nov. by its 
triseriate bucculae and triseriate radial area.
Bucculæe tetraseriate; paranotal expansion three areolae deep; radial area four seriate and discoidal area six seriate; tibia proximally bearing two brown spots. . . . \textit{L. peristrophii} sp.nov.

3. Bucculæe broadly elongate and biseriate; median carina biseriate; lateral carina uniseriate; paranotum 5-6 areolae deep; subcostal area biseriate; radial area triseriate and discoidal area five seriate . . . . . \textit{L. justiciaii} sp.nov.

Paranotum more than six areolae deep, subcostal and radial areas equal and biseriate to triseriate, median carina 4-5 areolae deep. . . \textit{L. cuneata} (Distant)

14. \textit{Longiscutella} gen.nov. (Fig.13).

This genus resembles \textit{Lasiacantha} in general appearance and in the development of its pronotal and paranotal expansions. But it can be recognised readily from the latter by the unusually long proscutellum that extends up to the posterior limit of the discoidal area and this character is considered here as the main diagnostic feature of this genus. In all other recorded species of Tingidae, the proscutellum is never found extending beyond the middle of the discoidal area and examination of a number of specimens of this species confirm that such extension of proscutellum is not a freak. Only one species has been recorded here.
**Longiscutella menonii** sp. nov. (Fig. 13)

Moderately large, testaceous, devoid of spines, acutely pointed scutellum reaching up to the posterior limit of discoidal region; length 3 mm, width across the pronotum 1.3 mm.

Head fuscus, armed with five long, testaceous cephalic tubercles, all reaching up to the anterior limit of the scape; antenna moderately long, pubescent; I & II segments slender, IV segment testaceous and pilose; proportionate length of the antennomeres - 1 : 0.8 : 6.8 : 3; eyes reddish brown; antenniferous tubercles extending up to the scape; rostrum stramineous, tip of the rostrum fuscus, extending a little beyond the posterior margin of the metasternum; sternal furrow broad, open; sternal lamina non-areolate; bucculae biseriate, fringed with short hairs, occluding almost completely the first rostral segment.

Pronotum convex; scutum punctate; tricarinate, median carination anteriorly terminating as hood, elevating medially as high as the paranotatal elevation and then after having deeply constricted at the base of the scutellum posteriorly merging with the latter; lateral carina terminating at the sides of the scutellum; paranotatal evagination after having deflected back on the pronotum making a deep groove and then reflecting itself on eitherside
FIG-13

Longiscutella menonii gen.et sp.nov
of the lateral carinae; scutellum with 1-3 rows of areolae on eitherside actutely pointing and reaching upto the posterior limit of the discoidal region; pronotal hood broadly areolated.

Hemelytra without any constriction; apices overlapping each other; subcostal area with biseriate hyaline areolae, confluent with the post cubitus; radial area biseriate, confluent with the sutural area; discoidal area broad at the middle and narrow at the both ends, five rows of areolae deep at the broadest region; sutural area with larger areolae; clavus proximally biseriate, distally uniseriate; hypocostal lamina uniseriate; minute setaceous hairs throughout the elytra except at the sutural area.

Legs slender, femur swollen, stramineous, tibia clothed with strong bristles; tarsi testaceous with sharp spines.

**Holotype**: Female (macropterous); Locality: Vellanikara, Trichur District, Kerala; Host plant: *Triumfetta pilosa* (Tiliaceae) collected on 22-2-80;

**Allotype**: male; **Paratype**: a few specimens, data same as the holotype. Deposited in Livingstone's collection, Division of Entomology, Bharathiar University, Coimbatore.
15. *Naochila minuta* sp.nov. (Fig. 9).

Small, black; elytra with tumid elevation in the radial area; length 1.72 mm; width across the pronotum 0.56 mm.

Head very short, armed with five cepalic tubercles, 2 loral, 1 frontal and 2 post genal; loral pair longest and porrect; antenna moderately long, I, II & III segments stramineous, sparsely clothed with hairs; IV segment testaceous, beset with very long hairs; proportionate length of the antennomeres $1 : 1.3 : 11 : 3.3$; eyes piceous; antenniferous tubercles small, not extending beyond the scape; rostrum stramineous, tip fuscus, extending upto the mesosternum; rostral furrow broad; sternal lamina areolate, broad at the posterior end; bucculae piceous, biseriate.

Pronotum completely concealed by the large, reflexed, inflated paranota; tricarinate, carinae being concealed by the reflected paranota, visible only at the scutellar region; collar raised at the middle forming a small hood consisting of 4-5 cells on either side; paranotum areolated with several rows of arsola, reflexed completely on the pronotum.

Elytra extending beyond the abdomen; sutural areas overlapping each other at repose; subcostal area
uniserate with transparent larger areolae, confluent with the post cubital area; radial area biseriate, confluent with the sutural area; discoidal area tetraseriate with smaller areolae; the median vein of the discoidal area extending and caving at the radial area forming a gibbose hood; clavus uniseriate; hypocostal lamina uniseriate. Legs slender, tip of tarsomeres dark brown.

**Holotype**: Male, (macropterous); Locality - Courtallum, Trinveli District, Tamil Nadu. Host plant: *Carmona microphylla* (Lamk) Don. (Boraginaceae), Collected on 13-6-81; Allotype: Female; Paratype: several specimens, data same as the holotype. Deposited in Livingstone's collection, Division of Entomology, Bharathiar University, Coimbatore.

*Naochila minuta* sp. nov. can be readily recognized from *N. areta* Drake and Mohanasundaram by its smaller size and by the relative length of the antennomeres. The biseriate and the tetraseriate arrangement of the areolae in the radial and discoidal area differentiates this species from *Naochila nigra* sp. nov.

16. *Naochila nigra* sp. nov. (Fig. 9).

Small, black elytra with tumid elevation in the radial area; length 2 mm; width across the pronotum 0.48 mm.
Head very short, armed with five cephalic tubercles, 2 loral 1 frontal and 1 post genal; loral, pair longest and porrect; antenna moderately long, I, II & III segments fuscous, sparsely clothed with hairs; IV segment testaceous, beset with very long hairs; proportionate length of the antennomeres - 1 : 1.5 : 11.6 : 3.4; eyes piceous; antenniferous tubercles small, not extending beyond the scape; rostrum stramineous, tip fuscus, extending up to the middle of the mesosternum; rostral furrow broad; sternal lamina areolate, broad at the posterior end; bucculae piceous, biseriate.

Pronotum completely concealed by the large, reflexed paranota, pronotum visible only at the scutellar region; collar raised at the middle forming a small hood consisting of 4-5 cells on eitherside; paranotum areolated with several rows of areolae.

Elytra extending beyond the abdomen; sutural areas overlapping each other at repose; subcostal area uniseriate with transparent larger areolae, confluent with the post cubital area; radial area triseriate, confluent with the sutural area; cells in the costal and sutural areas large and transparent; discoidal area triseriate with smaller areolae; median vein of the discoidal area extending into the radial area forming a prominently gibbose region; clavus
uniseriate; hypocostal lamina uniseriate. Legs slender
tip of tarsomeres fuscus.

Holotype: Female (macropterous); locality:
Andipatti, Madurai District, Tamil Nadu. Allotype: Male;
Paratype: Several specimens, data same as the holotype.
Deposited in Livingstone's collection, Division of Ento-
mology, Bharathiar University, Coimbatore.

Naochila nigra sp.nov. can be readily recognised
from Naochila minuta sp.nov. by its larger size, slightly
longer third antennal segment. Triseriate arrangement of
the areolae in the radial and the discoidal area further
differentiates this species from Naochila sufflata of
Northern India.

17. Physatochyla asciatica sp.nov. (Fig.4)

Moderate in size; stramineous; pubescent;
body beneath testaceous; length 2.98 mm; width 1.08 mm.

Head testaceous, armed with five very short,
blunt, testaceous cephalic tubercles; 2 loral, 1 frontal
and 2 post genal; antenna testaceous, pubescent, I & II
segments small, subequal in length, III segment twice as
long as the IV; proportionate length of the antennomeres-
1 : 0.66 : 2.6 : 1.3; eyes fuscus; antenniferous tubercles
short, testaceous; rostrum extending beyond the mesosternum; sternal lamina nonareolate, broad at the posterior end, open.

Pronotum convex, anteriorly testaceous; tricarinate, raised, closely pitted; hood small, areolated; median carina uniseriate, anteriorly extending up to the hood and posteriorly merging with the areolated pointed scutellum; lateral carinae arising a little behind the hood, parallel, uniseriate; carinae medially fuscus; scutellum stramineous; paranotum moderately broad, reflecting back upon the pronotum on either side, its outer margin slightly turned vertically upward, three areolae deep at its widest region.

Hemelytra with sutural areas overlapping each other, jointly rounded behind, extending beyond the abdomen; subcostal area uniseriate with irregular areolae posteriorly closed; radial area uniseriate, confluent with the sutural area; discoidal area four areolae deep at the widest region; sutural area with smaller areolae; hypocostal lamina uniseriate; clavus distally uniseriate, proximally biseriate; margin of the elytra, subcostal, radial and discoidal areas densely clothed with small setose hairs; such hairs sparsely distributed in the sutural area. Leg brownish, pubescent.
Holotype: 1 ale (macropterous), Host plant: Gmelina asiatica (Verbenaceae), Locality: Maruthamalai, Coimbatore District, Tamil Nadu, collected on 18-6-79; Allotype: Female; Paratype: a few specimens, data same as the holotype. Deposited in Livingstone's collection, Division of Entomology, Bharathiar University, Coimbatore.

*P. asiatica* sp.nov. can be readily distinguished from the South Indian species *P. chatterjei* Drake and Poor, by its colour, length of the cephalic tubercle; triseriate nature of the paranotum and the uniseriate subcostal and radial areas. It can be separated further from *P. dryadis* Drake and Poor by its proportionate length of the antennomeres, triseriate paranotum, uniseriate subcostal and radial areas. In *P. dryadis*, the subcostal and the radial areas as well as the paranotum are described as biseriate.

18. *Stephanitis cinnamomii* sp.nov. (Fig.15).

Moderately large, whitish testaceous; length 3.4 mm; width across the pronotum 1.2 mm.

Head very short, strongly declivent infront, concealed completely by the hood except the eyes, armed with five cephalic tubercles; antennae very long, slender, stramineous, proportionate length of the antennomeres: 1 : 0.2 : 3.8 : 1.6; eyes fuscus, antenniferous tubercles small, bucculae biseriate, marginally serrated and fringed with soft hairs.
Pronotum slightly convex, finely punctate, tricarinate, median carina longest; biseriate with larger areolae; lateral carinae small, composed of two cells; hood moderately large, acutely pointed in front, scutellum narrow, tapering into an acute apex; paranotum very large, reflexed, 3 areolae deep at the middle, serrated marginally, spinous.

Elytra extending far beyond the abdomen but constricted at the middle; subcostal area confluent with the post cubital area, four areolae deep at the widest part; radial area biseriate confluent with the sutural area; discoidal area very narrow, three or four areolae deep at the widest part; hypocostal lamina broad, uniseriate with serrated margin; clavus with only single areolae; outer margin of the elytra finely serrated, beset with short hairs; few cells at the apical region of the subcostal region and discoidal region darkly pigmented.

Legs very long, slender, stramineous, tip of the tibia and tarsal segments testaceous.

**Holotype**: Female (macropterous); **Hostplant**: *Cinnamomum* sp.; **Locality**: Cinchona (Valparai), Coimbatore District, Tamil Nadu, collected on 9-4-81, **Allotype**: male; **Paratype**: several specimens, data same as the holotype. Deposited in Livingstone's collection, Division of Entomology, Bharathiar University, Coimbatore.
Stephanitis cinnamomii sp.nov. can be readily distinguished from S. charlies Drake and Mohanasundaram by the strongly reflexed paranotum. It differs from S. macranthaii sp.nov. in having the reflexed paranotum with 3 row of cells.

19. Stephanitis macranthaii sp.nov. (Fig.15)

Moderately large, whitish testaceous, body above and beneath brownish stramineous; length 3.21 mm, width across the pronotum 1.15 mm.

Head very short, strongly declivient in front, concealed completely by the hood except the eyes; hood 3 areolae deep; armed with five long cepalic tubercles; antennae very long, slender, stramineous, I & II segments sparsely clothed with setose hairs, III & IV segments fringed with long stiff hairs; proportionate length of the antennomeres - 1 : 0.3 : 4 : 1.8; eyes fuscus; antenniferous tubercles small, testaceous; rostrum extending upto the middle of the mesosternum; sternal lamina without areolae, closed behind; bucculae triseriate, marginally serrated and fringed with soft hairs.

Pronotum slightly convex, finely punctate; tricarinate; median carina longest; biseriate with larger areolae.
lateral carinae small, composed of two cells; hood moderately large, acutely pointed infront, scutellum narrow, tapering into an acute apex; paranotum very large, reflexed, 4 areolae deep at the middle, serrated, marginally spinous. Elytra extending far beyond the abdomen but constricted at the middle; strongly divergent posteriorly with apices widely separated from each other; subcostal area confluent with the post cubital area, four areolae deep at the widest part; radial area biseriate, confluent with the sutural area; discoidal area very narrow, three areolae deep, cells smaller; sutural area very much reduced with 9 - 10 large transparent cells; hypocostal lamina broad, uniseriate with serrated margin; clavus with only 2 areolae; outer margin of the elytra finely serrated, beset with short hairs, few cells at the apical portion of the subcostal region and discoidal region darkly pigmented.

Legs very long, slender, stramineous, tip of the tibia and tarsal segments testaceous.

Holotype: Male (macropterous); Hostplant: Persea macrantha (Lauraceae); Locality: Yercaud, Salem District, Tamil Nadu; collected on 14-4-81, Allotype: Female Paratype: several specimens, data same as the holotype. Deposited in Livingstone's collection, Division of Entomology, Bharathiar University, Coimbatore.
Stephanitis macranthaii sp.nov. can be readily distinguished from S. charies Drake and Mohanasundaram by the strongly reflexed paranotum; presence of setaceous hairs on the paranotum and the elytra. It differs from S. typica Distant in having the hood extending far beyond the base of the pedicel and the paranotum with 4 rows of cells.

20. Tingis tomentosii sp.nov. (Fig.14)

Moderately large; pale yellow; entire body clothed with pale setose hairs; body ben-ath fuscus and hairy; length 2.94 mm, width across the pronotum 1.0.mm.

Head fuscus, with five short, blunt spinous cephalic tubercles; antennae moderately long and moderately stout, stramineous, with numerous pale moderately long stiff hairs; I & II segments subequal in length; III segment twice as long as IV segment, IV segment slightly enlarged towards the apex, fuscus; proportionate length of the antennomeres - 1 : 0.9 : 4 : 1.9; eyes piceous; antenniferous tubercles short, stout, stramineous; rostrum light brown, tip testaceous extending beyond the metasternum; sternal lamina testaceous, areolated; bucculae punctate, fringed with hairs.

Pronotum convex, coarsely punctate, areolate at the scutellar region; tricarinate, carinae moderately broad,
each with a single row of small areolae; median carina extending anteriorly up to the hood and posteriorly merging with the scutellum; lateral carina arising from the same level as the median carina but slightly diverging posteriorly; hood small extending beyond the anterior limit of the head; paranotal expansion areolated, 9 – 10 areolae on each side slightly reflexed on the pronotum and deflects back, biseriate; margin of the paranotum testaceous and fringed with long soft hairs.

Hemelytra extending beyond the abdomen without any manner of constriction; subcostal area moderately wide, triseriate, with areolae of equal size; radial area uniseriate confluent with sutural area; discoidal area large, extending beyond the middle of the elytra five areolae deep at the widest part; sutural area with larger areolae; hypo-costal lamina uniseriate, terminating apically with radial vein; clavus biseriate; non-pedicellate spines arranged in the form of cart wheel in the cells. Legs rather short; femur testaceous; tibia and tarsi stramineous, sparsely clothed with stiff spines.

Holotype: Female (macropterous); Locality: Vandalur, Chingleput district, Tamil Nadu; Host plant: Premna tomentosa (Verbenaceae), collected on 2-10-73; Allotype: Male; Paratype: several specimens, data same as the holotype. Deposited in Livingstone's collection, Division of Entomology, Bharathiar University, Coimbatore. It differs from T. agrana in having reflected and then deflected paranotum.
1-3. Generic key for the identification of the South Indian Tingidae.

a. Subfamily: Cantacaderinae:

Stenocostal area present; cephalic tubercles 4 in number; bucculae far exceeding the limit of the head ..................................... Cantacader

Stenocostal area absent; 7 porrect cephalic tubercles present; bucculae short ................ Phatnoma

b. Subfamily: Tinginae

1. Cephalic tubercles either absent or reduced to not more than three nodules; paranotum present or absent; pronotum either with median carina or with very much reduced median and lateral carinae ........................................ 2

Cephalic tubercles always five in number; paranotum either reduced or highly expanded; pronotal hood either absent or highly expanded.............. 3

2. Cephalic tubercles absent; pronotum with lateral spine; paranotum absent ............... Eteoneus

Cephalic tubercles reduced to a single pair of nodules (loral pair); either small or large in size; paranotal expansion wanting; pronotum with only a median carina; hemelytra without tumid elevations................. 2a
Cephalic tubercles 3; moderately tuberculate; small to median size; paranotal expansion will developed and reflexed back upon the pronotum with varying degrees of complexities; cephalic hood present or absent; hemelytra with tumid elevation; median carina well formed, often concealed by the paranotal expansion, lateral carinae moderately developed ...................................................... 2b

2a. Minute to small, antennae short, the first flagellar segment not exceeding double the length of the terminal segment, often setaceous; body elongate; hemelytra without any markings .................................................. Agramma

Body oval, hemelytra with dark patch........... Afrotingis

Larger size; more elongated, antennae very long, the first flagellar segment more than three times longer than the terminal segment, almost bare; distinct calli present.... Perissonemis

2b. The paranotal expansion completly reflexed back and completly covering the pronotum on either side of the median carina; pronotum hood moderately developed; bucculae not prominently projecting anteriorly beyond the level of the head; minute to medium size; discoidal area vesicular.............................. Nacchila

Paranotal expansion reflexed but not completly covering the pronotum on either side of the median carina. ...................................................... .2c
2c. Paranotal expansion reflexed and almost reaching the pronotum, leaving a narrow space on either side of the median carina; discoidal area with only tumid elevation; bucculae anteriorly protruding beyond the level of the head; moderately large ............... **Dictyla**

Paranotal expansion developing as a vesicle but not touching the pronotum; the median carina hairy, not forming anteriorly the vesicle; lateral carina uniseriate but concealed by the paranotal vesicle; 2 tumid elevations along the radial vein ............... **Cochlochila**

3. Pronotal hood present, paranotal expansion well developed and elaborately expanded ............... 4

Pronotal hood absent; paranotal expansion either absent or when present broadly expanded ................................................................. 5

4. Pronotal hood laterally compressed and moderately gibbose and elongate extending beyond the base of the head; paranotal expansion ear lobe like, uniseriate or multiseriate ................................................. 6

Pronotal hood moderately bulbous; paranotal expansion multiseriate, not extending beyond the base of the head ................................................. 7

Pronotal hood enormously gibbose; paranotal expansion uniformly broad, vertically uniseriate or multiseriate and reflexed back on the pronotum and often extending beyond the base of the head ................................................. 8
5. Paranotal expansion absent or narrow and uniseriate; cephalic tubercles either prominently stout or slender....................... 5a

Paranotal expansion broadly expanded or foveated; cephalic tubercles conspicuously spinous; hemelytra angulate....................... 5b

5a. Paranotal expansion absent, only median carina present and the pronotum darkly punctate; cephalic tubercles very feeble..... Phaenotropis

Paranotal expansion uniseriate; pronotum tricarinate, each carination uniseriate; hemelytra bare or with spines; cephalic tubercles prominently elongate....................... 5c

5b. Paranotal expansion broadly expanded anteriorly with spines on the anterior margin, otherwise with long non pedicellate hairs.................Belenus

Paranotal expansion deflected back opposed to the pronotum on either side of the median carination and transversely foveated; body dorsally clothed with sharp pedicellate spines...Urentius

5c. Antennal segment highly setose; flagellar segments stout; hemelytral constriction not well defined; body moderately elongate............Teleonemia

Antennal segment very slender and elongate; body slim and much elongate with prominent subapical constriction of hemelytra; pronotum anteriorly pointed reaching the eye....................... 5d
5d. Body very much elongated; bare without any spines; legs very long, with spatulate hairs on the distitarsus. Abdastartus

Body moderately elongate, clothed with both decumbent and punctate hairs; ommatidia with setal combs; pterostigma on the radial vein may not present. Haedus

6. Paranotal expansion ear lobe like, vertically uniseriated; pronotal median carina laterally compressed anteriorly and sharply pointing, extending beyond the head; the median carina and scutellum together forming vesicle; hemelytral areolations much limited in number with tumid elevations in the discoidal area; body non spinous. Aconchus

Paranotal expansion broadly expanded, multiseriate; median carina deeply constricted in the middle, anteriorly developing into moderately expanded vesicle and posteriorly into vertical multiseriate plate; lateral carinae raised, uniseriate; hemelytra subapically constricted and body clothed with pedicellate spines. Lasiacantha

7. Middle region of the paranotal expansion developing into a transversely elongate multiseriate plate; hood more prominent; largest known among tingids; subcostal area multiseriate; hemelytra banded in the middle and the sutural area pigmented. Ammianus (largest species recorded in S. India)
Paranotal expansion either gradually enlarged
in the middle or uniformly broad.................7a.

Paranotal expansion deflected back and fused
along the margin of the pronotum; the head
and pronotum beset with stramineous hairs.... Physatocheila

7a. Paranotal expansion moderately prominent only
in the middle; the hemelytra banded in the
middle and the sutural area pigmented; large
in size........................................Dasytingis

Paranotal expansion broad, marginally wavy and
dentate; multiseriate or slightly reflexed on
the pronotum and then deflexed vertically.........7b.

7b. Paranotal expansion broad; multiseriate and
marginally wavy and dentate; body bare.......Pontanus

Paranotal expansion slightly reflexed on the
pronotum and then deflexed vertically; body
tomentose; areolae with cartwheel arrange-
ment of hairs....................................Tingis

8. Paranotum vertically uniseriate or 2-3 areolae
thick, hemispherical or ear lobe like or broadly
expanded extending beyond the eye; hemelytra
with tumid elevation or vesiculate...............8a

Paranotum either narrow and transversely uni-
seriate or broad and multiseriate; median
carina constricted behind the anterior hood
or not constricted or terminating midway..........8b
8a. Paranotal expansion auricular or hemispherically expanded; discoidal area or discoidal and radiareal area together forming vesicle; lateral carinae expanded or not visible; median carina posteriorly expanded with the scutellum or not

Paranotal expansion broadly expanded and anteriorly extending up to the eye; median carina not forming any hood behind the anterior vesicle; lateral carinae short and reduced; radial area vertically disposed. Stephanitis

8b. Paranotal expansion broad and multiseriate; median carina constricted in the middle and posteriorly extending along with the scutellum far beyond the middle of the discoidal area; body almost bare. Longiscutella

Paranotal expansion narrow and uniseriate or multiseriate and reflexed; median carina not constricted and scutellum not extending beyond the anterior half of the discoidal area. 8d.

8c. Paranotum hemispherically expanded; median carina posteriorly not expanded but the lateral carinae expanded and meeting above the median carina; forming a vesicle, concealing the entire scutellum; discoidal area alone vesicular. Dulinius
Paranotum auricular, median carina anteriorly and posteriorly forming vesicles; the posterior one completely concealing the scutellum; the lateral carinae absent; discoidal and radial areas together forming the vesicle. 

8d. Paranotal expansion narrow, uniseriate, the anterior hood of the median carina almost completely concealing the head; scutellum obtusely pointed. 

Paranotal expansion multiseriate and reflexed covering the pronotum lateral to the lateral carination.