GENERIC REVISION OF THE PALAEARCTIC *NOTODONTIDÆ*

By

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Notodontidae of the palaearctic region is divided into the following 11 sub-families:

A. Primaries with one or two tooth-like tufts at the dorsum.
  a. Primaries with one tooth-like tuft at the dorsum ..... 1. *NOTODONTINAE*
  b. Primaries with two tooth-like tufts at the dorsum ... 2. *SPATALIINAE*

B. Primaries with no tooth-like tuft at the dorsum..
  a. Abdomen at the end with a long tuft of spatulate scaly hair ..... 3. *DUDUSINAE*
  b. Abdomen at the end with no long tuft of spatulate scaly hair.
    a.[i] Antennae in the male bipectinate.
      a.[ii] Antennae in the male filiform at the apical 1/4.
        a.[iii] Antennae in the male at the apical 1/4 suddenly filiform ..... 4. *STAUROPINAE*
        b.[iii] Antennae in the male at the apical 1/4 gradually filiform ..... 5. *FENTONIINAE*
      b.[ii] Antennae in the male bipectinate to the tips.
        a.[iii] Abdomen at the apex of male with a biforked brush-like tuft of scales ..... 9. *MELALOPHINAE*
        b.[iii] Abdomen at the apex of male with no biforked brush-like tuft of scales.
          a.[iv] Antennae decreasing the length of their branches gradually to the tips.
            a.[v] Head small; antennae short; palpi feeble; abdomen short ... . 6. *GLUPHISIINAE*
            b.[v] Head large, front broad, triangular; antennae long; palpi strong; abdomen long ..... 7. *CERURINAE*
          b.[iv] Antennae not decreasing the length of branches towards the tips ..... 8. *PTILOPHORINAE*

[Ins. Mats., Vol. IV, No. 1 & 2, Nov., 1929]

b.[i] Antennae in the male fasciculate or filiform.
a.[ii] Head retracted, being not visible from above. ... 10. *PHALERINAE*
b.[ii] Head not retracted, being visible from above ..... 11. *CEIRINAE*

I. SUBFAM. *DUDUSINAE*

Antennae in the male bipectinate, at the apices ciliate or serrate.

Primaries mostly crenulate, rarely entire at the termen. Abdomen long, at the base broad, gradually tapering towards the apex; at the apex with a tuft of spatulate or penicillate scales.

In the palaearctic region we have 6 genera.

Key to the Genera

A. Primaries with the areole.
a. Apical tuft of abdomen with spatulate scales.
a.′ Antennae to the middle short pectinate.
a.″ Apical tuft of abdomen short ..... *Dudusa* WK.
b.″ Apical tuft of abdomen long ..... *Dudusopsis* MATS.
b.′ Antennae to near the tips long bipectinate ..... *Dudusoides* MATS.
b. Apical tuft of abdomen with penicillate scales.
a.′ Primaries with vein 6 from the upper angle of cell ..... *Pika* MATS.
b.′ Primaries with vein 6 from the middle of areole ..... *Tarsolepis* BUTL.
B. Primaries with no areole ..... *Tensha* MATS.

1. Genus ***Tarsolepis*** BUTL.

Tarsolepis BUTL., A. M. N. H. (4) x, p. 125 (1872)

Genotype—*T. remicauda* BUTL.=*sommeri* HB.

Palpi porrect, the first two joints hairy; the third short and naked. Antennae in both sexes bipectinate, all the branches oblique to the axis. Hind femur with a tuft of long hair from near the extremity. Abdomen long, with a large tuft of spatulate scales at extremity. Primaries long, with the apex acute, at the termen crenulate; vein 6 from the upper angle of cell; the areole long. Secondaries with the cell short; vein 8 connected with 7 by a bar; traces of forked veinlet in the cell of both wings.

In Japan we have the following one species and one subspecies.

1. *Tarsolepis sommeri* HB.=*remicauda* BUTL. (Formosa)
Crino sommeri HB., Samlg. Exot. Schmet. (1824?)
2. *Tarsolepis sommeri japonica* WILEM. (Japan)
Tarsolepis japonica WILEM., Entom. p. 22 (1917)

2. Genus ***Pika*** MATS. (n. g.)

Genotype—*Pika taiwana* WILEM.

Closely allied to *Tarsolepis* BUTL., but differs from it as follows:

Antennae in the male bipectinate, in the female ciliate; all the branches perpendicular to the axis. The third joint of palpi longer, nearly twice as long as the breadth, truncated at the apex. Primaries with vein 6 from the middle of areole; 7 from the apex of areole. Secondaries with veins 8 and 7 nearly touching at behind the middle of cell, lacking a cross-bar. Spatulate scales at the end of abdomen truncate, but not dentate.

We have in Formosa the following one species:

1. *Pika taiwana* WILEM. (Horisha)
   Tarsolepis taiwana WILEM., Entom. p. 138 (1910)

3. Genus ***Dudusa*** WK.

Dudusa WK., Cat. xxxii, p. 446 (1865)

Genotype—*D. nobilis* WK.

The original diagnosis of WALKER is as follows:

"Male. Body stout. Proboscis obsolete. Palpi porrect, stout, pilose, not extending beyond the vertex; third joint elongate-conical, less than half the length of the second. Antennae slight pectinated. Thorax with an erect tuft of penicillate hairs. Abdomen tapering from the base to the tip, slightly tufted along each side extending much beyond the hind wings; apical tuft very short. Legs stout; femora and tibiae densely pilose. Wings long; exterior border festooned. Fore wings acute; costa and exterior border slightly convex, the latter very oblique; a distinct vein springing from the middle of the end of the areolet; three inferior veins, of which the second is near the first and not very remote from the third. The structure of the antennae and of the abdomen sufficiently distinguish this genus from *Hyleora*, to which it seems to have most affinity."

We have in Formosa the following one species:

1. *Dudusa nobilis synopla* SWINH. (Formosa)
   Dudusa synopla SWINH., Bomb. N. H. S. xx, 1, p. 8 (1910)

This is reported from Formosa, but to the author it is unknown. The specimen which is determined as *D. nobilis synopla* in Dahlem Museum in Germany seems to be my *Dudusopsis horishana* MATS.

4. Genus ***Dudusoides*** MATS. (n. g.)

Genotype—*Dudusa sphingiformis* MOOR.

Closely allied to *Dudusa* WK., but differs from it as follows:

Antennae short bipectinated to the middle, at the apical half being ciliated.

Eyes with very fine hair. Proboscis developed. Metathorax in the middle with an erect tuft of penicillate scales. Abdomen long, about $\frac{1}{2}$ of the length, protruding beyond the secondaries; at the end with a large and long bundle of spatulate scales, not mingling hair. Primaries much narrower, very deeply crenulated at the termen; vein 6 from before the middle of areole; 7 and the stalk of 8+9 from the tip of areole; 10 from the back of areole; the middle discocellular rudimental. Secondaries with a bar between veins 7 and 8; 6 and 7 with a common stalk.

We have in Japan the following one species:

1. *Dudusoides sphingiformis* MOOR. (Honshu, Korea, Formosa)
   Dudusa sphingiformis MOORE, P. Z. S. L. p. 577, pl. xxxiv, f. 1 (1872)

5. Genus ***Dudusopsis*** MATS. (n. g.)

Genotype—*Dudusa fumosa* MATS.

Differs from *Dudusa* WK. as follows:

Proboscis developed. Antennae in the male long and in the female short bipectinated, at about the apical 1/6 being serrated. Metathorax with a few spatulate scales. Abdomen at the apex with a long tuft of spatulate and penicillate scales, those of the latter being much longer. Primaries broad, at the termen slightly crenulate; vein 6 from the upper angle of cell; 7 from before the apex of areole.

We have in Formosa the following 3 species:

1. *Dudusopsis fumosa* MATS.
   Dudusa fumosa MATS., Zool. Mag. Tokyo, xxxvii p. 391 (1925)
2. *D. baibarana* MATS.
   Dudusa baibarana MATS., Ins. Mats. iv, p. 37, pl. 1, f. 10 (1929)
3. *D. horishana* MATS. (n. sp.)

Dudusopsis horishana n. sp.

Closely allied to *D. baibarana* MATS., but differs from it as follows:

♂, ♀. Antennae at about the apical 1/6 on the back white. Primaries yellowish brown; no whity gray colouring; central oblique fuscous band much narrower and much broader at near the tornus. Secondaries darker. Underside testaceous brown; primaries in the middle fuscous, the postmedial line being only visible; in the secondaries with the postmedial line obsolete, being wider separated from the discoidal spot and not incurved at the lower angle of cell.

Exp.—♂ 95 mm., ♀ 110 mm.

Hab.—Formosa; 5 (1 ♂, 4 ♀ ♀) specimens were collected by T. TAKAMUKU at Horisha.

9. Genus ***Tensha*** MATS.

Tensha MATS., Zool. Mag. Tokyo, xxxvii, p. 392 (1925)

Genotype—*T. striatella* MATS.

Proboscis rudimental. Palpi clavate and upturned, the 3rd joint small and porrect. Antennae plumose, the apical one third serrate. Primaries narrow, no areole; veins 6 and 7 with a quite long stalk; vein 7 arises at far behind 10; the discocellulars nearly rightangular to the median vein (subcostal); 5 from the middle of discocellular; 3 from behind the angle of cell; termen entire, gently curved. Secondaries with veins 6 and 7 stalked, its stalk being very long; termen entire, gently rounded. At the end of abdomen with a long tuft of spatulate scales.

We have in Formosa the following one species:

1. *Tensha striatella* MATS.

Tensha striatella MATS., Zool. Mag. Tokyo, xxxvii, p. 392, pl. vii, fig. 8 (1925)

II. SUBFAM. *STAUROPINAE*

Antennae in the male plumose, at the apical part suddenly filiform, serrate or pectinate.

Key to the Genera

A. Posterior tibia with one pair of spurs.
  a. Antennae filiform at the apices ..... *Stauropus* GERM.
  b. Antennae pectinate at the apices.
    a.′ Primaries at the apex rightangular .... *Kikuchiana* MATS.
    b.′ Primaries at the apex acutangular ..... *Shachia* MATS.
  c. Antennae at the apices serrate.
    a.′ Posterior tibia with long spatulated hair ..... *Damata* HAMPS.
    b.′ Posterior tibia with long woolly hair.
      a.″ Primaries with an areole ..... *Damatoides* MATS.
      b.″ Primaries with no areole ..... *Hoplitis* HB.
B. Posterior tibia with two pair of spurs.
  a. Antennae at the apices filiform ..... *Quadricalcarifera* STRAND
  b. Antennae at the apices pectinate ..... *Netria* WK.

1. Genus ***Stauropus*** GERM.

Stauropus GERM., Prod. p. 45 (1811)

Genotype—*S. fagi* L.

Antennae in the male plumose, at the apical ¼ serrate, in the female simple,

ciliate. Palpi porrect, reaching to the vertex, the 3rd joint being short.

Proboscis rudimental. Eyes naked, ocelli wanted.

Body, especially thorax, legs and the end of abdomen woolly pubescent. Abdominal segments 1–5 each with a dorsal tuft. Hind tibia with 2 spurs at the end. Primaries with no areole; vein 5 from the middle of discocellulars, 6 with a common stalk of 7, 8, 9 and 10, 10 opening at the middle of the common stalk of 8 and 9; cell with a trace of forked vein; termen entire, oblique. Secondaries with veins 7 and 8 nearly touching at the middle of cell; 6 and 7 with a short stalk; the lower discocellular strongly oblique; cell with no forked trace of vein in the middle.

In Japan we have the following 7 species:

1. *Stauropus fagi persimilis* BUTL. (Japan)
   Stauropus persimilis BUTL., A. M. N. H. (5) iv, p. 353 (1879)
2. *S. alternus* WK. (Formosa)
   Stauropus alternus WK., Cat. v, p. 1020 (1855)
3. *S. teikichiana* MATS. (Formosa)
   Stauropus teikichiana MATS., Ins. Mats. iv, p. 37 (1927)
4. *S. basalis niphonica* GRÜNB. (Japan)
   Stauropus basalis ab. *niphonica* GRÜNB., in Seitz, Gross-Schm. ii, p. 290 (1912)
5. *S. confusus* WILEM. (Formosa)
   Stauropus confusus WILEM., Entom. p. 287 (1910)
6. *S. obliteratus* WILEM. (Japan)
   Stauropus obliteratus WILEM., Entom. p. 289 (1910)
7. *S. takamukuanus* MATS. (Formosa)
   Stauropus takamukuanus MATS., Zool. Mag. Tokyo, xxxvii, p. 392 (1925)

2. Genus ***Quadricalcarifera*** STRAND

Quadricalcarifera STRAND, Arch. f. Naturg. p. 160 (1915)

Genotype—*Q. wilemani* MATS.

Closely allied to *Stauropus* GERM., but differs from it as follows:

In both sexes antennae plumose, in the female being much shorter. Abdominal segment with no dorsal tuft. Hind tibia with 2 pair of spurs, respectively one pair at the end and another near above it. Primaries with the discocellulars straight, scarcely incurved, rudimental, while in *Stauropus* the upper discocellular robust; termen much less oblique and shorter. Secondaries with the upper discocellular oblique; other discocellulars obsolete, especially in the middle; vein 5 at the base obsolete, given off from $\frac{1}{3}$ of the discocellulars near the upper angle; cell with a trace of forked vein.

In Japan we have the following 15 species:

1. *Quadricalcarifera wilemani* MATS. (Formosa)=*pulverulenta* WILEM. =*subgeneris* STRAND=*horishana* MATS.

Stauropus wilemani MATS., Trans. Sapp. N. H. S. ix, p. 38 (1924)

2. *Quadricalcarifera centro-brunnea* MATS. (Formosa)
Quadricalcarifera centro-brunnea MATS., Jour. Col. Agr. Hok. I. U. xix, p. 11, pl. 1, fig. 4, ♂ (1927)

3. *Q. concentrica* MATS. (Formosa)
Quadricalcarifera concentrica MATS., Jour. Col. Agr. Hok. I. U. xix, p. 11, pl. 1, fig. 11, ♂ (1927)

4. *Q. coreana* MATS. (Korea)
Quadricalcarifera coreana MATS. (n. sp.)

5. *Q. cyanea* LEECH (Japan)
Quadricalcarifera cyanea LEECH, Proc. Zool. Soc. Lond. p. 642 (1888)

6. *Q. kikuchii* MATS. (Formosa)
Quadricalcarifera kikuchii MATS., Jour. Col. Agr. Hok. I. U. xix, p. 12, pl. 1, fig. 12, ♂ (1927)

7. *Q. kusukusuana* MATS. (Formosa)
Quadricalcarifera kusukusuana MATS., Ins. Mats. iv, p. 38, pl. 1, fig. 15 (1929)

8. *Q. marginalis* MATS. (Formosa)
Quadricalcarifera marginalis MATS., Zool. Mag. Tokyo, xxxvii, pl. vii, fig. 6 (1925)

9. *Q. nigribasalis* WILEM. (Formosa)
Stauropus nigribasalis WILEM., Entom. p. 289 (1910)

10. *Q. saitonis* MATS. (Formosa)
Quadricalcarifera saitonis MATS., Jour. Col. Agr. Hok. I. U. xix, p. 12, pl. 1, fig. 10, ♂ (1927)

11. *Q. perdix* MOOR. (Japan)
Dasychira perdix MOORE, Lep. Atk. p. 58, pl. iii, fig. 3 (1879)

11.a *Q. perdix nigroguttata* MATS. (Japan)
Cnethodonta perdix nigroguttata MATS., Zool. Mag. Tokyo, xxxiv, p. 517 (1922)

12. *Q. sugitanii* MATS. (Japan)
Cnethodonta sugitanii MATS., Zool. Mag. Tokyo, xxxii, p. 139 (1920)

13. *Q. umbrosa* MATS. (Formosa)
Quadricalcarifera umbrosa MATS., Jour. Col. Agr. Hok. I. U. xix, p. 6, pl. 1, fig. 13, ♂ (1927)

14. *Q. viridimaculosa* MATS. (Formosa)
Quadricalcarifera viridimaculosa MATS., Zool. Mag. Tokyo, xxxiv, p, 521, ♀ (1922); ♂, Jour. Col. Agr. Hok. I. U. xix, p. 5, pl. v, fig. 35 (1927)

15. *Q. viridipicta* WILEM. (Formosa)
Somera viridipicta WILEM., Entom. p. 312 (1910)

Quadricalcarifera coreana n. sp.

Quadricalcarifera coreana MATS. (n. l.), Jour. Col. Agr. Hok. I. U. xix, p. 13 (1927)

♀. Closely allied to *Q. umbrosa* MATS., but differs from it as follows: Primaries with no greenish scales; fuscous orbicular, being white in the middle; a large triangular fuscous costal patch in the middle gray; at the termen no fuscous patch; subterminal line black, wavy, nearly parallel to the

termen. Secondaries at the apico-costal region with a much smaller brownish patch; underside of secondaries at the termen unicolorously whity gray, not infuscated as in *umbrosa* MATS.

Exp.—♀ 54 mm.

Hab.—Korea; one female specimen was collected on the 7th of May, 1921, by Dr. H. OKAMOTO at Suigen.

Quadricalcarifera kikuchii MATS.

Cuadricalcarifera kikuchii MATS., Jour. Col. Agr. Hok. I. U. xix, p. 12, pl. 1, fig. 2, ♂ (1927)

♀. Differs from the male as follows:

Primaries with the orbicular larger, quite distinct; reniform obscure, oblong, at the outside with a large dark patch; below the suture a large black patch, accompanied by a grayish white spot outwardly; subterminal line narrow, wavy, nearly parallel to the termen, somewhat incurving at the interspace I^b.

Exp.—♀ 56 mm.

Hab.—Formosa; one female specimen was collected by T. TAKAMUKU at Horisha.

3. Genus *Netria* WK.

Netria WK., Cat. iv, p. 1504 (1855)

Genotype—*N. viridescens* WK.

Closely allied to *Stauropus* GERM.

The diagnostic description of F. WALKER of this genus is as follows:

♂. "Body thick. Head with a tuft on each side by the base of the antennae. Proboscis not visible. Palpi porrect, not extending so far as the head; third joint short, conical. Antennae deeply pectinated, bare at the tips, a little longer than the thorax. Abdomen extending as far as the hind wings. Legs stout, pilose; hind tibiae with two moderately long apical spurs. Wings narrow, rather long. Fore wings slightly acuminated at the tips, nearly straight and extremely oblique along the exterior border, clothed with long hairs beneath towards the costa; second inferior vein about thrice further from the third than the first."

Closely allied to *Stauropus* GERM., but differs from it as follows:

♂, ♀. Antennae plumose, at the extreme apices serrate. Palpi porrect, scarcely extending to the vertex, third joint short, conical, hidden by the scales. Primaries with vein 5 a little above the middle of discocellulars; the upper and middle discocellulars nearly straight, the lower being strongly oblique, the middle one rudimental. Secondaries with vein 5 distinctly above the middle of discocellulars; the upper discocellular short and perpendicular, the middle and

lower strongly oblique, the middle one being rudimental. Abdomen with no dorsal tuft. Hind tibia with 2 pair of spurs, respectively one at the apex and one just above it.

In Formosa we have only one species:

1. *Netria viridescens* WK. (Horisha)
Netria viridescens WK., Cat. vi, p. 1504 (1855)

4. Genus ***Shachia*** MATS.

Shachia MATS., Zool. Mag. Tokyo, xxxi, p. 143 (1919).

Genotype—*Drymonia circumscripta* BUTL. (=*subrosea* MATS.)

Closely allied to *Stauropus* GERM., but differs from it as follows:

Antennae at the extreme apices (about 10 joints) short pectinate. Abdomen with no dorsal tuft. Primaries with vein 5 from a little above the middle of discocellulars; 6 from the upper angle of cell or short stalked; 7 in the midway from apex to the cell; 8 and 9 short, the latter being very short; 10 nearly in the midway from the base of 7 to the cell at the opposite side; the discocellulars incurved, the middle one being rudimental. Secondaries with veins 6 and 7 with a long stalk; 7 and 8 run close by each other, but not touching as in *Stauropus*.

We have in Japan the following one species:

1. *Shachia circumscripta* BUTL. (Japan)
Drymonia circumscripta BUTL., Cist. Ent. iii, p. 125 (1885)
(=*Shachia subrosea* MATS.)

5. Genus ***Damata*** WK.

Damata WK., Cat. v, p. 1044 (1855)

Genotype—*D. longipennis* WK.

"Palpi porrect and hairy. Antennae with the branches very long by the male and short by the female, ceasing abruptly one-fourth from apex. Primaries long and narrow; vein 5 from just below the angle of cell; 6 and 10 from the end of areole which is formed by 9 anastomosing with 7 and 8; secondaries with vein 5 from near the upper angle of cell, 6 and 7 stalked; 8 running close along 7 to towards the end of cell. The basal 3 abdominal segments each with a bushy tuft of scales. Legs long pubescent; tibiae with long brush-like tuft of scaly hair." (after HAMPSON).

In Formosa we have only one species.

1. *Damata longipennis formosicola* MATS. (Horisha)
Damata longipennis formosicola MATS., Ins. Mats. iv, p. 1, p. 44, pl. 1, fig. 7 (1929)

6. Genus ***Damatoides*** MATS.

Damatoides MATS., Jour. Col. Agr. Hok. I. U. xix, p. 13 (1927)

Genotype—*D. baibarana* MATS.

Closely allied to *Damata* WK., but differs from it as follows:

Primaries not long, nearly twice as long as broad; vein 5 from the middle of discocellulars; no areole; veins 7 and 8 branched from 10; 6 just from the anterior angle of cell. Secondaries with vein 5 from a little above the middle of discocellulars, the middle and lower discocellulars being geniculated. Abdomen much shorter, a little produced beyond the secondaries. All tibiae with long brush-like scaly hair.

We have in Formosa the following one species:

1. *Damatoides baibarana* MATS. (Horisha)

Damatoides baibarana MATS., Jour. Col. Agr. Hok. I. U. xix, p. 13, pl. 1, fig. 3, ♂ (1927)

7. Genus ***Kikuchiana*** MATS.

Kikuchiana MATS., Jour. Col Agr. Hok. I. U. xix, p. 10 (1917)

Genotype—*K. infuscata* MATS.

♂. Antennae long pectinated, suddenly becoming filiform at the apical $\frac{1}{6}$. Palpi obliquely upturned, with some long, scaly, bushy hair, the 3rd joint being very small, oval, and nearly naked. Pro- and mesonotum each with a conical crest. Abdomen at the apex with a tuft of very long stalked scales. Primaries near the middle of dorsum with a small scaly lobe; vein 5 from above the middle of discocellulars; 6 from a little below the angle; 7, 8 and 9 branched from 10; 4 from the lower angle; 3 from a little apart below the lower angle. The discocellulars to the secondaries obsolete, vein 5 from a little above the middle of it; 6 and 7 with a short stalk; 3 and 4 nearly the same with those of the primaries. Hind tibia with 2 pair of spurs.

In Formosa we have the following one species:

1. *Kikuchiana infuscata* MATS. (Horisha)

Kikuchiana infuscata MATS., l. c. pl. 1, fig. 9, ♂

8. Genus ***Hoplitis*** HB.

Hoplitis HB., Verz. Schmett. p. 147 (1822).

Genotype—*H. milhauseri* F.

Antennae in both sexes long plumose to the 2/3 of the length, in the male with long and in the female short branches, at the apices short pectinate. Palpi very short, scarcely reaching beyond the vertex. Proboscis rudimental. Eyes naked, no ocelli. Primaries in the male narrow, at the termen much oblique, being much broader in the female; vein 5 from the middle of the discocellulars; 6, 7, 8 and 9 with a common stalk, arising from the upper angle of cell; 10 free, no areole. Secondaries broad, triangularly rounded; veins 6 and 7 long stalked. Thorax and abdomen with no tuft; legs with long woolly hair; posterior tibia with one pair of spurs.

We have in Japan the following one species:

1. *Hoplitis milhauseri* F. (Hokkaido, Honshu, Korea)
Bombyx milhauseri F., Syst. Ent. p. 577 (1775)

SUBFAM. *CERURINÆ*

Antennae long, in both sexes plumose to the tips.

A. Primaries with vein 5 from the middle of discocellulars.
  a. Primaries with the areole.
    a.′ Primaries with veins 6–10 with a common stalk; branches of antennae to the tips gradually lessening their length.
      a.″ Primaries with vein 5 from the middle of discocellulars..... *Cerura* SCHR.
      b.″ Primaries with vein 5 from just below the upper angle of cell..... ..... *Dicranura* BOISD.
    b.′ Primaries with vein 10 from the tip of areole.
      a.″ Primaries with vein 10 independent ..... *Neocerura* MATS.
      b.″ Primaries with vein 10 stalked with 8 and 9.
        a.‴ Primaries with vein 6 from the middle of areole .... *Gangaridopsis* GRÜNB.
        b.‴ Primaries with vein 6 from a little beyond the upper angle of cell... ..... *Nerice* WK.
  b. Primaries with no areole.
    a.′ Male with frenulum ..... *Microphalera* BUTL.
    b.′ Male with no frenulum..... *Epizaranga* MATS.
B. Primaries with vein 5 from above the middle of discocellulars.
  a. Secondaries with veins 7 and 8 touched at near the base of cell and towards the apex widely divergent ..... *Liparopsis* HAMPS.
  b. Secondaries with veins 7 and 8 touched at near the middle of cell and towards the apex moderately divergent.
    a.′ Vein 6 from the upper angle of cell ..... *Cnethodonta* STGR.
    b.′ Vein 6 from beyond the upper angle of cell ..... *Somera* WK.
C. Primaries with vein 5 from the lower angle of cell.....*Takashachia* MATS.

1. Genus ***Cerura*** SCHR.

Cerura SCHR., Fauna Boica, ii, 2 Abth. p. 155 (1802).

Genotype—*C. furcula* SCHR.

Antennae in both sexes plumose to the tips, being long in the male and short in the female. Palpi porrect and slight. Legs hairy. Primaries triangular, at the costa straight near the apex which is acutangular; termen strongly ob-

lique, scarcely wavy; veins 6–10 with a common stalk, opening at the apex of areole; 5 from a little above the middle of discocellulars. Secondaries with veins 6 and 7 very long stalked. Hind tibia with a pair of short spurs.

In Japan we have the following 3 species:

1. *C. lanigera* BUTL. (Japan)
   Cerura lanigera BUTL., A. M. N. H. (4) xx, p. 474 (1877)
2. *C. furcula sangaica* MOOR. (Japan)
   Cerura sangaica MOORE, A. M. N. H. (4) xx, p. 90 (1877)
3. *C. bicuspis japonica* GRÜNB. (Japan)
   Cerura japonica GRÜNB., in Seitz, Gross-Schm. ii, p. 285 (1912)

2. Genus ***Dicranura*** BOISD.

Dicranura BOISD., Ind. Méth. p. 54 (1829).

Genotype—*D. vinula* L.

Closely allied to *Cerura* SCHR., but differs from it as follows:

Body large and robust. Primaries with vein 5 from just below the upper angle of cell. Secondaries with veins 7 and 8 nearly touching at the middle of cell; 6 and 7 with a common stalk which is somewhat shorter than the branches themselves.

In Japan we have the following 3 species:

1. *Dicranura vinula felina* BUTL. (Japan)
   Dicranura felina BUTL., A. M. N. H. (4) xx, p. 474 (1877)
2. *D. erminea menciana* MOOR. (Japan)
   Dicranura menciana MOORE, A. M. N. H. (4) xx, p. 89 (1877)
3. *D. formosana* MATS. (Formosa)
   Dicranura formosana MATS. (n. sp.)

Dicranura formosana n. sp.

Dicranura formosana MATS. (n. 1), Trans. Sapp. N. H. S. ix, p. 29 (1924)

Closely allied to *vinula* L., but differs from it as follows:

Primaries with the markings less conspicuous; postmedial line wavy, its waves becoming higher towards the dorsum, which opens before the tornus and the wave at interspace I becoming very high, being of a cylindrical form; a series of 4 lineal spots beyond the postmedial line, each spot being not connected with the terminal spot by a bar.

Exp.—♂ 54 mm.

Hab.—Formosa; one male specimen was collected by T. TAKAMUKU at Horisha in the summer of 1916.

3. Genus ***Neocerura*** MATS. (n. g.)

Genotype—*Cerura liturata* WK.

Closely allied to *Cerura* SCHR., but differs from it as follows:

Branches of antennae become from near the middle to the tips suddenly shorter. Primaries with a silky luster; vein 10 given off from the tip of areole, being parallel to the commen stalk of 7, 8 and 9; 6 from the middle or near the tip of areole. Primaries with veins 7 and 8 nearly touching at beyond the middle of cell; 6 and 7 with a short common stalk, being only $\frac{1}{4}$ of each branch itself. Apex of primaries in the female much broader, so that the termen being much less oblique and more ampliated.

In Formosa we have the following 3 species:

1. *Neocerura liturata arikana* MATS. (Arisan, Horisha)
   Cerura arikana MATS., Jour. Col. Agr. Hok. I. U. xix, p. 7, ♂ (1927)
   C. liturata baibarana MATS., l. c. p. 8, pl. v, fig. 32, ♀
2. *N. subrosea* MATS. (Horisha)
   Cerura subrosea MATS., l. c. p. 8, pl. v, fig. 33, ♀
3. *N. tattakana* MATS. (Tattaka)
   Cerura tattakana MATS., l. c. p. 7, pl. v, fig. 39, ♂

4. Genus ***Somera*** WK.

Somera WK., Cat. iv, p. 882 (1855)

Genotype—*S. viridifusca* WK.

Antennae with the branches long and reaching the apex. Palpi upturned, reaching the vertex of head; the first 2 joints fringed with hair. Primaries broad, the subcostal nervure and cell clothed with long hair on underside; vein 6 given off just beyond the angle of cell; 9 and 10 anastomosing with 8 to form an areole. Secondaries with veins 6 and 7 stalked; 8 runs close along 7 to near the end of cell. The female not known.

We have in Formosa the following one species:

1. *Somera viridifusca* WK.
   Somera viridifusca WK., Cat. iv, p. 882 (1855)

5. Genus ***Cnethodonta*** STGR.

Cnethodonta STGR., Mém. Rom. iii, p. 315 (1887).

Genotype—*C. grisescens* STGR.

Antennae with the branches in both sexes bipectinate, being shorter in the female. Palpi upturned, reaching beyond the vertex, the 3rd being short and somewhat conically pointed. Proboscis rudimental. Eyes naked. Legs long and densely pubescent; hind tibia with a pair of end-spurs. Abdomen in the male somewhat and in the female very long protruded beyond the secondaries. Primaries relatively broad, with upraised scaly tubercles; vein 5 from above the middle of discocellulars; 6 from the upper angle of cell; 3 and 4 from the lower angle of cell; 7, 8 and 9 with a common stalk; no areole. Second-

aries with vein 5 from above the middle of discocellulars; 3 and 4 with a short stalk from the acute lower angle of cell; 6 and 7 long stalked; 7 and 8 nearly touching at the middle of cell.

In Japan we have the following 2 species:

1. *Cnethodonta grisescens* STGR. (Hokkaido, Honshu)
   Cnethodonta grisescens STGR., Mém. Rom. iii, p. 214 (1887)
2. *C. baibarana* MATS. (Formosa)
   Cnethodonta baibarana MATS., Ins. Mats. iv, p. 46, pl. I, fig. 21, ♂ (1929)

6. Genus ***Microphalera*** BUTL.

Microphalera BUTL., Cist. Ent. iii, p. 119 (1885)

Genotype—*M. grisea* BUTL.

Antennae plumose to the tips; the branches being shorter in the female. Palpi upturned, scarcely reaching beyond the vertex; densely pubescent. Proboscis not well developed. Eyes naked. No ocelli. Thorax with an upstanding tuft of scaly hair. Abdomen on the basal segment with a long tuft of hair. Legs long pubescent; hind tibia with 2 pair of spurs. Abdomen short, a little protruding beyond the secondaries. Primaries broad, at the termen broadly ampliated, at the apex nearly rightangular; vein 5 from the middle of discocellulars; 6 from beyond the upper angle of cell; 6, 7, 8 and 9 stalked; 10 anastomosing with the stalk of 7, 8 and 9 builds a long areole; 3 and 4 widely separated; 3 from far below the lower angle of cell. Secondaries broad, rounded; veins 3, 4 and 5 nearly the same with those of the primaries; 6 and 7 with a short stalk; 7 runs very close by 8 from the base to the end of cell.

We have in Japan the following one species:

1. *Microphalera grisea* BUTL. (Hokkaido, Honshu)
   Microphalera grisea BUTL., l. c. p. 120 (1885)

7. Genus ***Epizaranga*** MATS.

Epizaranga MATS., Zool. Mag. Tokyo, xxxiv, p. 143 (1922).

Genotype—*Drymonia permagna* BUTL.

Closely allied to *Zaranga* MOOR., but differs from it as follows:

Primaries with the termen scarcely crenulated; vein 5 narrower; the middle and lower discocellulars rudimental; the upper discocellular much more oblique, with vein 5 building a parabolic cone. Secondaries scarcely crenulated, with veins 7 and 8 not connected by a bar; the upper and middle discocellulars straight, the lower being oblique; 5 narrower, especially at the base. At the mesonotum with an erect tuft of scales.

We have in Japan the following one species:

1. *Epizaranga permagna* BUTL. (Hokkoido, Honshu)

Drymonia permagna BUTL., Trans. Ent. Soc. Lond. p. 20 (1881)

8. Genus ***Nerice*** WK. (=*Nericoides* MATS.)

Nerice WK., Cat. v, p. 1076 (1855).

Genotype—*N. bidentata* WK.

Antennae in the male long, in the female short bipectinated. Palpi upturned, reaching beyond the vertex; 3rd joint short, round and naked. Proboscis rudimental. Thorax with a large conical tuft. Abdomen long, cylindrical, protruding $\frac{1}{3}$ of its length beyond the secondaries. Legs quite slender, the hind tibia with the middle and end-spurs. Primaries at the apex broadly acute, at the termen scarcely crenulated; vein 5 from a little above the middle of discocellulars; 6 from the middle of areole; 7, 8, 9 and 10 with a short common stalk which is arising from the tip of areole; 3 from far behind the lower angle of cell. Secondaries with vein 5 from a little above the middle of discocellulars; 6 and 7 with a long common stalk; 7 runs close by 8, somewhat diverging from before the end of cell; 3 from far below the lower angle of cell.

We have in Japan the following 2 species:

1. *Nerice bipartita* BUTL. (Hokkaido, Honshu)
   Nerice bipartita BUTL., Cist. Ent. iii, p. 119 (1885)
2. *Nerice davidi* OBERTH. (Hokkaido, Honshu)
   Nerice davidi OBERTH., Et. d'Ent. vi, p. 17, t. 7, f. 2 (1881)

9. Genus ***Takashachia*** MATS.

Takashachia MATS., Ins. Mats. iv, p. 50, pl. I, f. 13 (1929)

Genotype—*T. maculosa* MATS.

Antennae in the male long and in the female short plumose to the tips. Palpi obliquely upturned, long, reaching beyond the vertex; 1st and 2nd with long scaly hair towards the apex; 3rd joint rather long, more twice as long as wide. Primaries with the apex acute, at the termen slightly excavated, at the tornus somewhat truncated; areole large; vein 5 from near the lower angle of cell; 6 from just below the upper angle; 7 and the stalk of 8+9 from the tip of areole; 10 from nearly the middle of areole on the anterior side; the discocellulars strongly incurved. Secondaries with vein 5 from near the lower angle; 6 and 7 short stalked; 7 and 8 touch at near the middle of cell; the discocellulars strongly incurved; in the interspace 1^b near the middle of cell, with 2 long chitinous spines.[1] Frenulum long and robust, in the female being 3 and long. Abdomen in the male a little extending beyond the secondaries, in the female much longer than the secondaries.

1) May be an abnormal growth.

We have in Formosa the following one species:

1. *Takashachia maculosa* MATS. (Formosa)
   Takashachia maculosa MATS., Ins. Mats. iv, p. 51, pl. 1, fig. 13, ♂ (1929)

10. Genus ***Liparopsis*** HAMPS.

Liparopsis HAMPS., Faun. B. I. Moths, i, p. 155 (1893)

Genotype—*Liparopsis postalbida* HAMPS.

♂. Antennae with the branches long in the male. Palpi slight and porrect. Mid and hind[2] tibiae with each one pair of spurs. Primaries with vein 2 curved; from near the upper angle of cell; 6, 7, 8, 9 and 10 stalked; 5 from far below the lower angle of cell; termen oblique, apex conically rounded. Secondaries broad, at the costa arched; vein 5 from near the upper angle of cell; 6 and 7 stalked, being widely separated; 7 and 8 touched at near the base of cell and widely divergent towards the apex; 8 opens near the middle of costa; termen from the apex to vein 4 obliquely truncated. Abdomen short, not protruding beyond the secondaries.

We have in Formosa the following one species:

1. *Liparopsis formosana* WILEM. (Horisha)
   Liparopsis formosana WILEM., Entom. p. 323 (1914)

11. Genus ***Gangaridopsis*** GRÜNB.

Gangaridopsis GRÜNB., in Seitz, Gross-Schm. ii, p. 294 (1912)

Genotype—*Gangarides citrina* WILEM.

Antennae in the male long and in the female short bipectinated, gradually lessening their branches towards the apices. Palpi upturned, long, reaching beyond the vertex; 3rd joint short. Eyes pubescent. Thorax with an erect tuft of scales. Abdomen protruding about $\frac{1}{4}$ of the length beyoud the secondaries. Legs long, woolly pubescent; middle tibia with one and the hind one with two pair of spurs. Primaries at the apex sharp pointed; termen oblique, ampliated and crenulated; vein 5 from above the middle of discocellulars; 6 from the middle of areole; 7 from the apex of areole; 8, 9 and 10 with a common stalk, arising from the apex of areole. Secondaries with veins 6 and 7 quite short stalked; 7 runs close by 8 to before the end of cell; 5 from above the middle of discocellulars.

We have in Japan the following one species:

1. *Gangaridopsis citrina* WILEM. (Honshu)
   Gangarides citrina WILEM., Trans. Ent. Soc. Lond. p. 283, pl. xxxi, fig. 3 (1911)

(To be continued)

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2) HAMPSON in his diagnosis states that the "hind tibiae without spurs".