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Catopidae from Amami-Ohshima Is., Japan (Col.)

By YASUHIKO HAYASHI

When I submit the first report on Japanese Catopidae, I wish to express my hearty thanks to Mr. TAICHI SHIBATA for his sincere advices and constant encouragement to the present study.

I am very grateful to the following gentlemen—Dr. S. UÉNO, Mr. K. SAWADA, Mr. H. NOMURA, Dr. M. HAYASHI, Mr. Y. MIYAKE, Mr. M. SATO, Mr. M. OHKURA, Mr. H. ISHIDA and Mr. I. HURU, for their kind help in literature and several ways.

The type specimens described below are preserved in the collections of Mr. T. SHIBATA, Dr. S. UÉNO and mine.

1. *Ptomaphaginus shibatai* Y. HAYASHI sp. nov. (Text figs. 1-5)

Body subovate, rather shiny, chestnut brown, head, pronotum and spinules of tibiae black, mouth parts, antennae and tarsi yellowish; upper surface covered with greyish yellow pubescence and with fine, dense transverse striations throughout, which being more or less weak on head.

Head feebly convex above; eyes small; antennae rather long, reaching near base of pronotum, from 1st to 6th segments shortened; in ♂ 1st and 2nd much longer but 3rd slightly longer than their width, 4th to 10th more or less transverse, 6th a little longer than 8th, 7th subquadrate and more than three times as long as 8th, 9th nearly as long as 7th and scarcely longer than 10th, 11th trapezoidal, longer than wide and obtusely pointed at tip; in ♀ from 1st to 5th distinctly longer than their width, 6th transverse, about twice as long as 8th.

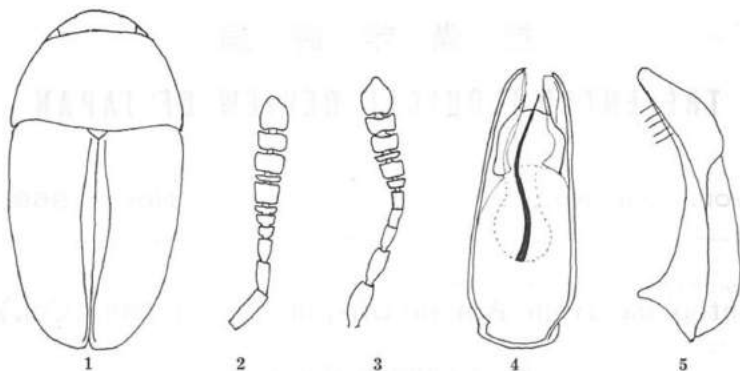
Pronotum about two-thirds as long as wide, widest near base, which being subequal in width to elytra; apical margin shallowly emarginate, basal one gently arcuate backward, but feebly sinuate laterally, lateral sides weakly arcuate, basal angles subrectangular.

Elytra gently narrowed behind, widest at basal fifth, a little more than twice as long as pronotum.

Transverse striations on under surface fine, oblique as usual, but denser than those on upper surface; anal sternite in ♂ simple, without distinct secondary sexual feature.

First to 3rd segments of protarsi in ♂ dilated.

Male genitalia (Text figs. 4, 5) rather slender, gradually narrowed apicad in dorsal

Text figs. 1-5. *P. shibatai* sp. nov.

1. Body 2. ♂ antenna 3. ♀ antenna
4. ♂ genitalia (in dorsal view) 5. ditto (in lateral view)

view and median lobe shorter than paramerae, which being carinate along lateral and bearing several hairs on ventral side of dilated apical part.

Length: 1.9 to 2.1 mm.

Holotype: ♂, Hatsuno, Amami-Oshshima Is., 2. IV. 1967, H. NOMURA leg.

Paratypes: 2♂♂ 2♀♀, ditto, 2 and 3. IV. 1969, H. NOMURA leg.

The present species is closely allied to *P. gracilis* SCHWEIGER from Fukien, China but differs from the latter as follows: In the former bicolorous, while in the latter colorful and elytra in the former not so strongly narrowed as in the latter, etc.

2. *Ptomaphagus amamianus* NAKANE (Text figs. 6-8)

Antennae and ♂ genitalia are indicated as Text figs. 6-8 in the present paper. Paramerae are tightly bound with median lobe.

Length: 3.0 to 4.2 mm.

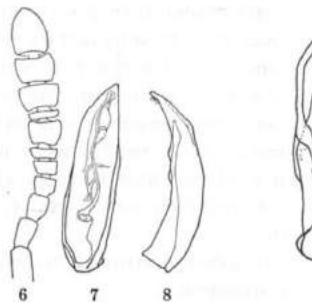
Materials examined: 5♀♀, Naze, Amami-Oshshima Is., 4. V. 1960, T. SHIBATA 1♀, Ikari, ditto, 18. V. 1960, T. SHIBATA leg.; 2♂♂ 2♀♀, Hatsuno, ditto, 1, 3 and 4. IV. 1967, 13♂♂ 7♀♀, ditto, 31. III., 1 to 3. IV. 1969, H. NOMURA leg.

3. *Micronemadus pusillimus* (KRAATZ) (Text fig. 9)

Distribution: Honshu, Amami-Oshshima Is. (new record); Assam.

Materials examined: 2♂♂ 1♀, Hatsuno, Amami-Oshshima Is., 31. III. and 2. IV. 1967, 2♂♂ 7♀♀, ditto, 2 and 3. IV. 1969, H. NOMURA leg.

Specimens from Amami-Oshshima Is. are rather paler, more reddish, somewhat shiny and larger (length: 1.8 to 2.2 mm.), 4th and 8th segments of antennae are more or less longer

Text figs. 6-7. *P. amamianus* NAKANE
6. ♀ antenna 7. ♂ genitalia (in dorsal view)
8. ditto (in lateral view)

Text fig. 9. *M. pusillimus* (KRAATZ)
9. ♂ genitalia (in dorsal view)

than those in the specimens from Honshu.

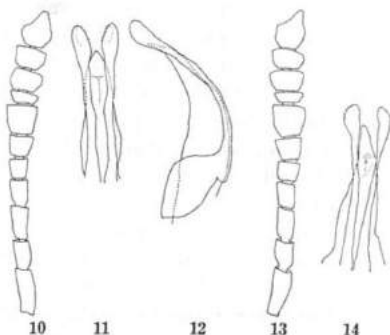
4. *Prionochaeta harmandi insulana* Y. HAYASHI ssp. nov.
(Text figs. 10-12)

The present subspecies differs from the nominate one as follows: In the former (Text fig. 10) 5th segment of antennae distinctly longer than wide in both sexes, 6th of ♂ subquadrate, not transverse and that of ♀ at least a little longer than wide, while in the latter (Text fig. 13) 5th of ♂ subquadrate but that of ♀ at most a little longer than wide, 6th rather transverse in both sexes; median lobe of ♂ genitalia in the former in dorsal view (Text fig. 11) thicker and abruptly convergent forward from near acute apex, paramerae simple, without notch at apical part, while in the latter (Text fig. 14) median lobe thin and gradually narrowed towards obtusely pointed apical tip, paramerae with a small notch at each inside of apical part.

Length: 4.0 to 4.7 mm.

Holotype: ♂, Hatsuno, Amami-Ohshima Is., 3. IV. 1967, H. NOMURA leg.

Paratypes: 4♂♂ 8♀♀, ditto, 31. III. and 3. IV. 1967, 6♂♂ 2♀♀, ditto, 31. III. and 3. IV. 1969, H. NOMURA leg.



Text figs. 10-12. *P. harmandi insulana* ssp. nov.

11. ♂ antenna 12. ♂ genitalia (in dorsal view)

13. ditto (in lateral view)

Text figs. 13, 14. *P. harmandi harmandi* PORTEVIN

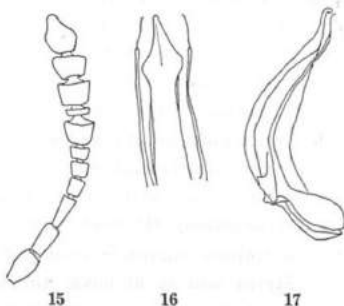
13. ♂ antenna 14. ♂ genitalia (in dorsal view)

5. *Sciodrepoides dubius* Y. HAYASHI sp. nov. (Text figs. 15-17)

Body oblong oval, rather shiny, covered with yellowish recumbent pubescence, black to blackish brown, basal two or three segments and apical half of terminal one of antennae and tarsi reddish yellow, profemora, tibiae and basal third of elytra reddish brown, elytra opalescent posteriorly.

Head feebly convex above, coarsely and closely punctate; eyes small; antennae moderately long, from 1st to 4th segments distinctly longer than their width, 3rd a little longer than 2nd, 5th subquadrate, not longer than wide, 6th to 10th more or less transverse, 7th large, subquadrate, 8th very short, less than half as long as 6th, 9th subequal in size to 10th, 11th pear-shaped, obtusely pointed at tip.

Pronotum about five-eighths as long as wide, widest at basal third, from the widest point strongly narrowed forward but weakly backward; apical margin almost straight, basal one gently arcuate



Text figs. 15-17. *S. dubius* sp. nov.

15. ♂ antenna 16. ♂ genitalia (in dorsal view)

17. ditto (in lateral view)

and weakly sinuate laterally, lateral sides strongly arcuate; apical angles rounded, basal one obtusely angulate in ♂ but more distinctly in ♀; disc strongly asperate-punctate.

Elytra slightly wider than pronotum, about three times as long as pronotum (14:5), widest behind shoulders, gradually narrowed apically; disc asperate-punctate as on pronotum.

Mesosternum finely strigose and coriaceous in the middle; metasternum and sternites finely asperate-punctate and pubescent.

Profemora not tuberculate beneath; protibiae slightly thickened apically; in ♂ 1st and 2nd segments of protarsi and 1st one of mesotarsi dilated.

Median lobe of ♂ genitalia in dorsal view (Text fig. 16) robust, asymmetrically tumid before apices, then gradually convergent to obtusely pointed apical tip, which hook-shaped in lateral view (Text fig. 17); paramerae moderately long, their apical hairs long.

Length: 2.8 to 3.5 mm.

Holotype: ♂, Hatsuno, Amami-Oshima Is., 2. IV. 1969, H. NOMURA leg.

Paratypes: 13 ♂♂ 11 ♀♀. ditto, 31. III., 2 and 3. IV. 1967, H. NOMURA leg.

The present species is closely allied to *S. tsukamotoi* NAKANE from Honshu, but may be distinguished from the latter by the following points: 4th segment of antennae distinctly longer than wide, 5th long, subquadrate, while in the latter 4th and 5th distinctly transverse; median lobe of ♂ genitalia rather slender and asymmetrically tumid before apex, but in the latter stout and symmetrically tumid before apex, etc. The present species somewhat resembles a *Catops*-species in general appearance.

6. *Catops nomurai* Y. HAYASHI sp. nov. (Text figs. 18-20)

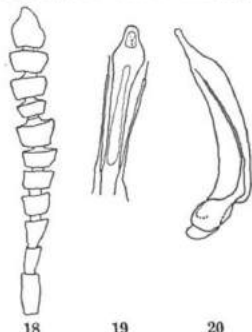
Body oval, rather shiny, covered with yellowish recumbent pubescence, black to blackish brown, palpi and basal two or three segments of antennae yellowish, legs (except yellow tarsi) blackish brown, elytra opalescent at apical half.

Head feebly convex above, coarsely and rather sparsely punctate, with a coriaceous microsculpture, vaguely impressed between well developed eyes; antennae robust, hardly reaching pronotal base, 1st to 3rd segments much longer than their width, 2nd not longer than 3rd, which dilated apically, from 3rd to 6th shortened, 4th to 10th more or less transverse (except 4th in ♀ nearly as long as wide), 7th large, more than twice as long as 8th, 9th subequal in length to 10th, 11th pear-shaped, obtusely pointed at tip.

Pronotum transverse, about five-eighths as long as wide, the widest point situated behind middle; basal margin gently arcuate, lateral sides strongly arcuate, basal angles obtuse; disc distinctly asperate-punctate, with a densely and transversely strigose microsculpture.

Scutellum narrowly triangulate.

Elytra widest at basal third, discal punctuation and microsculpture alike as on pronotum, both a little finer than those on pronotum, but a little denser than those on under surface.



Text figs. 18-20. *C. nomurai* sp. nov.

18. ♂ antenna 19. ♂ genitalia (in dorsal view) 20. ditto (in lateral view)

In ♂, profemora tuberculate beneath, protibiae strongly sinuate insidely, 1st to 3rd segments of protarsi strongly and 1st one of mesotarsi weakly dilated.

Median lobe of ♂ genitalia in dorsal view (Text fig. 19) slender, tumid before apex, then narrowed to its rounded tip; paramerae moderately long.

Length: 3.3 to 3.9 mm.

Holotype: ♂, Hatsuno, Amami-Oshshima Is., 1. IV. 1967, H. NOMURA leg.

Paratypes: 9♂♂ 17♀♀, ditto, 30. III. and 3. IV. 1967, H. NOMURA leg.

The present species is closely allied to *C. miensis* NAKANE from Honshu, but it is readily distinguished from the latter by the following points: 4th to 6th segments of antennae more transverse, distinctly wider than their length, but in the latter 4th and 5th rather long, at least as wide as long, 6th less transverse; median lobe of ♂ genitalia without hair on apical part, but in the latter at least with two hairs on its lateral side before apical tip.

7. *Catops amamiensis* Y. HAYASHI sp. nov. (Text figs. 21-24)

Body elliptic oval, rather shiny, covered with yellowish recumbent pubescence, black to blackish brown, palpi, basal two segments of antennae, basal two-fifths of elytra and sternites reddish brown, elytra opalescent posteriorly.

Antennal 1st to 4th segments distinctly longer than their width, 2nd scarcely shorter than 3rd, from which to 6th shortened, 5th not transverse, subquadrate, 6th transverse, 7th large, more than twice as long as 8th, 9th shorter than 7th, and as long as 10th, 11th longer than wide and rounded at tip.

Pronotum moderately transverse, about seven-tenths as long as wide, widest near basal third; lateral sides gently arcuate, basal angles obtuse.

Elytra widest at basal third, less than two and a half times as long as pronotum.

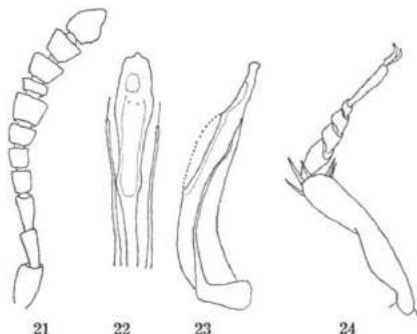
Median lobe of ♂ genitalia (my examined specimens may be immature) (Text figs. 22, 23) elongate, weakly tumid near middle and again before apex, bearing a small tubercle in the middle of its truncate apical tip; paramerae moderately long.

Length: 3.3 to 3.6 mm.

Holotype: ♂, Hatsuno, Amami-Oshshima Is., 1. IV. 1967, H. NOMURA leg.

Paratypes: 3♂♂ 2♀♀, ditto, 31. III., 3. IV. 1967 and 31. III. 1969, H. NOMURA leg.

The present species closely resembles *C. klapperichi* SCHWEIGER from Fukien, China, but differs from the latter as follows: Body smaller, antennal 2nd segment nearly as long as 3rd, pronotum less transverse (7:10) and elytra bicolorous, while in the latter body larger (4.2 mm.), antennal 2nd segment distinctly shorter than 3rd, pronotum more transverse (4:7) and elytra unicolorous, etc.



Text figs. 21-24. *C. amamiensis* sp. nov.

21. ♂ antenna 22. ♂ genitalia (in dorsal view)

23. ditto (in lateral view) 24. protibia and protarsus in ♂

The present species belongs probably to *hilleri*-group on account of structures of antennae and of ♂ genitalia, but it differs from the known species of *hilleri*-group from Japan by the protibiae in ♂, which being strongly sinuate insidely at apical half.

エゾツヤゴモクムシの採集記録

(岩湧山甲虫覚え書, 5)

芝 田 太 一

岩湧山の灯火採集で得られた *Trichotichnus congruus* MOTSCHULSKY, *T. nanus* HABU に混じって, *T. septentrionalis* HABU, 1947 エゾツヤゴモクムシを1頭見出したので, 報告しておく. この種は *congruus* によく似ているが, 前胸背側縁の波曲部が長く, ♂の genitalia が異なる.

1♂, Mt. Iwawaki, Osaka, 10 IX 1966, H. NOMURA leg.

オモゴツツキノコムシ箱根に産す

桐 生 亮

Omogocis tuberculifrons MIYATAKE オモゴツツキノコムシは四国(面河溪・血ヶ嶺・剣山), 九州(求菩提山)等に産し, さらに芝田太一氏は後藤光男氏が奈良県室生寺で採集した1標本により本州を新産地として記録されたが (Ent. Rev. Japan, 18 (1): 25), 筆者も箱根の湖尻で 30 V 1963 に 1 ex., 18 VI 1963 に 2 exs. の本種を採集したので, 箱根を本州の第2産地として報告します.

A New Species of *Trichotichnus* from the Ryukyus
(Coleoptera, Carabidae)

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Trichotichnus (*Trichotichnus*) *ryukyuensis* sp. nov.

"Ryūkyū-tsuya-gomokumushi"

Description. Length 6.5 mm. Width 2.9 mm.

Head and pronotum brownish black, elytra black, faintly iridescent; labrum and mandibles brown, palpi, antennae, legs, lateral margins of pronotum, and posterior lateral margin of elytra yellowish brown, pronotum brownish near basal angles; ventral side dark yellowish brown.

Head gently convex; dorsal side not punctate; microsculpture somewhat distinct, isodiametric; supraorbital setae fairly before level of posterior margin of eyes; eyes fully convex, hemispherical, ventral margin of eyes adjoined to buccal fissures, disparity between genuine and apparent ventral margins almost naught; frontal impressions distinct, reaching frontal lateral grooves though becoming faint; antennae a little extending beyond basal margin of pronotum; labrum shallowly emarginate at apex; penultimate segment of maxillary palpi two-thirds as long as apical segment; penultimate segment of labial palpi slightly shorter than apical segment; tooth of mentum stout, narrowly rounded at apex.

Pronotum gently convex, widest at middle, one and two-thirds times as wide as head, a little less than one and two-thirds times as wide as long (width of pronotum/width of head=1.65, width/length=1.61, maximum width/basal width=1.11, in holotype); surface densely punctate at basal area, sparsely, finely, faintly punctate at lateral and apical areas, impunctate on disk, basal punctate area not interrupted at middle, punctures smaller than in *T. orientalis*; microsculpture forming transverse meshes, rather distinct on disk, distinct at apical and basal areas; apical margin shallowly emarginate, completely bordered; apical angles somewhat protrudent, widely rounded; basal margin weakly oblique at lateral areas, completely bordered; basal angles obtuse, somewhat rounded (less rounded than in *T. orientalis*); lateral margins bordered, distinctly rounded-contracted towards apex, weakly rounded-contracted towards base; lateral furrows a little wider than in *T. orientalis*; marginal setae at one-third; median line obliterate before reaching apical border and at basal area; anterior transverse impression faint, posterior transverse impression somewhat deep; basal foveae shallow; outside areas of basal foveae depressed.

Elytra rather convex, elliptic, widest near middle, one and one-fourth times as wide as pronotum (width of elytra/width of pronotum=1.26), one and one-half times as long as wide; surface not punctate; microsculpture well visible; basal border weakly sinuate, turning distinctly forward near shoulder, adjoined to lateral margin forming obtuse angle; tooth of shoulder small but acute; lateral margin slightly dilated from behind shoulder to middle, apical sinuation faint; apex weakly rounded; striae moderately impressed, impunctate; intervals flat, slightly convex at outer intervals, pore on interval 3 behind middle; marginal series of pores consisting of seventeen pores.

Fore tibiae with three spines at anterior outer margin; in mid tarsi of ♂ segment 1 without adhesive hairs on ventral side; hind tarsi a little shorter than width of head (1:0.94), segment 1 one and one-half times as long as segment 2, segment 5 as long as segment 1; tarsal segment 5 with two setae on either margin of ventral side.

Ventral side impunctate, median area of sternite 2 sparsely ciliate; metaepisterna one and one-half times as long as wide (length/width=1.54); sternite 2 not swollen at middle.

Aedeagus gently arcuate, apex weakly reflexed, ventral side bordered on both margins except apical area, longitudinally concave between borders; surface not rugose; apical orifice situated on left dorsolateral area, base not reaching basal bulb but ending a little before it on dorsal side; apical lamella longer than wide, slightly contracted towards apex in dorsal view, apex rounded, without border on dorsal side. Right paramere as long as left paramere, rounded at apex.

Distribution. Japan: Ryukyus.

Type-specimen. Holotype: ♂, IV. 3, 1969, Banna, Ishigaki Is., M. CHŪJŌ leg., deposited in Professor M. CHŪJŌ's private collection.

Remarks. The new species is allied to *T. (T.) orientalis* (HOPE), but easily distinguishable from it by the less convex body, the head with the fully large hemispherical eyes, the pronotum with less dense, smaller punctures and with the microsculpture, the impunctate elytra, and the aedeagus with the apical lamella not bordered on the dorsal side at the apex, without any copulatory piece inside though a small brownish portion is visible near the middle.

At the end I wish to express my heartfelt thanks to Professor M. CHŪJŌ for his giving me an opportunity to study the species.

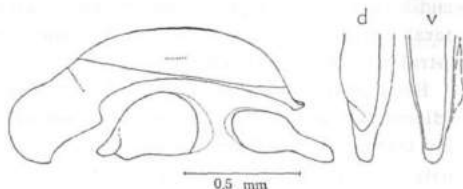
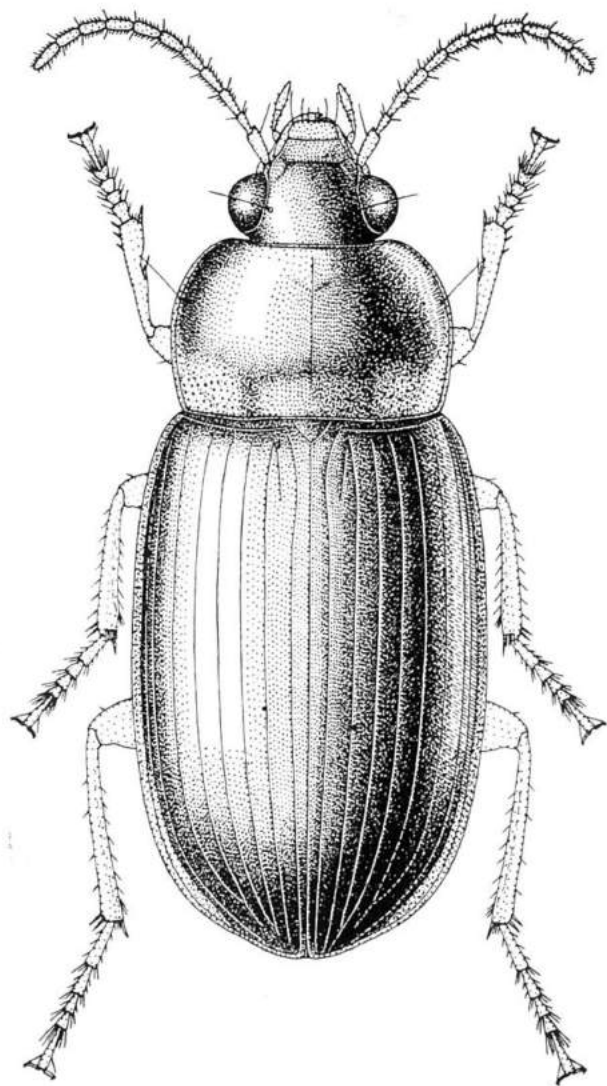


Fig. 1. Male genitalia of *Trichotichnus (Trichotichnus) ryukyuensis* sp. nov.
d. Apical half of aedeagus in dorsal view.
v. Do. in ventral view.



Trichotichnus (Trichotichnus) ryukyuensis sp. nov., ♂.

(A. HABU del.)



Studies on Japanese Anthribidae, III. (Coleoptera)

By TAICHI SHIBATA

Mecotropis LACORDAIRE

LACORDAIRE, 1866, Gen. Col., VII, p. 495; JORDAN, 1894, Nov. Zool., I, p. 595; 1895, Stett. ent. Zeit., LVI, p. 372; 1913, Nov. Zool., XX, p. 265.

Mecotropis has a superficial resemblance to *Mecocerus*, but the elytra are slenderer, subparallel-sided and rather flat above, not being so expanded and convex as in the latter. The pronotal lateral carina extends near the apex, while that of the latter shorter, hardly at all reaching the middle. The scutellum of moderate size, which is constant and not so smaller than that of the latter. The former ♂ is usually unarmed, having mostly a transverse groove just before the procoxae as well as in ♀ of both genera, but the latter ♂ bears a pair of tubercles or spines on the corresponding position, except for the small sized ♂ examples and a species—*M. principalis* JORDAN from Tonkin.

The following two species occur in Southern Japan, and one of which is also found in Formosa.

Mecotropis kyushuensis (NAKANE, 1963) comb. nov. (Pl. 2, fig. 1, 4)

Mecocerus kyushuensis NAKANE, 1963, Fragm. Col., pars 8, p. 31.

Rostrum short, nearly as wide at apical dilatation as long, rugosely and roughly punctured; apex subtriangularly incised, with a short Y-shaped median ridge; median groove beginning from just behind the ridge, widened near apex and again between eyes, where the groove abruptly deepened, conspicuous, and then prolonged to frons as a thin channel; two cariniform ridges bordering the median ridge and groove extend from apex to frons, sometimes the ridges continued to upper edges of eyes.

Eyes entire, rounded; two grooves before each eye, reaching the antennal orifice (which is rather large), bounded by three ridges, the grooves roughly rugosed and occasionally confused with the ridges; another short groove before lower edge of eye.

Mentum strongly rugosed, bearing a median tuberculated swelling on apical margin.


On underside of rostrum a very short groove situated near behind each buccal fovea, slightly convergent posteriorly, but both grooves widely separate.

Antennae black or somewhat brownish; in large ♂ about three times or twice and a half length of the body, 2nd to 8th joints white at their apices, but in small ♂ nearly half as long again as the body length, median part of 9th also white; in ♀ barely touching the elytral base, apex of 7th, 8th entire and base of 9th white.

Pronotum variegated with black, white and greyish yellow pubescence, the white colour rather predominant, especially in the middle and base; dorsal punctures large, uneven, and deeply, sparingly impressed.

Elytra moderately convex but slightly depressed between subbasal swellings; seriate punctures large, strong but becoming faint apicad; groove bordering both basal margins deep, not continuous to shoulders; subbasal large patch mostly wide cruciform; two ante-apical ones connected with each other and forming a common heart-mark; alternate interspaces thickly tessellated with black and greyish yellow pubescence.

Pygidium nearly as long as (δ) or a little longer than wide (σ); in δ bearing a small brown dot on basal each side and another one in the middle; in σ granulate, the granules small, fine, prominent near apical scarce-haired part.

Prosternum strongly and roughly punctured, white in the middle and lateral sides, with a faint transverse depression behind apical margin; groove in front of procoxae rather deep, almost parallel with coxal cavities as figured .

Metasternum on both sides and metepisterna bear a few spots, which are brown as like as one or two rows of each abdominal lateral spots.

Legs largely black, but femur almost thinly white or with two black spots, in which one is near middle and another before apex, base and behind the middle of tibia, apical part of 1st and base of 4th tarsal joints white, but sometimes sparingly white throughout as well as femur.

Length (excluding of head): 8 to 15 mm. Width (at the widest point of elytra): about 3 to 5.5 mm.

The present species is found from Is. Okinawa, Is. Amami, Is. Yaku, Is. Tane and Southern Kyushu (ex NAKANE).

Examined materials: 1 δ , Oku-Kunigami-mura, Is. Okinawa, 23 VII, 1964, S. KUNII-YOSHI leg. (through Drs. M. HAYASHI and K. KOJIMA); 3 δ 5 σ σ , Ikari, Is. Amami, 30 VI & 3, 4 VII, 1961, T. SHIBATA leg.; 1 δ 1 σ , Yamato-son, ditto, 23 VII, 1964, H. YOKOYAMA leg.; 3 δ δ , Hatsuno, ditto, 7, 8 & 10 IV, 1965, K. UEDA and H. MARUOKA leg.; 1 σ , Miyanoura, Is. Yaku, 13 VII, 1965, K. SAKO leg.; 1 δ , Hiramatsu, Is. Tane, 2 VI, 1960, S. ISHIDA leg. (through Messrs. Z. NARUSE and M. SATO).

Specimens from Ikari, Is. Amami were clinging to rather fine, withered twigs.

As regards rostrum, structurally the present species is almost the same as *M. icanus* JORDAN from Java, but it is dissimilar otherwise to that species.

Mecotropis unoi sp. nov. (Pl. 2, fig. 2, 3)

Body elongate, subcylindrical, black, clothed with fine black or dark pubescence and marked with snow-white tomentum, the two colours sharply contrasting above and below.

In structure, rostrum agrees well with that of the preceding species, but finely punctured, almost smooth; two dorso-lateral ridges more raised and continuous to upper edges of eyes; median groove not extended to deeply sinuate apical margin by Y-shaped ridge as in the preceding species, though, the groove itself a little deeper and prolonged posteriorly to vertex, not formed a thin channel.

Eyes entire, somewhat oblong; two grooves between antennal orifice and eye rather smooth (therefore three ridges bound the groove, not confused with them), another short groove before lower edge of eye sharply impressed as well as the upper two grooves.

Median white stripe starting from rostral apex, and divided by a black longitudinal occipital spot on head; a small white spot behind eye.

Mentum thinly white medially and roughly punctured, without distinct apical tuberculated swelling in the middle, but barely traceable in ♂ specimen.

Two short grooves on underside of rostrum likewise in the preceding species.

Antennae almost black (three club-joints slightly brownish); in ♂ nearly twice as long as the body length, apical parts of 2nd to 8th joints white; in ♀ rather long but scarcely cross over elytral shoulder, 8th, base of 9th, apical halves of 7th and of 3rd white, occasionally also 2nd.

Pronotum a little wider than long, widest near middle, from which gently narrowed before and behind generally; disc almost smooth, sparsely and shallowly punctured, with a faint elevation in the middle and a transverse depression along dorsal carina, the former bounded at each side by a slight depression (but sometimes they vaguely indicated or apparently uneven on disc), the latter relatively distinct, deepened in the middle; dorsal carina gently arcuated.

On pronotum two white lateral vittae from apex to base, the vitta irregular insidely and usually dilated posteriorly, this hind dilatation bordering lateral carina and carinula at latero-ventral side; black median area between the lateral vittae bearing two short apical stripes and a trilobate basal patch (which is including a black spot or itself separated into three small spots), these apical and basal marks various in width, but not forming a median stripe united together.

Scutellum rounded, almost black.

Elytra subparallel-sided, more than twice as wide as long, evenly flat above and feebly depressed along suture from behind scutellum to apex; punctate-striate, the striae very obsolete except for basal part of sutural one, interspaces flat, the punctures large, shallow, become small and faint laterad, reduced backward, and at last disappear near apex under pubescence; basal groove deep, ending abruptly on 5th interspace.

White marking of each elytron generally consists of five large patches, in which three median ones are mainly situated between 1st or 2nd and 5th interspaces, the 1st patch at basal third, the 2nd one near middle, the 3rd one ante-apex and extending near 7th interspace, the inner hind tip of 3rd patch often merged with a sutural apical small spot; basal one of the remainder two patches surrounding black shoulder, or divided into two spots, in which one is at base of elytron and another just behind shoulder, the last submedian patch almost marginated laterally, irregular, the inner ramifying tips approach three median patches; numerous small spots distributed on sutural and lateral areas.

Pygidium in ♂ scarcely wider than long, white, with a black median line; in ♀ a little longer than wide, finely granulate, with a white spot on basal each side.

Prosternum shallowly punctured, and slightly depressed apically, bearing a white lateral spot and another smaller one behind it on each side; groove sharply marked along procoxae, entering in between the coxae alike as that of the preceding species, but a little interrupted by a very thin longitudinal carina.

Metasternum and abdomen with large white marks on each side, except 1st and/or anal segments of the latter (on which the white mark is reduced or replaced by a few dots).

Apex and near the middle of femur, base and behind the middle of tibia, apical half of 1st and basal most part of 4th tarsal joints white.

Length (excluding of head): 12 to 13 mm. Width (at the widest point of elytra): about 4.5 mm.

Holotype, ♀, Hori, Formosa, VII, 1959 (Nat. Sci. Mus. Tokyo coll., through Dr. Y. KUROSAWA).

Paratype, 1♂, labelled—Okinawa, Yaeyama, 29 IV, 1939 (through Mr. M. UNO).

The types have no other detailed data.

In colour and structure, the new species combines in some way the characters of *M. vitticollis* JORDAN (and/or *vitticollis tonkianus* JORDAN) from Assam and Tonkin according to the original description, from which it is distinguishable by the different pattern on pronotum and elytra. The pattern of elytra in the new species is principally composed of separately isolated five patches. While in *M. vitticollis* it is divided into two large common marks, and the mode rather resembles that of the preceding species.

The present new species is named in honour of Mr. MASAYOSHI UNO, who kindly helped the author's work in material.

Sintor SCHOENHERR

SCHOENHERR, 1839, Gen. Curc., V, p. 148; LACORDAIRE, 1866, Gen. Col., VII, p. 510.

Blabirhinus SHARP, 1891, Trans. ent. Soc. London, p. 299. — syn. nov. —

When JORDAN described two species (*obliquus*, *plumbeus*) which is belonged to *Blabirhinus*, he mentioned as a principal generic character, the pronotal carina, "the dorsal transverse carina and carinula angulate in the middle and both complete, and the carinula (between transverse carina and basal margin) not being obsolete centrally as is usually the case in this genus", (1923, Nov. Zool., XXX, p. 168, in the description of *B. obliquus* spec. nov.). While, *obliquus* JORDAN was transferred by himself to *Sintor* from *Blabirhinus*, without any reason or his opinion (1931).

The author considers, the generic character which JORDAN gave, is not restricted in *Blabirhinus* only, because the special form of pronotal transverse carina and carinula being also found in the species of *Sintor*. Though the author examined a couple of *dorsalis* SHARP which is the type species of genus *Blabirhinus*, the transverse carinula being obsolete centrally or incomplete, but that of *Sintor fasciatus* JORDAN (1♂ 2♀ ♀ from Formosa, through Dr. Y. KUROSAWA) being complete, and in *S. infernus* JORDAN the transverse carina being slightly angulate in the middle, according to the original description (1903, Nov. Zool., X, p. 416).

Unfortunately the author is unable to discover any other essential difference being observed between *Sintor* and *Blabirhinus*.

Sintor dorsalis (SHARP, 1891) comb. nov.

Blabirhinus dorsalis SHARP, 1891, Trans. ent. Soc. London, p. 300; MORIMOTO, 1961, Tsukushi no Konchu, VI, 1, p. 7, pl. 2, fig.

The present species is related to *S. vethi* JORDAN, *floridus* JORDAN from Java and *obliquus* JORDAN from N. Borneo, having almost the same elytral submedian patch which is composed of a pair of oblique blackish streaks. But in *S. vethi*, the rostrum is not

sulcate, the elytra bear a wide transverse fascia behind base and a confluent mark before apex, both are common; in *S. floridus*, the pronotum is slightly depressed on each side of the middle and the centre being raised as a faint hump, the elytra are evenly convex from middle to apex; in *S. obliquus*, the rostrum has a strong central carina extends from apex to base, the 10th antennal joint being proximally very strongly rounded, the pronotum is more transverse and the elytra are almost gradually narrowed from base. The present species disagrees with them on the above-mentioned points.

The present species contains the following two subspecies from Kyushu, Japan.

1. *S. dorsalis dorsalis* SHARP (Pl. 2, fig. 7, 8)

Body rather convex above, black, covered with light greyish brown pubescence, latero-ventral sides of head and of pronotum, below elytral shoulders brown to black, the darkened pubescence marked on upperside as follows: Two brown stripes on frons of head (between eyes) gradually divergent backward and connected with pronotal blackish ones, which are reaching the base, and sometimes extend to elytral basal area, and the stripes becoming vague and light in colour, then obliquely running behind shoulders, where being merged together with lateral black dots. Two darkened median streaks situated obliquely from near suture to 8th or 9th interspaces of elytra (not common), the streak bordered by light brown (therefore it is ill-defined in outline, but the streak itself is much more prominent than the other marks). Another spot placed at ante-apical area of each elytron, somewhat variable in form and size, but not forming a confluent common mark united with each other. Some blackish dots of elytra disperse on sutural and lateral interspaces.

Rostrum about 1.5 (♂) or 1.3 (♀) times as long as apical width, bearing a cariniform ridge on each side, between the ridges shallowly depressed from apex to frons, the depression with a short median carina.

Antennae darkened (shafts more or less reddish) except almost black three club-joints; in ♂ long, fully cross over base of elytra, 1st joint large, subglobular, 2nd shorter than 3rd, 3rd longest and subequal in length to 4th, 5th to 7th gradually shortened, 8th shortest, gently widend towards apex and received three club-joints, in which 9th is nearly as long as 8th, subtriangular, a little wider at apex than long or at least as long as wide, 10th transverse, more than twice as long as its width, and about a half the length of terminal one, which is a little longer than 9th, nearly as long as wide, rounded at apex; in ♀ hardly touching the base of pronotum, 2nd, 3rd and 4th subequal in length, 8th very short, small, less than a half as long as 9th.

Pronotum about 1.4 times as wide at the widest point as long, slightly and transversely depressed along dorsal carina, somewhat elevated before the depression and faintly flattened in front of the elevation, dorsal carina distinctly angulate in the middle, basal transversal carinula interrupted or obsolete medially (as far as the author examined a couple of specimens), basal longitudinal carinula reduced in front.

Scutellum greyish, prominent.

Elytra parallel from shoulder to apical third, almost evenly convex apart from median areas (between both 3rd interspaces from behind subbasal swelling to apex), which are flattened or faintly depressed along suture, interspaces rather flat.

Pygidium as long as (δ) or a little longer (φ) than its basal width.

Prosternal process extends beyond procoxae and terminated at prosternal basal side as a cariniform ridge.

Abdomen in δ slightly bending downward at two or three apical segments, in φ the anal segment rather short, not distinctly longer than the penultimate one.

A median spot of femur, three dots of tibia and apices of tarsal joints brown or nearly so.

Length (excluding of head): 4.2 (φ) to 5.5 (δ) mm.

Examined materials: 1 δ 1 φ , Mt. Hiko, Fukuoka Pref., 27 V, 1961, Y. KIMURA leg.

2. *S. dorsalis intermedius* ssp. nov. (Pl. 2, fig. 9)

The new subspecies differs from the nominate one by the following points.

The pubescence is dingy ochraceous or dull reddish brown, and intermixed with buff-pink in some places. The rostrum is a little shorter and wider, about 1.3 times as long as wide (δ , in φ probably it is a little shorter than in δ), the dorsal depression is somewhat deeper. The eyes are more obliquely placed and a little more produced. The pronotal dorsal carina is not angulate, interrupted for a short space in the middle (it may be an individual variation). Two brown stripes are more contiguous with one another on the apical part of pronotum. The elytra are more strongly depressed on median areas than those of the nominate one, and the basal margin is a little more strongly produced forward. The prosternal process is ended into a distinct tooth-like appendage behind procoxae.

Length (excluding of head): 5 mm.

Holotype, δ , Nasu Pass, Is. Tsushima, 28 VII, 1966, H. KONISHI leg. (SHIBATA coll.).

Sintor bipunctatus sp. nov. (Pl. 2, fig. 5, 6)

Body flattened above, black; the pubescence variable in colour, brown or reddish brown, sometimes intermixed with pink (this pink colour being liable to fade into a dingy ochraceous, especially conspicuous on disc of pronotum and elytra); upperside marked with dark brown to black pubescence.

In the two black stripes the present species is as in *S. dorsalis* SHARP, but they more convergent anteriorly, almost united together on head, and generally continuous posteriorly to elytra (rarely absent), where the stripes widened and then ending abruptly on basal areas or effaced near 5th interspaces and/or extending laterad (these lateral projections being joined with lateral dots).

Each elytron bearing, instead of a median streak as shown in *S. dorsalis*, a large black patch, which is very prominent, subquadrate, less obliquely placed (not more oblique than that of *S. dorsalis*), occupying from 3rd to 8th or 9th interspaces, and an ante-apical mark replaced by a small spot or diffused dots. Alternate interspaces of elytra tessellated and pustulated with black, especially prominent on the 9th.

Rostrum relatively long, about 2 to 1.7 (δ) or 1.7 to 1.5 (φ) times as long as its apical width (except in a small specimen of both sexes¹⁾), slightly dilated towards apex and

1) There are about 1.5 times in δ and 1.3 times in φ as long as each apical width.

depressed above, with a median and two lateral carinae, the latter prolonged near eyes and bordering the depression, which is somewhat becoming deep and entering to frons, the median carina rather long, but abbreviated posteriorly on the depression.

Eyes lateral as usual, moderately produced.

Antennae dark reddish brown to almost black; in ♂ fully cross over elytral shoulder, 5th to 8th joints gnarled or thickened at underside of their apices, 2nd more than a half as long as 3rd, which is longest, from 4th to 8th gradually shortened, 8th not strongly widened forward, 9th a little longer than 8th, subtriangular, 10th transverse, less than twice as long as its width, 11th subequal in length to 9th, slightly longer than wide, more or less narrowed apicad but its apex obtusely rounded; in ♀ shorter, scarcely reaching the elytral base, 2nd thickened to apex but 5th to 8th not so distinctly gnarled than those of ♂, 2nd a little shorter than 3rd, and nearly as long as 4th, 8th shortest, subglobular.

Structure and form of pronotum almost exactly as in *S. dorsalis*, but the disc more flattened medially and more deeply depressed before dorsal carina (so, the black stripe appears to be an irregular line in dorsal aspect), the carina almost straight, basal transversal carinula incomplete, basal longitudinal one vestigial.

Scutellum greyish, conspicuous.

Elytra widest near shoulder, from which very slightly narrowed behind, but not cuneiform, almost flat above, the median depression in depth alike as that of *S. dorsalis intermedius* SHIBATA, interspaces more or less convex.

Pygidium in ♂ scarcely longer than wide, in ♀ longer, more distinctly prolonged, therefore the anal abdominal segment much longer than in ♀ of *S. dorsalis dorsalis*.

Prosternal process vestigial behind procoxae, without distinct appendage.

Legs dotted with blackish pubescence, in some specimens a median and subapical spots of femur, some dots and apex of tibia conspicuous on the reddish light back-ground colour.

Length (excluding of head): 4.5 to 7.5 mm.

Holotype, ♂, Miyanoura, Is. Yaku, 31 VII, 1966, Y. HAMA leg. (SHIBATA coll.).

Paratypes, 5♂♂ 2♀♀, Miyanoura, Is. Yaku, 13 VII, 12, 13 VIII, 1965, 27, 31 VII, 1966 & 11 VII, 1967, K. SAKO, H. NOMURA, H. KONISHI, Y. KUZUGAMI and T. KOBAYASHI leg.; 1♂, Nakanoshima, Is. Tokara, 25 VI, 1962, H. YOKOYAMA leg.; 1♀, Ikari, Is. Amami, 4 VI, 1960, T. SHIBATA leg.; 1♂, Yamato-son, ditto, 22 VII, 1962, H. YOKOYAMA leg.; 2♂♂ 1♀, Hatsuno, ditto, 17 VII, 1962, 1 IV, 1963 & 8 IV, 1965, H. YOKOYAMA and H. MARUOKA leg.

Examined materials: 2♂♂ 2♀♀, Miyanoura, Is. Yaku, 12 VIII, 1965, 30, 31 VII, 1966 & 11 VII, 1967, H. NOMURA, H. KONISHI, Y. KUZUGAMI and T. KOBAYASHI leg.; 1♂, Tabukawa, ditto, 28 V, 1960, H. YOKOYAMA leg.; 1♀, Ikari, Is. Amami, 2 VII, 1961, T. SHIBATA leg.; 1♂, Yamato-hama, ditto, 25 III, 1967, H. NOMURA leg.

The present species, differing from the preceding species in its rostrum, antennae, pygidium, coloration, etc., especially of the elytral submedian patch, which being less obliquely located and subquadrate in form. And somewhat allied to *S. quadrimaculatus quadrimaculatus* JORDAN from Sumatra or *S. q. javanus* JORDAN from Java, however, it does not agree well with several points according to the original description.

Litocerus communis amamianus ssp. nov. (Pl. 3, fig. 1, 2)

Rostrum slightly widened upon antennal orifices, apical margin more or less undulate, dorsal three carinae abbreviated on apical deplanate area, or hardly extend near the apical margin.

Antennal 4th joint somewhat variable in length, but generally one-fifth shorter than 3rd.

Pronotal markings well developed, a spot at each terminal of transverse sulcus continued to median longitudinal vitta by a curved line, moreover in most specimens the sulcus itself covered with yellowish grey pubescence and forming a transverse band bringing with the terminal spots together, therefore the pronotal disc bears a sharp cross-shaped patch in the middle.

Elytra depressed before and behind subbasal swelling and backward along suture, 3rd interspace rather distinctly convex, yellowish grey spots and lines developed, these markings merged with together everywhere, in which two common zigzag fasciae lie between 1st and 6th or 7th interspaces, conspicuous, the 1st fascia placed before and the 2nd one behind the middle, anterior and posterior sides of the latter very strongly and deeply sinuate, while in *L. communis communis* JORDAN the 2nd fascia abbreviated and replaced by a small spot, of which the posterior side is moderately sinuate twice and the anterior side almost straight or nearly so.

A tubercle in ♂ on 1st abdominal segment sometimes vestigial or absent, which being independently of the body size.

Tarsal 2nd joint entirely black, without greyish white pubescence.

Length (excluding of head): 4.5 to 7.8 mm.

Holotype, ♂, Ikari, Is. Amami, 3 VII, 1961, T. SHIBATA leg. (SHIBATA coll.).

Paratypes: 8♂♂ 9♀♀, Ikari, Is. Amami, 12 V, 4 VI, 1960, 19, 30 VI, 5, 7 VII & 3, 8, 18 VIII, 1961, T. SHIBATA, K. YAMADA and Y. SUSUMU leg.; 8♂♂ 4♀♀, Hatsuno, ditto, 25 VI, 1961, 14 IV, 1963, 6, 12 IV, 1965, 2, 4 IV, 1966 & 31 III, 1967, T. SHIBATA, H. NOMURA, K. UEDA, H. MARUOKA and T. ITO leg.; 1♀, Shimmura, 4-8 VIII, 1964, T. KISHII leg. (KISHII coll.).

Examined materials: 1♂ 5♀♀, Ikari, ditto, 12, 21 V, 1960, 30 VI, 2 VII & 18 VIII, 1961, T. SHIBATA and K. YAMADA leg.; 14♂♂ 7♀♀, Hatsuno, ditto, 10 IV, 1963, 1, 6, 10-12 IV, 29, 31 VII, 2-4 IV, 1966 & 1 IV, 1967, Y. MIYAKE (through Mr. M. GOTO), H. NOMURA, K. UEDA and H. MARUOKA leg.

The author examined 4♂♂ 3♀♀ of *L. communis communis* JORDAN from Formosa (through Dr. Y. KUROSAWA, Messrs. M. UNO and H. MIYAZAKI), but the present subspecies may be easily recognized from it in having the entire black 2nd tarsal joint and more complicated elytral patches, of which the elytral post-median mark is formed as a common fascia with deeply and strongly sinuate both sides, while in *L. communis communis* it is an isolated spot on each elytron and twice sinuate behind only.

The present subspecies is closely allied to *L. ambustus* WOLFRUM, *adelphus* WOLFRUM and *propinquus* WOLFRUM from Fukien, China, especially the elytra resembles in pattern with that of *L. ambustus* according to the original description (WOLFRUM, 1945-48, Ent. Blätt., XLI-XLIV, p. 136-138). But differs from *ambustus* and *adelphus* by the 2nd antennal joint which being constantly longer than the 8th joint (it is rather nearly twice as the length of 8th), while in the latter it is shorter than or at most as long

as the 8th joint, from *propinquus* by the annulate tibia, which is absent in the latter. The tarsal 2nd joint is entirely black or unspotted in the present subspecies, it is almost grey in *ambustus* and probably in *propinquus*, at least on its basal half in *adelphus*.

Litocerus tokarensis (NAKANE, 1963) comb. nov. (Pl. 3, fig. 3-5)

Tropideres tokarensis NAKANE, 1963, Fragm. Col., part 8, p. 33.

Rostrum rather heavier and long, subparallel from base to above antennal insertions and gently dilated apicad, rugosely punctured, deplanate behind apex, 5-cinate, dorsal three carinae (a median and two dorso-lateral) of which stopping short at the apical flat area, whence changing to obsolete smooth lines, lateral two carinae often connected with antennal upper ridges and extend towards apex, the interval of the both dorso-lateral carinae elevated, particularly in ♂, the median carina a little higher within the elevation.

Eyes large, dorsal, in ♂ a little more oblong and more approximate to each other than in ♀, occipital dark colour fairly penetrated into them.

Antennae in ♂ slender, reaching beyond the middle of elytra, slightly enlarged ahead, 1st joint clavate apically, robust, 2nd short, thick, 3rd to 7th almost the same thickness (also 8th) and subequal in length of 1st, 8th a little shorter than the precedings and succeeding three club-joints, which are elongate as usual, in ♀ relatively long, fully cross over elytral base, from 3rd to 8th gently decreasing in their length, three club-joints slender, each joint nearly as long as 3rd.

Pronotal markings as in *L. dorsalis* JORDAN, namely, all spots generally isolated, small, about thirteen in number and not forming a definite pattern.

Elytra resembling those of *L. communis amamianus* SHIBATA in structure and shape, the following black colour embraced by luteous (or reddish flesh colour); a common transverse area bordering basal margin continued to near shoulder, on that place incurvate backward as a C-shaped humeral mark, a round spot on subbasal swelling, a sutural elongate spot just behind the scutellum, lineiform, a common subquadrate mark in the middle, occupying the space between both 2nd interspaces, two median zigzag fasciae (one behind another) beside the foregoing mark, of the frontal fascia placed from 1st to 5th interspaces, the hind one from 3rd to 6th and more oblique, a common zigzag fascia at apical third, fully lengthened throughout in entire elytral width, a spot in front of apex, irregular, two similar lateral marginal spots before and behind the middle, another thin line along suture, extends from the subquadrate mark to apex, in all specimens these markings very variable in size and form, usually entangled here and there.

Pygidium a little longer than wide, roughly punctured, and spotted on basal both sides, with subtruncate apex, in ♂ slightly raised at basal half.

In front of procoxae, lateral sides of metepisternum and of abdominal segments bearing vaguely brown spots.

The tubercle in ♂ on 1st abdominal segment rather high, distinct, in ♀ with a trace of ridge at the corresponding position.

Tarsal all joints entirely black, without any light-coloured mark.

The unique specimen (♂) from Is. Yaku has very reduced elytral pattern, viz.,

the elytra are almost black with the exception of basal and apical parts (*f. insensibilis* nov.) (Pl. 3, fig. 5).

Examined materials: 4♂♂, Ikari, Is. Amami, 17, 29 V, 1960, 17, 19 VI, 1961, T. SHIBATA leg.; 5♂♂ 3♀♀, Nakanoshima, Is. Tokara, 3-13 VI, 1953, 25, 30 VI & 2 VII, 1962, H. KONO and H. YOKOYAMA leg.; 1♂, Kosugidani, Is. Yaku, 15 VII, 1961, K. UEDA leg.

The Amami specimens were obtained on *Castanopsis* sp.

The present species is nearly related to *L. dorsalis* JORDAN, *variegatus* JORDAN and the other like species on account of the similar prevailing pattern, whereas the author cannot compare it with them alone in the description. In structure and general appearance alike *L. communis amamianus* SHIBATA, but differing by the dispersed pronotal markings and all the unspotted tarsal joints, the 1st tarsal joint of *L. communis amamianus* is greyish white for the greater part.

Litocerus bicuspis multiguttatus (NAKANE, 1963) comb. nov. (Pl. 3, fig. 6, 7)

Tropideres multiguttatus NAKANE, 1963, *Fragm. Col.*, pars 8, p. 33.

Rostrum widened above antennal orifices and again at apex, base rather narrow and somewhat cylindrical, five carinae obsolete, almost concealed by greyish white pubescence, becoming weak forward and confused with rugose punctures on apical flat area.

Frons in ♀ as wide as the space between the rostral two carinae, in ♂ more narrowing usually.

Antennal 3rd joint about one-fourth longer than (♂) or half as long again as 4th (♀), from 4th to 6th gradually shortened, 7th equal in length of 6th and longer than 8th (3:2), 10th a little shorter and 11th much shorter than 9th, which being over three times as long as 8th.

On pronotum the median part of tripartite subbasal spot sometimes lacking in a few individuals, but on elytra the post-median spot constantly developed, conspicuous, incised behind on 4th interspace.

Pygidium in ♀ shorter than in ♂, nearly as long as basal width, its apex subtruncate.

Abdominal 1st and 2nd segments of ♂ each bearing a brush of brownish yellow hairs, which are facing mutually as a couple, and prominent on white back-ground.

Tibia with a white spot behind base and obscurely greyish near middle.

Length (excluding of head): 3.5 to 6 mm.

Examined materials: 1♂ 2♀♀, Mt. Takachiho, Kagoshima Pref., 19 VII, 1962, 21 VII, 1963, C. YAMANO and M. YASUI leg.; 1♂, Mt. Kurino, ditto, 13 VIII, 1952, Y. KAZIKI leg.; 2♂♂ 2♀♀, Mt. Tebako, Kochi Pref., 27 VII, 1961, 9 VIII, 1962, H. YOKOYAMA and K. UEDA leg.; 1♀, Mt. Kurama, Kyoto Pref., 14 VI, 1957, T. TOMIWA leg.; 1♂, Mt. Kisokoma, Nagano Pref., 30 V, 1963, H. YOKOYAMA leg.; 2♀♀, Kamikochi, ditto, 27-30 VI, 1958, 21 VII, 1959, H. YOKOYAMA and T. SHIBATA leg.; 1♂, Mt. Ōyama, Kanagawa Pref., labelled "breed imago from fungus, 20 V, 1949" (through Mr. M. UNO).

The specimens from Mt. Tebako were obtained on *Quercus mongolica* FISCH. var. *grosseserrata* (BLUME) REHD. et WILS. (Jap. name: Mizunara), observed by Mr. H. YOKOYAMA.

The present subspecies may be separable from the original one (in Formosa, JORDAN,

1912, Nov. Zool., XIX, p. 138) by the longer 9th antennal joint and the scarce light-coloured tibia, which is spotted before the middle only, but of the latter being more or less grey before and behind the middle. In the present subspecies the 9th antennal joint is longer, being more than three times as long as 8th, while in the original one it is nearly twice the length of the 8th joint.

The up-mentioned secondary sexual feature on abdomen is the most striking character for *L. bicuspis* JORDAN, the presenting of which easily distinguishes it from all the other known *Litocerus*-species.

Litocerus kimurai sp. nov. (Pl. 3, fig. 8, 9)

Black to blackish brown, upperside clothed with very fine grey and marked with yellowish grey or dirty white pubescence, basal two antennal joints and apices of the succeeding reddish except of three club-joints (tip of the terminal one more or less infuscate).

Rostrum scarcely longer than its apical width, subparallel from base to above antennal insertions, then slightly dilated towards apex, sometimes a little widened upon the insertional points; thinly grey and coarsely punctured, the punctures distincter on apical deplanate area; five carinae reduced, especially of lateral ones, dorsal three ones confused with the punctures anteriorly.

Head moderately punctured with yellowish grey genae and interocular margins, which are interrupted at vertex as in *L. paviei* LESNE; frons narrowing anteriorly, where being in ♀ wider than in ♂ as usual.

Antennae with rather compressed club, in which 9th and 11th joints being a little longer than 10th; 1st relatively short, and thick as well as 2nd, 3rd longest; in ♂ 4th to 8th subequal in length, 9th a little shorter than 8th; in ♀ 5th slightly shorter than 4th and as long as 6th or 7th, which being a little longer than and 9th much longer than 8th, these joints of ♀ in proportion rather resemble with those of ♂ in *L. paviei*, but shorter and thicker.

Pronotum wider than long (3:2), widest at lateral angle of dorsal carina, from which straightly and gently narrowed forward; disc little uneven, without a longitudinal median ridge, but weakly swollen on the same position; punctures rough and strong, weakened near apex, submedian transverse sulcus moderately deep, dorsal carina straight or nearly so, lateral angle obtuse and not so distinctly rounded than that of *L. paviei*; dorsal pattern as in *L. paviei*, viz., the median vitta widely interrupted, a spot at each end of the transverse sulcus, the other some small spots dispersed on lateral sides.

Scutellum yellowish grey.

Elytra subparallel-sided, feebly depressed along basal margins and suture (so, the subbasal swelling seems to be low on 3rd interspace), deeply punctate-striate, the punctures large, becoming weak backward, interspaces hardly convex, 3rd relatively narrow, almost equal in width to its adjacent interspaces, not costate, merely slightly convex (in *L. paviei* the 3rd interspace costate, more distinctly raised); a subbasal common patch yellowish grey, large and trilobate as in *L. paviei*, but essentially different in shape, the patch narrow at basal part, subparallel with one another along 2nd striae, then abruptly expand laterally, and again constricted backward, the hind side

truncate at basal third, the lateral projections occupying the space between both 3rd striae, a black line lies within the patch, short, thin but constantly prominent along suture, other yellowish grey spots scattered here and there, in which the post-median one is conspicuous on 3rd to 5th interspaces, small and sometimes replaced by a few diffused dots as like as a subapical spot.

Pygidium hardly (♂) or much (♀) wider at base than long, roughly punctured, with a spot on basal each side.

Underside uniformly and scarcely clothed with greyish white pubescence, without clear spot, the punctures on prosternum, metasternum and metepisternum coarse, large.

Male bearing a batch of white pubescence in the middle of 1st abdominal segment, the following segments slightly depressed usually.

Legs slender, femur vaguely grey; tibia clearly biannulate by yellowish grey or often reddish likewise as apex of 1st tarsal joint, the anterior ring of tibia near middle and the posterior one just at apex (in *L. paviei* the posterior ring far apart from apex).

Length (excluding of head): 4.2 to 5.5 mm.

Holotype, ♂, Mt. Hiko, Fukuoka Pref., 29 V, 1961, Y. KIMURA leg. (SHIBATA coll.)

Paratypes, 1♂, the same data of holotype; 1♀, Mt. Tatera, Is. Tsushima, 20 V, 1961, Y. KIMURA leg.; 1♂, Yahata-mura, Mie Pref., 21 V, 1955, H. ICHIHASHI leg. (through Mr. M. UNO).

Examined material: 1♀, Mt. Tatera, Is. Tsushima, 20 V, 1961, Y. KIMURA leg.

In habit the new species most nearly resembles *L. paviei* LESNE (1891, Ann. Soc. ent. Fr., LX, Bull., p. 91), though the author examined 1♂ of the latter from Vietnam (through Mr. S. INOUE), from which it is separated by the different elytral basal patch and position of the tibial ring, and the elytral 3rd interspace, which being faintly raised, not so higher than that of the latter.

As regards the similar elytral pattern, the new species is allied to *Litocerus scutellaris* JORDAN, *L. sellatus* PASCOE and *Tropideres securus* BOHEMAN (or *Litocerus anna* JORDAN), but so far as the descriptions show, in *L. scutellaris* and *sellatus* the pronotum is impunctate, the tibia bears only a unit of ring and the tarsi are concolorous, in *T. securus* the rostrum has no dorsal carina, the transverse sulcus of pronotum and the basal patch of elytra are not sharply marked.

In the antennal club not being elongate, the new species and *L. paviei* differs from the other forms of *Litocerus*, so the author considers that there is, in this character, a connecting link between *Litocerus* and *Tropideres*. For this point, *Tropideres rugirostris* SHARP is in a delicate position between both genera, because the antennal club is very elongate (or very loosely articulate) in ♂, which exhibits a valid general feature of *Litocerus*, whereas in ♀ it is compressed as in *Tropideres*. The author thought the fitness to transfer this species to *Litocerus* from *Tropideres*, however, from the viewpoints of the other characters, it appears to deserve to be placed within *Tropideres*. As it is, he cannot tell whether this species surely belonging to *Tropideres* or not.

Mucronianus takemurai (NAKANE, 1963) comb. nov. (Pl. 4, fig. 1)

Litocerus takemurai NAKANE, 1963, Fragm. Col., pars 8, p. 32.

Male, elongate, cylindrical, black, clothed with fine dark pubescence and with a greenish iridescent tinge, the colour changing in variation of tone according to the light and near elytral base with a purplish sheen in certain aspect. Dirty white markings of pronotum and of elytra arranged by follows (in 1 ♂ examined by the present author): On pronotum three stripes subequal in width, all reaching the apical and basal margins, one in the middle, the other two dorso-lateral, additional limb stripe short, from the middle prolonged to base along lateral carina; on elytra a common ante-median fascia produced forward on 3rd and 4th interspaces, then obliquely extended backward to 7th interspace (the fascia often interrupted at suture), a basal longitudinal mark lengthened backward near the fascia or penetrated between U-figured sutural part of it (as if the fascia seems to receive the basal mark into its median deep sinuation), an apical mark connected with one another at suture of apical declivity and enclosing usually a dark rounded spot, in front of the apical mark a small sutural dot, a more prominent post-median spot on 3rd to 7th interspaces, transverse and a little sinuate behind on 5th interspace, the other four spots lateral in all, the anterior two spots of which is surrounded the shoulder, the 1st spot inside the shoulder and rather large, the 2nd one behind or near shoulder and grouped by three small dots, one of the posterior two spots near middle and another at ante-apex of lateral margin.

Rostrum recalls in the shape to that of *Cedus* or *Acorynus*, robust, thick and greyish, nearly as long as its apical width, subparallel-sided, with five carinae, the median carina very short, not reaching the apical depression but posteriorly the carina continuous to occiput as a thin line, two dorso-lateral carinae short, rather high, a little divergent laterad and confused anteriorly with rugose punctures, two lateral carinae almost entire, each bringing externally a short sulcus together before eye, the space between dorso-lateral and lateral carinae weakly grooved, antennal orifice semicircular, a little close to base of mandible.

Eyes large, subrounded, more or less sinuate or truncate beneath, and very approaching anteriorly, so the frons merely remained as a narrow grey line; occipital brown mark regularly triangular.

Antennae reaching the elytral middle, intermediate joints more or less flattened and with scarcely white pubescence at their apices, apex of 8th rather distinct, 1st clavate, 2nd almost globular, 3rd longer than 4th, which is subequal in length to 5th or 6th, and hardly longer than 7th, 8th shorter than 7th, gently widened to apex, 9th nearly as long as 3rd and twice the length of 10th, which is subquadrate, longer than wide, 11th equal in length of 8th, pointed.

Pronotum a little wider before dorsal carina than long, gently convergent forward and weakly rounded laterally, apical margin narrower than basal one, disc transverse slightly elevated and somewhat depressed before and behind the elevation, rough punctures weakened medially towards apex, dorsal carina slightly biconvex, not angulate in the middle, lateral angle of carina rounded off, basal longitudinal carinula oblique, which being the same level with lateral carina in lateral view, basal transversal carinula short.

Elytra parallel-sided, mostly flattened above, basal margin a little produced and abruptly reflexed near scutellum, subbasal swelling inconspicuous, seriate punctures fine, becoming faint backward and vanish at apical declivity, interspaces hardly convex.

Pygidium (♂) elongate, at least half as long again as wide, distinctly protruding

back- and downward (so, it resembles a kind of bill in profile, accompanied with ventral projection of abdomen), lateral sides narrowing behind first very gradually to near apex and then almost suddenly, but its apex rounded, a sulcus present in the middle of basal half, laterally of this sulcus the pygidium with vaguely grey spots and also bearing soft brown hairs, which are becoming thick and long towards apex.

Underside wholly greyish white, with a brown lateral spot on prosternum and metepisternum; in front of procoxae transversely depressed; abdomen flat or weakly depressed in the middle, anal segment elongate, twice as long as the penultimate one and furnished with soft whitish long hairs, its apical side feebly emarginate.

Legs relatively short, robust, femur, median ring of tibia and 1st tarsal joint (except apex) greyish white, frontal and median tibiae armed with a pointed triangular tubercle at each ventro-apical edge, the tubercle large, distinct, shaped as in a *Phlo-eopemon*, just behind the tubercle shallowly concave as like as on inner side of hind tibia.

Length (excluding of head): 9 mm.

Examined material: 1 ♂, Miyanoura, Is. Yaku, 31 VII, 1966, Y. HAMA leg.

The species is related in dorsal pattern to *M. virgatus* JORDAN from Laos (1923, Opusc. Inst. Sci. Indochina, 1, p. 17), but differs by several points, and it is distinguished from all the species of *Mucronianus* in having the evident sexual feature of tibiae.

Though the present author treated here this species as a *Mucronianus*, as JORDAN said (1928), the number of species allied to *Mucronianus* combine with many different characters among themselves. At present all the known species are admitted into three genera (*Mucronianus*, *Androceras* and *Nessiiodocus*), however, they are in unstable condition to keep within each genus, because the genus itself has no constant peculiarity which being separated from the other like genera, or some species belong to a genus possess the same peculiarity as the other some species of the adjacent genera possess, especially between *Mucronianus* and *Nessiiodocus* as shown in literature. The present author suspects that the distinction between both is very little, and for three genera, if a genus is differentiated from the other two, it may possibly be as mentioned below: *Mucronianus* has the striking sexual feature of pygidium in ♂; *Nessiiodocus* is small in size, and without the striking sexual feature, if present it is scarce; *Androceras* has the remarkable antennae in ♂, which are compressed, sometimes bearing hairs and the 8th joint is about as long as the following three club-joints together.

Tropideres flabellicornis SHARP in Japan would be set into *Androceras*, inasmuch as the antennae of ♂ provide with a remarkable generic character for *Androceras*.

Androceras flabellicornis (SHARP, 1891) comb. nov.

Tropideres flabellicornis SHARP, 1891, Trans. ent. Soc. London, p. 305.

Rostrum subquadrate and shortly sulcate from eye, antennal orifice large, semi-circular, eyes subrounded and approaching anteriorly in both sexes, elytra cylindrical, in ♂ pygidium simple but median tibia mucronate at inner apical edge as in ♂ of *A. manifestus* JORDAN (1928, Nov. Zool., XXXIV, p. 80, as *Acorynus*).

In structure of the rostrum and the others, this species combines in some way the characters of *A. laticornis* JORDAN and *manifestus* JORDAN from Tonkin, from which

it is at once distinguishable by the antennal feature of ♂ as the following particulars.

Antennae black, 7th joint with white pubescence, scarce of such pubescence also on the other joints, 1st and 2nd short, almost globular, 3rd a little shorter than 4th (longest), both normal or else 4th slightly widened towards apex, and subequal in length of 5th, from which to 11th compressed, well developed and bearing black hairs beneath like brush, 5th about one-third longer than apical width and as long as 6th, which is triangular, subequal each in length and width, 7th transverse, short but less than twice the length of 6th and about a half as wide as long, its sides rounded, from 8th to 10th gradually shortened and more transverse, 8th a little shorter than 7th and nearly a half as long as 3rd, its apical width about three times as long as its length or nearly so, the lengths of 9th (widest) one-fourth and of 10th merely one-fifth as the same as their width, 11th twice as long as 10th and narrower.

Examined materials: 2♂♂, Mt. Kasuga, Nara Pref., 4 VII, 1959 & 7 VI, 1964, T. SHIBATA and H. KONISHI leg.; 1♀, Mt. Gomanodan, Wakayama Pref., 31 VII, 1959, D. MOTOMURA leg.; 1♀, Nose, Osaka Pref., 3 V, 1960, Y. KIMURA leg., 1♀, Kibune, Kyoto Pref., 3 V, 1958, H. YOKOYAMA leg.; 1♀, Mt. Hira, Shiga Pref., 3 VI, 1957, Y. IKUTANI leg.; 1♂, Suhara, Gifu Pref., 30 V, 1951, K. OHBAYASHI leg.; 1♂ 1♀, Mt. Otake, Fukui Pref., 16 V, 1965, Y. HAYASHI leg.; 1♂ 2♀♀, Mt. Sekido, Ishikawa Pref., 10 V, 1964, Y. HAYASHI leg.; 1♂, Mt. Yamabuse, ditto, 4 V, 1963, Y. HAYASHI leg.; 1♀, Mt. Hakusan, ditto, 16 VI, 1963, Y. HAYASHI leg.; 1♀, Kanzan Pass, Miyagi Pref., 3 VIII, 1958, Y. KAMIYOSHI leg.

Nessiiodocus triodes (JORDAN, 1912) (Pl. 4, fig. 2)

Mucronianus triodes JORDAN, 1912, Nov. Zool., XIX, p. 140.

Nessiiodocus triodes: JORDAN, 1928, *ibid.*, XXXIV, p. 85 (in *N. egenus* description).

The present author possesses this species from Is. Amami, Is. Yaku and Honshu, which is new record for Japan. These specimens were compared with 2♂♂ from Formosa, whence this species was firstly reported, and exactly agree in all with JORDAN's description.

Rostrum nearly as wide as long, eyes very large, almost circular and markedly contiguous anteriorly, so the frons indicated as a mere thin line in both sexes, antennal orifice situated halfway between eye and base of mandible or a little more approaching the latter.

Antennal club comparatively long, the length of it and 8th joint together slightly shorter than that of the preceding five (3rd to 7th) joints altogether.

Dorsal carina of pronotum gently convex forward and elytral basal margin weakly produced.

On elytra sometimes the basal 3-shaped band divided into two parts, median band consisting of three oblong brown spots joined with more powerful bridges and forming a common wider fascia, a subapical ring of each elytron occasionally open behind or rarely the internal grey spot quite painted out by its round dark colour.

Pygidium vertical, nearly as long as (♀) or a little longer (♂) than wide.

At apical edge of tibia in ♂ bearing slight hump beneath, conspicuous in large specimen, the hump itself furnished with a fine golden pubescence.

Length (excluding of head): 2.5 to 4.5 mm.

Examined materials: 2♂♂, Kentin Park, Formosa, 19 V, 1968, Y. HAYASHI leg.; 1♀, Shimmura, Is. Amami, 26 VII, 1962, Y. MIYAKE leg.; 4♀♀, Miyanoura, Is. Yaku, 11 VIII, 1965, 30, 31 VII, 1966, H. NOMURA and H. KONISHI leg.; 8♂♂ 11♀♀, Mt. Kasuga, Nara Pref., 3, 4, 9, 18 & 19 VII, 1959, T. SHIBATA, K. UEDA and H. KONISHI leg.

The specimens from Mt. Kasuga were obtained on *Quercus glauca* THUNBERG (Jap. name: Arakashi) with *Paraphloeobius brevis albescens* SHIBATA.

Owing to the manners of the rostrum and of the antennal club, the species belongs to *jordani* group. The other *wolfrumi* group has somewhat different forms, in which the rostrum is more transverse and the antennal club is relatively short as in the following species.

Nessiodocus repandus (JORDAN, 1912) comb. nov. (Pl. 4, fig. 3)

Mucronianus (?) *repandus* JORDAN, 1912, Nov. Zool., XIX, p. 141.

The species was originally described by 1♀ from Formosa.

Rostrum transverse, nearly half as wide again as long, depressed before apex, without carina on base, dorsal edge of antennal orifice continuous to apex as a lateral carina, a thin, smooth, median line starting from behind the apical depression and extends to occiput, antennal orifice rather nearer to base of mandible than from eye.

Eyes rounded, smaller than those of *N. triodes* and far apart from each other on frons, the distance of which being one-fifth or one-fourth as wide as the rostral width in both sexes.

Antennae slender, in ♂ three club-joints comparatively short, the length from 8th to 11th at most equal to the preceding four (4th to 7th) joints together, 3rd a half longer than 4th, 4th to 8th subequal in length and thickness, 9th and 11th a little shorter than 8th and slightly longer than 10th.

Elytra cylindrical as in *N. triodes*, basal margin rounded and moderately protruding forward, grey markings vary owing to extent of brown areas, in all Japanese specimens a post-median grey spot connected with subapical patch, but in some of the specimens an ante-median solitary spot variable, either joining with subbasal patch or absent, and a brown bar across the middle of suture often interrupted by a grey narrow branches which prolonged from the subbasal or subapical patch on each elytron.

Pygidium perpendicular, a little wider than long in both sexes, with a short brown line in the middle.

The sexual feature of ♂ very slight, merely antennae different in proportion, median and hind tibiae weakly curved, and abdominal segments shortened, so the pygidium in ♂ directed more inwardly than in ♀.

Length (excluding of head): 3.5 to 4.5 mm.

Examined materials: 1♂, Kurio, Is. Yaku, 22 V, 1960, H. YOKOYAMA leg.; 3♂♂ 1♀, Mt. Kasuga, Nara Pref., 4, 9 VII, 1959 & 7 VI, 1964, T. SHIBATA and K. UEDA leg.

The 2♂♂ specimens of Mt. Kasuga were obtained on *Quercus (Cyclobalanopsis)* sp. Very closely allied to *N. wolfrumi* HELLER from Mindanao (1925, Ent. Blätt., XXI, p. 107, f. 15), but it has more or less dissimilar pattern above.

Illis anna sp. nov. (Pl. 4, fig. 4, 5)

Oblong, dark brown to reddish brown, marked with grey pubescence, in Sakishima

specimens (from Is. Ishigaki, Iriomote and Yonaguni in Ryukyu Archipelago) the grey pubescence more predominant on brown area than in the other specimens from more northern islands (Iss. Amami, Tokara, Yaku, Tane and Kuchinoerabu). Pronotal and elytral pattern varying considerably in shape, but the typical form of upperside nearly alike as *I. rusia* JORDAN from Java and *omopholis* JORDAN from N. Borneo and Mindanao, especially of the pronotum as following. Median two grey spots (one apical and another basal) with dorso-lateral two grey stripes together confining brown area, resulting medially the brown area H-shaped, this mark present in Sakishima specimens, but the apical median spot much narrower than the basal one and almost indicated as a thin line which being constant and often continued to the basal spot, while in the other local specimens the apical median spot much reduced or absent, moreover the dorso-lateral stripes shortened, incomplete, reaching neither apex nor base, and mostly the stripe on each lateral side divided into two parts and forming ill-defined large spots by the connection with other more external spots together.

Elytral pattern generally asymmetrical on each elytron, but on shoulders, subbasal swellings, median part of common sutural and subapical irregular spaces usually brown, the brown areas expanded in all directions by grey retreating.

Rostrum quadrate except for basal slight constriction, about one-third wider at apex than long and a little widened apicad, with a slight indication of median basal carina, disc flat, roughly punctured, the punctures rather reticulate medially and more or less rugulose on apical each side, apical margin weakly sinuate in the middle; antennal orifice subtriangular.

Underside of rostrum without carina or carinula, ridge between buccal fissure and antennal orifice shallowly channelled, lobes of mentum somewhat angulate at apices and the sinus between them moderately deep.

Eyes large, prominent and obliquely transverse, slightly emarginate anteriorly behind antennal orifices, in ♂ more closing dorsally to each other than in ♀, frons (the minimum distance between eyes) nearly one-third (♂) or a half (♀) as wide as the rostral apical width.

Antennae reddish yellow, basal two joints lighter, from 3rd to 11th joints scarcely white, 1st relatively short, thick, 2nd oval, rather large and a little longer than 1st, intermediate joints more or less various in length; in ♂ long, fully cross over elytral base, 3rd longer than 2nd but a little longer or shorter than 4th, 4th to 6th and also 9th as well as 11th nearly equal in length, and each slightly longer than 7th or 8th, 9th subtriangular, 10th (shortest) as long as 2nd and gently narrowed towards base, 11th oblong to oblong-oval; in ♀ hardly touching the pronotal base, 2nd as long as 3rd, which being a little longer or shorter than 4th, from 4th to 7th gradually decreasing in length, or, 5th shorter than 4th but nearly as long as 6th, 7th and also 9th or 11th, 8th and 10th usually short.

Pronotum subconical, widest near base, from which scarcely narrowed to middle, then rather strongly convergent towards apex, nearly half as wide again at base as long, apical margin narrower than basal one, disc moderately convex, somewhat depressed along dorsal carina and finely reticulate-punctate, dorsal carina quite basal, almost straight and weakly raised upward behind the depression, lateral angle of carina rounded off, lateral carina ending in the middle, basal longitudinal carinula absent but basal transversal carinula complete, obliquely raised forward laterally

instead of the former.

Scutellum small, punctiform, grey.

Elytra cylindrical, subparallel to near apex, about one and a half as long as wide, evenly convex, without distinct basal depression, subbasal swelling weakly raised, seriate punctures large, rather coarse, becoming shallow and faint at apical declivity, interspaces flattened.

Pygidium wider than long, with a basal median sulcus, in ♂ subquadrate, its apex truncate, side margins (including of apical one) raised and a trifle depressed insidely along them, in ♀ the apex rounded.

Underside thinly grey, prosternum short, apical end of mesosternal process truncate, metasternum convex on each side of the middle, abdominal segments in ♂ strongly shortened and bending downward (this form closely resembles that of ♂ in *Deropygus*), apical part of the anal segment bearing a hump or mucro as in ♂ of *Phaulimia grammica* JORDAN.

Legs reddish brown or nearly so, grey, 1st tarsal joint as long as or a little longer than the remainders together, median tibia of ♂ bending inward from behind the middle, and with a sharp tooth beneath at apical edge as usual.

Length (excluding of head); 2 to 3.2 mm.

Holotype, ♀, Mt. Omoto, Is. Ishigaki, 25 VII, 1964, M. YASUI leg. (SHIBATA coll.).

Paratypes, 1 ♀, Is. Yonaguni, 20 VII, 1962, H. NOMURA leg.; 1 ♀, Is. Iriomote, 27 VII, 1962, Y. HAMA leg.; 1 ♂, Mt. Banna, Is. Ishigaki, 24 VII, 1962, Y. HAMA leg.; 1 ♀, Mt. Omoto, ditto, 5 VII, 1965, Y. HAYASHI leg.; 4 ♂ ♂, Ikari, Is. Amami, 3 VIII, 1961 & 14 VII, 1963, K. YAMADA and Y. SUSUMU leg.; 1 ♂, Nakanoshima, Is. Tokara, 13 VII, 1961, Y. HAMA leg.; 1 ♂ 1 ♀, Miyanoura, Is. Yaku, 5 VII, 1966 & 17 VII, 1968, K. SAKO and T. HATAYAMA leg.; 1 ♂, Kosugidani, ditto, 18 VII, 1961, K. UEDA leg.; 1 ♂, Nishinoomote, Is. Tane, 4 VIII, 1965, H. KONISHI leg.; 2 ♀ ♀, Is. Kuchinoerabu, 25 VII, 1963, H. KONISHI leg.

Examined materials: 1 ♀, Ikari, Is. Amami, 3 VIII, 1961, K. YAMADA leg.; 2 ♀ ♀, Hatsuno, ditto, 7 VII, 1961 & 19 VII, 1962, T. SHIBATA and H. YOKOYAMA leg.; 1 ♂, Kosugidani, Is. Yaku, 18 VII, 1961, K. UEDA leg.; 1 ♀, Nishinoomote, Is. Tane, 4 VIII, 1965, H. KONISHI leg.

The new species is similar in appearance to small specimen of *Phaulimia grammica* JORDAN, but differs by the much narrower form and generic characters, in which the pronotal dorsal carina being quite close to the base.

As shown in literature, three known species of *Illis* are liable to be confounded with each other, the colour and markings of which being almost exactly the same as in the new species except that their 8th antennal joint is somewhat shorter and the secondary sexual feature of anal sternite in ♂ being never with mucro or hump as up-mentioned.

Plintheria variolosa sp. nov. (Pl. 4, fig. 6)

Oblong-oval, blackish brown except rostrum and antennae, with a brassy tint, thinly clothed with dark pubescence and variegated by yellowish or whitish grey one, this grey pubescence rough, not fine.

Rostrum reddish, rather thin, moderately porrect and subspatulate, narrowing in

the middle, where being somewhat cylindrical, then gently widened forward and backward, but a little more strongly dilated apically than basally, scarcely longer at apical dilatation than its length, which is nearly a half shorter than pronotal length; disc flat, coarsely and rugosely punctured, with the traces of three carinae proximally to middle as thin smooth lines and generally merged with the punctures; apical margin emarginate in the middle, antennal orifice nearer to base of mandible than to eye, the space between antennal orifice and eye bearing two thin carinular ridges, which often effaced by rugose punctures.

False mentum with a median longitudinal carina from behind apex of mentum, and bringing laterally with groove at each side, the groove from just behind buccal fissure prolonged backward and separates false mentum and lower part of antennal orifice by a very thin ridge, these two grooves subparallel with the median carina of false mentum (such manner of them reminds those of *Sintor*, but the antennal orifice is not sulcate or the groove being never directly continuous to the ventral projection of it as in *Sintor*).

Punctures on head likewise on rostrum, mixed with short longitudinal wrinkles; upper- and underside of eyes and occasional spot on vertex grey; frons in ♂ nearly a half the width of rostral apex, but in ♀ a little more widely apart than in ♂; eyes of moderate size and rather transverse, oblique and prominent as usual, more or less truncate in front and very feebly emarginate beneath.

Antennae robust, reddish with three club-joints black and basal two joints somewhat darkened, intermediate joints with poorly whitish pubescence, 1st thick and shorter than 2nd, 3rd longest and fully over twice the length of 2nd, from 3rd to 7th subequal in thickness; in ♂ just reaching the elytral middle, 4th distinctly shorter than 3rd, a little longer than or nearly as long as 5th, 6th and also 7th, or 7th slightly shorter than the precedings, 8th short, more than a half the length of 3rd and longer than 2nd, weakly widened to apex and received three club-joints, which are well developed, bearing dark hairs beneath on all outer sides, 9th triangular, somewhat reddish at basal part, little longer than 8th and as long as its apical width, more or less strongly prolonged internally than externally, 10th transverse, twice as wide as long, more rounded at inner side than at outer one as like as 9th, its length in equal to 2nd and distinctly shorter than 9th but slightly shorter than 11th, which is obtusely rounded, nearly equal in length and width; in ♀ not beyond over pronotal base, all joints resemble proportionately those of ♂, but 5th to 8th subequal in length, club narrower, without distinct hairs beneath on sides or bearing scant of short ones, in which 9th is a half longer than 8th and twice the length of 10th, and nearly as long as or a little longer than 11th.

Pronotum subconical, about a half wider at base than long, from base gently rounded and narrowed towards apex; a median grey line broken up in the middle or before base and behind apex, two short grey lines on each side of the middle, lateral grey sides each including a vague and irregular dark spot medially, these grey marks obscure, various and not concealing the rugged derm as well as in elytra; disc almost flat, weakly depressed before dorsal carina and coarsely punctured, the punctures somewhat reticulate; dorsal carina subbasal, emarginate backward in the middle, and a little more closing the elytral base on this position than its lateral parts, or else the carina parallel with elytral basal margins, basal longitudinal and transversal carinulae

vestigial or the former wanting.

Scutellum grey, subquadrate.

Elytra moderately convex but evenly flattened for the greater part, with feeble depressions along basal margins and behind scarcely indicated subbasal swellings, base subequal in width to pronotal one, from base slightly enlarged to the middle and narrowing feebly behind the middle, then strongly apicad; basal margins rounded, a little produced forward near suture, apical ones subtruncate but individually rounded; seriate punctures large, interspaces flat, the alternate ones wider than the others, especially of 3rd, dark hairs not concealed the rugged-sculptured derm; grey markings consist of numerous spots and lines, mainly placed on alternate interspaces as a row of spots, if present on the other interspaces the spots and lines variable in size and sometimes one or the other pair confluent here and there, but a basal common patch occupying the space between both 2nd striae from behind scutellum to basal third, a subquadrate inner humeral mark and an irregular apical one constantly present, conspicuous.

Pygidium finely granulate, spotted by grey laterally, in ♂ about a half as wide again as long, semicircular, in ♀ slightly wider than long.

Underside greyish, prosternum coarsely punctured and weakly transversely raised in the middle, abdominal segments of ♂ a little more shortened than those of ♀.

Legs long, rather stout and thinly greyish, front tarsi of ♂ nearly as long as the corresponding tibia, of ♀ a little shorter.

Length (excluding of head): 2.5 to 4 mm.

Holotype, ♂, Ikari, Is. Amami, 3 VIII, 1961, K. YAMADA leg. (SHIBATA coll.).

Paratypes, 7 ♂ ♂ 5 ♀ ♀, Ikari, Is. Amami, 16, 19, 21, 30 VI, 2, 4 VII & 8, 18 VIII, 1961, T. SHIBATA, K. YAMADA and Y. SUSUMU leg.; 2 ♂ ♂ 1 ♀, Hatsuno, ditto, 25, 26 V, 1960, T. SHIBATA leg.; 1 ♀, Nakanoshima, Is. Tokara, 26 VI, 1962, H. YOKOYAMA leg.; 5 ♂ ♂ 3 ♀ ♀, Miyanoura, Is. Yaku, 4 VII, 1966, 11 VII, 1967 & 17 VII, 1968, K. SAKO, Y. KUZUGAMI and K. TANIZAWA leg.; 1 ♂ 3 ♀ ♀, Shiroyama, Kagoshima Pref., 9 VII, 1967, K. TSUMURA leg.

Examined materials: 4 ♂ ♂ 1 ♀, Ikari, Is. Amami, 29 V, 1960, 3, 18 VIII, 1961, T. SHIBATA and K. YAMADA leg.; 3 ♀ ♀, Hatsuno, ditto, 25, 26 V, 1960, 23 IV, 1964, T. SHIBATA and K. SAKO leg.; 2 ♂ ♂, Shimmura, ditto, 19 VII, 1954, S. HISAMATSU leg. (through Mr. M. UNO); 1 ♂, Fukumoto-Yuwan, ditto, 4-6 VIII, 1964 (through Mr. T. KISHII); 1 ♂, Kosugidani, Is. Yaku, 16 VII, 1967, K. TSUMURA leg.; 1 ♂, Miyanoura, ditto, 11 VII, 1967, Y. KUZUGAMI leg.; 1 ♂ 1 ♀, Shiroyama, Kagoshima Pref., 9 VII, 1967, K. TSUMURA leg.

The present author is unable to find the valid distinction between both sexes, however, barely in ♂ the frons is a little narrower, the antennal club bears distinct hairs beneath and somewhat wider, the pygidium and the abdominal sternites are more shortened than those of ♀.

Like *Plintheria sparsa* BOHEMAN from Java and Tonkin and *Phaeochrotes anisus* JORDAN from Philippines, differing in the rostrum being shorter or the antennal joints disagree in proportion with those of the latters according to the descriptions.

Enedreytes gotoi sp. nov. (Pl. 4, fig. 7, 8)

Blackish brown, antennae and legs dark brown, variegated by whitish pubescence,

which being rough and scarce.

Dorsal pattern almost like as in *Plintheria variolosa* SHIBATA, but whitish spots or lines less in number and more obscurely marked, especially on pronotum, in which a median basal line, two dorso-lateral ones and areas of lateral sides are not forming sharp defined markings.

On elytra merely a basal narrow line hardly conspicuous, but in one of seven examined specimens a principal row of three spots of alternate interspaces rather clearly appeared.

Rostrum thick, subquadrate, nearly as long as apical width, weakly compressed before base but not spatulate, and slightly depressed behind apical margin, which being a little emarginate medially, disc almost flat except the depression and densely umbilicate-punctate, of apical reddish part the punctures weakened and somewhat rugulose, antennal orifice approaching near base of mandible.

Buccal fissure fully lengthened backward and deeply penetrated towards basal part of false mentum.

Eyes small, almost circular and lateral, the space between them a very little narrower than the minimum width of rostrum.

Antennae rather robust, three (or four) club-joints well developed and somewhat asymmetrical, more rounded or prolonged at one side than at another side, in ♂ bearing some dark hairs beneath, intermediate joints with whitish pubescence, of 8th distinct, in ♂ longer than in ♀; basal two joints thick, 3rd to 5th subequal in length (or 4th a little longer than the other two), 6th and 7th slightly shorter than proximate one; in ♂ 7th weakly widened to apex, 8th short, triangular and enough received the club, in which 9th being triangular, as wide as long, 10th transverse, semicircular and a little wider than long, 11th rounded; in ♀ 8th thick, very weakly widened to apex but not triangular, so the succeeding club-joints clearly triarticulated.

Pronotum convex, little wider than long, the widest point situated at base, from which gently rounded and gradually convergent forward, with umbilicate punctures which being dense and somewhat reticulate, dorsal carina subbasal, weakly biconvex alike as in *P. variolosa*, but more or less angulate in the middle, the angle between dorsal and lateral carinae rounded but sharper than that of *P. variolosa*, lateral carina shortly prolonged forward (while in *P. variolosa* dorsal carina ending into a quite rounded curve laterally, not noticeably extending ahead), basal longitudinal and transversal carinulae present, the former generally joined to the lateral principal carina but the latter very short.

Elytra moderately convex except for transverse depression along basal margins, subparallel-sided, widest behind the middle, where being little wider than the basal width of pronotum, disc rough with distinct seriate punctures, which being large and deep, of interspaces smaller, these punctures becoming faint at apical declivity, sub-basal swelling indistinct, interspaces slightly convex, 3rd or all alternate ones often a little wider than the others (though the author examined seven specimens, in some of them the alternate interspaces are certainly so, but in all of them they are equal in width to the others, therefore this indication may prove to be unreliable).

Pygidium wider than long and semicircular in both sexes, rugged, finely granulate and almost uncovered as like as underside.

Median tibia of ♂ bearing a sharp tooth beneath at apical edge.

Length (excluding of head): 2 to 2.8 mm.

Holotype, ♂, Sasabe, Nose, Hyogo Pref., 6 VI, 1965, M. GOTO leg. (SHIBATA coll.).

Paratypes, 2 ♂♂ 3 ♀♀, the same locality as holotype, 24 VI, 1962, 14 VI, 1964 & 12 VI, 1965, M. GOTO leg. (GOTO and SHIBATA coll.).

Examined material: 1 ♂, Senriyama, Osaka Pref., VIII, 1958, S. KUROKAWA leg.

The type specimens were obtained on *Castanea crenata* SIEB. et ZUCC. (Jap. name: Kuri), observed by Mr. M. GOTO.

The new species is closely allied to *Enedreytes hiralis* FAHRAEUS from S. Europe according to the descriptions, but the antennae, dorsal pattern and colour of hairs are somewhat different. In facies the new species also resembles the preceding *Plintheria variolosa* SHIBATA, particularly of similar dorsal pattern and antennal manner, however, in the latter the rostrum being surely spatulate, the eyes are larger and more approaching dorsally, etc.

The rostral characteristic of *Plintheria variolosa* is rather closer to *Allandrus* as shown in the report by VALENTINE (1960, Trans. Amer. ent. Soc., LXXXVI, p. 77-78). The present author possesses a species in Japan (1 ♀ from Shōtoshibetsu, Hokkaido, 7 VII, 1961, T. HOZUMI leg.), which is belonging to *Allandrus*, or more approaching *Allandrus* than *Enedreytes* owing to the spatulate rostrum. He compared it with a pair of *Allandrus populi* PIERCE (through Mr. M. UNO), and concerning the generic character being distinguished from *Plintheria*, it exactly agrees well with that of *Allandrus* in having the smaller eyes which are lateral, widely separate and rather coarsely faceted. Actually *Enedreytes* and *Allandrus* provide almost the same differences against *Plintheria*, and with regard to both genera *Enedreytes* and *Allandrus*, the following distinctive points (except rostral character) are detected between them as far as the present author examined three species (*E. gotoi* sp. nov., *A. populi* and of a Japanese species). In *Allandrus* the dorsal carina of pronotum is situated a little far apart from the pronotal base, while in *Enedreytes* it is subbasal and more approaching centrally to the elytral base as in *Plintheria*, on the other hand the carina of *Enedreytes* clearly extends forward laterally, it is not so much abbreviated than those of *Allandrus* and of *Plintheria*, moreover the basal longitudinal carinula of both genera are wanting, but there is entirely or nearly present in *Enedreytes*.

Unfortunately the Japanese specimen of *Allandrus* is not in good condition, so it is undescribed here by the present author.

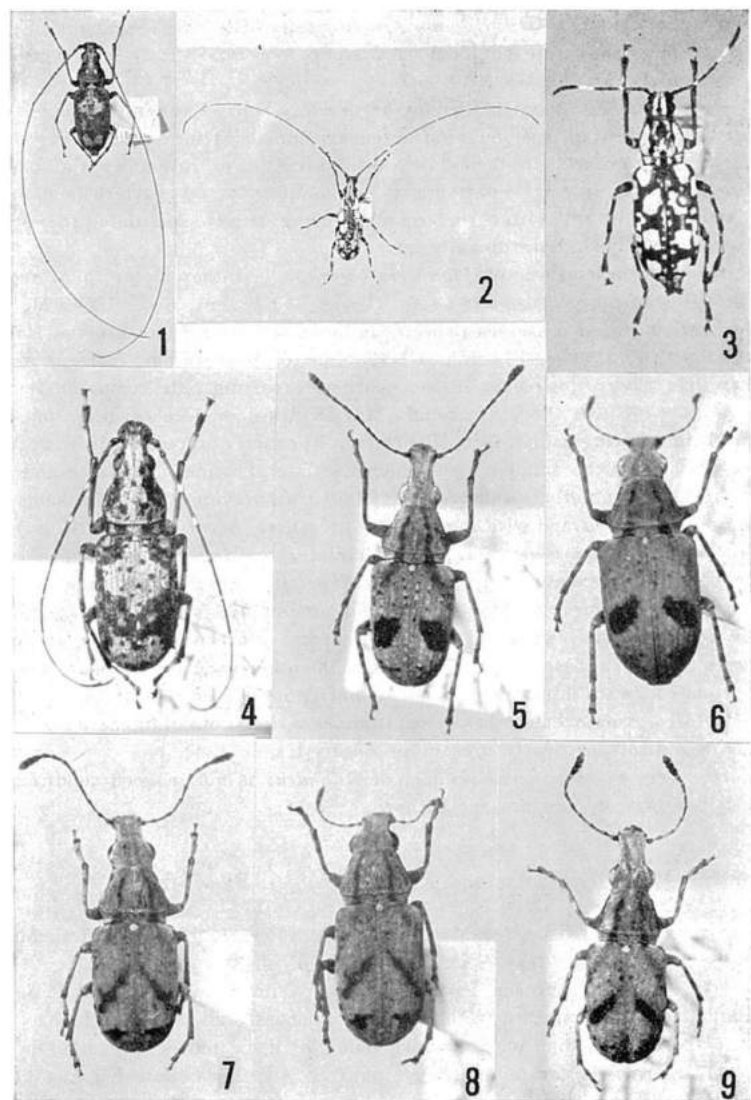
Rawasia ritsemae ROELOFS, 1880 (Pl. 4, fig. 9)

ROELOFS, 1880, Notes Leyden Mus., II, p. 204; JORDAN, 1913, Rec. Ind. Mus., IX, p. 212; 1923, Opusc. Inst. Sci. Indochine, 1, p. 24.

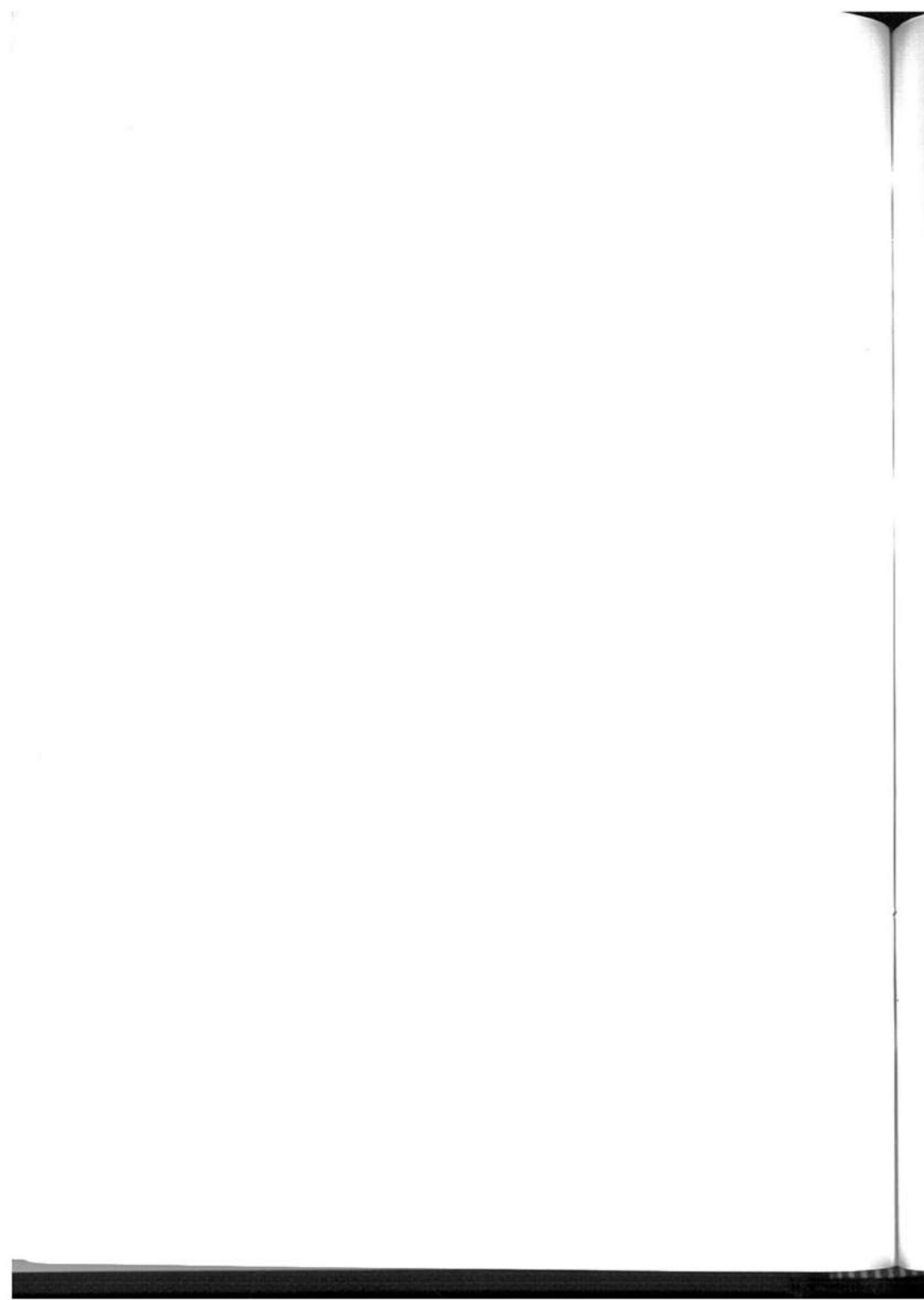
The species widely spreads from N. India to China²⁾, and is found in Japan.

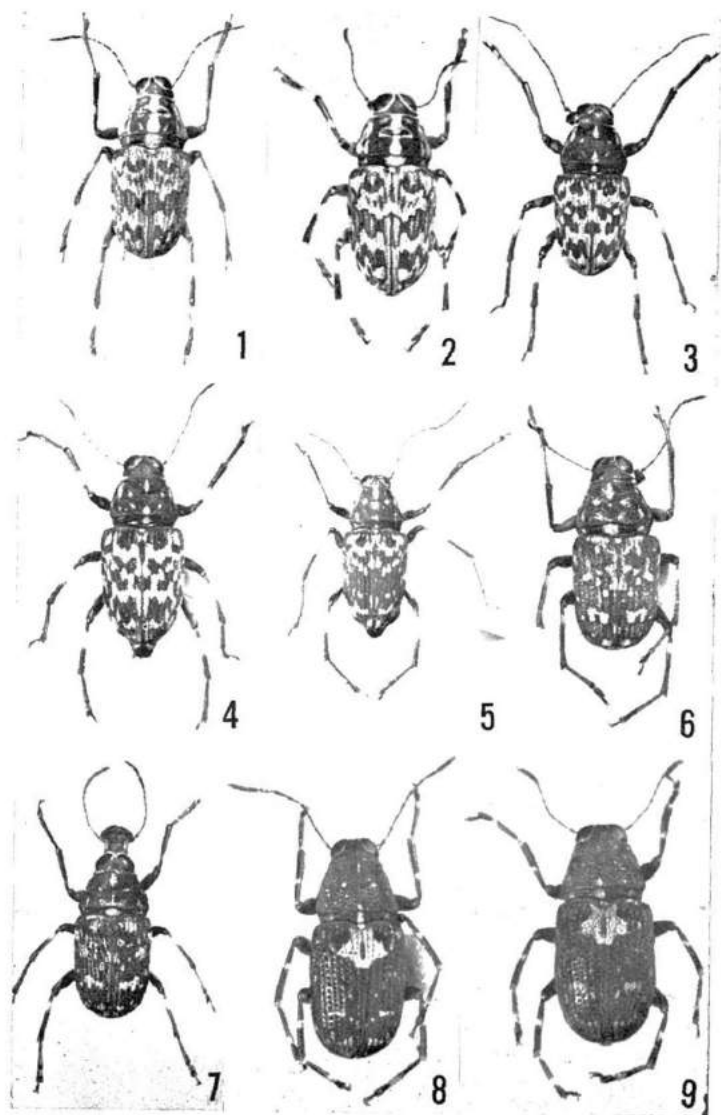
Buccal plate of the species (also *R. diardi* ROELOFS and *communis* JORDAN) bears three sharp teeth, a median one of which being at apex and of the other posterior two at each lateral side, as indicated by JORDAN (1912, Tijds. Ent., LV, p. 140; 1913, Rec. Ind. Mus., IX, p. 213).

²⁾ It was recorded from Fukien by WOLFRUM (1945-48, Ent. Blätt., XLI-XLIV, p. 146), but is lacking in his Col. Catalog., Suppl., pars 102 (1953).



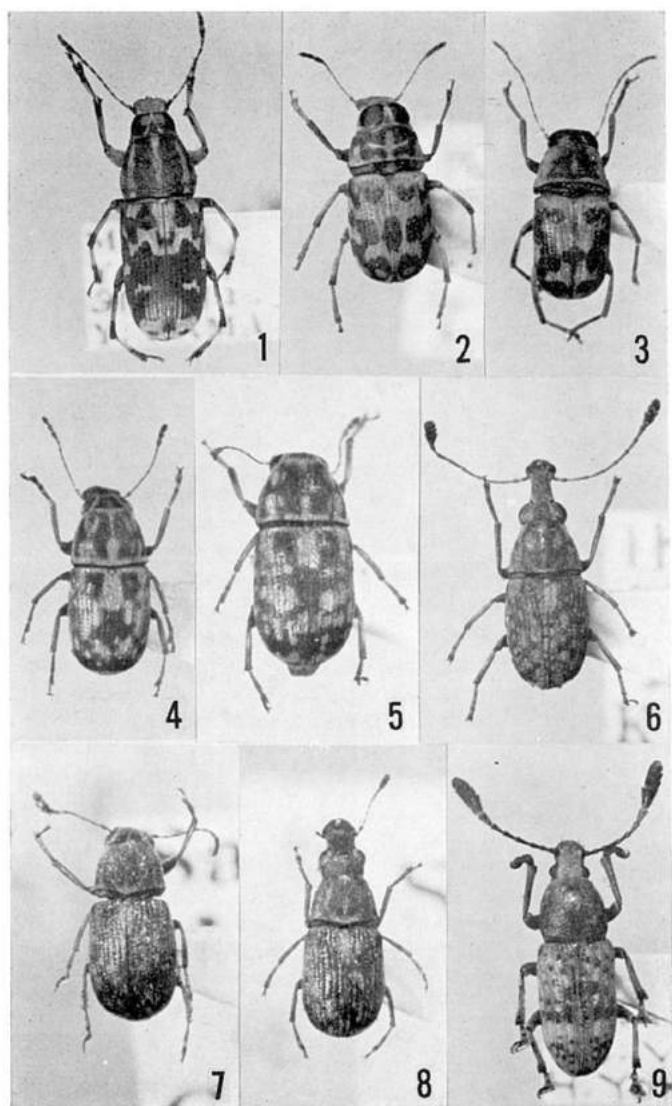
(M. OHKURA photo.)

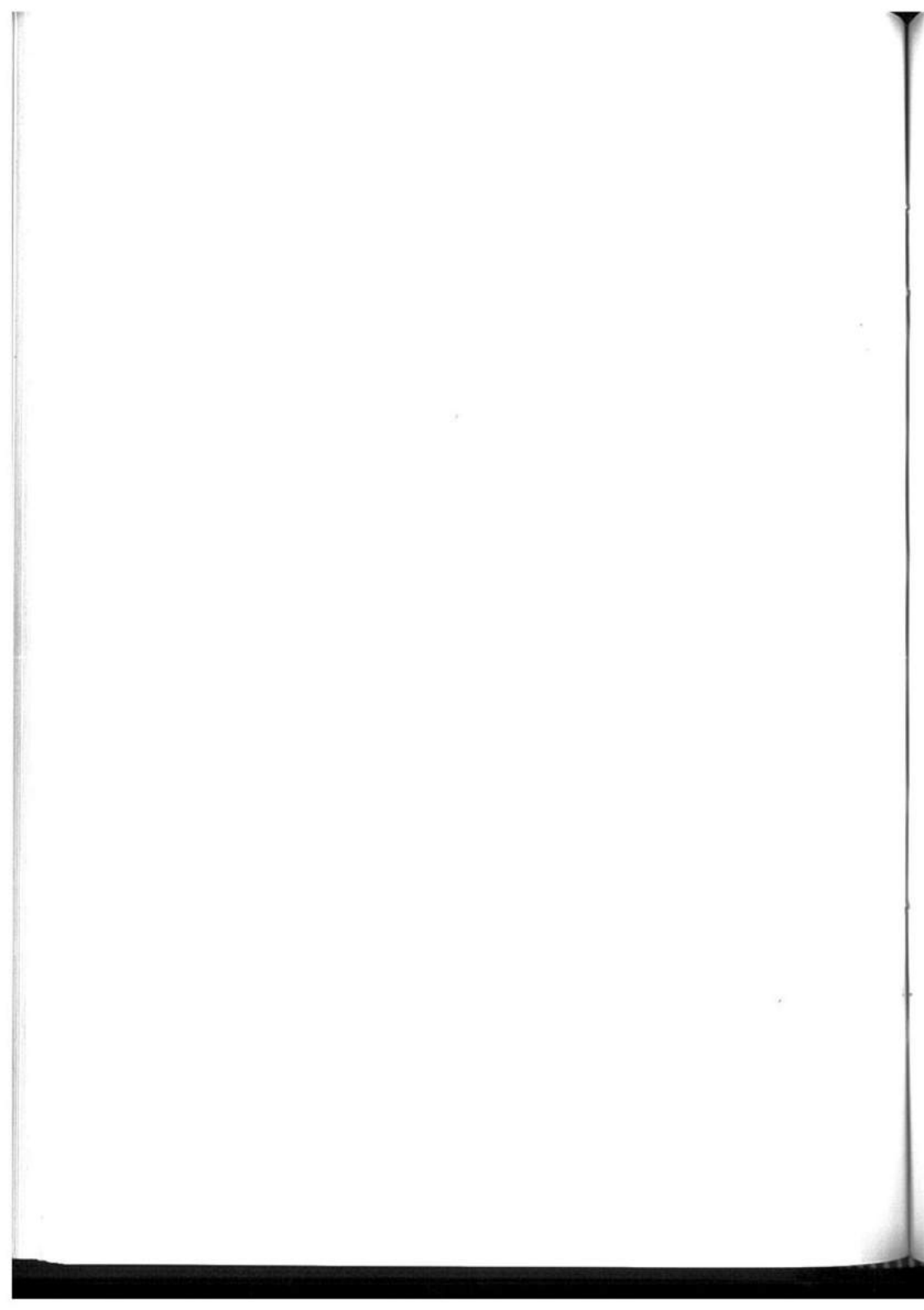




(M. OHKURA photo.)







Examined materials: 7♂♂ 2♀♀, Nakanoshima, Is. Tokara, 25, 26 VI & 2 VII, 1962, H. YOKOYAMA leg.

The specimens were obtained on *Pleioblaustus hindsii* (MUNRO) NAKAI (Jap. name: Kanzanchiku), observed by Mr. H. YOKOYAMA.

Regarding the elytral interspaces in the description of *R. diardi* ROELOFS (1881, Notes Leyden Mus., III, p. 162), he mentioned, "in *R. ritsemae* the interspaces are alternately narrower and appear to be slightly convex". In Japanese specimens they are scarcely visible at the apical parts, and the dorsal pattern of elytra being more several varieties by greyish yellow and brown hairs.

Explanation of Plates 2-4.

Plate 2.

1. *Mecotropis kyushuensis* (NAKANE), ♂.
2. *Mecotropis unoi* sp. nov., ♂ (paratype).
3. ditto, ♀ (holotype).
4. *Mecotropis kyushuensis*, small ♂.
5. *Sintor bipunctatus* sp. nov., ♂ (holotype).
6. ditto, ♀.
7. *Sintor dorsalis dorsalis* SHARP, ♂.
8. ditto, ♀.
9. *Sintor dorsalis intermedius* ssp. nov., ♂ (holotype).

Plate 3.

1. *Litocerus communis amamianus* ssp. nov., ♂ (holotype).
2. ditto, ♀.
3. *Litocerus tokarensis* (NAKANE), ♂.
4. ditto, ♀.
5. ditto, f. *insensibilis* nov., ♂ (type).
6. *Litocerus bicuspis multiguttatus* (NAKANE), ♂.
7. ditto, ♀.
8. *Litocerus kimurai* sp. nov., ♂ (holotype).
9. ditto, ♀.

Plate 4.

1. *Mucronianus takemurai* (NAKANE), ♂.
2. *Nessiiodocus triodes* (JORDAN), ♀.
3. *Nessiiodocus repandus* (JORDAN), ♂.
4. *Illis anna* sp. nov., ♂ (holotype, from Is. Ishigaki).
5. ditto, ♀ (from Is. Kuchinoerabu).
6. *Plintheria variolosa* sp. nov., ♂ (holotype).
7. *Enedreytes gotoi* sp. nov., ♂.
8. ditto, ♀.
9. *Rawasia ritsemae* ROELOFS, ♂.

A New *Falsoanoplistes* species found from
an Imported Bornean Log.
(Col., Cerambycidae)

By MASAO HAYASHI

Some years ago, a Stenaspine longicorn beetle was sent to the present author for identification, which was found by a Plant Protection Officer at Kobe port from an imported Bornean log. Though the species is somewhat allied to certain *Purpuricenus* species from Japan, after careful examination and searching, the conclusion was obtained that it would be belonged to the heading monotypic genus, *Falsoanoplistes* Pic and represents a new species differentiated from the type species, *F. guerryi* Pic from Yunnan, S. W. China. The present author has to express his sincere appreciation to Mr. G. ALLAN SAMUELSON, now of Purdue Univ., Lafayette, Indiana, of Bishop Museum, Honolulu, Hawaii at that time for his kind cooperation and searching.

Falsoanoplistes borneensis sp. nov.

Black, prothorax with one small antemedian discal and a pair of relatively large lateral pale cinnabar markings, and elytra pale cinnabar with a small indistinct dark marking between middle and apex of each elytron.

Head punctured very finely on frons and coarsely closely on vertex and occiput; frons short transverse, with a deep median longitudinal furrow, vertex strongly and triangularly concave, post clypeus short with a thickened front edge, anteclypeus or epistome membranous, genae short, mandibles short. Eyes deeply emarginate, finely faceted. Antennae nearly as long as body, scape broadened posteriorly, finely punctured, strongly serrate from third to tenth joints, eleventh triangularly topped; relative length of each joint is as follows:—4.5:1:5:3.8:4:4:4:3.8:3.5:2.8:3. Prothorax transverse, distinctly tuberculate laterally before middle, constricted at apex and just behind the tuberculations, disc coarsely closely punctured on black portion, the punctures becoming finer to sides, and sparser on pale cinnabar portions, convex, dully tuberculate medioposteriorly at the middle. Scutellum triangular, finely closely punctured. Elytra about 2.5 times as long as the basal width, slightly broadened posteriorly and broadly rounded at apex from the base of apical quarter, disc coarsely closely punctured throughout excepting on three shallow carinae on each elytron. Legs slender.

Length, 13 mm.

Holotype (HAYASHI coll.) ♀, reared from an imported Bornean log, collected at Kobe port on March 10, 1965 by T. INOUE, which was sent from Tawao, North Borneo.



Comparative Morphology and Evolution of the Hind Wings of the Family Chrysomelidae (Coleoptera)

II. Subfamilies Orsodacninae, Sagrinae, Zeugophorinae, Megalopodinae, Donaciinae and Criocerinae.

By KUNIO SUZUKI

Department of Biology, Faculty of Science, Tokyo Metropolitan University

Introduction

In the previous paper¹⁾, the author reported on the homology and the nomenclature of the hind wing venation of this family according to the comparison of the articulation of veins to the Axillary sclerites with that of the allied two families (Bruchidae and Cerambycidae). He emphasized the importance of the existence of SNODGRASS' "Cu₂" vein not only in the primitive groups of insects but also in the highly specialized groups of the order Coleoptera like the superfamily Chrysomeloidea.

In the present paper, the author analyses in details the hind wing venation of the six subfamilies (Orsodacninae, Sagrinae, Zeugophorinae, Megalopodinae, Donaciinae and Criocerinae) which have been considered as the primitive groups of this family by many authorities (BÖVING & CRAIGHEAD, 1930-1; CHAPUIS, 1874; CHEN, 1940; CHŪJŌ, 1951a, b, c, 1952, 1953a, b, 1958, 1959; CHŪJŌ & KIMOTO, 1961; CROWSON, 1946, 1955; GRESSITT, 1942; GRESSITT & KIMOTO, 1961; JACOBY, 1908; JOLIVET, 1953-4, 1957, 1959; KIMOTO, 1964a, b; PETERSON, 1951; and many others). Basing on the supposed evolutionary processes of this character, he discusses the phylogenetic relationships among each subfamily.

The author largely owes to Dr. JOLIVET's excellent synthetical works. Many figures treated in the present paper are redrawn, partly revised, from them.

Materials and Methods

Materials examined by the author himself were collected chiefly from various parts of Japan by many collaborators and the author himself.

I. Subfamily Orsodacninae C. G. THOMSON, 1866

Orsodacne arakii CHŪJŌ, 1942

2 exs., Tachiyazawa, Yamagata Pref., Honshu, 9-V, 1959, Y. WATANABE leg.

¹⁾ SUZUKI, K. (1969): Comparative morphology and evolution of the hind wings of the family Chrysomelidae (Col.). I. Homology and nomenclature of the wing venation in relation to the allied families. Kontyu, 37 (1): 32-40, 6 figs.

[Ent. Rev. Japan, Vol. XXII, No. 1, pp. 33-45, Nov., 1969]

II. Subfamily Sagrinae JACOBY, 1908

Sagra (s. str.) *femorata* (DRURY, 1773)

1 ex., Umg. Vientiane, Laos, 3-VI, 1963, S. KIMOTO leg. & det.

III. Subfamily Zeugophorinae CHŪJŌ, 1952

Zeugophora (*Pedrillia*) *annulata* (BALY, 1873)

2 exs., Nidoage, Gumma Pref., Honshu, 12-VI, 1967, S. TACHIKAWA leg.

Zeugophora (*Pedrillia*) *nigricollis* (JACOBY, 1885)

2 exs., Togakushi-kōgen, Nagano Pref., Honshu, 15-V, 1964, K. NAKADA leg.

IV. Subfamily Megalopodinae LACORDAIRE, 1845

Temnaspis japonicus BALY, 1873

1 ex., Mino, Osaka Pref., Honshu, 23-IV, 1939, Collector uncertainly (offered by Dr. S. KIMOTO).

V. Subfamily Donaciinae KIRBY, 1845

Plateumaris sericea (LINNAEUS, 1768)

2 exs., Tsugaike, Nagano Pref., Honshu, 29-VII, 1966, T. HANATANI leg.; 2 exs., Spa Yachi, Awomori Pref., Honshu, 24-VII, 1963, K. SASAKI leg.

Plateumaris sp. (very allied to *P. sericea*)

4 exs., Mizonokuchi, Kawasaki-City, Kanagawa Pref., Honshu, 30-IV, 1960, K. SUZUKI leg.

VI. Subfamily Criocerinae LACORDAIRE, 1845

Crioceris quatuordecimpunctata (SCOPOLI, 1763)

3 exs., Spa Tsuta, Awomori Pref., Honshu, 20-VI, 1964, H. TAKENAKA leg.

Lilioceris (*Bradyceris*) *lewisi* (JACOBY, 1885)

2 exs., Mt. Jōmine, Saitama Pref., Honshu, 4-V, 1964, K. SUZUKI leg.

Lilioceris (s. str.) *rugata* (BALY, 1865)

2 exs., Mt. Jōmine, Saitama Pref., Honshu, 4-V, 1964, K. SUZUKI leg.; 1 ex., Mt. Takao, Tokyo Pref., Honshu, 3-V, 1964, K. SUZUKI leg.; 1 ex., Tama Hill, Tokyo Pref., Honshu, 26-V, 1963, M. NISHIKAWA leg.

Lilioceris (s. str.) *subpolita* (MOTSCHULSKY, 1860)

2 exs., Cape Sata, Pen. Ōsumi, Kagoshima Pref., Kyushu, 19-VII, 1965, A. YOSHII leg.

Lema adamsi BALY, 1865

3 exs., Mt. Jōmine, Saitama Pref., Honshu, 3-5-V, 1964, K. SUZUKI leg.

Lema circicola CHŪJŌ, 1959

3 exs., Mt. Jōmine, Saitama Pref., Honshu, 3-4-V, 1964, K. SUZUKI leg.

Lema diversa BALY, 1873 f. *lewisi* BALY, 1873

3 exs., Mizonokuchi, Kawasaki-City, Kanagawa Pref., Honshu, 10-VI, 1963, K. SUZUKI leg.

Lema decempunctata GEBLER, 1830

3 exs., Yaen-tōge, Tokyo Pref., Honshu, 20-V, 1962, K. SUZUKI leg.

Lema honorata BALY, 1873

1 ex., Mt. Jōmine, Saitama Pref., Honshu, 4-V, 1964, K. SUZUKI leg.; 2 exs., the same locality, 31-V, 1964, K. SUZUKI leg.

Oulema oryzae (KUWAYAMA, 1929)

2 exs., Yanagisawa, Foot of Mt. Iwate, Iwate Pref., Honshu, 8-VIII, 1966, K. SUZUKI leg.

The wings were mounted in "Neo-Shigal" (Shiga Kontyû Fukyûsha Co., Tokyo). To compare with author's own observations, the remarks on a great number of species were cited chiefly after JOLIVET's works. The supposed phylogenetic relationships among various groups were expressed by the cladogram in accordance with HENNIG (1965), OKADA (1966), SIMPSON (1961), SOKAL (1966), and so on.

Observations and Discussions

A. General structures.

I. Subfamily Orsodacninae (Text Fig. 1)

The visible basal extremity of Cu_{1a} fuses with M_{3+4} by $m-cu$ at a point of the range $\frac{1}{3}$ to $\frac{1}{2}$ from the base of the latter. Cu_{1a} forks into two subbranches at about the half way of its length, they run in nearly parallel with each other and with the distal part of Cu_{1b} , and the posterior subbranch fuses with Cu_{1a} by a somewhat longer $cu_{1a}-cu_{1b}$ at the site $\frac{3}{4}$ from the base of the latter. Pcu fuses with Cu_{1b} at about the half way of its length to form $ICuc$ by a short $cu_{1b}-pcu$.

Notes. An aberrant form of Cu_{1a} was found in *Orsodacne arakii* CHÛJÔ (Text Fig. 1b), in which the apical extremity of posterior subbranch fuses with Cu_{1b} and together with $cu_{1a}-cu_{1b}$ forms an irregular Cuc . The venation of *O. cerasi* (LINNAEUS) treated by CHÛJÔ (1952, 1953a) and *O. lineola* (PANZER) dealt by JOLIVET (1957) are nearly equal to that of *O. arakii*.

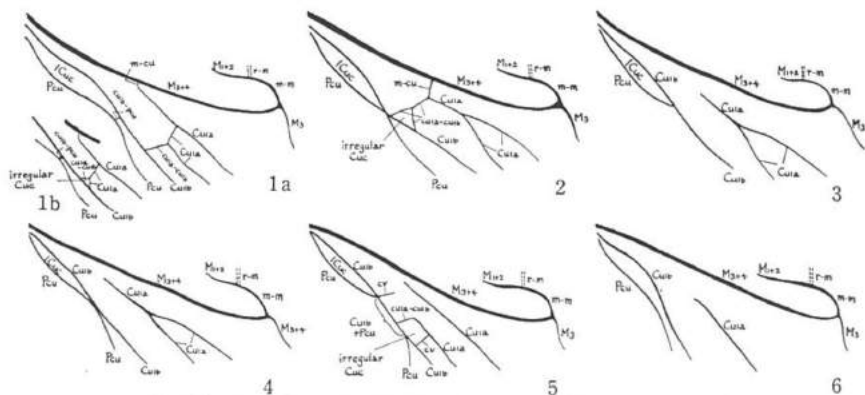
II. Subfamily Sagrinae (Text Fig. 2)

Cu_{1a} is very variable and in many cases fuses with M_{3+4} at a point of the range $\frac{1}{3}$ to $\frac{1}{2}$ from the base of the latter by the aid of a very long $m-cu$, which however disappears in some cases. The base of Cu_{1a} fuses with Cu_{1b} by a somewhat longer $cu_{1a}-cu_{1b}$ and, in this case, the crossvein is apt to fork into two subbranches and forms an irregular Cuc (FORBES' "Wedge cell"; CROWSON's "Anal cell" or "w") by the fusion of the two subbranches with Cu_{1b} , but in some cases, the crossvein does not fork. And, the Cu_{1a} is various from simple to complex and the site of branching is also unstable. Pcu is well developed but in rare cases it disappears. The relationships of Pcu and Cu_{1b} are also very variable.

III. Subfamily Zeugophorinae (Text Fig. 3)

Cu_{1a} forks into two subbranches at about the half way of its length. The $m-cu$ always disappears. The apical extremity of Pcu directly fuses with Cu_{1b} at the site of about $\frac{3}{5}$ from the base of the latter.

Notes. CHÛJÔ (1952) mentioned that, in the subgenus *Pedrillia*, Cu_{1a} is a single vein. But the present author did not discriminate such feature on Cu_{1a} . Both of the two subgenera, *Pedrillia* and *Zeugophora*, of the genus *Zeugophora* show almost the same structure that Cu_{1a} forking into two subbranches. The author supposes that this structure of Cu_{1a} is a comparatively stable character of this subfamily and that CHÛJÔ's report is based on an aberrant form of Cu_{1a} .



Text Figs. 1-6. Schematic right hind wing venation (Vannal region only).

1. Orsodacninae, b. an aberrant form of Cu_{1a} of *Orsodacne arakii* Cuvjo; 2. Segrinae (primitive type); 3. Zeugophorinae; 4. Megalopodinae (*Temnaspis* type); 5. Donaciinae (*Sominella* type); 6. Criocerinae (*Brachyactyla* type).

IV. Subfamily Megalopodinae (Text Fig. 4)

The visible basal extremity of Cu_{1a} fuses with M_{3+4} at a point of the range $\frac{1}{3}$ to $\frac{1}{2}$ from the base of the latter by $m-cu$ but the crossvein often disappears. Cu_{1a} forks into 2 or 3 subbranches which often disappear near the base or at the middle part of them, and the branching position is very variable. The relationships between Pcu and Cu_{1b} are very variable: 1) Pcu fuses with Cu_{1b} by a short $cu_{1b}-pcu$ at about the half way, 2) Pcu directly fuses with Cu_{1b} , 3) Pcu does not fuse with Cu_{1b} , and in the former two cases, the fusing position of Pcu and Cu_{1b} is also variable.

V. Subfamily Donaciinae (Text Fig. 5)

Cu_{1a} often forks into two subbranches and the posterior one together with the distal half of Cu_{1b} sometimes forms an irregular Cuc by 1 to 3 crossveins. The $m-cu$ often disappears. Pcu fuses with Cu_{1b} at the site of about $\frac{1}{2}$ from the base of the latter and forms there $ICuc$ but the distal half of Pcu incidentally disappears and therefore does not form $ICuc$.

VI. Subfamily Criocerinae (Text Fig. 6)

Cu_{1a} is always a single vein. The $m-cu$ always disappears. The relationships between Pcu and Cu_{1b} are somewhat variable: 1) the apical extremity of Pcu directly fuses with Cu_{1b} to form $ICuc$, 2) Pcu and Cu_{1b} are isolated from each other, not forming $ICuc$.

B. Evolutionary processes of hind wing venation and phylogeny.

I. Subfamily Segrinae

CLAVAREAU (1913a) classified this subfamily into five tribes, Megamerini, Carpopagini, Segrini, Mecynoderini and Ametallini.

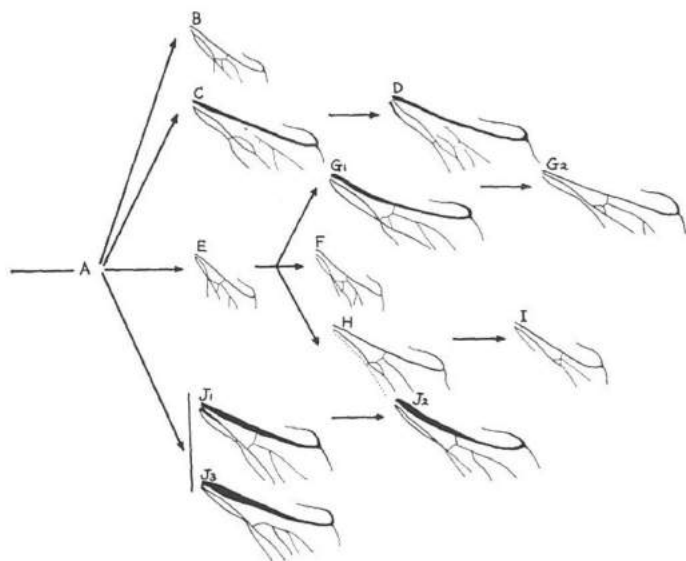
Recently, MONRÓS (1958) corrected CLAVAREAU's system as follows. MONRÓS dis-

solved the two tribes, Mecynoderini and Ametallini, which had been constituted of only one genus *Mecynodera* and only one genus *Ametalla*, respectively, into the tribe Megamerini, and established a new tribe Diaphanopsidini for the genus *Diaphanops* which had long been belonged to the tribe Megamerini. Therefore, the subfamily Sagrinae is constituted of the following four tribes and the author's discussion will be made hereafter in accordance with MONRÓS' system.

MONRÓS' classification of Sagrinae into tribes

1. Megamerini CHAPUIS, 1874
2. Diaphanopsidini MONRÓS, 1958
3. Carpophagini CHAPUIS, 1874
4. Sagrini CHAPUIS, 1874

According to the structure of veins, the author will divide this subfamily into two types: 1) cu_{1a} - cu_{1b} forks into two subbranches, forming an irregular *Cuc*, 2) the crossvein does not fork. The latter type is seen in the tribe Sagrini only. As CROWSON (1946) mentioned, Sagrini is considered as the most highly specialized group in this subfamily, because the venation of this subfamily seems to have evolved from a complex type to a simple one. This assumption well corresponds to the classification of the tribe of this subfamily. The remaining three tribes show the fundamentally same structure as JOLIVET (1957) pointed out.



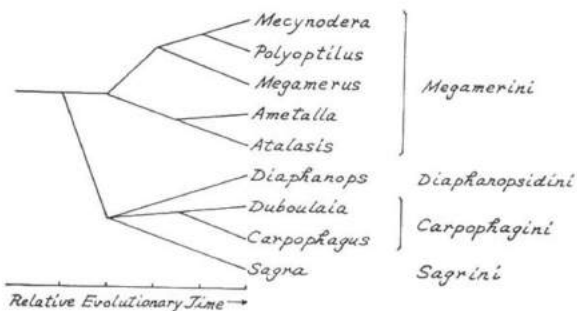
Text Fig. 7. Supposed evolutionary processes of hind wing venation of Sagrinae.

A: Hypothetical ancestor of the present Sagrinae; B: *Diaphanops westermanni* (BOHEMANN); C: *Duboulala flavipennis* BALY; D: *Carpophagus banksiae* MCLEAY; E: *Atalasis sagroides* LACORDAIRE; F: *Ametalla spinolae* HOPE; G₁: *Megamerus kingi* MCLEAY, G₂: *M. madagascariense* CHAPUIS; H: *Mecynodera coxalgica* (BOISDUVAL); I: *Polyoptilus lacordairei* GERMER (= *P. erichsoni* GERMER, synonymized by MONRÓS, 1958); J₁: *Sagra* (s. str.) *buqueti* LESSON, J₂: *S.* (s. str.) *sperba* LACORDAIRE, J₃: *S. (Tinosagra) tristis* FABRICIUS.

All the figures were redrawn, partly revised, after JOLIVET (1957).

In *Carpophagus* and *Duboulaia*, belonging to the tribe Carpoplagini, $cu_{1a}-cu_{1b}$ is almost entirely degenerated, but *Pcu* is well developed and fuses with Cu_{1b} by a short $cu_{1b}-pcu$. The relationships among the five genera, *Mecynoderes*, *Ametalla*, *Atalasis*, *Megameris* and *Polyoptilus*, belonging to the tribe Megamerini, are very complex, that is to say, *Ametalla* and *Atalasis* have almost the same structure in their hind wing venations and resemble *Megameris* in having a characteristic that Cu_{1a} forks into two subbranches. But in the two species, *Megameris madagascariensis* CHAPUIS and *M. kingi* MCLEAY, the branching point of Cu_{1a} is very different from each other, namely, in the former it is situated more basally than in the latter. *Pcu* of the former does not fuse with Cu_{1b} but that of the latter, on the contrary, fuses with Cu_{1b} . In *Mecynoderes* and *Polyoptilus*, Cu_{1a} does not fork into subbranches and the distal half of *Pcu* disappears. Therefore, the relationships on the two tribes, Carpoplagini and Megamerini, may be considered as follows. The former tribe was derived from a certain ancestral type of the latter one, but differs from the Sagrini in forming an irregular *Cuc*. And, Carpoplagini differentiated independently from the Sagrini. And, it seems that, in the tribe Carpoplagini, *Duboulaia* is more primitive than *Carpophagus* according to the following two points: 1) the former forms the complete but irregular *Cuc*, 2) the connection between the bases of Cu_{1a} and M_{3+4} is better established firmer in the former than in the latter. In Megamerini, the genera *Ametalla* and *Atalasis* are more primitive than the others in the hind wing venation, and *Megameris* seems to have been derived from a certain ancestral form of *Atalasis*. Moreover, the genera *Mecynoderes* and *Polyoptilus* seem to have been derived independently from a certain ancestral form of *Ametalla* and *Atalasis* earlier than the time when *Megameris* was supposed to be derived from this ancestor. The tribe Diaphanopsidini is constituted of only one genus *Diaphanops*, and its venation resembles that of *Mecynoderes* and *Polyoptilus*, both are of the tribe Megamerini, in having single Cu_{1a} , but it differs from the latter two genera in having well developed *Pcu*. This feature is also seen in *Ametalla*, *Atalasis*, *Megameris*, and so on. It is very hard to consider the phylogenetic position of Diaphanopsidini, but this tribe has probably been derived from an ancestor of Megamerini type independently to other tribes.

The results of above discussions may be arranged as in Text Figs. 7 and 8.

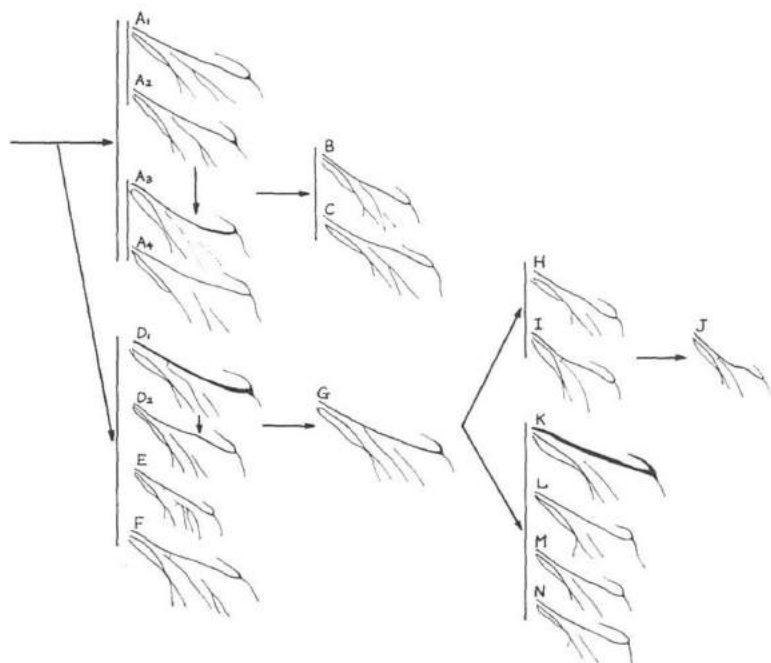


Text Fig. 8. Cladogram of Sagrinae (at the generic and tribal levels).

The works treating the phylogenetic relationships in this subfamily are not abundant. It has been well known that the genus *Carpophagus* showed the relation to the family Bruchidae, but CROWSON (1946) denied their immediate relationships. LACORDAIRE (1845) and CHAPUIS (1874) emphasized that the genus *Ametalla* resembled the subfamily Donaciinae and treated this genus as the most highly specialized group of the Sagrinae. According to CROWSON (1955), however, *Ametalla* is neither aquatic nor subaquatic, different from Donaciinae. CHEN (1940) suggested and CROWSON (1946) pointed out that Donaciinae could be treated as a tribe of the Sagrinae, but the present author has no clear opinion on the problem.

II. Subfamily Megalopodinae

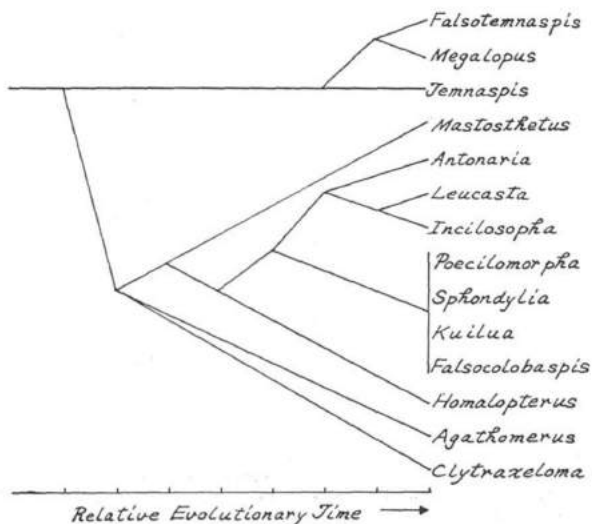
The hind wing venation of this subfamily shows remarkable interspecific variability especially in *Cu*_{1a}. It seems to offer an important clue for tracing the evolutionary processes of the hind wing venation of this subfamily to investigate the



TEXT Fig. 9. Supposed evolutionary processes of hind wing venation of Megalopodinae. A₁: *Temnaspis rubi* (CHUJO), A₂: *T. lacordairei* (WESTWOOD), A₃: *T. cumingi* (WESTWOOD), A₄: *T. japonicus* BALY; B: *Falsotemnaspis luteimembris* PIC; C: *Megalopus armatus* LACORDAIRE; D₁: *Mastosthetus nigrocinctus* CHEVROLAT, D₂: *M. abdominalis* KLUG; E: *Clytraxeloma cyanipennis* KRAATZ; F: *Agathomerus discoideus* KLUG; G: *Homalopterus tristis* PERTY; H: *Antonaria murina* (WESTWOOD); I: *Incilosopha transversicollis* PIC; J: *Leucasta plagiata* KLUG; K: *Poecilomorpha atripes* LACORDAIRE; L: *Sphondylia afra* KLUG; M: *Kuilua africana* JACOBY; N: *Falsocolobaspis maximus* PIC. All the figures except A₁ (after CHUJO, 1951c) and A₄ (examined by the author himself) were redrawn, partly revised, after JOLIVET (1957).

variations of this character among four species of *Temnaspis*, *T. lacordairei* (WESTWOOD) and *T. rubi* (CHŪJŌ) (*Colobaspis*=*Temnaspis*, synonymized by GRESSITT & KIMOTO, 1961), *T. cumingi* (WESTWOOD) and *T. japonicus* BALY. The common characteristic of these four species is that Cu_{1a} forks into two subbranches. But, in *T. cumingi*, two subbranches of Cu_{1a} are vestigial and in *T. rubi* and *T. japonicus*, *m-cu* is absent. In *Mastosthetus abdominalis* KLUG, *Pcu* directly fuses with Cu_{1b} but in *M. nigroinctus* CHEVROLAT, *Pcu* fuses with Cu_{1b} by a short cu_{1b} -*pcu*. Such interspecific variations may show the tendency that the venation of this subfamily also differentiates from a complex type to a simple one. *Temnaspis* has the most complex venation in this subfamily and occupies the most extensive habitats ranging from the African Continent to the East Asia. Moreover, this genus includes a great number of species. So the author supposes that the genus *Temnaspis* is the most primitive group of this subfamily and that the other groups may have been differentiated from *Temnaspis*. Basing on above mentioned discussions, the author divides the venation of this subfamily into following six types and considers the differentiation among them.

1. *Temnaspis* type: Cu_{1a} forks into two subbranches and the base fuses with M_{3+4} by *m-cu*. The *m-cu* is, however, degenerated secondarily or a part of the subbranches of Cu_{1a} degenerates incidentally *Temnaspis* group (*Temnaspis*, *Megalopus*, *Falsotemnaspis*)
2. *Clytraxeloma* type: Cu_{1a} forks into three subbranches distally; the basal part forks into two subbranches proximally which tend to fuse with M_{3+4} and Cu_{1b} , respectively *Clytraxeloma* group (*Clytraxeloma*)
3. *Agathomerus* type: Cu_{1a} fuses with M_{3+4} by *m-cu* at the ordinal base seen in the subfamily and has a tendency to extend proximally toward the base of wing. Cu_{1a} forks into two subbranches and the upper subbranch has the basal part degenerated and then forks into two miniature branches at about half way



Text Fig. 10. Cladogram of Megalopodinae (at the generic level).

- *Agathomerus* group (*Agathomerus*)
4. *Mastosthetus* type: Cu_{1a} always forks into two subbranches but the basal part of the upper one always disappears, and the basal extremity fuses with M_{3+4} by *m-cu*. *Pcu* fuses with Cu_{1b} directly or by a short cu_{1b-pcu}
- *Mastosthetus* group (*Mastosthetus*, *Fomaloptelus*)
5. *Incilosopha* type: Cu_{1a} does not fork but some parts incidentally disappear. The basal extremity of Cu_{1a} always fuses with M_{3+4} by *m-cu*
- *Incilosopha* group (*Incilosopha*, *Leucasta*, *Antonaria*)
6. *Poecilomorpha* type: Cu_{1a} does not fork and the basal part always disappears
- *Poecilomorpha* group (*Poecilomorpha*, *Falsocolobaspis*, *Kuilua*, *Sphondylia*)

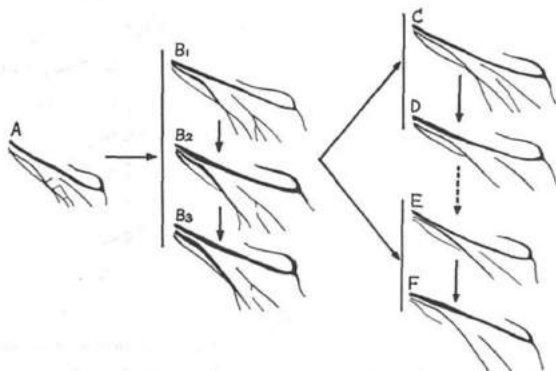
The differentiation of the venation of *Temnaspis* group may be arranged as follows. *Temnaspis* (*rubi* and *lacordairei* form → *cyanipennis* and *japonicus* form) → *Megalopus* + *Falsocolobaspis*

In this group, two subbranches of Cu_{1a} have a tendency of disappearance. In *Clytraxeloma* group, the upper subbranch of Cu_{1a} seems irregularly to fork at the basal part. In *Agathomerus* group, together with *Clytraxeloma* one, the upper subbranch of Cu_{1a} forks, moreover, into two miniature branches. *Mastosthetus* group, together with *Clytraxeloma* and *Agathomerus* groups, may have been derived from the ancestral form of *Temnaspis* group and advanced toward the direction of simplification of venation. Above three groups have, however, almost the fundamentally same structure. *Incilosopha* and *Poecilomorpha* groups may have been differentiated from the ancestral form of *Temnaspis* group and each of them forms a stable natural group. And the former group seems to be more primitive than the latter in having the visible *m-cu*.

The results of above discussions may be arranged as in Text Figs. 9 and 10.

III. Subfamily Donaciinae

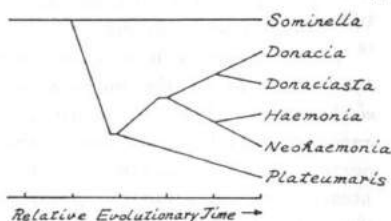
In the genus *Sominella* which has the most complex venation in this subfamily,



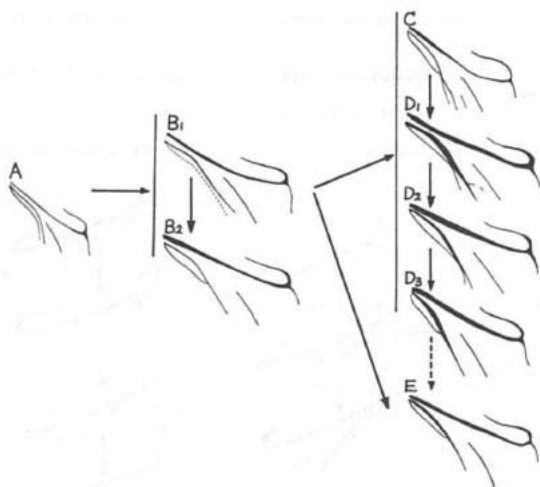
Text Fig. 11. Supposed evolutionary processes of hind wing venation of Donaciinae. A: *Sominella macrocnemia* (FISCHER); B₁: *Plateumaris braccata* (SCOPOLI); B₂: *P. sericea* (LINNAEUS); B₃: *P.* sp.; C: *Donacia clavipes* FABRICIUS; D: *Donaciasta perrieri* FAIRMAIRE; E: *Haemonia appendiculata* PANZER; F: *Neohaemonia nigricornis* KIRBY. All the figures except B₂ and B₃ (examined by the author himself) were redrawn, partly revised, after JOLIVER (1957). Broken arrow indicates the other possibility.

several characteristics are similar to Sagrinae. The geographical distribution of this genus extends from Siberia to the East Asia. The opinion that the origin of this subfamily may be in the Palaearctic region is introduced by many authors. And the genus *Plateumaris* also prospers in Palaearctic region and seems to be taken as the primitive group. CROWSON (1955) mentioned that the genus *Plateumaris* is more primitive than the others in its oviposition behaviour, that is to say, *Plateumaris* lays the eggs on the aerial leaves of aquatic plants. All of the other genera have more simple venation than above two genera. Therefore, the venation of this subfamily may also differentiate from a complex type to a simple one. *Plateumaris* may be derived from a *Sominella* type ancestor and the other genera may be differentiated from a certain group of *Plateumaris* type ancestors on the way of differentiation of *Plateumaris*. *Donacia* and *Donaciasta* are slightly different from each other in their hind wing venations, but they seem certainly to form a stable natural group. Two genera, *Haemonia* and *Neohaemonia*, seem to be the most specialized groups among this subfamily in having a single Cu_{1a} and this characteristic is very similar to that of the majority of Criocerinae, which has always single Cu_{1a} .

The results of above discussions may be arranged as in Text Figs. 11 and 12.



Text Fig. 12. Cladogram of Donaciinae (at the generic level).



Text Fig. 13. Supposed evolutionary processes of hind wing venation of Criocerinae.

A: *Brachydaelyta discoidea* (GUERIN); B₁: *Crioceris nullicedo* LACORDAIRE, B₂: *C. quatuordecimpunctata* (SCOPOLI); C: *Ovamela ornatipennis* FAIRMAIRE; D₁: *Lilioceris (Bradyceris) lewisi* (JACOBY), D₂: *L. (s. str.) rugata* (BALY), D₃: *L. (s. str.) subpolita* (MOTSCHULSKY); E: *Lema honorata* BALY.

A and B₁ were redrawn, partly revised, after JOLIVET (1957) and the rests were examined by the author himself. Broken arrow indicates the other possibility.

IV. Subfamily Criocerinae

The venations of this subfamily are comparatively stable. The author divides them into following four types after the developmental degrees of *Pcu* and the relationships of *Pcu* and *Cu_{1b}*.

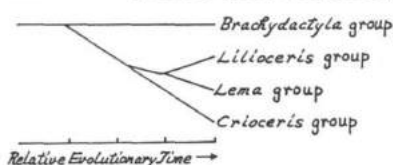
1. *Brachydactyla* type: *Pcu* is well developed, exceedingly approaches to *Cu_{1b}* at the site of about $\frac{3}{5}$ from the base of the latter but does not fuse with it, the distal $\frac{2}{5}$ of it runs nearly parallel with *Cu_{1b}*, and the apical extremity reaches nearly to the wing margin.....*Brachydactyla* group (*Brachydactyla*)

2. *Lilioceris* type: *Pcu* is well developed, fuses with *Cu_{1b}* at the site of about $\frac{3}{5}$ from the base of the latter, and the apical extremity reaches to the wing margin. The expectable distal half of *Pcu* often disappears*Lilioceris* group (*Lilioceris*, *Ovamela*)

3. *Lema* type: The apical extremity of *Pcu* directly fuses with *Cu_{1b}* at the site of about $\frac{3}{5}$ from the base of the latter*Lema* group (*Lema*, *Oulema*, *Bradylema*, *Sigrisma*, *Stethopachys*, *Plectonycha*)

4. *Crioceris* type: The apical extremity of *Pcu* directly fuses with *Cu_{1b}* at the site of about $\frac{3}{5}$ from the base of the latter but *Pcu* is often vestigial.....*Crioceris* group (*Crioceris*)

Brachydactyla group differs from the other ones in not forming *ICuc* but seems to be the most primitive in the subfamily in having well developed *Pcu*. CROWSON (1955) also mentioned that *Pseudocrioceris* (= *Brachydactyla*) may be the most primitive group of this subfamily. *Lilioceris*, *Lema* and *Crioceris* groups have fundamentally the same structure. Among them, however, *Crioceris* group seems to be more primitive than the other two in having a somewhat developed *Pcu* incidentally. And, *Lilioceris*



Text Fig. 14. Cladogram of Criocerinae (on four groups divided by the author).

Brachydactyla group: *Brachydactyla*;
Lilioceris g.: *Lilioceris* and *Ovamela*;
Lema g.: *Lema*, *Oulema*, *Bradylema*,
Sigrisma, *Stethopachys* and *Plectonycha*;
Crioceris g.: *Crioceris*.

group may be more primitive than *Lema* group in the following two aspects: 1) *Cu_{1b}* incidentally forks in the apical part, 2) *Pcu* often separates from *Cu_{1b}* at the distal part.

The results of above discussions may be arranged as in Text Figs. 13 and 14.

Résumé

1. General structures of the hind wing venation of the following six subfamilies were described and illustrated: Orsodacninae (Text Fig. 1), Sagrinae (Text Fig. 2), Zeugophorinae (Text Fig. 3), Megalopodinae (Text Fig. 4), Donaciinae (Text Fig. 5), and Criocerinae (Text Fig. 6).

2. Evolutionary process of the hind wing venation in each of these subfamilies, except Orsodacninae and Zeugophorinae which are very small groups, was supposed and illustrated: Sagrinae (Text Fig. 7), Megalopodinae (Text Fig. 9), Donaciinae (Text Fig. 11), and Criocerinae (Text Fig. 13).

3. Phylogeny at the infrasubfamilial level of these four subfamilies chiefly based on the comparative morphology of the hind wing venation was discussed and expressed

in the cladogram: *Sagrinae* (Text Fig. 8), *Megalopodinae* (Text Fig. 10), *Donaciinae* (Text Fig. 12), and *Criocerinae* (Text Fig. 14).

4. In the six subfamilies treated in this paper, the hind wing venation seems to have been evolved from a complex type to a simple one without exception, and the author's phylogenetic consideration was authenticated in the conclusion.

Acknowledgements

The author wishes to express his hearty thanks to Prof. TOYOHI OKADA for his constant interest and guidance of the author's study. The author is much obliged to Prof. M. CHŪJŌ of Kagawa University, Assist. Prof. M. OHNO of Toyo University and Dr. S. KIMOTO of Kurume University who kindly offered many advices or valuable assistances in various ways. The author's cordial thanks are also due to Messrs. T. HANATANI, K. NAKADA, M. NISHIKAWA, K. SASAKI, S. TACHIKAWA, H. TAKENAKA, Y. WATANABE and A. YOSHII who kindly assisted him in valuable materials.

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Abbreviations used in the text and figures

Cu: Cubitus; *Cuc*: Cubital cell; *M*: Media; *Pcu*: Postcubitus; *cu_{1a}-cu_{1b}*, *cu_{1b}-pcu*, *m-cu*, *m-m*, *r-m*: crossveins.

For details, see SUZUKI (1969).

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Plagionotus arcuatus LINNÉ ♂の第7, 第8腹節について

西尾美明

On the 7th and 8th Abdominal Segments of *Plagionotus arcuatus* LINNÉ
(Cerambycidae, Coleoptera)

By YOSHIKAKI NISHIO

筆者はさき(1968年)に *Plagionotus pulcher* BLESSIG コトラカミキリの♂♀の腹部の構造について記載した。ヨーロッパには *Plagionotus* 属のカミキリムシは数種分布しているが、その中に中部ヨーロッパに普通な *P. arcuatus* LINNÉ という種がある。この種の体形や斑紋はコトラカミキリとはかなり異なる(第1図)。筆者はこの種の腹部を調査したが、外形がコトラカミキリとかなり相違しているにもかかわらず、両種の Median lobe, Tegmen, ♀生殖器等には注意すべき差異は見られず、かえって♂第8腹節に顕著な違いが見出された。

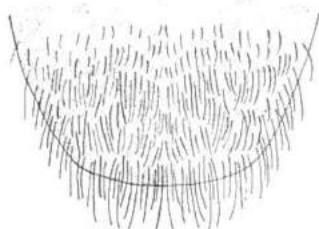
同属とはいえ、体形のかなり異なる種の間には、生殖器に明瞭な差異が見られず、♂第8腹節に差異が見られるという事実は、生殖器および♂第8腹節の構造を分類学上から考究する上にも1指標を与えるものと考えるので、*P. arcuatus* ♂の第7腹節および第8腹節を図示記載しておきたい。



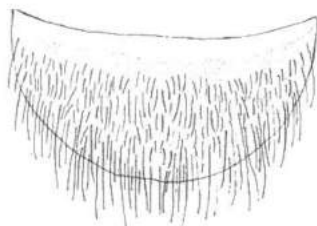
第1図. *Plagionotus arcuatus* LINNÉ, ♂

I. 第7腹節

背板一よくキチン化して固いが前半部は幾分薄い。コトラカミキリのそれより広く、後縁



第2図. 第7腹節背板.



第3図. 第7腹節腹板.

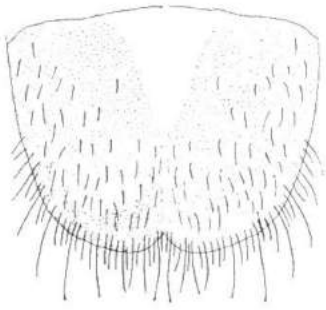
は同様弓形に突出するが弓形度は弱い。側縁および後縁には背面のそれより少しく長い毛が並列している（第2図）。

腹板一長さよりかなり幅広い。側縁および後縁は連続して弓形を呈する。後縁中央に凹陷部がない。側縁および後縁には長毛が並列している（第3図）。

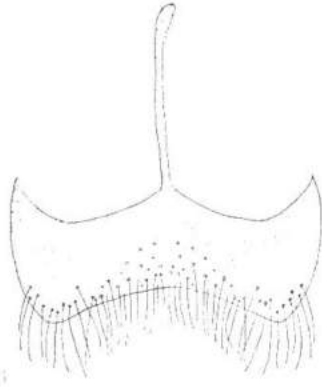
II. 第8腹節

背板一側縁後半部および後縁に沿った部分が、第7背板同様肥厚している。中央および前半部はかなり薄く、特に前半部中央に膜質化した倒三角形の部分が見られる。背面の毛は疎らでかつ短い。側縁後半部および後縁に長毛と短毛が混って並列する。後縁中央は顕著に鋭く湾入する（第4図）。

腹板一大形な有柄の扇状板となり、扇状部の長さが短い。前縁中央に突出する柄状部の先端は尖らず丸まる。中央に三角形の膜質の部分がある。後縁は緩い弓形を呈し、中央が湾入しない。後縁沿いに長毛が並列し、これらの毛の根本には感覚孔が認められる（第5図）。



第4図. 第8腹節背板.



第5図. 第8腹節腹板.

III. 考 察

カミキリムシ科の多くの種では、第8腹節背板は前半部の組織がいくらか薄くなっているだけで、第7腹節背板とはほぼ同様の形状を呈し、後縁にも差異がない（西尾, 1959^b）。しかしある群、例えば *Rosalia* 属等では、第8腹節背板と第7腹節背板の形状が相違し、第7腹節背板の後縁は丸いが第8腹節背板後縁は強く湾入している（西尾, 1957）。*Chloridolum* 属や *Chelidonium* 属の♂の腹部を見ると、時に第7腹節の両側方に黒色の葉片の一部が露出していることがある。これらは第8腹節背板の側縁部と考えられ、従ってこれらの属にあっても第8腹節背板後縁は強く湾入し背板後半部を二分した形になっていることが推察される。

コトラカミキリにあっては第8腹節背板は後縁が湾入せず、第7腹節背板同様の形状を呈する（西尾, 1968）。しかるに *P. arcuatus* では第8腹節背板は後縁中央が強く湾入し、第7背板と形状を異にする（第2図, 第4図）。この事実は、♂第8腹節背板の形状は近縁種の間でも変化に富み、後縁の湾入は必ずしも *Rosalia* 属や *Chloridolum* 属に限られた特徴

ではないことを示すものである。

筆者(1959^a)は数種のカミキリムシの第8腹節腹板、即ち扇状板の形状を報告した。この報告および前回(1968)と今度の *Plagionotus* 属2種の扇状板の形態から、第8腹節腹板も変化が著しいことが判る。

要するに、カミキリムシ科の♂第8腹節は背板、腹板ともに種間その他の変化が著しいことを知り得る。

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クロツブマグソコガネ丹沢に産す

下 井 守

Aphodius (Parammoecius) yamato NAKANE クロツブマグソコガネは奈良特産種として知られているが、筆者は丹沢で、かなり古くなった野兎の糞から採集したので新産地として報告する。

5 exs., Fudakake, Sagami-Ohyama, Pref. Kanagawa, 3 V 1969, M. SHIMOI leg.

兎の糞から食糞性コガネが採集された例は少ないが、筆者は同処で今までに次の種を得ているのであわせて記録しておく。

Aphodius (Acrossus) unifasciatus NONURA et NAKANE クロオビマグソコガネ

Aphodius (Acrossus) igai NAKANE イガクロツヤマグソコガネ

Aphodius (Phaeaphodius) rectus MOTSCHULSKY マグソコガネ

Aphodius (Paremadus) masumotoi NAKANE ツヤチャグロマグソコガネ

このように兎の糞からも意外に多くのマグソコガネが得られ、今後の調査によってさらに多くの種類が記録されるのではないかと期待される。

末筆ながら、本種の同定とご教示をして下さいました後藤光男氏に感謝いたします。

奄美大島の食糞コガネムシ類

後 藤 光 男

Coprophagous Lamellicorn-Beetles from Amami-Ōshima Island

(Coleoptera, Scarabaeoidea)

By MITSUO GOTŌ

筆者は芝田太一氏のご好意で、野村英世氏等3氏が今春奄美大島で採集された食糞コガネムシ類を検査する機会を得た。この島の食糞コガネムシ類については、2・3の断片的な報告以外まとまったものがなく、野村鎮氏の「琉球列島産コガネムシ主科の動物地理学的研究」¹⁾によってその全貌を知ることができ、各島嶼の採集月も併記されているから出現期も推り知ることができる。筆者が今回検した標本には明らかに分布に奄美大島を追加するマグソコガネ属2種を含んでおり、三宅義一氏から別の1種についてご教示を受け、さらに益本仁雄氏の紹介²⁾による出現期も可成り変更を要するので、若干の知見を加えて報告する。

文中新記録種と新出現期は*で示し、出現月のカッコ内のNは野村鎮氏、Mは益本仁雄氏の報告を示した。

本報告に当って常日頃ご指導を賜っている中根猛彦博士・野村鎮氏、現在まで数多くの琉球諸島を含む本邦各地の食糞コガネムシ類を検査する機会を与えられ、種々助言をされた芝田太一氏、未記録種の発表を許され奄美大島産のマグソコガネ属についてご教示下さった三宅義一氏並びに標本を援助された野村英世・酒匂清和・浜裕夫・植田謙一・伊藤建夫・前田洋一・谷沢克行・畑山武一郎の諸氏に厚くお礼申しあげる。

I. 目 録

Trogidae コブスジコガネ科

1. *Trox uenoi* NOMURA, 1961 ウエノコブスジコガネ

VI (N).

Geotrupidae センチコガネ科

2. *Geotrupes laevistriatus* MOTSCHULSKY, 1857 センチコガネ

3. *Geotrupes oshimanus* FAIRMAIRE, 1895 オオシマセンチコガネ

III*, IV(M).

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2) 昆虫と自然, 2(1-12). (1967)

[昆虫学評論, 第22巻, 第1号, 49-54頁, 1969年, 11月]

4. *Kolbeus coreanus* (KOLBE, 1886) トビイロセンチコガネ
VIII (N).
Hybosoridae アツバコガネ科
5. *Phaeochrous emarginatus* CASTELNAU, 1840 フチトリアツバコガネ
VI-VIII (N).
Scarabaeidae コガネムシ科
Ochodaeinae アカマダラセンチコガネ亜科
6. *Ochodaecus maculatus carinatus* Y. KUROSAWA, 1968
リュウキユウアカマダラセンチコガネ (新称)
Hatsuno, 1♂, 23 IV 1964, K. SAKO leg.
Scarabaeinae ダイコクコガネ亜科
7. *Paraphytus dentifrons* (LEWIS, 1895) ダルマコガネ
III*, IV-VI (N. M).
8. *Copris ochus* MOTSCHULSKY, 1860 ダイコクコガネ
9. *Copris brachypterus* NOMURA, 1964 マルダイコクコガネ
IV (N. M).
10. *Onthophagus nitidus* WATERHOUSE, 1875 ツヤマルエンマコガネ
V-VI (N); VII*.
11. *Onthophagus viduus* HAROLD, 1875 マルエンマコガネ
III*, IV*, V*, VI-VII (N), VIII*.
12. *Onthophagus amamiensis* NOMURA, 1965 ウシヅノエンマコガネ
VII (N. M).
13. *Onthophagus oshimanus* NAKANE, 1960 オオシマエンマコガネ
III*, IV*, V-VI (N. M), VII*, VIII (M).
14. *Onthophagus shibatai* NAKANE, 1960 アマミエンマコガネ
III*, IV*, V-VI (N. M), VII*.
15. *Onthophagus shirakii* NAKANE, 1960 ネアカエンマコガネ
IV*, V (N. M), VI*, VII*.
Aphodiinae マグソコガネ亜科
16. **Aphodius (Otophorus) brachysomus* SOLSKY, 1874 セマルオオマグソコガネ
Nishinakama, 8 ex., 29 III 1964, Y. MIYAKE leg.; 2 ex., 5 IV 1969, Y. MAEDA
leg.; 2 ex., 5 IV 1969, K. TANIZAWA leg.
17. *Aphodius (Aganocrossus) urostigma* HAROLD, 1862 フチケマグソコガネ
III*, V (N).
18. *Aphodius (Aphodius) elegans* ALLIBERT, 1847 オオフタホシマグソコガネ
III (N), IV*.
19. *Aphodius (Agrilinus) uniformis* WATERHOUSE, 1875 エゾマグソコガネ

III*, IV*, VII (N).

20. **Aphodius (Liothorax) inouei* NOMURA, 1942 ヒメキイロマグソコガネ
Akatsuchiyama, 1 ex., 21 VII 1955, T. SHIROUzu leg.
21. **Aphodius (Calamosternus) sublimbatus* MOTSCHULSKY, 1860 ウスイロマグソコガネ
Hatsuno, 4 ex., 30 III 1969, Y. MAEDA leg.
22. *Saprosites narae* LEWIS, 1895 ヒメツツマグソコガネ
23. *Saprosites japonicus* WATERHOUSE, 1875 クロツツマグソコガネ
III*, IV*, V (N).
24. *Dialytes foveatus* SCHMIDT, 1909 フトツツマグソコガネ
III*, IV (N).
25. **Trichiorhyssenus asperulus* (WATERHOUSE, 1875) ホソケシマグソコガネ
?, Amami-Ōshima Is., 1 ex., 2 III 1962, M. FUJIMURA leg.
26. *Rhyparus amamianus* NAKANE, 1956 コセスジカクマグソコガネ
III*, IV (N).

II. 考 察

1. *Geotrupes laevistriatus* が奄美大島で記録されているが、筆者の検した *Geotrupes* はすべて *oshimanus* であった。

2. *Phaeochrous emarginatus* はすべて灯火に飛来した個体で、本島を含めた琉球列島の各島嶼では9月以降に採集された記録はない。浜裕夫氏は昨年9月中旬から1月余りトカラ諸島宝島に滞在され、その間に採集された甲虫類の中に本種が9頭まじっていた。このうち3頭は灯火に飛来し、他は海岸砂浜に打上げられた魚(カワハギ類)の下からのものである。浜氏は魚の下に本種を見出したとき、生品は1・2頭で、あとはすべてバラバラに分解していたのに、クモや捕食昆虫が全く見られなかったと付言された。採集日付のもっとも遅い個体は10月7日となっており、灯火に飛来の個体は非常に新鮮であるので、本種の出現期間がながいのか、2回目の出現かわからない。本種は灯火だけでなく、鮮度のよい肉にも集まるようである。

3. *Copris ochus* は野村鎮氏の目録³⁾によったが、筆者がこれまでに検した採集品には見ることができなかった。

4. 現在この島から知られている *Onthophagus* 属6種の中、*amamiensis*, *shibatai*, *shirakii* は本島特産種、*oshimanus* は徳之島にも、他は本邦各地に広く分布している。筆者の検した標本によれば、3月から4月にかけて *viduus*, *oshimanus*, *shibatai* の順に出現し、4月末から5月にかけて *shirakii*, *nitidus* が現われる。*amamiensis* は筆者の検した限りでは、すべて7月の採集品であるから、もっとも出現のおそい種と思われる。

(1) *O. viduus* は本州平地では上翅・尾節板・腹節側縁が黒い原型が多いのに対して、筆者が今回検した標本は、そのほとんどが上翅基部および翅端前に小黄点紋を具える *ab. rubro-*

3) 桐蔭学報, (10): 47. (1960)

	March	April	May	June	July	August
shibatai						
nitidus						
shirakii						
viduus						
amamiensis						
oshimanus						

Onthophagus 属6種の出現期

maculatus KOLBE, 1886 か, 尾節板および腹節側縁に小黄点紋を具える *ab. flavonotatus* D'ORBIGNY, 1898 であった。なお, 正常個体の前胸背前方中央の凹陷後縁両側の隆起は, 本州平地産の鈍いのに比べて, かなり鋭い。

(2) *O. shibatai* は上面・腹面とも小黄点紋が現われる個体は見られなかった。

(3) *O. oshimanus* は *viduus* と同じく小黄点紋が現われる種で, 筆者が検した 115 個体は次のように分類できる。

上翅は全く黒い個体					
	尾節板・腹節側縁は全く黒い	尾節板は赤褐色, 腹節側縁に小黄点紋がある	尾節板・腹節側縁ともに小黄点紋がある	尾節板は黒く, 腹節側縁に小黄点紋がある	腹節側縁は黒く, 尾節板に小黄点紋がある
47♂	10	2	20	14	1
34♀	9	2	7	16	0

上翅基部にのみ黄点紋がある個体				
	尾節板・腹節側縁は全く黒い	尾節板・腹節側縁ともに小黄点紋がある	尾節板は黒く, 腹節側縁に小黄点紋がある	腹節側縁は黒く, 尾節板に小黄点紋がある
7♂	1	3	3	0
7♀	2	3	2	0

上翅基部と翅端前に黄点紋がある個体				
	尾節板・腹節側縁は全く黒い	尾節板・腹節側縁ともに小黄点紋がある	尾節板は黒く, 腹節側縁に小黄点紋がある	腹節側縁は黒く, 尾節板に小黄点紋がある
12♂	0	8	4	0
8♀	0	6	2	0

上記のように *oshimanus* の多くは上翅が黒く、有紋型は点紋が基部にのみある個体よりも、さらに翅端前にもある個体の方が多かった。なお、上翅基部は黒く、翅端前にのみ黄点紋が現われる個体は全然見られなかった。

上翅の黒い個体では腹面も全く黒い個体は少なく、尾節板・腹節側縁に黄点紋が現われる傾向がある。この点紋は尾節板より腹節側縁に多く現われ、まれに尾節板にのみ点紋がある個体や、尾節板の点紋が拡がり尾節板が全く赤褐色になる個体が見られた。

有紋型では上翅基部の点紋は、ほとんどが第2・4・6・7間室のいずれかに現われ、まれに第3・5間室に現われることもあるが、第1・8間室に現われる個体は全くない。第6と第7間室とともに現われる場合は両点紋は融合して1紋となるが、その他の間室の点紋は融合しない。なお、ただ1頭であるが、第4間室に上下紋以外にさらに4点紋が現われる個体もあったから、これらが継がって縦の黄条になる個体が見出せるかも知れない。

上翅の黄点紋の現われ方は次のようである。

上翅基部にのみ黄点紋がある個体		
間室	♂	♀
第2間室	1	3
2, 3, 5, 6~7	1	
2, 4, 6~7	2	2
2, 6~7	3	
2, 7		2
Total	7	7

上翅基部と翅端前に黄点紋がある個体					
基部点紋			翅端前点紋		
間室	♂	♀	間室	♂	♀
第2間室	1		第2, 3間室		1
2, 3, 4, 6~7	1	2	2, 3, 4, 5, 6	1	1
2, 4, 5, 6~7	1		2, 3, 4, 5, 6~7	6	3
2, 4, 6~7	7	3	2, 4	1	
2, 5, 6~7	3		2, 6	1	1
2, 6~7		1	3, 4, 5, 6~7		1
2, 7		1	4	1	
			4, 6	2	1
Total	12	8	Total	12	8

5. 現在この島から知られている *Aphodius* 属6種は、いずれもその分布が九州からトカラ諸島を経て本島に達し、一部の種はさらに南方地域に広がる。まだこの島から記録がなく、トカラ諸島に分布する *A. (Pharaphodius) chokaiensis* NOMURA et NAKANE, 1951 ウスグロマグソコガネ, *A. (Pharaphodius) marginellus* (FABRICIUS, 1781) ウスチャマグソコガネ, *A. (Calamosternus) uniplagiatus* WATERHOUSE, 1875 オビマグソコガネの3種のうち、*chokaiensis* を除いて、*marginellus* が徳之島から南へ、*uniplagiatus* が西表島に分布し各島で普通に見られるから、将来分布を追加される可能性は充分あると思われる。

6. 中根博士は「日本のこがねむし」の解説⁴⁾の中に、*Saprosites narae* の分布に奄美大島を加えられたが、筆者の検した100頭余の *Saprosites* 属はすべて *japonicus* で、*narae* は

4). 昆虫学評論, 12 (2): 56. (1961)

全く見る事ができなかった。これは両種の棲息場所が、樹種を異にする樹皮下であるためかも知れない。

7. *Dialytes foveatus* は樹皮下に普通のように多数の個体を検したが、本種および *S. japonicus* はともにかなり淡色で軟かい個体がまじることから、両種は樹皮下で越冬し3月に入って順次羽化するように思われた。

ヒメツブゴミムシ石垣島に産す

芝 田 太 一

1♂, Mt. Omoto, Ishigaki Is., Ryukyus, 8 VII 1964, Y. HAMA leg.

Pentagonica kyushuensis HABU, 1967 ヒメツブゴミムシは宮崎県の1♂によって発表されたが、上記標本により石垣島にも産する。なお、本種の同定に際して土生博士のご確認を得たことを記して、深く感謝の意を表する。

第20回(昭和43年度)大会記録

第20回大会を昭和43年11月23日午後1時から大阪市東区の府立労働会館第1会議室において開催した。連休の初日を大会に当たったためか、京阪神地区の会員をはじめ、遠く東京・横浜・高知・福岡・鹿児島等からの出席もあり盛会であった。

恒例の会務会計報告があつて後、林靖彦氏からカラースライドならびに標本の回覧による“台湾における採集談”が行われた。終つて約40分間の休憩に入り、この間を利用して各自持参の標本の同定や雑談に花がさき、午後3時から“種の分化について”のシンポジウムに入った。

まず、林氏から種は変化して行くものであり、それには環境の影響(隔離)、生物そのものが持っている力(適応)があるとの説明があつて後、石田氏の *Pterostichus*、谷氏の *Aphodius*、大介氏のオサムシ特に *Apotomopterus* を材料としての意見の開陳があり、活潑な意見の交換が行われた。結論は出なかつたが、定刻の午後5時もすぎ、会館事務所から超過料金をもらいますよと注意を受ける始末で、盛会裡に終了した。

当日の出席者(アルファベット順・敬称略)はつぎのとおりである。青野孝昭・朝田武雄・土井仲治郎・江口 昇・藤田国雄・福田惣一・林 匡夫・林 靖彦・生谷義一・石田 裕・石松本光・伊藤建夫・河合 弘・河上仁之・北村 豊・河野 洋・栗山 透・榎原 寛・水野弘造・中山紘一・中山正成・奈良 一・野村英世・大介正文・田村 修・田村 保・谷幸三・横山 創・吉川正彦。(大介)

トゲニセマグソコガネの群飛と棲息場所について (鞘翅目・こがねむし科)

後 藤 光 男

On Swarming flight and Biotop of *Caelius denticollis* LEWIS (Col., Scarabaeidae)

By MITSUO GOTÔ

筆者はさきにトゲニセマグソコガネ *Caelius denticollis* LEWIS, 1895 について報告し¹⁾、産地に三重大学平倉演習林を追加した²⁾。その後10数頭の標本を検したが、いずれも飛翔個体か叩網・拘網で偶然の機会に採れた場合が多く、樹皮下から採集されたのは奈良春日山の1頭のみである。昨年5月1日伊藤建夫氏は奈良県立里荒神にて夕刻時に伐採地を飛んでいた多数の本種を採集され、芝田太一氏を通じて恵与された。筆者はこのあと6月・7月に伐採地へ行ったが、このような現象は見られなかった。さらに本年5月3～5日に同地を訪ずれる機会があり、昨年の伐採地跡へ行ったが、すでに白樺と桜の苗木が植林されていた。

路傍と伐採地の傾斜面には昨年秋に伐採された薪が、雨除けのトタン板で覆われて積んであり、その薪からはシーズンにはまだ早いためめばしい甲虫は採れなかったが、トタン板の上にはキクイムシ科甲虫の死がいが多いが多数あって本種も数頭まじっていた。これはトタン板が太陽で熱せられ、その上におもとして置かれた伐採の生木が輻射熱により急激に乾燥され、それから生じるきつい木の香が誘引に役立って、飛来した小甲虫がトタン板の熱気で落下し焼死する結果と思われた。

薪に本種が飛来するものであれば、近くに棲息に適した朽木があると考え、傾斜地から谷へつづく原生林へ入ってみた。谷筋はイヌブナの巨木にヒナウチワカエデ・シロモジ・サワフタギ・ミズナラ・ウラジロガシをまじえた温帯原生林で、時期的にまだ芽を出した頃でもあり下草も短く林内は明るくて見通しがよかった。相当広範囲に調べたが朽木は見当らず、風雪による折損枝が地面に重なり落葉がこれを厚く覆っていた。

翌日傾斜地の薪が路傍に積み替えられたから、覗きこめる高さにトタン板を覆せ、その上に香のきつそうな生木を隙間なく並べてみた。午後3時までは飛来する甲虫も少なかったが、3時を過ぎると新しく積んだ薪へ小甲虫の飛来が目立ってきた。飛び方が鈍くて黒いのはキクイムシ科甲虫であったが、その中にまじる淡褐色の甲虫が本種であった。薪の前にして飛来甲虫を待っていると急に飛来が多くなったようだから、薪の前へ廻って身をかかめ空

1) 昆虫学評論, 5(1): 36. (1950)

2) 昆虫学評論, 8(1): 32. (1957)

〔昆虫学評論, 第22巻, 第1号, 55-56頁, 1969年, 11月〕

を透すと空間に胡麻をふったように小甲虫が飛翔しており、薪に飛来する。黒いのもまじるがほとんどが淡褐色で、しばらく網を ∞ 字形にふって中を覗くと数10頭の本種が入っていた。あまり飛翔個体が多いので、どこから飛来するのか調べると15mほど先の傾斜地に集められた小枝下からで、湧くように舞い上り薪の方に飛ぶことが判った。この現象は伐採地の他では見られなかったが、10分ほどたつと飛翔個体も減りはじめ、4時過ぎには全く見られなくなってしまった。その後3日目の下山時まで小枝下の状態の確認に努力したが、小枝が多量に積み重ねてあって判らず、できるだけこの場所に近い地面から落葉と土壌を採取し、より分けたが本種は見出せなかった。

6月7～8日に再び伐採地を訪れると、下草は伸びていたが小枝の量は減っていて、小枝下の状態が確認できた。小枝下には伐採前に原生林にあった折損枝・幹が集めてあり、大部分が朽ちていたから落葉や腐葉土に埋まっていたものと思われた。この朽木を相当量崩してみたが本種は採れなく、トタン板上の溝に甲虫類のバラバラに分解した死がいが固まっていたが、この中にも本種の上翅は見出せなかった。

筆者が今回目撃した状態は採集時間・数から推して、伊藤氏の場合よりもより密であったと思われる。石田正明氏も東京都高水山で飛翔2個体を採集され、その報告³⁾にかなりの数が飛んでいたと記されている。

本種の棲息場所を中根猛彦博士は朽木の皮下とされ、筆者は朽木の材部奥深くに生活し、稀に表面に現われるとした。しかし筆者はこれまでに各地の林間で数多くの朽木に接したが、まだ樹皮下より採集したことはなく、検した標本の採集者も皆近くに朽木は見当らなかったといわれている。また、立里荒神での飛翔個体はすべて上面に灰白色の泥を被っていたことから考えると、本種の棲息する場所は、林間で目につく立枯れや横倒れの朽木ではなく、目に触れにくい落葉下や腐葉土に埋まった朽木と考えた方が充当と思われる。また本種がなぜ短時間に多数の個体が一時に飛びたったのか、棲息場所の確認ができない現在その原因を云々することを差し控えるべきかも知れないが、筆者はつぎのように推定している。伊藤氏および筆者により2年続けて同時期に本種の多数の飛翔個体を目撃・採集した傾斜地はともに西南向で陽当りがよく、伐採されるまでは薄暗くて地面に落葉がかなり積もり常に適度に湿っていた。この落葉下で棲息し繁殖しつづけてきた本種が、秋の伐採以降温度が次第に薄れ、冬の間は温度の上昇もなく、春になって順次羽化し棲息に耐えられたが、その後温度の急上昇で棲息に適さなくなり、新しい棲息場所を求めて飛びたったとするのは無理であろうか。

終りに終始行をともにされ協力された宮崎秀敏氏並びに種々教示された伊藤建夫氏に厚くお礼申しあげる。

3) 昆虫と自然, 1(8):10. (1966)

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