

Posterior wing slightly lighter in color than the anterior; approximate shape, half an ellipse cut longitudinally. Venation, yellow-brown, the median vein being very strong and thick. Costa extremely strong, with hamuli extending from the center of the costa about half-way to the apex. Cross-veins entirely absent except for a small one near the base. Both outer and inner margins fringed with long soft, black hair which increases in length to the base of the wing, where it is fully as wide as the attachment itself.

Length of body, 6 mm. Alar expanse, 17 mm.

Collected at Permelia Lake, Mt. Jefferson, Oregon, July 16, 1908, by Prof. J. C. Bridwell.

In the latter part of June, just after the preceding was written, a few specimens of this same species were captured by Mr. A. J. Stover, at Colorado Lake, an arm of the Willamette, near Corvallis. After making sure of its identity with *M. alafimbriata*, an attempt was made to find larvae and pupae. A number of small, slender pupal cases were suspected and rearing proved them to be undoubtedly the new species. Larvae were also found.

The adults at Colorado Lake appear about 5 or 6 o'clock in the evening, in swarms, and dance and hover above the water with dizzying pertinacity. Except accidentally, they do not seem to alight, nor to touch one another. They hover directly above where the larvae and pupae are found, but could not be detected in the act of oviposition.

Pupa: The pupal cases are found attached to floating logs or snags in Colorado Lake. They resemble the larval cases. The well-developed pupa has extremely long antennae like the adult. These curve back above the eye, slant across the black wing and down to the posterior end of the abdomen, where their surplus length is coiled into a curl, through which the tips finally project backwards. Length of pupa 8 mm.

Larva: The larva is a very small, slender, but extremely active creature with comically long hind legs. These it places in advance of the middle pair, in walking, making it appear as though the middle legs were longer than the hind legs. Upon close inspection, however, the latter are seen crossing

type cat.

on computer
catalogued

the middle legs. When removed from the case, they move about with quick, jerky movements, actually jumping, like a flea, at times. They feed on grass and various water plants. Length of a larva, probably nearly full-grown, 6 mm.

Case: A small, slender cylinder of long bits of reed, straw, sticks, etc., placed lengthwise. Usually one straw about twice the length of the case is attached to it dorsally, or two very long ones, laterally. Occasionally, a part of the case is constructed of grains of sand and tiny bits of miscellaneous material.

Eggs: not observed.

EXPLANATION OF PLATES.
PLATE III.

Grammataulius bettenii, n. sp.

Fig. 1, Adult; 2, Larva; 3, Wings; 4, Maxilla of larva; 5, Larval case; 6, End of Pupal case and detail of net in end; 7a, Labrum and 7b, Mandible of Larva; 8, 9 and 10, Dorsal, lateral and ventral views respectively of the male genitalia; 11, Head of imago, dorsal view; 12, Dragging hook of larva; 13a, 13b, First and third legs of larva; 14, Mandibles of pupa.

PLATE IV.

Mystacides alafimbriata, n. sp.

Fig. 1, Adult; 2, Wings of male; 3, 4 and 5, Lateral, ventral and dorsal views respectively of the male genitalia; 6, Head of adult, dorsal view; 7, Lateral view of the female genitalia; 8, Dragging hook of larva; 9, Mandible of larva; 10, Pupa; 11, Labrum of larva; 12, Ventral view of larval case; 13, Larva; 14, End of pupal case; 15, Maxilla of larva; 16a, 16b and 16c, Middle, front and hind legs respectively of larva.

Notes on Australian Pentatomidae (Rhynch.).

By E. BERGROTH, Turtola, Finland.

Stelgidophora pallida V. Duz.

This insect was described as doubtfully belonging to *Dictyotus* Dall. and was later placed by Van Duzee in the genus *Eurynannus* Bergr. It is allied to *Eurynannus*, but so distinct that a new genus *Stelgidophora* must be founded upon it. As described by me in Proc. Zool. Soc. Lond., 1905, II, pp. 153-154, the head of *Eurynannus* is unique in the Pentatomidae in

having the sides of the whole basal half of the anteocular part very broadly convex, continuously merged in the antenniferous tubercles which are convergent; the eyes are shortly stylated and so small that the vertex is about seven times broader than an eye; the ocelli are situated twice as far from each other as from the eyes; the bucculæ are low and straight; the sides of the pronotum are convexly rounded, sinuated only immediately behind the apical angles; the scutellum is about as long as broad; the veins of the membrane are simple and few in number. In *Stelgidophora* the convex anteocular part of the lateral margin of the head is not longer than the eye itself; the antenniferous tubercles are well separated from the lateral margin of the head and not convergent; the eyes are larger and not stylated; the ocelli are four times farther from each other than from the eyes; the bucculæ are lobed both anteriorly and posteriorly, the anterior lobe being rounded and deflected, the posterior lobe subacute and directed backward; the sides of the pronotum are deeply sinuated; the scutellum is much longer than broad; the membranal veins are densely reticulated. I have seen the type of *pallida* in the American Museum of Natural History, New York.

✓ *Commius minor* Bergr.

• The type specimen is somewhat immature. In specimens with the colors fully developed the two large basal spots to the pronotum and the ground color of the corium are dark brassy bluish green, not fuscous as in the type. This insect seems to be much more common than the typical species, *C. elegans* Don. It occurs in the whole eastern part of Australia and I have seen it in several collections.

✓ *Notius melancholicus* n. sp.

Oblong, black, four small upper basal spots to head, narrow lateral margins of head, of pronotum and of basal half of corium, bucculæ, rostrum (except apical joint), basal ring of the two last antennal joints, narrow margin of acetabula, coxæ, trochanters, base of femora, a median ring to tibiæ, basal joint of tarsi, and a spot on the external apical genital lobe of female yellow. The last three antennal joints subequal in length, second joint distinctly shorter than third. Hemelytra dis-

tinctly passing apex of abdomen, corium reaching base of last connexival segment. Abdomen but little broader than the closed hemelytra, which cover the greatest part of the connexivum. Puncturation as in *N. depressus*. Length, ♀ 13 mm.

Tasmania.

Closely allied to *N. depressus* Dall., but the connexivum and lateral border of the venter are entirely unspotted, the third antennal joint and hemelytra are longer, and the abdomen is more narrowed posteriorly. In *depressus* the third antennal joint is distinctly shorter than the second, the hemelytra do not pass the apex of the abdomen, the corium barely passes the middle of the penultimate connexival segment, and the abdomen is broader behind the middle, leaving the greatest part of the connexivum exposed.

✓ *Alcaeus hermannsburgi* Dist.

On this species Distant founded the genus *Muritha*, which is a synonym of *Alcaeus* Dall. Distant says that it differs from *Alcaeus* in having the second antennal joint "not about half the length of the first, but nearly twice as long." This is correct, but the length of the second joint in *A. hermannsburgi* is due to the fact that the second and third joints are fused into one long joint, being separated only by a constriction, not by a real articulation. In consequence of this the third joint, as described by Distant, corresponds to the fourth joint in the other species. The second joint is, as Distant correctly says, "flattened and roundly ampliate at base;" this flattened basal part of the joint corresponds to the whole second joint in the other described species, this joint being compressed in all species, as correctly stated by Dallas. The fourth (apical) joint (corresponding to the fifth in the typical species), which was lacking in Distant's type, is only half the length of the preceding joint, black with the base narrowly yellow. There are several species of this Australian genus, only four of which have been described; they are extremely similar in color, much confused in the collections and sorely in need of a revision, impossible to undertake without examination of the types of the described species. They are separable principally by the structure of the

antenna and orificia and, above all, the male genital segment. The transitions between species with five-jointed and four-jointed antennæ are quite gradual. In some species the suture between the second and third joints is fairly distinct, in others it is hardly perceptible, sometimes disappearing only on the inner side of the joint or vanishing altogether as in *A. hermannsburgi*. In no species I have seen a quite normal articulation with free mobility between these segments. We find a quite analogous structure of the antennæ in the allied genera *Eumecopus* Dall. and *Poecilometis* Dall. In both these genera there are species with five-jointed and with four-jointed antennæ, owing to the second and third joints being either more or less distinctly separated or fused together. Kirkaldy (Cat. Hem. I, p. 189) founded the "subgenus, if not genus" *Euronotias* on the species of *Poecilometis* with five-jointed antennæ. Why he did not make the same subdivision in the genus *Eumecopus* is hard to understand. *Euronotias* is quite unnatural and untenable even as a subgenus, as both in *Poecilometis* and *Eumecopus* some species with four-jointed antennæ are much more closely allied to certain species with five-jointed antennæ than to each other.

Theseus parvulus Westw.

In his revision of the Pentatomidae described by Westwood in the "Hope Catalogue," Distant places *Halys parvula* Westw. in the genus *Spudaeus* Dall., but from the figure he gives of the type it is clear that it belongs to *Theseus* Stal.

Kirkaldy proposed the new name *Austromalaya* for *Spudaeus*, which is said to be preoccupied by Gistel. From what I have gathered about that monstrous literary product "Naturgeschichte des Thierreichs für höhere Schulen bearbeitet von J. Gistel" few of his very numerous new names are properly founded. They seem to be *nomina nuda* massed together in the 16 pages forming the introduction to the book and mostly proposed quite arbitrarily without real grounds for old, well-known genera. I believe that most of these names have been undeservedly included in Waterhouse's "Index zoologicus."

Until we learn whether the name *Spudaeus* Gistel has a show of legitimacy, if ever so little, I think there is no reason to abandon the name *Spudaeus* Dall. (Of the names proposed by Gistel in Hemiptera one at most can be used: *Eupheno* for the preoccupied name *Macrops* Burm. in the Reduviidæ).

Paramenestheus nercivus Dall.

Sciocoris nercivus Dall., placed in our catalogues in the genus *Menestheus* Stål, ought to be transferred to *Paramenestheus* Bredd. It is true that Stål cited *nercivus* as the type of *Menestheus*, but from the information which Distant in Ann. and Mag. of Nat. Hist. (8) VI. p. 469, gives of Dallas's type it is clear that Stål had wrongly identified *nercivus*, with which his description of the head and antennæ does not at all agree. *Menestheus* was probably founded on a still undescribed species allied to *M. cuneatus* Dist. Judging from the description it is probable that *M. doddi* Dist. belongs to neither of these genera.

Turrubulana plana Dist.

Distant has totally misunderstood the systematic position of this insect, placing it in the Halyinae near the African genus *Atelocera* Lap. It pertains to the true Pentatominae and is closely allied to the Australian genus *Lubentius* Stål, from which it differs principally by the longer and narrower, laterally bisinuated and apically not rounded head, by the second antennal joint not reaching the apex of the head, the longer second rostral joint (reaching the middle coxæ), the slightly elevated, more deeply sinuate apical pronotal margin, the longer frena, and by having the tips of the membranal veins united by a more or less continuous transverse vein parallel to the margin of the membrane. The membrane is described as "black" with "the apex paler," but it is subhyaline with brown veins. It appears to be black on account of the underlying black dorsal surface. The ground color of the upper side is normally reddish ochraceous. I have another allied new genus which will be described in a forthcoming paper on Hemiptera from Central Australia.

✓*Antestia cederwaldi* n. sp.

Above green with the corium glaucous, beneath pale flavous tinged with orange and with a broad sublateral green vitta extending from the anterior margin of the propleura to the apex of the abdomen. Head above with the basal margin, an intraocular oblong spot confluent with the base, two median vittæ and a broad jugal vitta black. The whole margin of the pronotum, base of exocorium, epipleura, and an elongate smooth callous vitta in the exterior submedian part of the mesocorium orange; a line running from the apical margin of the pronotum to near the apex of the scutellum, the suture of the endocorium, and a line at the outer margin of the mesocorial callous vitta whitish. Tergum of abdomen black, connexivum orange, each segment with a basal subtriangular blackish spot which does not touch the outer margin, last ventral segment with a median piceous spot of variable size.

Head as long as the pronotum in the middle and distinctly broader than long, finely and rather sparingly punctured above, smooth beneath; juga transversely wrinkled, anterior ocular orbita smooth and elevated, prolonged obliquely inward and backward in the shape of a short ridge; rostrum green, apical joint piceous; antennæ green, second joint a little longer than third, fourth joint light brown, almost twice longer than third (fifth joint wanting).

Pronotum almost three times broader than its length in the middle, rather thickly punctured with pale fuscous, the whole apical margin and the straight antero-lateral margins smooth, callously elevated, lateral angles rounded, not prominent. Scutellum punctured as the pronotum. Pleuræ irregularly punctured with very pale fuscous, anterior margin of propleuræ elevated, evaporative area of metapleura extended over the posterior half of mesopleura. Corium more strongly and darkly punctured than pronotum and scutellum, the callous vitta of the mesocorium posteriorly obliquely continued to the interior apical angle (membrane mutilated). Wings slightly infuscated, iridescent.

Abdomen beneath remotely and very finely punctulate, more distinctly punctured towards the sides, last ventral segment (♀) in the middle a little longer than the preceding segment.

Legs green. Length, ♀ 7.8—8 mm.

New South Wales (Richmond River, C. Cederwald).

Very distinct from the two described Australian species of the genus. Dedicated to the memory of my dear friend, Carl Cederwald, from Stockholm, who many years ago collected insects for me in New South Wales, and who fell as a volunteer in the Boer War.

✓*Pseudapines geminata* V. Duz.

This insect seems to be widely distributed. The types came from New South Wales and I have received it both from South Australia and West Australia. It was described as an *Apines*, but I cannot share Van Duzee's opinion that "this species agrees in all generic characters with *Apines concinna* Dallas." It differs in so many points from the Indian *concinna* as described and figured by Dallas and Distant, that a new genus, *Pseudapines*, must be founded upon it. The differential characters appear from the comparative diagnoses given below. The pale submarginal scutellar vittæ are often broadly interrupted by black in the middle.

✓*Apines* Dall.

Head about as broad as long, narrowing from the anteocular sinus to the rounded apex.

Antennæ more than half the length of the body.

First joint of rostrum reaching base of head, third joint shorter than the fourth, which is almost as long as the second.

Pronotum in the middle much longer than the head, not strongly transverse, moderately narrowed toward the apex.

Mesosternum sulcated in the middle.

Orificia prolonged in a rather long, gradually tapering sulcus directed obliquely forward.

Hemelytra barely reaching the apex of the abdomen, corium not reaching penultimate connexival segment.

Legs long, femora reaching much over the lateral margins of the body, basal and apical joint of tarsi subequal in length.

✓*Pseudapines* nov. gen.

Head broader than long, subparallel from the anteocular sinus to the broadly subrotundately truncate apex.

Antennæ less than half the length of the body.

First joint of rostrum not reaching base of head, third joint longer than the fourth, which is scarcely longer than half the second joint.

Pronotum in the middle as long as the head, strongly transverse and strongly narrowed toward the apex.

Mesosternum carinated in the middle.

Orificia prolonged in a short, suddenly discontinued sulcus directed straight outward.

Hemelytra considerably passing apex of abdomen, corium reaching the middle of last connexival segment.

Legs very short, femora not reaching the lateral margins of the body, basal joint of tarsi shorter than apical joint.

In the figure given by Van Duzee the femora are represented as reaching over the sides of the body, but this is wrong. The Philippine *A. grisea* Banks is apparently a true *Apines*.

✓*Diaphyta rosea* n. sp.

Obovate, pink-colored, basal border of pronotum and apex of scutellum broadly tinged with whitish; second and third ventral segments whitish from near the middle to near the spiracles, rostrum and antennæ testaceous, fourth and fifth antennal joints (except at base), posterior lateral margins of tylus, a point at the base of the fore and middle acetabula, and the apical angles of the abdominal segments black; spiracles placed in a small whitish callus.

Head a little broader than long and a little shorter than the pronotum, slightly sinuate in front of the eyes, beneath very finely and sparingly punctured, above transversely rugulose; apical half of juga very thickly and finely punctulate, ocellar areas smooth with a single slightly curved row of fine punctures on each side a little inside the ocelli; rostrum slightly passing the middle of the third ventral segment; antennæ rather stout, third joint distinctly shorter than the second and as long as the fifth, fourth joint as long as the second.

Pronotum strongly but rather sparingly and irregularly punctured with fuscous, with smaller points intermixed, all points becoming black on the basal area, the transverse discal impression interrupted in the middle, anterior lateral margins straight, narrowly elevated, lateral angles obtuse, not prominent, posterior lateral margins and basal margin broadly and slightly sinuate. Scutellum strongly but remotely punctured with fuscous, more thickly so on the sides behind the middle, the punctures blackened on the apical area. Acetabula and posterior border of propleuræ and metapleuræ punctured with fuscous, sternal lamina in front of the fore coxæ roundedly narrowing, bent upward, being contiguous to the sternum, not freely prominent. Hemelytra somewhat passing apex of abdomen, corium reaching base of last connexival segment, rather strongly and thickly concolorously punctured, the punctures becoming fuscous toward the inner part, membrane glossy, infuscated.

Abdomen beneath strongly concolorously punctured, smooth along the centre, apical angles of the segments acutely prominent, last male ventral segment in the middle longer than the two preceding segments combined, male genital segment broadly sinuate at apex.

Legs pink, femora with very small sanguineous points, upper side of tibiae strongly punctured with black. Length, ♂ 8.5 mm.

West Australia.

Less elongate than *D. pulchra* Westw. (of which *fulvescens* Dall. is possibly only a variety), quite differently colored and

with several structural differences. It more resembles a *Cuspicona*, but the generic characters are those of *Diaphyta*.

Myappena capito Dist.

Distant says that "this genus appertains to the group of genera distinguished as *Platycoraria* Bergr.," but in the description he writes: "Abdominal segments 1-5 with a transverse strigose vitta *behind the spiracles*" (the italics are mine). I have not seen this insect, but it can certainly not belong to the *Platycoraria*, as in this group the strigose ventral vitta is situated far *inward* from the spiracles, forming an uninterrupted curve from the first to the third segment. The "strigose vitta" in *Myappena* Dist. are certainly not homologous with the stridulatory vittæ in the *Platycoraria*. As the rostrum is described as only passing the anterior coxæ *Myappena* cannot even belong to the Halyinae. Its position will remain enigmatical until it has been re-examined and redescribed by a hemipterist having access to the type.

New Species of Lyttidae, with notes on Described Species (Coleop.).

By CREIGHTON WELLMAN, M.D., F.E.S.

(Studies from the Laboratory of Tropical Medicine and Hygiene, under the direction of Creighton Wellman, Tulane University of Louisiana, No. 2).

The writer has for several years been interested in the Lyttidae (Meloidae auct.) on account of their parasitic habits and the bearing of the facts regarding their habits on the general question of parasitism, and also because of the employment by African and Oriental natives of substances prepared from these insects as medicines, aphrodisiacs, poisons for suicide and murder, etc.

In the course of an examination of large amounts of material from the British, Berlin and Indian Museums, the Pusa collection of Bengal, several private collections and my own cabinet, I have accumulated a number of notes which do not