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FURTHER NOTES ON OLD WORLD PHYMATINAE

(Hemiptera: Reduviidae)

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RESPECTIVELY

Since we published our paper "A synopsis of the Old World Phymatinae",[2] two very important papers on this group made their appearance. The first is by N. A. Kormilev[3], who added two *Cnizocoris* species from China Mainland and synonymised and deleted from the Old World list the two *Phymata* species described by J. Scott (1870) as from "New Zealand". The second is by J. Carayon, R. L. Usinger and P. Wygodzinsky[4]. In it, they reduced the conventional family name Phymatidae to subfamily status (of Reduviidae) and incorporated into it their newly erected tribe Themonocorini (from Tropical Africa). Consequently what we have dealt, and are dealing, with, should be termed Phymatini in the new system.

In the following lines, we are describing and redescribing a few new or little known species. All relative measurements in the descriptions are in the same magnification i. e., 60 units make one millimeter. For the loan of material, we are very much obliged to Dr. Nicolas A. Kormilev of Brooklyn, N. Y.

Amblythyreus angustus (Westw.), 1843

♂: Ochraceous. Black on dorsum of head, antennae (excl. segment 4), anterior pronotal lobe (excl. latero-marginal areas), posterior pronotal margin, latero-basal scutellar corners and abdominal fascia. Jugae (lateral surfaces) and antennal segment 4 dull brown, but blackened, respectively, at extreme base and superior 1/2. Posterior pronotal lobe including ventral surface of lateral angles also dull brown; dorsal surface of lateral pronotal angles apically a little blackened. Corium dull brown; membrane brownish, with coppery iridescence; veins dull brown. Abdominal fascia extending from postero-lateral corners of segment 3 to anterior half of 4 and covering segment 3 as a whole.

Head (fig. 1A) with rather coarse and relatively sparse granulae which are coarser and denser at post-ocellar area. Maximum widths of ante- and post ocular lobes and head (across eyes) about 48: 59: 68. Ante-ocular lobe 38: 59 as long as post-ocular, very weakly narrowed at both ends; tylus weakly depressed, with one series of granulae, anteriorly

1. Tsing-Chao Maa and Kwei-Shui Lin.
2. 1956. *Taiwan Mus., Quart Jour.* (Taipei) 9: 109-154, 41 figs.
3. 1957. Notes on Oriental Phymatidae (Hemiptera). The Oriental Phymatidae in the Drake collection. *Taiwan Mus., Quart. Jour.* (Taipei) 10: 63-69, 2 figs.
4. 1958. Notes on the higher classification of the Reduviidae, with the description of a new tribe of the Phymatinae (Hemiptera-Heteroptera). *Rev. Zool. Bot. Afr.* (Bruxelles) 57: 256-281, 67 figs.

closed; jugae anteriorly obliquely truncate, with antero-ental corners a little produced forwards and with lateral surfaces distinctly granulose. Lateral margins of post-ocular lobe almost straight, posteriorly scarcely convergent; anterior tentorial pits elongate, shallow. Genae very weakly depressed, distinctly granulose, anteriorly closed, much more produced forwards than bucculae, and well defined from and scarcely wider than the latter. Anterior buccular lobes punctate, anteriorly closed, posteriorly widely separated; rostral laminae in profile denticulate, gently curved; relative lengths of rostral segments as 65: 53: (?). Antenna (figs. 1C, 1D) coarsely granulose on segment 1, very finely so on 2 and 3, and with short, recumbent hairs on 4. Pronotum (figs. 1B, 1E) alutaceous, with coarse, sparse, prominent granulae on anterior lobe and lateral angles, and with coarse, deep punctures on posterior lobe. Anterior pronotal lobe strongly convex, anteriorly strongly reflexed, medially with a long, shallow furrow leading from the discal pit; granulae on anterior 2/3 rather evenly distributed, not forming distinct series, except the arcuate, postero-transverse one; granulae on posterior 1/3 similarly arranged as in *Amb. rhombiventris* Westw. (*vide infra*). Posterior pronotal lobe with posterior margin rather strongly curved and fairly tumescent at its junctions with postero-lateral margins; median area with very dense punctures, and lateral areas with strongly confluent ones; lateral angles apically much more highly up-raised than submedian convexities of the lobe. Scutellum (fig. 1G) rather finely and densely punctate, with a confluently punctate, lunulate tumescence at base, with rather strongly reflexed lateral margins, and with apex extending to the level of posterior margin of abdominal segment 3. Meso- and metapleura, respectively, finely and very finely granulose; stridulatory furrow on prothorax posteriorly weakly reflected. Abdomen (fig. 1I) widest at segment 3, finely granulose; connexival ampliation distinctly up-raised; connexiva 3 very short, sharply angulate near middle; venter finely granulose, with a few coarse, shallow punctures near lateral margin; genital segments as in fig. 1L; sternum 8 strongly convex, with posterior margin feebly reflexed. Length of body about 11.5 mm.

Material examined. Loas: Xieng Khouang, 12, V. 1919 (R. V. de Salvaza), Brit. Mus. 1922–112, det. R. J. Izzard in 1953, 1 ♂ (coll. Kormilev).

As suggested by Handlirsch (1897), the nearest ally of this very little known species is his *gestroi*. The relative lengths and widths of the pronotum, scutellum and abdomen are different in these two species. Those of the antennal segments are almost the same; and in this regard, the true value of James Green's drawing of *angustus*, as appeared in Handlirsch's monograph, must be doubted.

Amblythyreus rhombiventris (Westw.), 1843

♀: Ochraceous. Head dorsally with a conspicuous black marking which is anteriorly shallowly bifurcate and reaching little beyond posterior ocular margin, and is suddenly narrowed posteriorly to ocelli. Connexiva 3 (posterior 1/2) and 4 (posterior 1/3) brown, distinctly duller than neighboring areas. Hemelytral membrane brownish, with coppery iridescence; veins dull brown.

Head (fig. 1B) finely and rather densely and evenly granulose. Ante-ocular lobe 46: 69 as long as post-ocular, anteriorly scarcely narrowed; tylus scarcely depressed, 2 series of granulae, anteriorly opened; jugae anteriorly obliquely truncate, with antero-ental corners a little produced forwards, thus spine-like; lateral jugal surfaces punctate. Post-

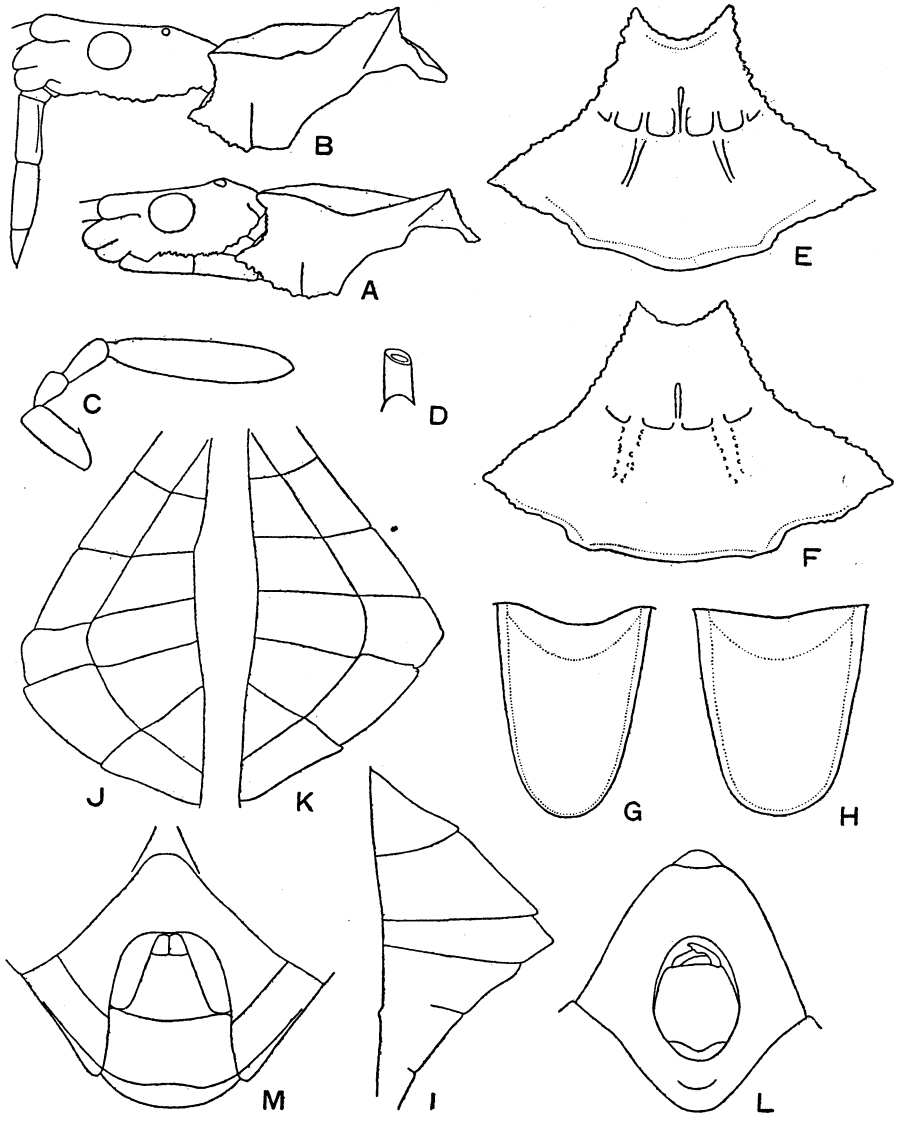

Fig. 1. *Amblythyreus angustus* Westw. ♂ and *A. rhombiventris* Westw. ♀. Head and pronotum in profile (A, *angustus*; B, *rhombiventris*). Antenna, right-hand, in dorsal aspect (C, *angustus*). First antennal segment, right-hand, in profile (D, *angustus*). Pronotum, in dorsal aspect (E, *angustus*; F, *rhombiventris*). Scutellum, in dorsal aspect (G, *angustus*; H, *rhombiventris*). Abdominal ampliation, in dorsal aspect (I, *angustus*; J–K, *rhombiventris*). Abdominal apex, in ventral aspect (L, *angustus*; M, *rhombiventris*.)

ocular lobe widest near anterior end and narrowest near middle; maximum widths of ante- and post-ocular lobes and of head (across eyes) as 53: 62: 72; lateral tentorial pits elongate, shallow. Gena very weakly depressed and granulose, anteriorly closed, scarcely broader than (in profile) bucculae and rather distinctly separated from the latter; anterior buccular lobes sparsely punctate, anteriorly closed, posteriorly widely separated; rostral laminae in profile almost straight, weakly denticulate. Relative lengths of rostral segments as 62: 56: 32. Antenna similar to those in *Amb. angustus* Westw. (*vide supra*), granulose on segments 1–3; relative lengths and widths (in lateral view) of the segments about 27×20: 18×15: 25×12: (?). Pronotum (figs. 1B, 1F) alutaceous, with coarse, rather sparse, flat-topped granulae on anterior lobe and with coarse, deep punctures on the posterior. Anterior pronotal lobe moderately convex, with anterior margin granulato-denticulate and scarcely reflexed, with a long and rather deep median furrow leading from the discal pit, and with granulae on anterior 1/3 rather evenly distributed, those on intermediate 1/3 arranged into one median, 2 (1+1) arcuate, submedian and one arcuate, postero-transverse series; granulae on posterior 1/3 being only found at sides of median furrow, at base of sub-median carinae and near lateral pronotal margins. Posterior pronotal lobe rather sparsely punctate at median area and weakly confluently so at lateral areas; posterior margin scarcely curved, at its junctions with postero-lateral margins weakly tumescent; apices of lateral angles much more highly up-raised than submedian convexities of the lobe. Scutellum (fig. 1H) rather finely and rather sparsely punctate, with a confluently punctate, lunulate tumescence at base, with weakly reflexed lateral margins, and with apex reaching midpoint of abdominal segment 3. Mesopleura finely, sparsely punctate, anteriorly with a few fine granulae; metapleura virtually alutaceous. Posterior margin of stridulatory furrow on prothorax strongly reflexed. Mesosternal furrow for receiving coxae 1 parallel-sided, with median length a little greater than basal width; median carina knife-like, but near its junction with the weakly developed, transverse carina 2, widened and not knife-like; 1st transverse carina much wider and more weakly up-raised than median carina. Abdomen (figs. 1J 1K) widest at segment 3 coarsely but shallowly punctate; connexival ampliation not up-raised; connexiva 3 very short, laterally strongly curved or a little angulate at middle; venter finely, shallowly punctate; hypopygium with a faint, median carina; genital segments as in fig. 1M; genital opening with a few, brownish, long bristles. Length of body about 12.5 mm.

Material examined. India. North Salem, Jawalagiri, Forest Res. Inst. Sandal Insect Survey, 19. vi. 1930, Brit. Mus. 1932–139, det. N. Kormilev, 1 ♀ (coll. Kormilev).

Agreuocoris nasalis Maa and Lin, n. sp.

♂: Whitish yellow. Antennae black, segment 4 slightly tinted reddish. Dorsal and and lateral surfaces of head black, but post-ocular lobe with a U-shaped, brownish yellow marking about the ocelli, and inferior marginal areas of lateral surfaces more or less yellow. Pronotum black, with lateral marginal areas of anterior lobe and of posterior lobe (anterior 1/3) whitish yellow; scutellum also black, with a number of milky white granulae (amongst the black ones) near apex. Corium black; membrane brownish, with coppery iridescence; veins dull brown. Abdominal apex brown.

Head (fig. 2A) relatively short, evenly and rather coarsely granulose, weakly so on

the U-shaped yellow marking; relative lengths of ante- and post-ocular lobes as 36: 52; maximum widths of the same and the head (across eyes) 42: 52: 59. Ante-ocular lobe parallel-sided, very slightly narrowed near anterior extremity; tylus wide, much widened a little before middle, weakly depressed, with a single series of granulae; jugae anteriorly not reflexed and medially not carinated; anterior tentorial pits much shallower than the posterior, and about 1/2 as long as an eye. Post-ocular lobe medially weakly furrowed near posterior end; lateral margins very slightly concave, virtually parallel to each other; ocelli lying on a common, strongly developed tumescence. Genae strongly reflexed along superior and anterior margins, much more produced forwards than bucculae, and in both lateral and ventral aspects very short; area between eye and rostral lamina strongly, longitudinally depressed. Antenna (figs. 2B, 2C) granulose on segments 1 and 2 and with short, recumbent hairs on 3 and 4. Pronotum (figs. 2A, 2D) very similar to that of *Glossopelta* species. Anterior pronotal lobe gently convex, with rather coarse granulae arranged in several zigzag or irregular series, with anterior margin slightly reflexed, and with median furrow shallow, about 2/3 as long as lobe. Posterior pronotal lobe as described for *Gl. lineolata* Dist. (*vide infra*), but median area much more heavily punctate. Scutellum (fig. 2E) very heavily covered with moderately coarse granulae and some coarse, shallow, inconspicuous punctures (sides of median carina with coarse and very deep punctures); median and lateral carinae well developed at basal 1/2, latter also well developed on approaching scutellar apex; lateral margins weakly, S-shapedly curved, not parallel; areas at sides of basal T-shaped tumescence rather strongly depressed. Ventral extension of pronotum posteriorly with an oblique, knife-like carina lying just beneath the 2nd lateral pronotal angle. Meso- and metapleura moderately granulose. Abdomen (fig. 2E) finely granulose, well dilated bilaterally, widest at posterior margin of segment 2, with maximum width about 296: 227 to that of pronotum; terga more or less exposed beyond hemelytra in repose; abdominal apex truncate, much exceeding scutellar apex. Length of body about 10 mm.

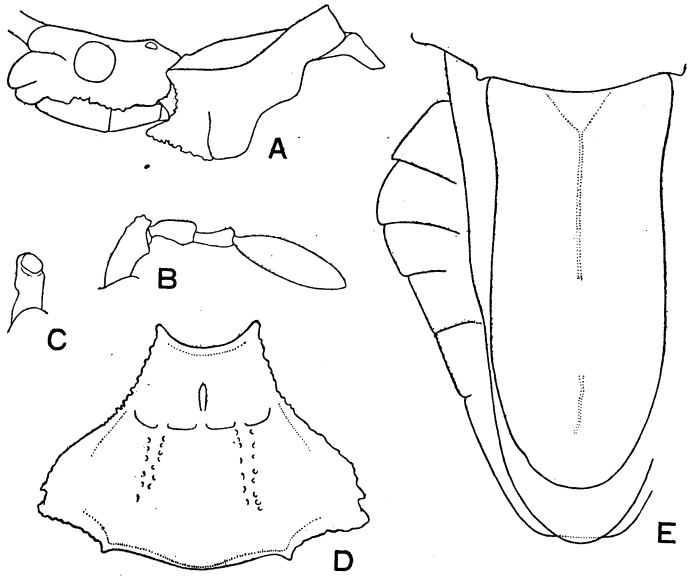

Fig. 2. *Agreuocoris nasalis* sp. nov. ♂. Head and pronotum, in profile (A). Antenna, right-hand, in dorsal aspect (B). First antennal segment, right-hand, in profile (C). Pronotum, in dorsal aspect (D). Scutellum and abdominal ampliation, in dorsal aspect (E).

Holotype. India: Khaula, Almora, 1450 m (H. G. C.), det. R. J. Izzard in 1953 as *Agr. noualhieri* Handl., ♂.

This is an intermediate form of *Agr. noualhieri* Handl. 1897 and *Agr. himalayensis* Dudich 1922, but appears to be closer to the former. The dorsal view of the head is similar to that of *noualhieri*, but the shape of the genae, for which the name *nasalis* is suggested, is very distinctive. In profile, they are far more produced forwards than the bucculae and thus making the ante- and post-ocular lobes almost equal in length. On the other hand, the lateral pronotal angles in profile, as compared with illustration by Carayon (1949), are less abruptly up-raised than *noualhieri*, and the lateral scutellar margins, as in *himalayensis*, distinctly concavely curved. The scutellar carinae are fairly well developed. The abdominal apex is truncate, not emarginate, as in the two other species. From *himalayensis*, it can also be recognized by a much duller color pattern.

Glossopelta lineolata Dist., 1909

♂: Head (fig. 3A) long, rather coarsely granulose; relative lengths of ante- and post-ocular lobes 47: 56; maximum widths of the same (not including antenno-rostral laminae) and the head (across eyes) 43: 50: 63. Ante-ocular lobe evenly granulose, very weakly narrowed towards anterior end; tylus very long, almost rectangular, slightly widened posteriorly, with a single series of granulae; jugae medially weakly carinate, anteriorly slightly reflexed; anterior tentorial pits as deep as but broader than the posterior. Post-ocular lobe very coarsely granulose, medially weakly depressed, with a distinct furrow leading from inner ocular margin to ocellar triangle; lateral margins slightly concavely curved and posteriorly weakly convergent; ocelli each lying on a weakly developed tumescence. Genae in ventral aspect long, very narrow. Antenno-rostral furrow long, with laminae visible in dorsal aspect, and with inferior margin in profile, granulato-denticulate. Antennae (figs. 3B, 3C) sparsely granulose on segment 1 and with short, recumbent hairs on 4. Pronotum (figs. 3A, 3D) relatively long and narrow. Anterior pronotal lobe strongly convex, anteriorly reflexed and very coarsely granulose, laterally also granulose, elsewhere alutaceous and coarsely, shallowly punctate; median furrow long, poorly defined. Posterior pronotal lobe heavily punctate, finely so in median areas and reticulate in lateral areas; submedi anareas gently convex; lateral margins except near lateral angles,

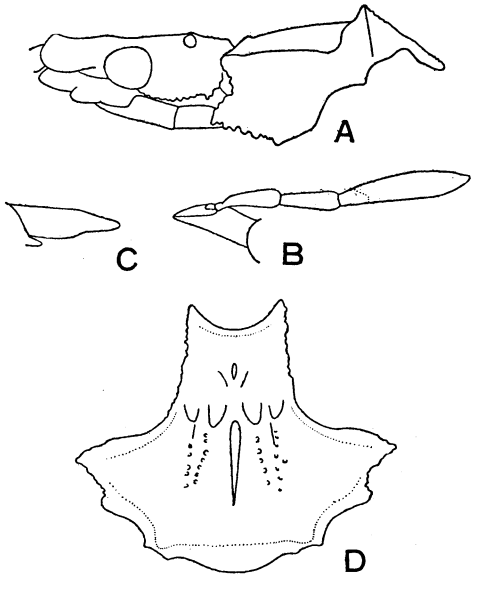

Fig. 3. *Glossopelta lineolata* Dist. ♂. Head and pronotum, in profile (A). Antenna, right-hand, in profile (B). First antennal segment, right-hand, in dorsal aspect (C). Pronotum, in dorsal aspect (D).

very strongly reflexed; lateral areas strongly up-raised; posterior slope strongly depressed and separated from submedian convexities by a rather distinct, transverse ridge, and from lateral areas each by a well developed tumescence. Scutellum narrow, finely, confluently punctate, very coarsely and deeply so at sides of baso-median tumescence; median carina scarcely recognizable, whereas the lateral ones well defined only at extreme base; ratio of median length and maximum and minimum (at "waist" region) widths, 295: 117: 90. Meso- and metapleura coarsely granulose. Abdomen as wide as pronotum; terga 1–4 very finely and sparsely granulose, laterally a little exposed beyond hemelytra in repose; connexiva rather coarsely granulose, and each slightly contracted at base and slightly dilated at apex; abdominal apex emarginate, exceeding scutellar apex, and with postero-lateral corners reaching a little beyond hemelytral apices. Length of body about 10.5 mm.

Material examined. Loas: Xieng Khouang, 14 v. 1919 (R. V. de Salvaza), Brit. Mus. 1922–122, det. R. J. Izzard, 1 ♂ (coll. Kormilev).

This is a species closely allied to *Gl. acuta* Handl. 1897 and to *Gl. praerupta* Maa & Lin, 1956. Besides its darker pattern, it may be readily distinguished from the former and latter, respectively, by the acuteness of the lateral pronotal angles and of the antennal segment 1.

Carcinocoris binghami Sharp, 1897

♂ ♀: Head (fig. 4A) comparatively short; relative maximum widths of ante- and post-ocular lobes and head (across eyes) in ♂, 27: 33: 46 and in ♀, 31: 38: 50. Ante-ocular lobe slightly widened anteriorly, about 11: 31 (♂) or 15: 41 (♀) as long as the post-ocular (without counting the dorsal non-spinose area), with a major spine lying intermediately of tylus and eyes; tylus scarcely depressed, widely opened and with one very long, major spine near apex, with a shorter major spine near base, and between these two, with 6 minor spines arranged in 2 columns; jugae very short, each bearing 2 major spines anteriorly not reflexed but obliquely truncate and divergent to each other. Post-ocular lobe convex, alutaceous; lateral margins in dorsal aspect convexly curved; area behind ocelli lacking minor spines but with 3 pairs of rather short, major spines, the 1st of which being the longest and the 2nd, the shortest; ocelli each lying on a very prominent tumescence and between them, there being 2 (1+1) long, major spines and a few minor ones. Eyes each with 8-10, exceptionally long setose, minor spines; tentorial pits indistinct. Lateral surfaces of post-ocular lobe evenly and rather densely covered with minor spines, with one and 3 major spines, respectively, on dorso-lateral and latero-ventral margins. Genae anteriorly sharply produced and virtually closed, posteriorly widely separated; bucculae also widely separated. Rostral laminae in profile almost straight, strongly denticulate. Rostrum sparsely haired, and at extreme base, a little spinose; lengths of the segments (♀) about 38: 33: 19. Antennae (figs. 4B–4E) relatively long; basal 3 segments spinose and haired; segment 4 with moderately long, erect hairs and in ♀, also with a few minor spines near base. Pronotum very strongly convex at anterior lobe and weakly so at the posterior, medially scarcely furrowed, anteriorly not reflexed, laterally weakly so; discal pit on anterior lobe weakly developed; posterior lobe much less spinose than the anterior but very heavily punctate and with very strong, knife-like, submedian carinae. Scutellum (figs. 4F, 4G) exhibiting sexual dimorphism; median carina very sharply defined, widened at extreme base and evanescent at extreme apex; lateral carinae also narrow and

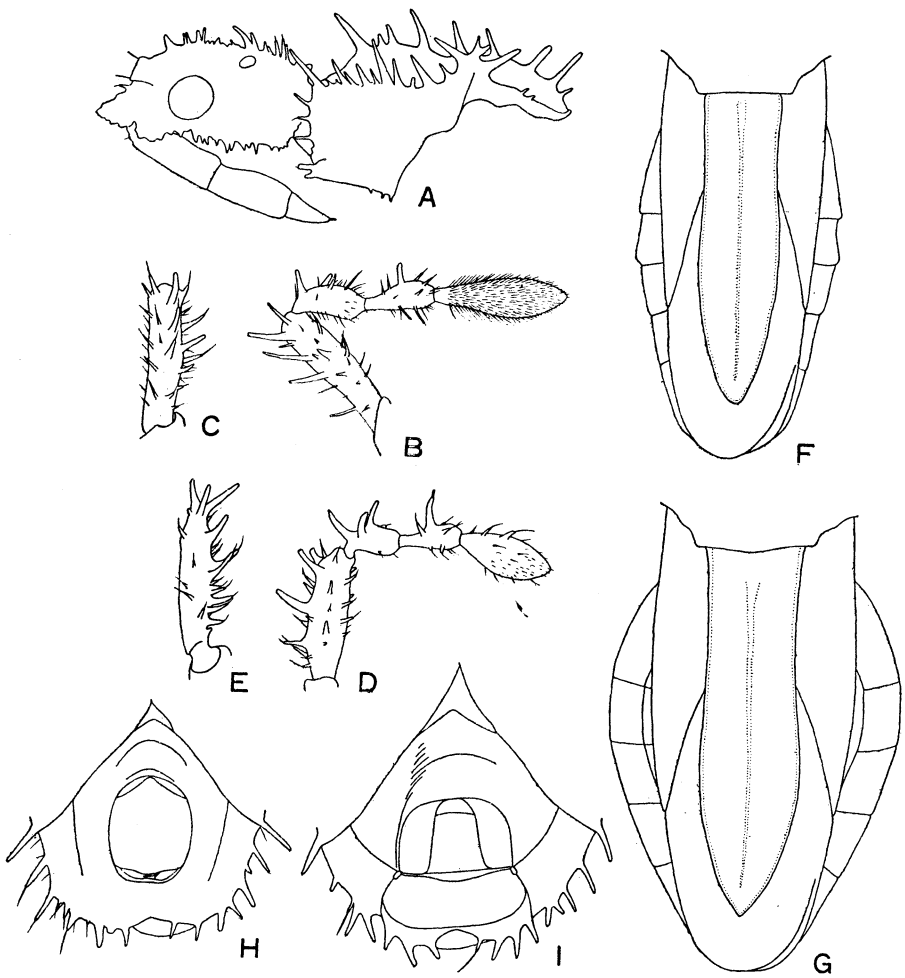

Fig. 4. *Carcinocoris binghami* Sharp. (terminal setae of spines mostly omitted). Head and pronotum, in profile, ♀ (A). Antennae, right-hand, in dorsal aspect, ♂ (B) ♀ (D). First antennal segment, right-hand, in profile, ♂ (C), ♀ (E). Scutellum and abdominal ampliation, in dorsal aspect ♂ (F), ♀ (G). Abdominal apex, in ventral aspect, ♂ (H), ♀ (I).

well developed, but less up-raised than the median. Stridulatory furrow (on venter of prothorax) wide, shallow, widened at middle, rimmed at anterior 1/2, very weakly reflexed at posterior margin. Mesosternal furrow for receiving coxae 1 distinctly widened anteriorly; median and transverse carinae 3 both strongly developed, knife-like; carina 1 very broadly V-shaped, well developed but much lower than median at their junction; transverse carina 2 scarcely recognizable; Coxa 1 weakly but distinctly curved, thickest beyond middle, with median length about 72: 20 (♂) as maximum thickness; trochanter 1 apically pointed, extending much beyond base of the corresponding femur and attached to the interior surface (as seen when at rest), instead of the base, of the latter seg-

ment. Corium, exposed areas of connexiva and venter of body all adorned with minor spines. Abdomen (figs. 4F, 4G) much wider in ♀ than in ♂; lateral areas upraised, a little wing-like; each segment in ♂ slightly contracted at base and slightly widened at apex; abdominal apex, particularly in ♀, distinctly sinuate at middle; spiracular tubercles larger and much more prominent than neighboring minor spines. Genital segments (figs. 4H, 4I) strongly convex. Length of body ♂ about 6.0 mm, ♀ 7.5 mm.

Material examined. Thailand: Doi Sutep to Doi Pui, near Chiengmai, 300 m, secondary forest, 2. iv. 1948 (T. C. Maa), 1 ♂, 1 ♀, in coll. Maa; 2 further specimens of the same lot, in Bishop Museum, Honolulu.

Distant (1906) revived *Carcinocoris erinaceus* Handl., 1897 and treated it as a species distinct from *C. binghami*. Their only difference held by him, i.e., whether the lateral scutellar margins nearly straight or distinctly concavely curved, appears to be nothing but sexual dimorphism of one and the same species.

ANTARCTIC-SUBANTARCTIC ENTOMOLOGY AND AIR-BORNE INSECTS

The program "Zoogeography and evolution of Pacific insects" has been expanded by a grant to Bishop Museum from the U. S. Antarctic Research Program (National Science Foundation). This project will be largely concerned with the trapping of air-borne insects from land, ships and airplanes in the Antarctic and Subantarctic areas, as well as study of local fauna. Mr. Robin Leech has joined Bishop Museum for this study, and others will also participate, including C. W. O'Brien and J. L. Gressitt.

On the existing "Zoogeography and evolution of Pacific insects" program, Dr. C. M. Yoshimoto trapped air-borne insects on a M. S. T. S. ship between Honolulu and Manila, en route to a collecting trip in the southern Philipines with Dr. L. W. Quate, and will do likewise on the return trip in December. Also Wm. Revelle, under supervision of Dr. Anton Bruun, is trapping on M. V. Stranger in the Gulf of Thailand.

CORRECTIONS TO VOL. 1, NO. 1

Page 38, line 20 from bottom; read: "from 21 August to 6 September 1961."

" 58, " 3; between "Pacific" and "insects", insert: "islands. The attempt is being made to develop a well-represented collection of"

" 58, " 22 from bottom; read: "Under this heading it is intended to list from time to time some of the literature..."

" 172, " 11; read: "Mackerras, I. M. and J. Rageau."