REMARKS ON THE GENUS *ALLOTERATURA* HEBARD AND NEW SPECIES FROM INDO-MALAYAN REGIONS (ORTHOPTERA : TETTIGONIOIDEA : MECONEMATIDAE)

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Abstract The autapomorphic and diagnostic characters of the genus *Alloteratura* Hebard 1922, are discussed and confirmed. The structure of male genitalia is revealed for the first time. New data are added to eight known species from Philippines and Malay Peninsula. Seven new species from New Guinea, Philippines, Malay Peninsula, Thailand and China are described. They are *A. multispina* Jin, sp. nov.; *A. angulata* Jin, sp. nov.; *A. plauta* Jin, sp. nov.; *A. lamella* Jin, sp. nov.; *A. cylindracauda* Jin, sp. nov.; *A. saimemsis* Jin, sp. nov. and *A. tibetensis* Jin, sp. nov. Remarks are also made on the distribution pattern of the genus.

Key words Orthoptera, Tettigonioidea, Meconematidae, *Alloteratura*, Indo-Malaya, new species

1 INTRODUCTION

As a member of the *Xiphidiopsis* group (Kevan and Jin 1993a), *Alloteratura* Hebard 1922 is closely related to *Xiphidiopsis* sensu Redtenbacher 1891, *Teratura* Redtenbacher 1891, *Euanisous* Hebard 1922, *Leptoteratura* Yamasaki 1982 and *Xiphidoneman* Ingrisch 1987. The diagnosis of relevant genera was so confused that it is problematical to assign undescribed species to the right genus (Kevan and Jin 1993b).

After studying various genera of this group, it is clear now that the confusion rises from the uncertain nature of autapomorphic character(s) for each related genus in this group. Gorochov (1993) made a big contribution to understand the heterogenous nature of *Xiphidiopsis* s. lat. and unraveled the genus into a number of new genera. Detailed comments on his treatment will be available after more species of this group have been checked. Since more material of *Alloteratura* from Indo-Malaya, including China, Thailand and Vietnam (Gorochov 1993) have been studied, specially the male genitalia has been dissected in this study, it is now possible to revise the generic feature and confirm the autapomorphic character(s) for this genus, though there is still not adequate material to revise the entire genus.

In the present paper, the structure of male phallic complex is revealed; the subanal plate of male is clarified. More species including several new species are recognized and described from various localities of Indo-Malayan regions.

All materials belong to the Bishop Museum, Honolulu, Hawaii, U. S. A. (BPBM), otherwise indicated.

2 DISCUSSION OF THE GENERIC DIAGNOSIS

Alloteratura Hebard

Alloteratura Hebard 1922: 249-250.

Amytta (Karsch 1988); Karny 1924: 124; 1926b: 278.

Alloteratura Beier 1966: 276; Gorochov 1993: 90; Kevan and Jin 1993b: 255.

Type species: *Alloteratura bakeri* Hebard 1922 (by original designation).

In *Xiphidiopsis* group and the entire Meconematidae, no species of the known genera with distal joint of the maxillary palpi is extremely shortened, only one third to fifth of the preceding one. This nonsexual character obviously is a good autapomorphy of *Alloteratura*.

Except species *A. penangica* Hebard 1922 and two new species from Philippines and Malay Peninsula which possess relatively shallow lateral lobe of pronotum, all known species of the genus are distinguishable by pronotum with very deep lateral lobe and a large notch between lateral lobe and hind part of disc, *i.e.* the humeral sinus, combining with largely opened thoracic foramen, usually covered by lateral lobe. This appears to be another autapomorphic character of the genus.

A highly specialized structure, a plate underneath epiproct, above subgenital plate and between the cerci, which is connected to the ultimate tergum, is present in the male of most species. It is called "yoke" by Hebard (1922) and "subanal plate" by Karny (1923, 1925). This subanal plate is well developed in some species and less in others of the genus. This structure, however, is also found in three known species of *Euanisous*: *distinctus* (Redtenbacher 1891), *mirabilis* (Karny 1923) and *teuthroides* (Bolivar 1905). So this character is one for diagnosis of *Alloteratura*, but a symapomorphy shared with *Euanisous*.

The basic structure of phallic complex of male is similar to that of species in Phisidini (Jin and Kevan 1991), but the epiphallus is quite characteristic. It is a symmetrical sclerotized plate often serrated (Figs. 39-51). Compare with many species of *Xiphidiopsis*, male cerci of *Alloteratura* is very simplified. But this is by no means of apomorphy of the genus. Similarly, no sexual apomorphic character is found in female, though the unarmed ovipositors may be considered as generic feature (Gorochov 1993).

According to the above discussion, none of the five species from Indian region described by Kevan (Kevan and Jin 1993b) fits into *Alloteratura*. The species *Amytta sinica* Bey-Bienko 1957 from Yunnan, China was moved into this genus by Beier 1966. One female of this species from Luili, Yunnan (specimen belongs to the Department of Biology of Nankai University, Tianjin) has been checked and shown that the distal joint of maxillary palpi is as long as the preceding one, lateral lobe of pronotum is shallow and not cover the thoracic opening, ovipositor short with apical hook. So *sinica* should not be in this genus, but to *Xiphidiopsis* s. lat.

The distribution of *Alloteratura* is very similar to that of *Xiphidiopsis*, but not beyond Bismarck Archipelago eastward, Malay Peninsula westward, Tibet northward and Java

southward. Their exact habitat is not known. They inhabit very likely on shrub-grass and tree-shrub similar to *Xiphidiopsis*, as they are quite often caught even on railway track.

3 DIAGNOSIS

Body is small and delicate. Fastigium of vertex is produced triangularly, narrower and shorter than first antennal joint, not strongly depressed. Distal joint of maxillary palpi is very short, only one third to fifth of preceding one; distal joint of labial palpi widened apically. Pronotum with deep lateral lobe and a distinct notch (humeral sinus), nearly in right-angle; thoracic foramen largely opened and partially or completely covered by lateral lobe. Tegmina and hind wings are well developed. Fore coxa armed with moderate process, all tibia armed with short spurs. Male abdominal terminalia possesses an unusual subanal plate, cerci with rather simple form. Phallic complex consists of a membranous phallus and a symmetrical sclerotized epiphallus which is often serrated and with distal part stretched out in some species. Female subgenital plate is relatively short, ovipositor moderately curved upwards, apical edges smooth.

4 DESCRIPTION OF SPECIES

4.1 *Alloteratura xiphidiopsis* (Karny) (Fig. 46)

Teratura xiphidiopsis Karny 1920: 23.

Alloteratura xiphidiopsis Hebard 1922: 252.

Amytta xiphidiopsis Karny 1924: 131.

Material examined: 1 male, Philippines, Negros, Valencia, 300m, Jan. 11-15, 1961 (H. Torrevillas).

Remarks: The specimen is largely shrunk with abdominal terminalia, so the structure of subanal plate is difficult to be certain if it is same as the male described by Hebard (1922). But it is best to be identified as *A. xiphidiopsis* if not considered as a new species. The less chitinous epiphallus (Fig. 46) is present here for further comparative study.

4.2 *Alloteratura simplex* (Karny) (Figs. 1, 3, 28, 30, 35, 40)

Teratura simplex Karny 1920: 24; 1921: 608.

Alloteratura simplex Hebard 1922: 250.

Amytta simplex Karny 1924: 129.

Material examined: 1 male, 1 female: Philippines, Los Banos, Mar-June, 1925 (Pemberton).

Remarks: Except the size a bit larger, this specimen fits into the description of Karny (1920) quite well. As Karny did not present any figure, the illustrations of both sexes are added here, as well as the epiphallus, which is very characteristic.

Measurements (male, female): length of body 9.0, 8.5, (shrunk); pronotum 3.8; tegmen 14.5, 17.5; hind femora 9.0, lost; ovipositor 6.8.

All measurements in millimeter.

4.3 *Alloteratura longicauda* (Karny)

Amytta longicauda Karny 1924: 130.

Alloteratura longicauda Beier 1966: 277.

Material examined: 1 female, Philippines, Ifugao Prov., Liwo 5 km East Mayoyao, 1 000-1 300m, May 31 to Jun. 1, 1967 (L. M. Torrevillas).

Remarks: This female specimen agrees largely with *A. longicauda*., but the subgenital plate with broad hind margin and slightly emarginate at middle.

Measurements (female): length of body 10. 5; pronotum 4. 0; tegmen 18. 0; hind femora 10. 0; ovipositor 8. 5.

4.4 *Alloteratura triloba* (Karny) (Figs. 39,48)

Amytta triloba Karny 1925: 138.

Alloteratura triloba Beier 1966: 276.

Material examined: 3 males, Malaya(w), Perak, Maxwell Hill 1 350m, Mar. 17-20, 1958 (T. C. Maa).

Remarks: This species is characterized by male subanal plate in trilobate form. All three specimens examined show typical generic feature, as well as the structure of phallic complex which was unknown before. The membranous phallus (Fig. 39) is structurally very similar to that of Phisidini species (Jin and Kevan 1991). The epiphallus consists of two broad basal lobes and a long highly chitinous middle rod (Fig. 48).

Measurements(male): length of body 9. 5-10. 0; pronotum 3. 8; tegmen 15. 0-16. 5; hind femora 8. 2-8. 5.

4.5 *Alloteratura tahanensis* (Karny) (Fig. 41)

Amytta tahanensis Karny 1925: 139.

Alloteratura tahanensis Beier 1966: 276.

Material examined: 1 male, Malay Peninsula, SE Pahang, Rompin Mining Co., railway track, 31m, Apr. 4, 1961 (K. J. Kuncheria).

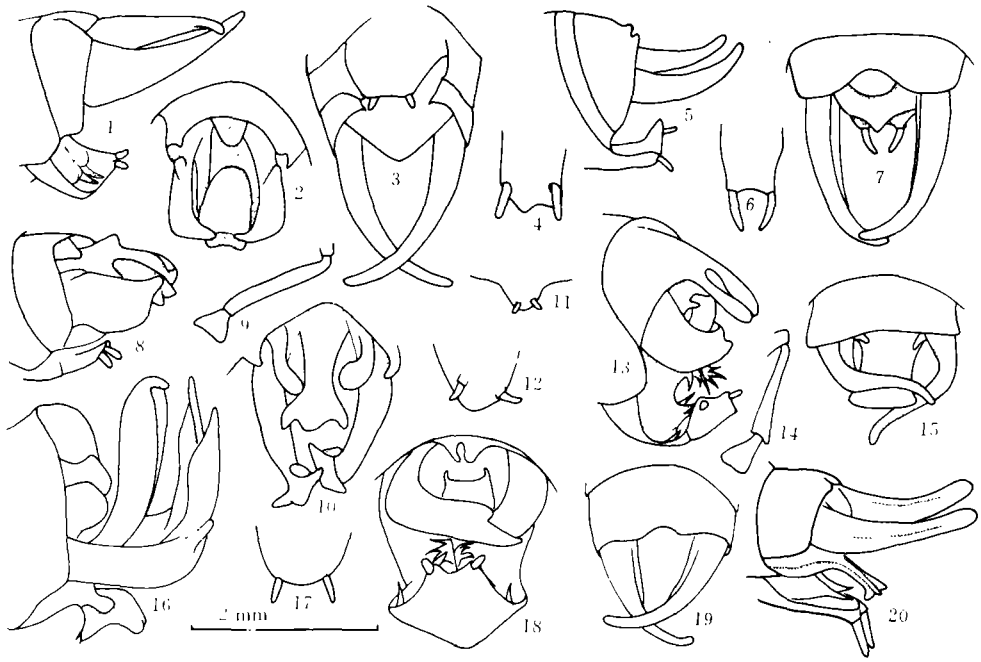
Remarks: Though the male specimen totally loses its maxillary and labial palpi, the deep lateral lobe of pronotum, the presence of unusual subanal plate and many other characters make it fit into this species. The symmetrical and denticulated epiphallus(Fig. 41) further proves its generic states.

Measurements(male): length of body 9. 0; pronotum 4. 0; tegmen 17. 0; hind femora lost.

4.6 *Alloteratura sandakanae* (Hebard) (Figs. 25,34)

Alloteratura sandakanae Hebard 1922: 253.

Material examined: 1 female, Malay Peninsula, SE. Pahang, Rompin Mining Co., railway track, Apr. 2, 1961(K. J. Kuncheria). 1 female, British N. Borneo, Tawau, Quoin Hill, July 15-20, 1962 (H. Holtmann). 1 female, British N. Borneo, Tawau, Cocoa Res. Stat., Sept. 6, 1962 (Y. Hirashima).



Figs. 1-20 Distal maxillary and male abdominal terminalia.

1,3, *Alloteratura simplex*; **2,4,8**, *A. plauta* sp. nov.; **5,9,19**, *A. lamella* sp. nov.; **6,20**, *A. saimensis* sp. nov.; **7**, *A. angulata* sp. nov.; **10,11,16**, *A. tibetensis* sp. nov.; **12,13,14,18**, *A. multispina* sp. nov.; **15,17**, *A. cylindracauda* sp. nov.

Remarks: The female specimen from Malay Peninsula is well agreed with *A. sandakanae*, by the slender body shape, dark fastigium of vertex and antennae, the denticulate genicular lobe of hind femora, which are unique, so far we know, in the genus. The penultimate abdominal tergum with both sides hooked, which is similar to that of *A. bispina* Gorochov 1993 from Sumatra.

The other two specimens are also characterized by genicular lobe of hind femora denticulated, but not conspecific with the first one. The penultimate abdominal tergum with both sides is not hooked and the one collected by Hirashima possesses ovipositor quite short. It needs more male specimens to confirm if they are good species or not.

Measurements (one from Malay Pen.): length of body 9.0; pronotum 3.0; tegmen 17.0; hind femur 10.0; ovipositor 8.0.

4.7 *Alloteratura podgornajae* Gorochov (Fig. 32)

Alloteratura podgornajae Gorochov 1993: 90.

Material examined: 1 female, Malaya, Selangor Distr., Ulu Gombak Station, 16 km Kuala Lumpur to Bentong Rd., May 1966 (K. J. Frogner).

Remarks: Though this female specimen is identified as *A. podgornajae* by the deeply emarginate subgenital plate, the exact form of the specimen at hand apparently differs a bit from Gorochov's one. It is possible a different species when male specimens are available.

Measurements(female): length of body 10.5; pronotum 3.5; tegmen 18.5; hind femur lost; ovipositor 7.2.

4.8 *Alloteratura serricauda* (Karny)(Fig. 43)

Amytta serricauda Karny 1924: 125, 1926a: 136, 1926b: 278; Kastner 1932: 170.

Material examined: 1 male, Malay Peninsula, SE Pahang, Rompin Mining Co., railway track, 31 mil. Apr. 6, 1961 (K. J. Kuncheria).

Remarks: The present male specimen is shrunk with abdominal terminalia, but still can better be identified as *A. serricauda* by short subanal plate, and apically incurved cerci, though distal 3-lobate is not clear. The size seems to be a bit larger. The epiphallus is shown in Fig. 43.

Measurements (male): length of body 10.5; pronotum 3.8; tegmen 17.0; hind femur 10.0.

4.9 *Alloteratura multispina* Jin, sp. nov. (Figs. 13, 14, 18, 22, 33, 38, 42, 51)

Material examined: holotype male, New Guinea, Neth. Waris. S. of Hollandia, 540-500 m, Aug. 8-15, 1959 (T.C. Maa). Allotype female: same data as holotype. Paratype female: Papua New Guinea, New Britain, Valoka, July 10, 1962, Noona Dan Exp. 61-62 (Universits Zoologisk Museum, Copenhagen). (This specimen was considered as holotype of an unpublished new species *Alloteratura valokana*.)

Description: Male, fastigium of vertex slightly depressed; distal joint of maxillary relatively long of the genus, nearly one third of preceding one (Fig. 14). Pronotum disc with anterior margin straight, posterior margin convex; lateral lobe very deep, with humeral sinus distinct, thoracic foramen largely covered (Fig. 22). Fore tibia spur form 3/4 [meaning: 4 anterior (inner) and 3 posterior (outer) short spurs. This will go through all the description mentioned to the tibia spur number]; middle and hind legs lost. Tegmina and hind wings long, about 1.5 times longer than body length. Last abdominal tergum with two narrow projections at middle; epiproct small and invisible (Fig. 13). Cerci thick cylindrical lobes with distal part suddenly narrowed, strongly incurved. Subanal plate rectangular form, with a distal processor on each side (Fig. 18). Epiphallus highly specialized, with two long strongly curved arms, basal parts each with several long sharp spines (Figs. 42, 51). Subgenital plate broad, with posterior margin emarginate, styli moderately long (Fig. 18).

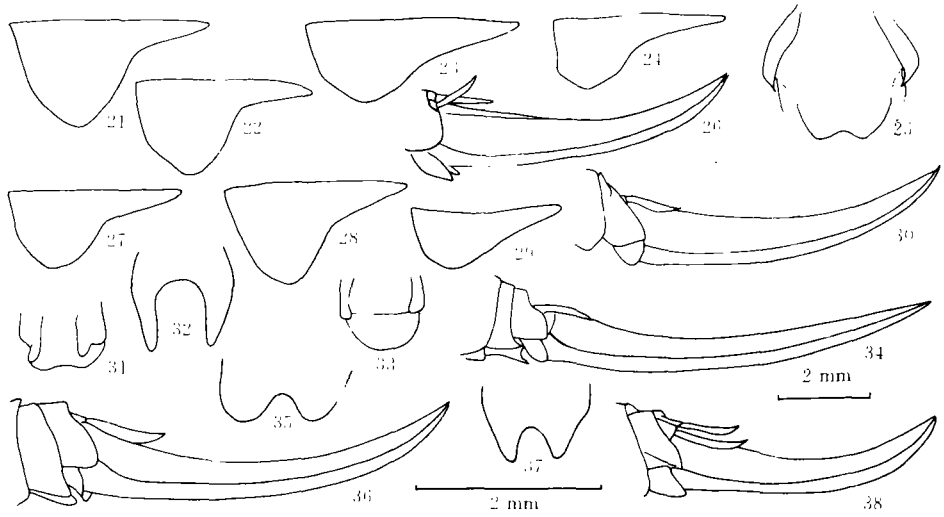
Female: general feature same as male. Cerci cylindrical with distal part thickened and pointed apically. Penultimate abdominal tergum with each side round apically. Subgenital plate short with posterior margin rounded (Fig. 33). Ovipositor with smooth edges, distal part curved upwards (Fig. 38).

Coloration: generally straw yellow in preserved specimen, eyes dark brown, pronotal disc with two light yellow longitudinal stripes.

Measurements (holotype, allotype): length of body 10.5, 10.5; pronotum 4.0, 3.8; tegmina 16.5, 18.6; hind femora 10.0; ovipositor 6.0.

Comparison: this species is close to *A. keyica* Karny 1924 from Malaya, but differs in: 1) the two narrow projections of abdominal terminalia separate closely; 2) subanal plate with two processors distally; 3) epiphallus highly specialized and 4) female subgenital plate with smooth posterior margins.

Etymology: name *multispina* refers to the spiny epiphallus.



Figs. 21-38 Pronotum and female abdominal terminalia.
21, *Alloteratura angulata* sp. nov.; **22**, *A. multispina* sp. nov.; **23**, *A. lamella* sp. nov.; **24**, *A. cylindracauda* sp. nov.; **25**, **34**, *A. sandakanae*; **26**, **37**, *A. saimensis* sp. nov.; **27**, *A. cylindracauda* sp. nov.; **28**, **30**, **35**, *A. simplex*; **29**, *A. plauta* sp. nov.; **31**, **36**, *A. angulata* sp. nov.; **32**, *A. podgornajae*; **33**, **38**, *A. multispina* sp. nov.

4.10 *Alloteratura angulata* Jin, sp. nov. (Figs. 7, 21, 31, 36, 45)

Material examined: holotype male, New Guinea, NE Madang District, Wanuma, 600-720 m, Aug. 1968 (N. L. H. Krauss). Allotype female, New Guinea, Neth. Sentani, June 22, 1959. Paratypes: 1 male, New Guinea, Neth. Ifar, 400-550 m, June 23, 1959; 1 female, New Guinea (NW), Nabire, S. Geelvink Bay, July 2-9, 1962; 1 female, Papua New Guinea, New Britain, Valoka, July 10, 1962, Noona Dan Exp. 61-62 (Universits Zoologisk Museum, Copenhagen, Denmark).

Description: male, fastigium of vertex with a weak median sulcus; distal joint of max-

illary relatively long, nearly one third of preceding one. Pronotum disc with anterior margin slightly and posterior strongly convex; lateral lobe relatively deep with humeral sinus distinct (Fig. 21), thoracic foramen largely covered. Fore tibia spur form 3/4; middle tibia form 5/4. Tegmina and hind wings very long, far beyond apices of hind femora. Last abdominal tergum with posterior margin widely concave; epiproct semi-circular lobe. Cerci simply cylindrical form tapering distally. Subanal plate a triangular lobe (Fig. 7). Epiphallus with two symmetrical parts denticulate distally (Fig. 45). Subgenital plate with posterior margin slightly concave, styli relatively long (Fig. 7).

Female: general feature same as in male. Penultimate abdominal tergum with each side extended into a small lobe (Fig. 31). Cerci fairly long cylindrical form, with distal part thickened and pointed apically. Subgenital plate short with posterior margin slightly emarginate (Fig. 36). Ovipositor with smooth edges, distal part curved upwards.

Coloration: generally straw yellow in preserved specimen, pronotal disc with two yellowish longitudinal tripes, eyes reddish brown.

Measurements (holotype, male paratypes, allotype, female paratypes): length of body 10.0, 11.0, 10.5, 11.0-12.0; pronotum 4.5, 4.6, 4.5, 4.5; tegmen 20.0, 18.5, 20.0, 19.0-22.0; hind femur 11.0, 11.5, 10.5-13.0; ovipositor 8.0, 7.0-7.2.

Comparison: this species is close to *A. werneri* Karny 1924 from South Sumatra by male with cylindrical cerci and *A. bispina* Gorochov, 1993 by extended female penultimate abdominal tergum, but differs distinctly in: 1) distal joint of maxillary palpi comparatively long; 2) male subanal plate triangular form; 3) male cerci simply cylindrical form and 4) characteristic epiphallus.

Etymology: name *angulata* refers to male subanal plate in triangular form.

4.11 *Alloteratura plauta* Jin, sp. nov. (Figs. 2, 4, 8, 29, 44)

Material examined: holotype male, Philippines, Negros Occ., Mt. Canlaon, 2 100 m, Dec. 21-25, 1959, Malaise Trap (L. W. Quate). A female young nymph (not considered as paratype): Philippines, Camarines Sur., Mt. Isarog, 1 600 m, May 21-22, 1963.

Description: male, small size of the genus. Fastigium of vertex smooth; distal joint of maxillary very short, about one fourth of preceding one. Pronotum disc comparatively short, anterior margin straight, posterior margin convex; lateral lobe relatively shallow with humeral sinus less distinct (Fig. 29), thoracic foramen completely covered. Fore tibia spur form 3/4; middle tibia spur form 4/0. Tegmina and hind wings short, nearly reach to apices of hind femora. Last abdominal tergum with posterior margin widely concave; epiproct elliptical lobe (Fig. 2). Cerci thick and broad lobes, each with a basal knob and thinner distal part, incurved. Subanal plate a large lobe with distal half much thickened (Figs. 2,8). Epiphallus serrated at basil lobes (Fig. 44). Subgenital plate with posterior margin slightly convex, styli moderately long (Fig. 8).

Female: unknown.

Coloration: generally testaceous as preserved specimens, eyes and pronotum darkened.

Measurements (holotype): length of body 7.0; pronotum 3.2; tegmen 7.2; hind femur 7.3.

Comparison: this species is close to *A. penangica* and *A. lamella* Jin, sp. nov. by the shallow lateral lobe and shorter tegmina, but obviously differs from them in: 1) male cerci broad lobe; 2) subanal plate large and thickened lobe; and 3) epiphallus with small denticles.

Etymology: name *plauta* refers to the male cerci characteristically broad.

4.12 *Alloteratura lamella* Jin, sp. nov. (Figs. 5, 9, 19, 23, 47)

Material examined: holotype male, Malay Peninsula, SE Pahang, Rompin Mining Co., railway track, 46 km, Mar. 3, 1961 (T. C. Maa). Paratype, 1 male nymph, Malaya, Johore Ulo Choh Baharu, Sept. 28, 1961 (K. L. Kuncheria).

Description: male, fastigium of vertex with a weak median longitudinal sulcus; distal joint of maxillary very short, less than one fourth of preceding one (Fig. 9). Pronotum with disc comparatively long, anterior margin slightly convex, posterior margin strongly convex; lateral lobe relatively shallow with humeral sinus indistinctive, thoracic foramen large and totally covered (Fig. 23). Fore tibia spur form 3/4; middle tibia spur form 4/2. Tegmina and hind wings relatively short, just reach to apices of hind femora. Last abdominal tergum notched at middle, epiproct small and invisible dorsally. Cerci simply cylindrical with lamellate inner margin from base to middle (Fig. 19), distal part much thinner. Subanal plate small semi-circular form, invisible dorsally. Epiphallus heavily denticulated (Fig. 47). Subgenital plate with posterior margin narrowly convex, styli moderately long (Fig. 5).

Female: unknown.

Coloration: generally testaceous in preserved specimens. No characteristic color pattern.

Measurements (holotype): length of body 11.5; pronotum 4.5; tegmen 9.0; hind femur 10.5.

Comparison: this species is very close to *A. penangica* Hebard 1922 from Penang, Malaya by the shallow lateral lobe of pronotum, less distinct humeral sinus and shorter tegmina, but differs distinctly from: 1) male cerci with long lamellate; 2) subanal plate small semi-circular form; 3) subgenital plate with convex hind margin and shorter styli.

Etymology: name *lamella* refers to the male cerci with lamella inner margin.

4.13 *Alloteratura cylindracauda* Jin, sp. nov. (Figs. 15, 17, 27, 50)

Material examined: holotype male, Malay Peninsula, Mining Co., railway track, Mar. 2, 1961(T. C. Maa).

Description: male, fastigium of vertex with a weak median sulcus; distal joint of maxillary very short, less than one fourth of preceding one. Pronotum disc with anterior margin slightly and posterior strongly convex; lateral lobe relatively deep with humeral sinus dis-

tinct (Fig. 27), thoracic foramen completely covered. Fore tibia spur form 3/4; middle tibia spur form 5/3. Tegmina and hind wings long, beyond apices of hind femora. Last abdominal tergum with posterior margin widely concave; epiproct small elliptical lobe, invisible dorsally. Cerci cylindrical tapering distally, each with a small basal lobe, distal half strongly incurve. Subanal plate a long rectangular lobe, with distal part widened (Fig. 15). Epiphallus as shown in Fig. 48, heavily denticulated. Subgenital plate with posterior margin slightly convex, styli moderate long (Fig. 17).

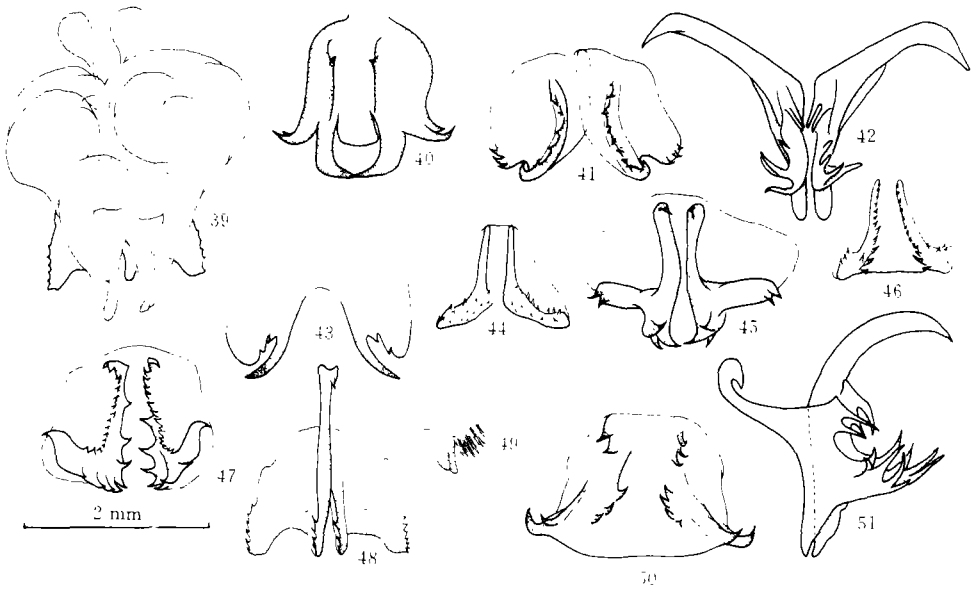
Female: unknown.

Coloration: generally testaceous in preserved specimens, eyes reddish brown, tegmina with a few dark spots along posterior margin.

Measurements (holotype): length of body 10.5; pronotum 4.0; tegmen 15.5; hind femur 7.3.

Comparison: this species is close to *A. giglio-tosi* Karny 1924, from West Java by male having elongate subanal plate, but differs clearly in: 1) male last abdominal tergum with posterior margin widely concave; 2)cerci cylindrical form; 3) epiphallus specialized form.

Etymology: name *cylindracauda* refers to the male cerci in cylindrical form.



Figs. 39-51 Male phallus and epiphallus.

39, 48. *Alloteratura triloba*; **40.** *A. simplex*; **41.** *A. tanhanensis*; **42, 51.** *A. multispina* sp. nov.; **43.** *A. serricauda*; **44.** *A. plauta* sp. nov; **45.** *A. angulata* sp. nov.; **46.** *A. xiphidiopsis*; **47.** *A. lamella* sp. nov.; **49.** *A. tibetensis* sp. nov.; **50.** *A. cylindracauda* sp. nov.

4.14 *Alloteratura saimensis* Jin, sp. nov. (Figs. 6, 20, 26, 37)

Material examined: holotype male, Thailand, Trang, Khaophapha, Khaochang, 200

m, Jan. 11-15, 1964, Malaise Trap (G.A. Samuelson). Allotype female, same data as holotype, except "Light Trap ". Paratype: 1 female, same data as holotype.

Description: male, fastigium of vertex with a weak median sulcus; distal joint of maxillary palpi very short, nearly one fifth of preceding one. Pronotal disc with anterior margin straight and posterior margin strongly convex; lateral lobe deep, humeral sinus distinct; thoracic foramen partially covered. Fore tibia spur form 3/4; middle tibia spur form 4/3. Tegmina and hind wings fully developed, well beyond apices of hind femora. Last abdominal tergum notched at middle; epiproct elliptical; cerci simply cylindrical lobe, slightly incurved. Subanal plate narrow and flat with two longitudinal sulci dorsally, distal part widened with a small, acute median process. Subgenital plate elongate with posterior margin slightly concave, styli fairly long (Fig. 20).

Female: same as male, except the followings: cerci simply cylindrical, tapering distally; subgenital plate with posterior margin deeply concave (Fig. 37); ovipositor moderate long with basal part broad, slightly curved upwards at 1/3 distally (Fig. 26).

Coloration: generally straw yellow in preserved specimens, except eyes light brown. Pronotal disc with two longitudinal yellowish stripes.

Measurements (holotype, allotype): length of body 13.0, 10.0; pronotum 4.0, 3.8; tegmen 17.5, 18.0; hind femur 10.0, 10.0; ovipositor 6.0.

Comparison: this species is very close to *A. subanalis* (Karny, 1925) from Selangor, Malaya, but differs distinctly by thoracic foramen being partially covered by lateral lobe of pronotum and the epiproct of male elliptical instead of acutely triangular. The female appears to be similar to *A. podgornajae* Gorochov 1993, from E. Java, but the subgenital plate with narrower notch.

Etymology: name *saimensis* refers to Thailand from where the types were collected.

4.15 *Alloteratura tibetensis* Jin, sp. nov. (Figs. 10, 11, 16, 24, 49)

Material examined: holotype male, Tibet, Medog, Beiben, 850m, Academia Sinica, July 24, 1983 (Han Yanhen)(all written in Chinese)(Institute of Zoology, Academia Sinica, Beijing).

Description: male, fastigium of vertex slightly depress, with a weak median sulcus; distal joint of maxillary short, less than one fourth of preceding one. Pronotum disc with anterior margin straight and posterior strongly convex; lateral lobe moderate deep with humeral sinus distinct (Fig. 24), thoracic foramen partially covered. Fore tibia spur form 2/3; middle tibia spur form 3/2. Tegmina and hind wings very long, far beyond apices of hind femora. Last abdominal tergum with posterior margin widely concave; epiproct small lobe, not seen as in shrunk condition. Cerci broad lobe, each with a basal lobe and twisted distally. Subanal plate complicated, consisting of two-lobed basal part and elongate top part with distal margin trilobed (Figs. 10, 16). No epiphallus seen, probably because of less matured. Subgenital plate small lobe with posterior margin convex, styli short (Fig. 11).

Female: unknown.

Coloration: straw yellow in preserved specimens, area behind eyes and pronotal disc with two yellowish longitudinal tripes, eyes brown.

Measurements (holotype): length of body 9.0 (shrunk); pronotum 4.0; tegmen 18.0; hind femur 9.0.

Comparison: this species is quite different from all known species of the genus by 1) much complicated male subanal plate and cerci. Epiphallus form unknown.

Etymology: name *tibetensis* refers to the place where the holotype was collected.

Material unidentified: There are eight female specimens from Philippines and New Britain which are not able to be identified to species. There may be several new species involved when more materials from those regions are available.

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异畸螽属的评述及印度-马来亚地区的新种描述 （直翅目：螽斯总科：蛩螽科）

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本文对异畸螽属 *Alloteratura* Hebard，1922 进行了分类学上的评述，对该属的属征和新征进行了讨论，并首次记述了该属雄性外生殖器的结构；为八个采自菲律宾和马来半岛的已知种增补了新的特征；描述了七个采自新几内亚、菲律宾、马来半岛、泰国和中国的新种：多刺异畸螽 *Alloteratura multispina* Jin，sp. nov.，角板异畸螽 *Alloteratura angulata* Jin，sp. nov.，宽须异畸螽 *Alloteratura Plauta* Jin，sp. nov.，缘须异畸螽 *Alloteratura lamella* Jin，sp. nov.，柱须异畸螽 *Alloteratura cylindracauda* Jin，sp. nov.，泰国异畸螽 *Alloteratura saimensis* Jin，sp. nov.，西藏异畸螽 *Alloteratura tibetensis* Jin，sp. nov.。