

# アヲマツムシに就いて

## A Note on the Larger Green Bush Cricket,

### *Calypotrypus hibinonis* MATSUMURA (Orthopt.)

古川 晴男 Haruo FURUKAWA

東京帝國大學理學部小石川植物園

*Koisikawa Botanical Garden, Science Faculty, Tokyo Imperial University*

#### *Calypotrypus hibinonis* (com. nov.)

Synonymy: *Madasumma hibinonis* MATSUMURA 1917<sup>D</sup>: *Ōyō-kontyūgaku*, p. 279.

*Madasumma hibinonis* SHIRAKI 1930: *Ins. Matsum.*, 4, p. 239,

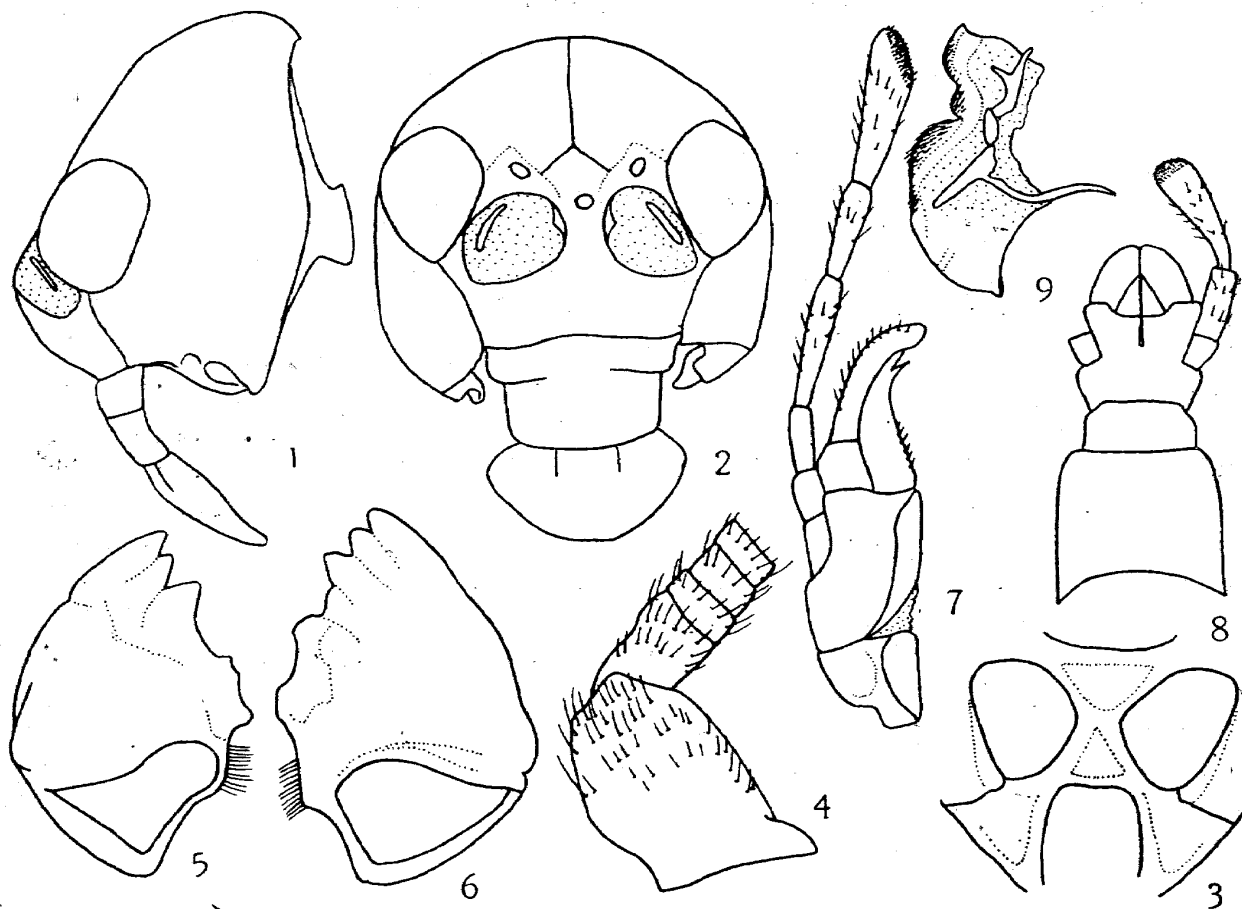
Fig. 21, A, B, (redescription).

The original description (in Japanese) is very brief as follows;—"This form resembles *M. marmorata* (DE HAAN), (= *Xenogryllus marmoratus* (D. H.)) but differs from it in generally green coloration and prothorax with lateral carinae." The revised description of SHIRAKI is the only one available for the identification of the species. This cricket has attracted the attention of the people because of its abrupt "début" in Tokyo as an immigrant from certain tropical districts, as well as of its bright coloration and loud stridulating tone. It has been studied by Japanese investigators of various fields. The papers written by S. HIBINO (1917: *Siseki-Tennenkinenbutu*, 1, no. 19—on the first discovery of the insect), T. OKAZAKI (1920: *Ins. World*, 24, p. 232—on Hancock's gland and copulation; 1922: *Zool. Mag. Tokyo*, 34, p. 523—on biology; 1922: *Hakubutu-kaisi*, 30, p. 31—on endophytous oviposition), A. TERAŌ (1922: *Zool. Mag. Tokyo*, 34, p. 293—on the morphology of Hancock's gland) and F. OHMACHI (1927: *Proc. Imp. Acad.*, 3, p. 451; 1935: *Bull. Mie Imp. Coll. Agr. For.*, no. 5, p. 22—on cytology of sexual cells) are of importance. The present paper is intended first to give detailed description and figures of *C. hibinonis*, which are indispensable for the identification of this rather difficult group, Podoscirtinae, secondly to make a comparison with allied forms and thirdly to present a brief biological note.

**Head:** Occiput declined caudally. Vertex flat, declined anteriorly and tumid posteriorly. Fastigium of vertex flat, its declination nearly same as in vertex, dorsally viewed narrow, slightly attenuate anteriorly, anterior margin being nearly truncate. Frons makes rounded angle with fastigium of vertex, retrogressive ventrally. Postclypeus transverse, anteclypeus well differentiated from postclypeus, narrower than the latter. Labrum ovoid. Compound eye typical as for the genus, with oblique position, nearly as high as gena. Ocelli triangularly situated, median ocellus being the largest, elongated antero-posteriorly. Corpotentrium much broader than laminatentorium, though

<sup>D</sup> In SHIRAKI's article (1930 l. c.) erroneously cited as 1919 for 1917.

with same length as in the latter. All tentoria well ridged. Antenna: scape rather elongate; pedicel only half as broad and long as scape; basal flagellar segments abbreviated, cylindrical. Mandible: dextral member nearly triangular, outer margin slightly convex, with rather prominent acute dentes, mola flat, situated subbasally; sinistral member resembles the preceding with apical dentes rather blunt, basal dentes not contiguous with mola. Maxilla: alacardo broad, with outer margin convex; stipes normal; lacinia narrow, much curved apically; proxagalea broad, distagalea narrow, curved apically; palpus with two basal segments cylindrical, second segment more than twice as long as broad, third and fourth segments slightly clavate, fifth segment rather short, cylindrico-triangular,



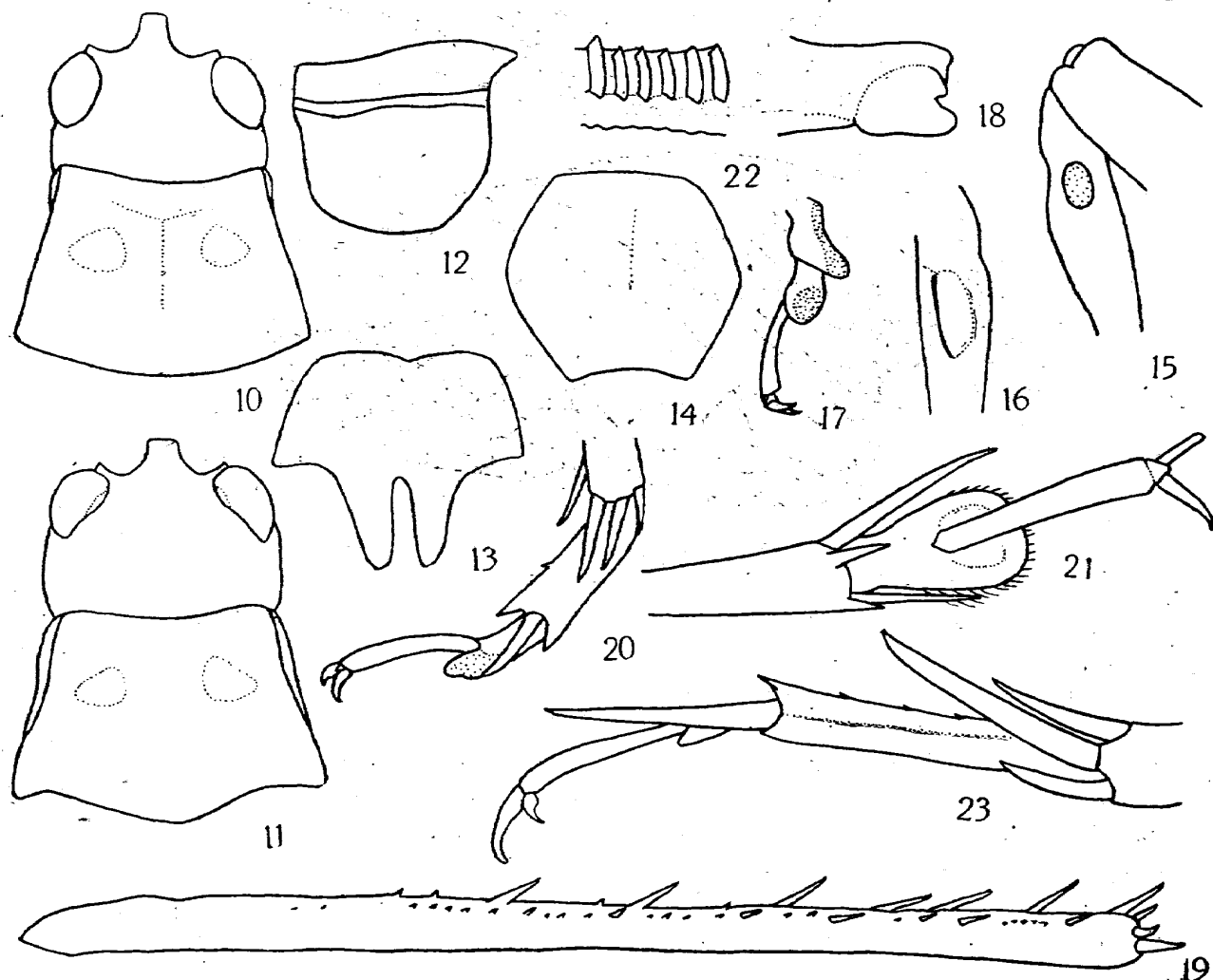
Text-fig. 1-9. *Calyptotrupus hibinonis* (MATS.), head.

1. Head capsule, lateral view,  $\times 12$ . 2. Ditto, frontal view,  $\times 12$ . 3. Tentoria.  $\times 12$ . 4. Antenna,  $\times 24$ . 5. Dextral mandible, caudal view,  $\times 24$ . 6. Sinistral mandible, caudal view,  $\times 24$ . 7. Maxilla, caudal view,  $\times 14$ . 8. Labium, caudal view,  $\times 14$ . 9. Parapharynx,  $\times 14$ .

segmental ratio:  $V > III > IV > II > I$ . Labium: Submentum nearly as broad as long, subparallel-sided; mentum distinctly narrower than apical region of submentum; stipula rather elongated, palpiger not prominent; glossa short; paraglossa broad and contiguous apically. Parapharynx: paralingua very narrow; lingula also narrow; salivaria elongated; hypopharynx well tumid.

**Thorax:** Prothoracic epinotum in male distinctly divergent caudally, ratio of cephalic breadth and caudal one being 1:1.5, cephalic margin concave, caudal margin distinctly

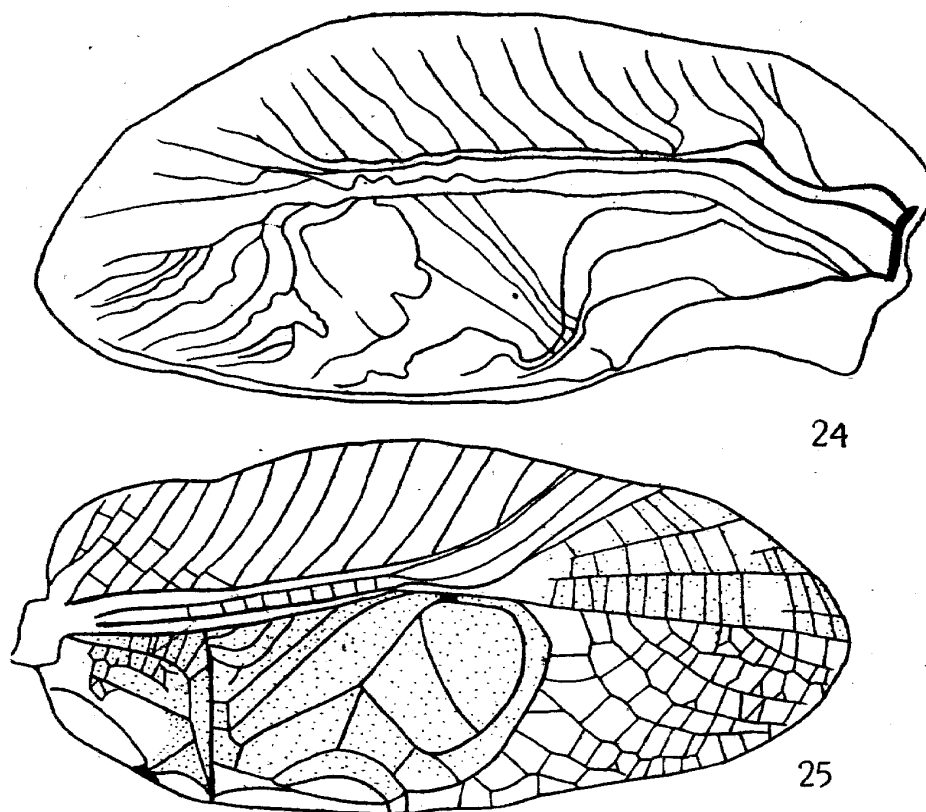
sinuate laterally, forming median angle. Marganotum distinct, carinate, rather straight in male, while wavy in female. Pleuranotum a little longer than high, cephalic margin straight, nearly vertical in upper part, oblique in lower part, ventral margin convex, declined caudally, cephalic and caudal angles being rounded. Mesosternum rather wide, with narrow paired caudal lobes. Metasternum nearly hexagonal, with caudal margin slightly emarginate. Proleg: fematroelia paraboloid, rather broad; tibia thick basally, distinctly attenuate apically, outer surface with open elliptical tympanum, inner surface with conchate tympanum, its slit-like opening being twice as long as length of outer tympanum: tarsus short, basal two segments with well developed euplantulae, segmental ratio:  $\text{III} > \text{I} > \text{II}$ . Metaleg: fematroelia with apex roundedly produced, ventral margin



Text-fig. 10-22. *Calyptotrypus libinonis* (Mats.), thorax.

10. Cephalo-thoracic complex, dorsal view, ♂,  $\times 7$ . 11. Ditto, ♀,  $\times 7$ . 12. Pronotum, lateral view,  $\times 7$ . 13. Mesosternum,  $\times 12$ . 14. Metasternum,  $\times 12$ . 15. Genicular part of proleg, caudal view,  $\times 12$ . 16. Ditto, cephalic view,  $\times 12$ . 17. Tarsus of proleg,  $\times 12$ . 18. Genicular part of metaleg, cephalic view,  $\times 12$ . 19. Tibia of metaleg, cephalic view,  $\times 12$ . 20. Tibial apex and tarsus of metaleg, caudal view,  $\times 12$ . 21. Ditto, dorsal view,  $\times 24$ . 22. Stridulating teeth,  $\times 90$ .

Text-fig. 23. *Xenogryllus marmoratus* (D. H.), Tibial apex and tarsus of metaleg, caudal view,  $\times 12$ .



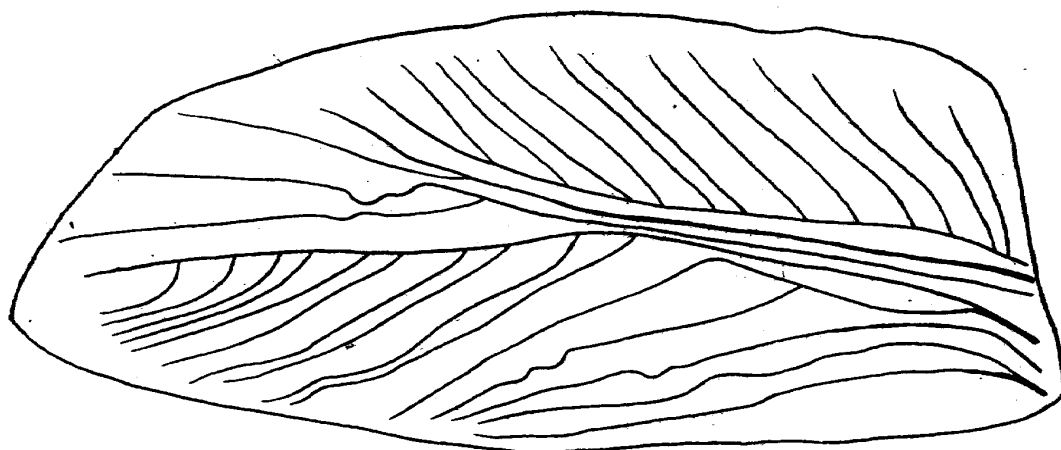
Text-fig. 24. *Calyptotrypus hibinonis* (MATS.), Elytral rudiment of nymph in ultimate instar, ♂,  $\times 16$ .

Text-Fig. 25. Ditto, Elytron of imago, ♂,  $\times 3.5$ .

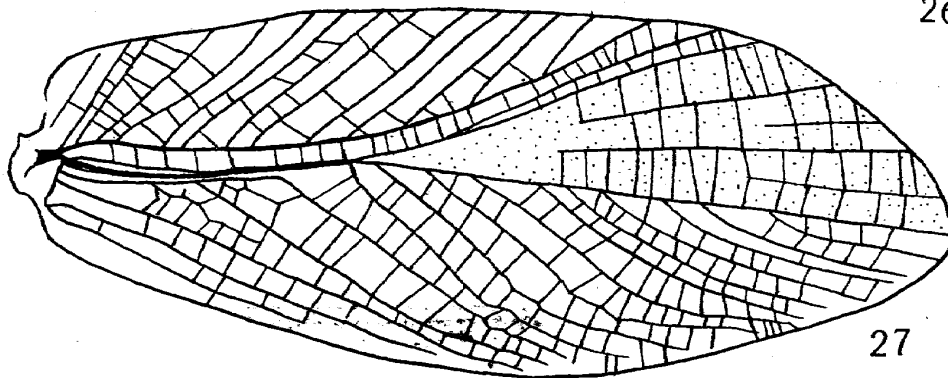
rather straight; tibial spine normal as for the genus, inner series longer than outer series, intercalate spinules more numerous in outer edge than in the inner, outer calcaria small, their length being subequal, inner calcaria longer than the outer, among which superior one is the longest, nearly half as long as basitarsus, while inferior one being the shortest, basitarsus rather stout, with sparse dorsal spinules, ending in stout paired dorsal spines of which inner one being longer, inner lateral spur as long as second tarsal segment, outer lateral spur much shorter than the inner, second tarsal segment slightly shorter than the third, rather narrowly cordate, third tarsal segment slightly shorter than the first, segmental ratio:  $I > III > II$ .

**Elytron.** Male in ultimate nymphal instar: as in the other orthopterans tracheae are grouped into two, viz., anterior group (*C*, *Sc* and *R*) and posterior group (*M*, *Cu* and *A*); *C*? is branched out from *Sc*, short and bifurcate; *Sc* long, abruptly bent at apex, sending eleven branches obliquely cephalad, of which the proximal two are ramified; *R* longer than and parallel to *Sc*, apically bifurcate; *M* longer than and parallel to *R*, apically bifurcate; *Cu* subbasally bifurcate; *Cu*<sub>1</sub> gradually arcuate sending three weak branches obliquely proximad, which seem to meet with three oblique branches of *Al*, next branch being subparallel to the preceding three in the basal part, then becomes wavy and bent distad, sending a weak branch subparallel to the three branches mentioned above, itself being bifurcate apically, apical portion of *Cu*<sub>1</sub> with seven oblique branches, of which the first bent caudad at the middle portion, the second becomes

bifurcate three times, the third being bifurcate subbasally; *AI* nearly parallel with *Cu*-stem and *Cu*<sub>2</sub>, *A II* and *A III* fused at basal region, *A II* approaching *A I* apically and *A III* except basal part parallel with the caudal margin of elytral sheath. Adult male: origin of adult venation is clearly understood when compared with tracheation described above; the comparison suggests that the relative growth rate of apical part is larger than that of basal part (heterogony); *C*, *Sc*, *R* and *M* nearly as in nymphal stage, though *R* and *M* become more bent apically; *Cu* is also nearly as in nymphal stage, but *Cu*<sub>2</sub> makes nearly right angle with *Cu*<sub>1</sub>; such posture of "stridulating vein" puts question whether it and true "*Cu*<sub>2</sub>" are really identical, and further investigation is needed; speculum, which is obviously derived from two curved branches of *Cu*<sub>1</sub>, is rather broad, with a transverse vein (the author has failed to trace the corresponding trachea in nymph) as usually seen in the subfamily; oblique veins of "first group" are two or three, corresponding to the weak tracheal branches obliquely sent out from *Cu*<sub>1</sub> and *A I*, while original tracheae of three oblique veins of "second group" were undetectable in the author's glycerine-preparation; *Cu*<sub>1</sub> has five apical branches; *A I*, *A II* and *A III* are usual as for the genus; intercalate triangle becomes very widened in imaginal stage, with two long and two short secondary veins (viz. not originated from tracheation) crossed by numerous transversal veinlets; shape of stridulating teeth usual as in the family, their number being ca. 100. Female in ultimate nymphal instar: tracheae of anterior group



26



27

Text-fig. 26. *Calyptotypus habinonis* (MATS.), Elytral rudiment of nymph in ultimate instar, ♀, ×20.

Text-Fig. 27. Ditto, Elytron of imago, ♀, ×3.5.

as in male, though branches of *Sc* are not forked; *Cu*-stem shorter than in male, *Cu*<sub>1</sub> with ten simple branches equally oblique, *Cu*<sub>2</sub> bifurcate and bent obliquely at apex; *A II-A III*-stem shorter than in male. Adult female; elytron more elongated and apically more pointed than in male; *R* and *M* seem to be simple at apex; general scheme of venation resembles that of tracheation; intercalate triangle more profound than in male, its secondary veins as in the latter.

**Abdominal end:** Male: last tergite in ultimate nymphal instar transversal, shallowly and broadly concave, with a median furrow, lamina supra-analis subvertical and hemispherical, not produced beyond last tergite, lamina subgenitalis trapezoid, truncate apically; last tergite in imago deeply incised at median region, thus dividing the tergite into two lobes of nearly equilateral triangle, apex of the lobes being rounded, dorsally viewed apex of lamina supra-analis produced beyond the tergite, the lamina being exactly cordiform, its original dorsal surface being nearly horizontal and facing ventrad, lamina subanalis narrowly triangular, lamina subgenitalis subtrapezoidal, its lateral margin being slightly wavy and caudal margin a little concave. Female: last tergite in penultimate nymphal instar transversely trapezoidal, caudal margin subtruncate, lamina subgenitalis with triangular incision medially; last tergite in ultimate nymphal instar trapezoidal, caudal margin slightly emarginate, lamina subgenitalis resembles that of the preceding instar, but margin of triangular incision slightly wavy; last tergite in imago with lateral margins divergent and caudal margin produced and emerginate medially, lamina supra-analis nearly hemispherical; lamina subgenitalis laterally viewed boat-shaped, produced dorso-caudally, ventrally viewed with deep median incision, thus dividing the lamina into two lobes with convergent apices.

**Genitalia:** Male: pseudosternite in ultimate nymphal instar composed of two triangular lobes with apex roundedly angulate, slightly recurved and basal region transversal, between two lobes mentioned above is a clavate projection, viz. ventral spine, parameres stout, prominent and incurved, between which are paired and short ventral lobes; pseudosternite in imago flat, subrectangular, its lateral postcornu forming flat and quadrangular lobe, mesal postcornu compressed with apex strongly recurved and pointed, the latter is projecting from the ventral surface of the preceding and the both being derived from triangular lobe of nymphal instar (imaginal structure is detectable beneath translucent nymphal cuticle). ramus of pseudosternite short and curved, ectoparamere elongate, slightly sigmoid, its apex being weakly decurved and compressed, with a minute subapical spinule, its ventral margin provided with series of spinules, endoparamere shorter than ectoparamere, stout and clavate, between endoparameres are a pair of apophyses, weaker than the former and apically divergent, ventral spines and ventral lobes fuse together, forming a structure much compressed and enormously broadened at apex (this structure may serve as an aedeagus). Female: ovipositor in penultimate nymphal instar short, dorsal valvula slightly constricted at middle portion, apex being lanceolate, margins entire, ventral valvula attenuate and pointed at apex; ovipositor in ultimate nymphal instar becomes longer than the preceding, dorsal valvula gradually attenuate at apex, its ventral margin and that of ventral valvula slightly wavy at apical one third; ovipositor in imago nearly as long as caudal femur, distal end of dorsal valvula markedly dilated, with external ridges, its ventral margin being roundedly serrated, distal region of ventral valvula dilated, its ventral margin provided with two large teeth, the apex being slightly clavate and decurved, inner valvula much reduced, only slightly produced beyond posterior inter-

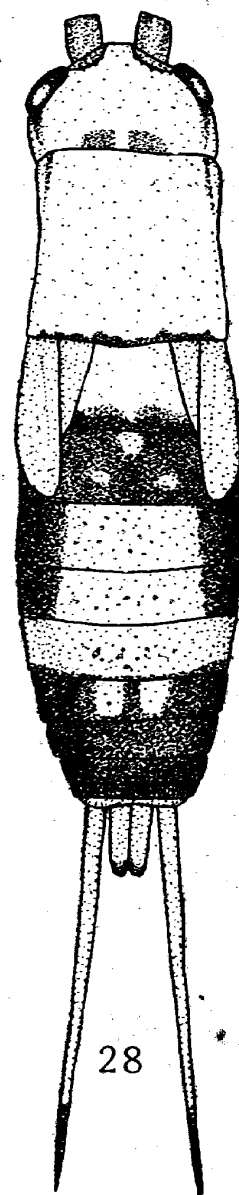
valvula; this podoscirtine type of ovipositor is abruptly reached at imaginal ecdysis, because ventral margins of valvulae in ultimate nymph is only slightly wavy; first valvifer of imago rhomboidal, with strong internal ridges and its internal apodeme being very large, ridge of ninth tergum articulated to it is very strong (as usual in endophytous egg-layer), second valvifer as usual in the family.

**Life coloration:** According to OKAZAKI young nymphs totally castaneous red. This color is gradually replaced by green with age. According to my observation, the nymph of the penultimate instar is emerald green, except the V-shaped postocular marking and marganotum which are yellow. The castaneous red markings are restricted to the following portions: a band behind eye, paired maculae at occiput, anterior and posterior maculae just beneath the marganotum, posterior margin of pronotum and metanotum, terga of the first, second, seventh, eighth and ninth abdominal segments, lateral part of the third and fourth segments, greater part of the sixth segment, tip of the cerci and the ovipositor and the end of tarsi. The antenna is fuscous. In the nymph of the ultimate instar the castaneous red portions of some abdominal segments retreat more laterad. In imago the same color is almost restricted to the post-ocular band and lateral maculae of the pronotum and the green tint becomes deepened. Transparent regions in the elytron (stippled in Fig. 25 and 27) are as follows:—intercalate triangle of the both sexes and central area of dorsal field of the male.

**Systematic position.** In the species treated above marganotum is distinctly carinate. So it should be called *Calypotrypus hibinonis* (MATSUMURA). Its nearest ally seems to be *C. parvispinosus* CHOPARD (Mountainous regions of Borneo and Malay Peninsula), and the main differences between these two species are tabulated below:—

<i>C. hibinonis</i> (MATS.)	<i>C. parvispinosus</i> CHOP.
Oblique veins of second group of ♂ elytron three.	Oblique veins of second group of ♂ elytron four.
Diagonal vein of ♂ elytron shorter.	Diagonal vein of ♂ elytron longer.
Apical branches of $Cu_1$ of ♂ elytron five.	Apical branches of $Cu_1$ of ♂ elytron four.
$Cu$ of ♀ elytron with 12 branches in total.	$Cu$ of ♀ elytron with 7 (?) branches in total.
Ectoparamere of ♂ genitalia decurved apically.	Ectoparamere of ♂ genitalia recurved apically.
Ventral spines plus ventral lobes of ♂ genitalia much dilated.	Ventral spines plus ventral lobes of ♂ genitalia less dilated.

The present species resembles also *C. kelvulus* (SERVILLE) (Borneo, Amboina, Sumatra, Java, Burma, Cambodja and Malay Peninsula), but oblique veins of the first group not



Text-fig. 28. *Calypotrypus hibinonis* (MATS.), nymph in penultimate instar, ♀ × 8.

arcuate, apico-inner margin of speculum not sinuate and  $Cu_1$  of ♀ elytron with more numerous branches. From *C. hofmanni* SAUSSURE (Java) the present species differs in more robust head and pronotum and in the shape of ectoparamere. The last tergite of the male is neither forceps-like as in *C. forceps* SAUSSURE (Shang-hai) nor provided with rod-like processes as in *C. furcifer* CHOPARD (Mountainous regions of Borneo and Malay Peninsula).

**Biological remarks:** Before HIBINO noticed the beautiful song of *C. hibinonis* for the first time in September, 1898, nobody had apparently known about this peculiar insect. Every orthopteran "expert-singer" has been the intimate friend of Japanese nature-lovers as cage-insect. Thus ignorance about this cricket in old days makes us believe that it is an immigrant. It seems to have spread from the center of Tokyo outward and now the insect is not at all uncommon in the suburbs of the city from September to October<sup>1</sup>. Its song may be noted as "ri ri ri....." or "zri zri zri.....". Each stroke is very short and rhythmical, and, according to my measurement, its rhythm consists of 49 strokes per 15 seconds (Temperature 23°C). By comparing the tone with my piano (which was regulated well) I could determine the height of the stridulating tone as D<sup>5</sup>. The cricket is phyllophagous in the natural condition and quite fond of leaves of *Prunus* etc., but in captivity pear and cucumbers were not rejected. The insect is arboreal and almost strictly phyllocolous. The green color, which is very rarely met with among gryllids, probably correlates with this singular habits. Sometimes it is attracted by electric lamp and enters our room on the wing. As in other phytocolous crickets (e. g. *Oecanthinae* and *Trigonidiinae*), its oviposition is endophytous. The ovum is banana-shaped and narrow. It is generally believed that the eggs of this species were introduced with young trees. Its true home, however, seems to be still obscure. The occurrence of the nearest allies in Middle China, Malaysia and Wallacea as mentioned above suggests that its home should be searched for in those districts.

Note: All figures drawn by Zeiss Zeichenapparat.

Explanation of Plate *Collyptotrypus hibinonis* (MATS.)

1. Ultimate tergite, ultimate instar, ♂, ×14. 2. Ditto, imago, ♂, ×14. 3. Lamina supranalis and L. subanalis, imago, ♂, ×14. 4. L. subgenitalis, ultimate instar, ♂, ×14. 5. Ditto, imago, ♂, ×14. 6. Genitalia, ultimate instar, ♂, lateral view, ×24. 7. Ditto, dorsal view, ×24. 8. Ditto, imago, ♂, dorsal view, ×14. 9. Ditto, lateral view, ×14. 10. Ultimate tergite, imago, ♀, ×14. 11. L. subgenitalis, penultimate instar, ♀, ×14. 12. Ditto, ultimate instar, ♀, ×14. 13. Ditto, imago, ♀, ×14. 14. Ovipositor, penultimate instar, ♀, ×14. 15. ultimate instar, ♀, ×14. 16. Base of ovipositor, imago, ♀, external view, ×12. 17. Ditto, internal view, ×12. 18. Apex of dorsal valvula, ×28. 19. Apex of ventral valvula, ×28. 20. Follicular setae of cercus, ×42. 21. Ovarian egg, ×14.

本小篇はアヲマツムシ *Collyptotrypus hibinonis* (MATSUMURA) に關する從來の知見の補遺として綴つたものである。

**形態的標徴:** 頭部。近似種とは大差無し。頭項前方, 前頭項は斜傾し扁平。前頭項より顔部に移行する部分は圓く且つ突出。中央單眼は最大にて, 前後に長い。大腮三角形に近く, 外縁は僅かの穹出, 齒狀突起はよく突出 (亞科的特徴と思はれる)。小腮, 葉節は細く, 端にて彎曲, 小腮鬚第3, 第4節棍棒狀, 第5節寧ろ短く, 略三角形。下唇, 基節幅長, 兩

1) Recently it has been discovered also in West Honsyū by NAKABAYASHI.



側略平行，小蝶鉸節は寧ろ長く，中舌短，側舌幅廣く兩片端で相接する。

胸部。前胸背の上背板の形に性差あり。雄で側縁直，後縁弧狀，雌では側縁少しく彎曲，後縁中央角出，側方彎入。中胸板胸寧ろ廣く，後方に1對の突出がある。後胸胸板は六角形に近く，後縁は稍や彎入。前肢脛節基部に擴がり端部に細まり，外面鼓膜は橢圓形にて露出，内面鼓膜は有殼，その間隙は細長で外面鼓膜長の2倍ある。後肢脛端の可動棘は外側群では小形で略等長，内側群では大形で上刺最長，跗節第1節は寧ろ短く，端棘は内方のものの方が長い。

脈相。雄・雌共最後齡幼蟲の氣管分脈と成蟲脈相とを比較し得たが，兩者の相關は頗る密接である（説明略，挿圖24—27参照）。

腹端。成蟲雄最後背板は中央三角形の切込に依り，三角形の2片に端が分たるとが，最後齡幼蟲では此の傾向は甚だ微弱である。成蟲肛門上板は正心臟形で，端が僅か許り最後背板より突出，生殖下板は兩期共梯形。成蟲雌最後背板は側方にも突出し，後端は矢筈形，肛門上板略半圓形。成蟲雌生殖下板は深く中央切込むが，この傾向は前最後齡幼蟲にても既に見られる。

生殖器。雄交尾器は最後齡幼蟲にて既に成蟲各部の原基を見る。成蟲の夫は頗る大形で複雑である。擬胸板は平く略正方形，其の側後角は方形片と成り，中央後角は鋭く上方に鉤曲，外側節は長く，端少しく下方に屈し，下縁に小齒を列生，内側節はよく發達し，筵狀，その内方に更に1對の棒狀體がある。下棘と下苞は合して側扁，端擴張，陰莖として用ひらると思はれる。雌産卵管の端は前最後齡・最後齡幼蟲では未だ單純なるも，化成するや本亞科に獨特な複雑な形狀となり，上片下縁には鈍鋸齒を列生，下片下縁には大形な齒を具へるに至る。樹枝に産卵するのに相關して，第一擔片體の内側突起は甚だ發達する。

體色。若幼蟲では全身栗褐，成蟲では綠色であるが，幼蟲最後の2齡にあつては頭部・胸部・腹背の中央が綠色で，未だ褐色部が廣く残つて居る。

唧音に就いて： 唧音は頗る大形で，“リー，リー，リー……”と云ふ様に聞える。筆者が一度測つた處では攝氏23°にて15秒に49回繰返す割合であつた。その音程は第五音階ハ調のレである。

類縁關係： アヲマツムシの近縁者は熱帶東洋に決して少く無い。最も酷似せるものにはボルネオ・馬來半島産の *C. parvispinosus* CHOPARD がある。併し脈相・雄生殖器の細部が異つて居る。屬の模式種の瓜哇・スマトラ・ボルネオ・馬來半島・ビルマ・カンボチャ・アンボイナ産 *C. helvolus* (SERVILLE) と同脈相に差がある。瓜哇産 *C. hofmanni* SAUSSURE とは前胸の形が同じで無い。雄腹部最後背板の形狀分化が更に進んだものが上海産 *C. forceps* SAUSSURE であり，その又極端が，ボルネオ・馬來半島産 *C. furcifer* CHOPARD である。以上は皆概ね綠色種で，生態的にも本種と殆ど同様，潤葉間に棲息するであらうと想像される。若し本種が信ぜらるゝ如く，南方より苗木中の卵によつて輸入されたものならば，本種の故郷は本屬の分布の密な中部以南の支那・印度支那・馬來地方・馬六甲地方であると考へらるゝが，會員諸彦の御協力に依り，本種の正しい故郷の判明する事，及び近似の他種の發見せらるゝ事を切望する。

所屬の屬に就いて： アヲマツムシ屬を整理すると次の如くなる。

アヤマツムシ属 *Calyptotrypus* SAUSSURE

- 異名表 *Calyptotrypus* SAUSSURE 1878 (pt.) : Mél. Orthopt., 5, p. 703  
*Madasumma* KIRBY 1906 (pt.) : Syn. Cat. Orthopt., 2, p. 93, no. 119.  
*Calyptotrypus* CHOPARD 1930 : Sarawak Mus. Journ., 4, no. 12, p. 33.  
 属模式 *Platydictylus helvolus* SERVILLE

SAUSSURE はこの属を4群に分けたが、第1, 2群は頗る互に近いもので、夫が今日用ふる眞の *Calyptotrypus* である。第3群は *madecassus* を中心とするもので、是が今日使用しつつある *Madasumma* WALKER に略相當する。第4群は *Mnesibulus* STÅL に相當する。KIRBY の *Madasumma* は第1, 2, 3, 群を合一した汎圍である。*Madasumma* の原記載に於いて WALKER は “Prothorax……lateribus subrotundatis” と書いて居るが、*Calyptotrypus* (狹義) に就いては CHOPARD が “前胸背の側縁が端然と角張る種群をこの属内に收容して是を *Madasumma* より獨立させ得る” と記した故、此の側梁の有無は2属間の重大な差である。尙ほ SAUSSURE は雄の生殖下板が第1, 2群では端が截狀で第3群では端が尖ると記したが、前出の特徴は *C* 属では例外無く適用され得るも、後出の特徴は *M* 属に用ひようすると、*M. willemsei* CHOPARD (スマトラ産)・*M. bimaculata* CHOPARD (馬來半島産) 等少數の例外を生ずる。未だ論議された事の無い特徴としては雄の交尾器があり、擬胸板後端と交尾器全體の後端との距離が *C* 属では甚だ大で、*M* 属では比較的小なる點は恐らく属の區分に役立つと思はれるが、尙ほ將來の研究を要する。

**亞科の問題** : SAUSSURE は亞科 Eneopterites を3群 (légion)——Eneopterites・Phorminctrites・Podoscirtites に分けたが、今日では是等が各昇格して3亞科と成つて居る。是らの特徴と邦産属の邦内分布とを列挙すれば、

1) マツムシ亞科 Eneopterinae. 後肢脛節の端可動棘は内側 (後面) 群に於いては中棘が上棘よりも長い (Fig. 23). 外側群でも同様。跗節第1節は長い。頭部は餘り小形で無く。前頭頂は廣い。複眼は側方に突出。邦産は3属。

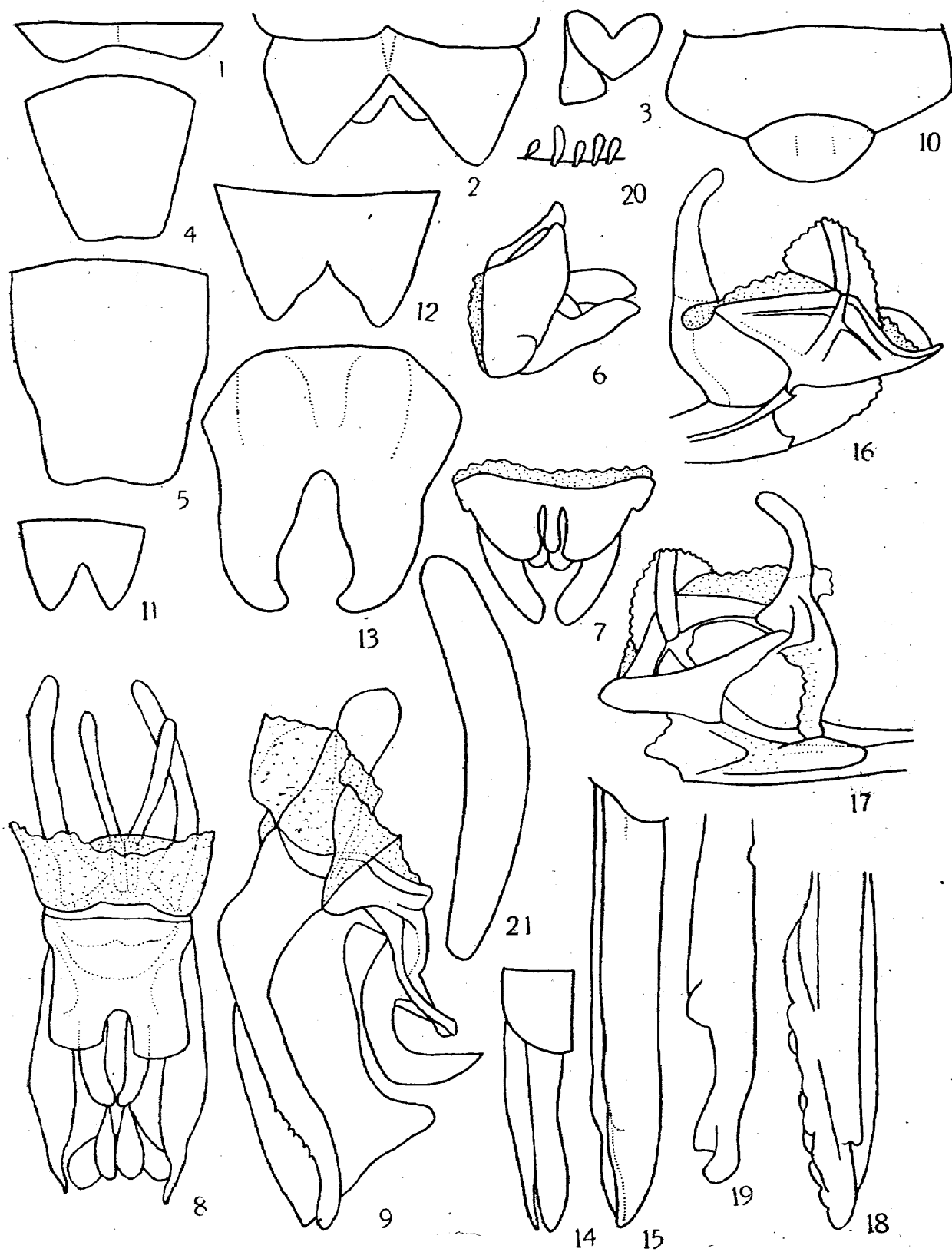
*Xenogryllus* BOLIVAR (= *Dionymus* BRUNNER W. = *Dindymus* KIRBY [sic!], 邦産のマツムシ *X. marmoratus* D. H. は南方に廣く分布するも、本州中部では日光・信州の如き山地迄は到達して居ない。尙ほビルマ・シルヘツト産の大形種 *X. transversus* WALK. (*calcaratus* Br. W.), 印度産の *X. carmichaeli* CHOP., アフリカ産の *X. eneopteroides* BOL. などを含む); *Lebinthus* STÅL (臺灣産); *Cardiodactylus* SAUSSURE (臺灣・紅頭嶼・琉球・南洋パラオ産のマダラマツムシ [改稱] *C. novae-guineae* D. H. は邦外でも甚だ分布が廣い)。

2) スマムシモドキ亞科 Itarinae (*Phormincter* SAUSSURE は *Itara* WALKER の異名である)。後肢の形態は前亞科に同じ。頭部は甚だ小形 (馬來半島産 *Gryllitara* CHOP. では例外的に頭部大形)。複眼は前方に突出。雄前翅背域は甚だ擴がる。本邦より記録あるもの2属。

*Heterotrypus* SAUSSURE (紅頭嶼産。日本内地より舊く記録あるものは、全く別属のものの間違ひかと思はれる)。; *Itara* WALKER (日本内地より舊く記録あるも、眞疑不明)。

3) マツムシモドキ亞科 Podoscirtinae. 後肢脛節端の可動棘は内側 (後面) 群では大形で上棘が中棘よりも長く (Fig. 20), 外側群では小形で3棘略等大。跗節第1節は短い。頭部は

圖版



大きさ属・種により種々。邦産6属。

*Mnesibulus* STÅL (紅頭嶼産。次属に類するも、體細長、前肢脛節は紡錘形。); *Madasumma* WALKER (= *Pseudomadasumma* SHIRAKI. 臺灣産。ボルネオ産 *M. pilosa* D. H., セイロン産 *M. incerta* CHOP., 濠州産 *M. obscura* CHOP. 等を中間に置くと此の2属の異名が成立する如く思はれる。); *Calypotrypus* SAUSSURE (既述の1種のみ邦産); *Podoscirtus* SERVILE (紅頭嶼産。雄の脈相は雌の夫と異らぬ。處が *Hemiphonus* の如きを中間に置くと雄にてても *Madarumma* に聯絡出来、雌では *M* 属と區別點が殆ど無い); *Aphononorsphus* REHN 本州西部・南部及び九州産。前属と甚だ酷似するも、前脛外面に鼓膜を缺くのが唯一の區別點。近來 *Gryllodes* 中にウスイロコホロギ *G. sigillatus* WALK. 及び近似の2, 3種のみを残し、コホロギ *Gryllulus aspersus* WAK. [= *berthellus* SAUSS.] 他大多數を *Gryllulus* 中に移したが、同様な筆法で行けば本属は前属の異名となる可能性が充分有る); *Euscirtus* GUÉRIN (本邦に廣く分布。頭部甚だ大形。前頭頂と頭頂とは段階に依り區劃せられ、産卵管は概ねS狀で端に鋸齒が無い點により、前述諸属とは著しく異なる)。

第1, 2亞科は殆ど區別する要の無い程類似し、是らと第3亞科との差は前者が地上を跳躍し、後者が植物上を歩む生態的要因に歸せしめ得るとすれば、是亦系統根本よりの差點では無い。生殖器等の類似等より見ても是ら3亞科は極めて近縁のものと思はれる。

## 挿 圖 説 明

挿圖1—9. アマツムシ、頭部。

1. 頭函、側面。2. 同、前面。3. 内骨格。4. 觸角。5. 右大腮。6. 左大腮。7. 小腮、後面。8. 下唇、後面。9. 亞咽頭。

挿圖10—22. アマツムシ、胸部。

10. 頭胸部、背面、雄。11. 同、雌。12. 前胸背、側面。13. 中胸胸板。14. 後胸胸板。15. 前肢膝部、後面。16. 同、前面。17. 前肢跗節。18. 後肢膝部、後面。19. 後肢脛節、前面。20. 後肢脛節端及び跗節、後面。21. 同、上面。22. 發音突起。

挿圖23. マツムシ、後肢脛節端及び跗節、後面。

挿圖24. アマツムシ、最後齡幼蟲前翅原基、雄。

挿圖25. 同、成蟲前翅、雄。

挿圖26. アマツムシ、最後齡幼蟲前翅原基、雌。

挿圖27. 同、上成蟲前翅、雌。

## 圖 版 説 明 (571頁)

1. 腹部最後背板、最後齡、雄。2. 同、成蟲、雄。3. 肛門上板及び下板、成蟲、雄。4. 生殖下板、最後齡、雄。5. 同、成蟲、雄。6. 交尾器、最後齡、雄、側面。7. 同、背面。8. 同、成蟲、雄、背面。9. 同、側面。10. 腹部最後背板、成蟲、雌。11. 生殖下板、前最後齡、雌。12. 同、最後齡、雌。13. 同、成蟲、雌。14. 産卵管、前最後齡、雌。15. 同、最後齡、雌。16. 産卵管基部、成蟲、雌、外面。17. 同、内面。18. 産卵管背片端。19. 産卵管胸片端。20. 尾肢の囊狀毛。21. 卵巢卵。