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THE GENUS ACANTHOCNEMA IN ASIA AND EUROPE, WITH DESCRIPTIONS OF THREE NEW SPECIES FROM JAPAN AND NEPAL (DIPTERA : SCATHOPHAGIDAE)

By Masaaki Suwa

Abstract

Suwa, M. 1986. The genus Acanthocnema in Asia and Europe, with descriptions of three new species from Japan and Nepal (Diptera : Scathophagidae). Ins. matsum. n. s. 34 : 1–33, 109 figs.

The genus Acanthocnema Becker is recorded from Asia for the first time on the basis of three species, which are described as new to science, namely A. himalaica from Nepal and A. longispina and A. sternalis from Japan. The species of the genus known from Europe, A. nigrimana and A. glaucescens, are also redescribed. Distinction between Acanthocnema and Clinoceroides is discussed, and the latter is not accepted as a good taxon at any level.

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* Results of Kyushu University Scientific Expedition to the Nepal Himalaya. Diptera 7.
INTRODUCTION

The genus Acanthocnema is a small group and has been represented by only 5 species, of which two are known from Europe, namely A. nigrimana (Zetterstedt, 1846) and A. glaucescens (Loew, 1864), and three from North America, namely A. albibarba (Loew, 1869), A. capillata (Loew, 1872) and A. ruficauda Curran, 1929. In my recent study I have recognized 2 species occurring in Japan and another one in Nepal. Further, by courtesy of Dr. Pont I have been able to examine a pair of specimens of each European species. Compared with these specimens the 3 Asian species are quite distinct from the European species. As to the North American species of Acanthocnema only limited information is available in the literature and no specimens have been examined by myself. Nevertheless, the Asian species at hand differ from the N. American species except capillata in the mostly darkened or blackish antennae: A. albibarba and A. ruficauda have the antennae mostly reddish (after Curran, 1929). A. capillata has blackish antennae as in the Asian species. According to the original description based on the female, capillata may be characterized as follows: —Antennae short and entirely blackish, with 3rd segment rounded and ovoid; vibrissal angles with setae slender; mesonotum nearly bare except for ordinary setae. Further, Curran (1934) states that in Acanthocnema "Anterior tibiae with a short, stout, rectangular spine at apex of ventral surface": this may be true in all the North American species including capillata. The combination of all these characters may well separate capillata from the Asian species, which, therefore, will be described as new to science. On this occasion redescriptions of the European A. nigrimana and A. glaucescens are also given.

So far as I observed on a Japanese species (sternalis sp. nov.), the adult flies are found on rocks wet with the spray of swift mountainous streams, and probably feed on soft-bodied small insects. I collected 1 female of the species preying on a small ephemeral subimago. According to Vockeroth (1967), the species of Acanthocnema undoubtedly live as larvae in swift streams.

Before going further I wish to express my sincere thanks to Dr. A.C. Pont, British Museum, for his help in offering me valuable material of the European Acanthocnema for the present use. My appreciation is also extended to Dr. H. Shima, Kyūshū University, for his kind allowance to study the Nepalese material obtained by the university expedition.

GENUS ACANTHOCNEMA BECKER

Clinoceroides Hendel, 1917, Deut. ent. Ztschr., p. 36. Type-species: Cordilura glaucescens Loew, 1864, original designation.

This genus is easily distinguished from other genera of the Scathophagidae by the fore tibiae with a stout and spine-like apical v. The name "Acanthocnema" is based on these 'spined' tibiae. On the basis of the European and Asian species studied by myself the genus is described as follows: —

Head higher than long even if only a little; frons wide, nearly parallel-sided or
slightly narrowing ventrad, at level of anterior ocellus about half as wide as head, and even near lunule distinctly wider than 0.4 times head-width; parafrontals with 2-3 (rarely 1 or 4) ori and 3 (rarely 2 or 4) ors, and with at least some and usually more than 10 associated setulae, the anteriormost ors being proclinate (in nigrimana) or usually lateroclinate though more or less directed anteriorly, and the remaining ors always lateroclinate; arista only pubescent, and not plumose; vibrissal angles usually with 1 or a few strong setae apart from the ordinary vibrissa; ground setulae* pale-coloured on haustellar mentum, lower half of occiput and postgena.

Mesonotum with some pairs of weak pre-acr, the rows closer to each other than to dc-rows; dc usually 2+3; 1 ph present or absent; hm (humeral setae) 0+1 or 1+1, the anterior, if present, being weaker than the posterior; notopleura with no accessory setulae; propopleura covered with pale-coloured setulae at least anteriorly, and with 1 or rarely 2 prpl; mesopleura setulose towards upper and posterior margins, with 1 strong and a few or some additional (weak to rather distinct) mpl, and with or without 1 pstg; pteropleura bare; sternopleura setulose on posterior half, with setulae usually pale-coloured, those on lower to ventral side being somewhat stronger than the uppers; stpl always 1 in number and usually blackish in colour; scutellum bare on dorsal centre and setulose towards lateral margins, always with 2 (i.e. apical and lateral) pairs of strong setae, setae of the lateral pair being variable in position from basal to median, and sometimes with 1 or a few additional pairs of weaker setae discernible.

Abdomen with ground setulae on sternites and on 1st tergite wholly or mostly pale-coloured. Male: - 1st spiracles always placed on membrane; 2nd spiracles on lateral margins of tergite or on membrane in touch with the margins; 3rd to 5th ones on corresponding tergites laterally, or in nigrimana on membrane in touch with lateral margins of the tergites; left 6th spiracle on membrane near anterolateral corner of 6th tergite, and right one on the tergite at or near anterolateral corner; left 7th spiracle on 7th sternite area posteriorly in pregenital sclerite, right one on the sclerite or shifted to 6th tergite; 5th sternite simply bi-lobed, with no projections along inner margin; hypopygium with surstyli simple, and not incised or furcate. Female: - 2nd to 5th spiracles placed on tergites at or near lateral margins; 6th spiracles on tergite laterally or anteriorly; 7th ones on 6th tergite near or contiguous to its posterior margin, or on membrane between 6th and 7th segments; 7th tergite partially or completely divided medianly, and partially or largely fused with 7th sternite laterally; 8th tergite divided medianly or entire; 8th sternite represented by 2 sclerites, which are elliptical or compressed and triangular.

Legs slender, with f₁, rather stout; coxae and trochanters with ground setulae all pale-coloured, or in nigrimana partly blackish; femora with ground setulae on ventral to posterior surface wholly or mostly pale-coloured, though almost entirely blackish in nigrimana; f₁, with no av, 0–1 (rarely 2 or 3) ad near apex, some pd, and at least 3 pv in basal half, the basal pv being practically v; f₂ with 0 or at most 1-2 weak av, a row of a, and 1-2 fine or at most 4-5 weak or rather distinct pv, and near apex with 1 or a few strong setae on anterodorsal to posterior surface; f₃, with or without a few or some weak to rather distinct av, with a row of a (all or most a on apical half of the femur being indiscernible in certain species), some ad on apical

* After the term "Grundbehaarung" found in Hennig's articles on Diptera.
half or a little more length, and a few or some (0-1 in certain species) pv, and near apex with or without 1-2 strong setae on dorsal to posterodorsal surface; t₁ with many short spinules on ventral surface in 1 or a few rows, with 1 ad and 1-2 pv, and with no av nor pd; apical av weak though usually distinguishable from adjacent setulae, apical ad and pd indiscernible, apical pv weak, distinguishable from adjacent setulae or not, apical d indiscernible in certain species, yet distinct to strong in others, and apical v always stout and directed ventrad at a right or obtuse angle to the tibia; t₂ usually with 1 ad and 1 pd, and usually with no av nor pv; t₃ with 1-3 (rarely 4) ad, 1-3 pd and no av nor pv, and with 2 (av and d) or 3 (ad additioned) distinct apical setae, apical d longest; apical pd weak and hardly distinguishable from adjacent setulae, and apical pv absent. Wings narrow and often a little longer than thrice the width, or rather broad (about 2.7 times as long as wide in the case of the present female specimen of glaucescens), and comparatively long and often a little longer than twice the length of head and thorax combined, or rather short (about 1.6-1.7 times as long as head and thorax combined in the case of the specimens examined of nigrimana); no emargination in outline; no additional cross-veins; R₄₊₅ and M₁ nearly parallel to each other beyond dm-cu, the latter cross-vein being right- or obtuse-angled to the penultimate section of M₁; anal vein reaching to wing-margin.

Remarks. The members of the genus treated in this paper are as follows:

1. Acanthocnema nigrimana (Zetterstedt), Europe.
2. A. glaucescens (Loew), Europe.
4. A. longispina sp. nov., Japan.
5. A. sternalis sp. nov., Japan.

The genus was sometimes divided into Acanthocnema (s. str.) and Clinoceroides, at the generic or subgeneric level, on the basis of the anteriormost ors, which is proclinate in nigrimana (type-species of Acanthocnema), whereas lateroclinate in glaucescens (type-species of Clinoceroides). In this respect all the newly found Asian species should belong to Clinoceroides. However, when other characters are taken into consideration, the separation of Clinoceroides seems unjustifiable. For example, the posterior arms of hypandrium of the male genitalia are fused with each other in glaucescens, himalaica and longispina, whereas free in nigrimana and sternalis, and the female 8th sternite is represented by elliptical plates in sternalis, whereas by triangular ones in the others. At present it may be appropriate to put all the species into 1 genus and to recognize no subgenera. No analysis of relationship among the species is attempted in this paper, because it needs evaluation of characters based on other groups of the family.

Key to the species of Acanthocnema from Europe and Asia

1. Frons on lower half, antennae, haustellar mentum and legs wholly or largely yellowish; t₁ with 1 pv, and with apical d longer than 1.5 times t₁-height; mesonotum without ph.
   - Europe. ................................................................. 1. nigrimana (Zetterstedt)
   - Frons, antennae, haustellar mentum and legs blackish or dark brown, at most partly paler; t₁ with 1-2 pv, and with apical d shorter than 1.5 times t₁-height or indiscernible; mesonotum with or without 1 ph. ................................................................. 2

2. Fore tibia with apical v longer than 1.5 times t₁-height; arista pubescent on whole length;
mesonotum with ph absent. Japan. 4. *longispina* sp. nov.

- Fore tibia with apical v shorter than 1.5 times t, heght; arista pubescent at most on basal two-thirds and bare apically; mesonotum with ph present or absent. 3

3. Fore tibia with 1 pv, and with apical d indiscernible; mesonotum with ph absent. Nepal. 3. *himalaica* sp. nov.

- Fore tibia with 2 pv, and with apical d easily discernible; mesonotum with ph present and usually well developed. 4

4. First sternite nearly bare, at most with a few setulae near each lateral margin. Male: 2nd to 4th sternites as long as or only a little longer than wide; 5th sternite with processes tapering apicad; 6th tergite free from pregenital sclerite. Female: 2nd to 6th sternites very broad, as wide as or wider than long; 8th sternite represented by elliptical sclerites. Japan. 5. *sternalis* sp. nov.

- First sternite rather densely setulose, with more than 10 setulae towards each lateral margin. Male: 2nd to 4th sternites distinctly longer than wide; 5th sternite with processes little tapering apicad and rounded at apices; 6th tergite fused with pregenital sclerite though the suture discernible in part. Female: 2nd to 6th sternites not so broad, and distinctly longer than wide; 8th sternite represented by triangular sclerites. Europe. 2. *glaucescens* (Loew)

**DESCRIPTIONS**

1. *Acanthocnema nigrimana* (Zetterstedt, 1846)


Distribution. Europe.

The present specimens have the following characters:

♂. Body-length 7.2 mm; wing-length 5.8 mm. Body in ground colour largely yellow on head and mainly blackish on thorax and abdomen. Legs yellow. Head in ground colour blackish on upper half of parafrontals, ocellar triangle, and upper half of occiput, and yellowish on the remaining parts; interfrontalia brownish near ocellar triangle; antennae yellow; arista yellow, with apical half darkened; palpi pale yellow in ground colour and densely whitish pollinose or tomentose, with marginal setulae mostly pale-coloured, some in apical half being dark brown or blackish; haustellar mentum yellowish. Thorax in ground colour partly yellow or brownish yellow, especially on prosternum, sternopleura near mid coxae, and metathoracic basistemum in part, and mostly blackish on the remaining regions, and in pollinosity pale grey; mesonotum pale yellowish grey and slightly brownish in pollinosity, paler and denser on peripheral regions and between rows of acr, with opaque dark paramedian vittae visible between rows of dc and acr in some lights. Abdomen mostly blackish in ground colour and thinly pale greyish pollinose, with brownish yellow setulae on cercal plate, surstyli and inner bases of 5th sternite processes; 6th tergite and hypopygium brownish yellow in part; 1st to 4th sternites blackish or dark brown; 5th sternite brownish on processes apically and on basal plate posteriorly, and shining on apices of processes. Legs yellow; mid and hind coxae partly darkened. Wings tinged with brownish yellow along veins, strongly...
and broadly so towards base and costa; veins brownish yellow, partly dark brownish; calypttrae orange yellow marginally, with fringe paler; halteres yellowish.

Head somewhat wider than mesonotum, about 1.1 times as wide as the latter (mesonotum-width represented by the distance between anterolateral edges of notopleura in dorsal view); frons, measured at level of anterior ocellus (same in succeeding species), 0.47 times as wide as head, and very slightly narrowing ventrad; parafrontals with 3 ori (middle one on the left parafrontal much weakened) and 1 proclinate and 2 lateroclinate ors (uppermost one missing), and with some (about 7 in this specimen) minute setulae scattered especially outside ori; vibrissal angles with a few strong setae and some short setulae apart from ordinary vibrissa; A₃ (3rd antennal segment) probably about twice as long as wide (shrunk in the specimen); arista short pubescent on basal third and bare apically; palpi blade-like, about 3 times as long as wide, and wider than t₁-height, with marginal setulae less than half as long as palpi; haustellar mentum much narrower than t₁-height, and rather densely covered with very long and hair-like setulae; postgenal setulae very long.

Mesonotum with some pairs of pre-acr (5 setulae on the left row and 4 on the right in this specimen), and no setulae present between the rows; dc 2+3; anterior hm slightly developed on the right body-side, yet hardly distinguishable from accessory setulae on the left; ph absent; ia 3, the anteriormost much weakened; 1 blackish prpl and no associated setulae; mesopleura with a few weak additional mpl discernible, and with a blackish pstg and no associated setulae; sternopleura with setulae on posterodorsal region short and pale-coloured and those on ventral side longer and blackish, and with some rather strong and blackish setae at posteroventral corner; scutellum rather broadly bare on dorsal centre, and with no additional pairs of setae.

Abdomen slender, about 4 times as long as wide; tergites with marginal setae weakly developed, only a little stronger than ground setulae; 1st sternite scarcely setulose, with only a few pale-coloured setulae discernible laterally; 2nd spiracles placed on lateral margins of tergite; 3rd to 5th spiracles on membrane in touch with lateral margins of corresponding tergites; right 7th spiracle on pregenital sclerite anterolaterally (Fig. 1); epandrium densely setose on posteroventral corners (Fig. 19); surstyli broadly maintained throughout and truncated apically, armed with many long setae around apex and densely pilose on ventral side near apex (Figs. 17-18); hypandrium with posterior arms free from each other (Fig. 33); distiphallus (Figs. 38, 43, & 47) with no folds on posterior paraphalli; acrophallus short and thick, carinated on ventral side medianly and concave on each side of the carina, the concavity being surrounded by a narrow brim on dorsal to distal margin; ejaculatory apodeme (Fig. 69) with median blade narrow (probably owing to youthfulness of the specimen examined).

Fore coxa with ground setulae pale yellowish and long, and with some rather strong black setae; mid coxa with ground setulae black and with a few strong black setae; hind coxa with ground setulae mostly black and with a few rather strong black setae; trochanters with setulae mostly pale-coloured; femora and tibiae with setulae and setae mostly blackish; f₁ densely setulose ventrally, with 1 short d near apex, about 7 pd, and 3 pv in basal half, the basal pv being rather fine and more or less pale-coloured and distal one also rather fine, and with a few short and fine pv
discernible in apical half; \( f_2 \) with no \( av \), a row of 7-8 \( a \), 1 \( pd \) near apex, 3 \( pv \) in basal half, and 1-2 fine \( pv \) discernible in apical half; \( f_3 \) with 4-5 \( av \) on apical two-thirds, a row of 8-9 \( a-ad \) (4-5 \( a \) on basal half rather anterodorsally and 4 \( ad \) on apical half), and 5-7 \( pv \) (a few of them in apical third being fine), and with no \( d \) nor \( pd \); \( t_1 \) with ground setulae on apical two-thirds of anterior to anteroventral surface brownish to yellowish, and ventral spinules quite distinct, distributed on whole length of tibia except near base and arranged in a few rows, with 1 strong \( ad \), which is about twice as long as \( t_1 \)-height (in the present specimen 1 additional \( ad \) also visible at basal third of tibia in left leg), and with 1 strong \( pv \) near apex, which is a little shorter than the primary \( ad \); apical \( d \) strong and slightly longer than 1.5 times \( t_1 \)-height, apical \( pv \) as weak as adjacent setulae, and apical \( v \) as long as or slightly shorter than \( t_1 \)-height; \( t_2 \) with 1 \( ad \) and 1 \( pd \); \( t_3 \) with 2 \( ad \) and 2 \( pd \), and with apical \( ad \) (missing in the specimen) probably distinct (so far as suggested by the setal socket). Wings about 3 times as long as wide, and about 1.7 times as long as head and thorax combined.

♀. Body-length 6.5 mm; wing-length 5.8 mm. Antennae infuscated on dorsal side of \( A_2 \) and on apical half of \( A_3 \); palpi less densely tomentose than in male, with marginal setulae on apical half mostly darkened. Abdomen in ground colour brownish yellow on 1st tergite basally and on 6th and 7th tergites; 2nd to 5th tergites brownish along lateral margins; 1st to 6th sternites dark brownish or blackish, paler marginally; 7th sternite yellowish. Fore femur darkened on dorsal to posterior surface except near base and apex; hind femur also darkened on middle third of dorsal surface. Wings more evenly tinged with brownish yellow than in male.

Frons 0.45 times as wide as head; parafrontals with 3-4 \( ori \) and 3 \( ors \), and with about 14 minute setulae scattered; \( A_3 \) about twice as long as wide; haustellum with setulae short and rather sparse; postgenal setulae much shorter than in male. Thorax with anterior \( hm \) slightly (on the left body-side) or hardly developed; 2 \( ia \) discernible on the left body-side (missing on the right), very fine. Abdomen a little longer than twice the width; 1st sternite with some setulae laterally (3 on the right and 5 on the left in this specimen); 2nd to 5th spiracles placed on the corresponding tergites near lateral margins; 6th spiracles on 6th tergite in touch with anterior margin (Fig. 84); 7th spiracles on 6th tergite near posterior margin; 7th tergite divided medially (Fig. 94), and fused with 7th sternite on anterior part narrowly (Figs. 100 & 105); 8th tergite incompletely divided medianly, with some setulae laterally; 8th sternite represented by 2 triangular sclerites, each having minute fine setulae only.

Fore coxa with ground setulae comprising pale-coloured ones and blackish ones, and shorter than in male; \( f_1 \) (right one missing) with a row of about 10 \( pv \), of which 3 setae are situated in basal half and others in apical half, the latters becoming shorter towards apex of femur and a few of them near apex much weakened, and with 6 \( pd \) and no \( d \); \( f_2 \) with about 10 \( a \), 1 \( p \) or \( pd \) near apex, 3 \( pv \) in basal half, and a few short and fine \( pv \) in apical half; \( f_3 \) (left one missing) with 6 \( av \) on apical two-thirds (2 of them near apical third rather strong), 9 \( a-ad \) (practically all \( ad \)) and 6 \( pv \); \( t_3 \) with 2 \( ad \) and 1 \( pd \), and with apical \( ad \) distinct. Wings about 1.6 times as long as head and thorax combined.

Remarks. This species is quite different from the other species treated in this paper in having the much paler colouration on the head and appendages, less bluish
grey pollinosity, proclinate anteriormost ors, and characteristic surstyli with truncated apex and much denser pilosity. In other characters, however, it is not always isolated. It is similar to sternalis in the male pregenital sclerite free from 6th tergite and with right 7th spiracle anterolaterally and in the hypandrium with posterior arms free from each other; to glaucescens in the female 6th tergite with 6th spiracles on anterior margin and with 7th spiracles near posterior margin; to himalaica, longispina and sternalis rather than to glaucescens in the wholly wrinkled spermatheca; and to glaucescens, himalaica and longispina rather than to sternalis in the female 8th sternite represented by triangular sclerites. There seems to be no reliable basis to separate nigrimana at the generic or subgeneric level from the other species, which, therefore, all should be referred to Acanthocnema.

2. Acanthocnema glaucescens (Loew, 1864)

Acanthocnema latipenne: Sack, 1937: 77
Acanthocnema (Clinoceroides) glaucescens: Pont, 1976: 108


Distribution. Europe.

♀. Body-length 4.8 mm; wing-length 4.6 mm. Body in ground colour mostly dark brownish or blackish and in pollinosity greyish and partly brownish. Parafacials and cheeks brownish in ground colour, with vibrissal angles pale brownish yellow; frons and vertex brownish pollinose; antennae dark brownish, paler on A₁, A2 apically and A3 basally; palpi yellowish in ground colour, rather thinly whitish tomentose, and with setulae yellowish; haustellar mentum fuscous. Thorax in pollinosity bluish grey and slightly brownish on pleural regions, humeral calli and scutellum, and brownish on mesonotum. Abdomen in ground colour mostly blackish, with 5th sternite and cerceal plate brownish or dark brown, and in pollinosity bluish grey and faintly brownish, with 5th sternite shining on processes apically and on basal plate posteriorly. Legs blackish; coxae dark brownish on posterior side; trochanters brownish; femora dark brownish at base and apex; tibiae dark brownish at base and apex ventrally; tarsi dark brownish. Wings with veins dark brownish; membrane with a brownish suffusion especially along veins; calyptrae pale brown, with margins dark brown; halteres tawny yellow.

♂. Body-length 4.8 mm; wing-length 4.6 mm. Body in ground colour mostly dark brownish or blackish and in pollinosity greyish and partly brownish. Parafacials and cheeks brownish in ground colour, with vibrissal angles pale brownish yellow; frons and vertex brownish pollinose; antennae dark brownish, paler on A₁, A2 apically and A3 basally; palpi yellowish in ground colour, rather thinly whitish tomentose, and with setulae yellowish; haustellar mentum fuscous. Thorax in pollinosity bluish grey and slightly brownish on pleural regions, humeral calli and scutellum, and brownish on mesonotum. Abdomen in ground colour mostly blackish, with 5th sternite and cerceal plate brownish or dark brown, and in pollinosity bluish grey and faintly brownish, with 5th sternite shining on processes apically and on basal plate posteriorly. Legs blackish; coxae dark brownish on posterior side; trochanters brownish; femora dark brownish at base and apex; tibiae dark brownish at base and apex ventrally; tarsi dark brownish. Wings with veins dark brownish; membrane with a brownish suffusion especially along veins; calyptrae pale brown, with margins dark brown; halteres tawny yellow.

Head about as wide as mesonotum; frons 0.54 times as wide as head, slightly narrowing ventrad; parafrontals with 1–2 ori and 3 ors, and with many (ca. 20) short associated setulae; vibrissal angles with 1 strong seta and some short setulae apart from ordinary vibrissa; A₃ about 1.5 times as long as wide; arista pubescent on basal half and bare apically; palpi blade-like, a little longer than 3 times the width and narrower than t₇-height, with longest setula a little shorter than palpus-length; haustellar mentum enlarged, about as wide as f₇-height, and with some rather short setulae near centre.
Mesonotum with some (4 in this specimen) pairs of pre-acr, 1 setula visible between the rows in the present specimen; acr 2 + 3; anterior hm slightly developed; 1 well developed ph; ia 2; 1 pale-coloured prpl and no associated setulae; mesopleura with upper ground setulae short and lowers slender, with additional mpl hardly distinguishable from adjacent setulae, and with 1 pale-coloured pstg and no associated setulae; scutellum with discal pair of slightly developed setulae discernible in addition to ordinary pairs.

Abdomen nearly parallel-sided, and about 2.8 times as long as wide; tergites with marginal setae rather developed except on middle, longest ones nearly as long as their corresponding tergites; 1st sternite with about 12 setulae on each lateral side; 2nd spiracles placed on lateral margins of tergite; pregenital sclerite (Figs. 2 & 6) broadly fused with 6th tergite, right 7th spiracle being placed near anterolateral corner of the area correspondent to the sclerite; 5th sternite with processes little tapering caudad and rounded apically, and with basal plate nearly straight on posterior margin; surstyli narrowing apicad, with many long setae dorsolaterally; hypandrium with posterior arms fused with each other; distiphallus with fine folds on posterior paraphalli, the folds being intermittent and file-like (Figs. 39 & 48); acrophallus long, membranous on basal half ventrally and compressed there; ejaculatory apodeme with median blade enlarged and broadly brimmed marginally (Fig. 70).

Coxae and trochanters with setulae or setae all pale-yellowish and with no blackish ones; femora with ground setulae on posterior to ventral surface pale-coloured; f1 with 1 ad near apex, about 8 pd, and 3 pv on basal third, the basal pv being pale yellow and other pv brownish; f2 with 1 weak av near apical third, 5-6 a, 1 pd and 2 p near apex, and 3 fine pv in basal half, the basal pv pale yellow; f3 with 1 av near apical third, a row of a except near apex (only a few a in basal half being rather strong and the rest fine), 7-8 ad on apical three-fifths, and 1 pale-coloured slender pv near base; t1 with ventral spinules distributed on apical two-thirds of tibia, arranged in 2 rows; with 1 rather weak ad, which is about as long as t1-height, and with 2 long pv, the proximal one being as long as or slightly longer than twice the t1-height and situated near apical third or somewhat more distantly from apex of tibia, and the distal one a little longer than the proximal and situated near apex of tibia; apical d rather weak, about as long as t1-height, apical pv discernible on left t1, yet indiscernible on the right in the specimen, and apical v as long as or slightly shorter than t1-height; t2 with 1 ad and 1 pd; t3 with 1-2 ad and 1 pd, and with apical ad hardly or slightly developed. Wings about 3 times as long as wide and about 1.9 times as long as head and thorax combined.

♀ (the specimen examined is teneral). Wing-length 5.4 mm. Palpi dark brownish yellow. Parafrontals with 2 ori and 3 ors, and with associated setulae longer than in male. Mesonotum with 5 (right body-side) or 6 (left) pre-acr and 3 setulae between the rows in this specimen; anterior hm rather well developed though much shorter than the posterior; ia 3 (right) or 4 (left); prpl and pstg blackish; mesopleura with a few additional mpl discernible, a little stronger than adjacent setulae; sternopleura with some of setulae on upper middle blackish. Abdomen with 1st sternite more densely setulose than in male; 2nd to 5th spiracles placed on tergites near lateral margins; 6th spiracles on anterior margin of 6th tergite, and 7th spiracles also on 6th tergite near posterior margin; 6th tergite
membranous along median line except anteriorly (Fig. 95); 7th tergite widely divided medianly, and fused with 7th sternite on anterior half; 8th tergite completely divided medianly, with a few setulæ laterally; 8th sternite represented by 2 triangular sclerites, each having a spine-like short seta at apex; spermathecae differentiated into round and smooth apical part and rod-like and wrinkled basal part (Fig. 90).

Fore femur with 1 (in left leg) or 3 (right) ad near apex, about 8 pd and 3 blackish pv, in right leg with 1 weak av discernible (probably absent in usual cases); f₂ with 1–2 av, a row of about 10 (some weak and some strong) a, 1–2 pd and 1 p near apex, and 4–5 pv in basal half or two-thirds; f₃ with 2–3 distinct and 1–2 fine av in apical half, a row of a–ad in basal two-thirds (3–4 in basal half rather strong), 6–8 ad in apical three-fifths, 1 pd near apex and 1 pv near base; t₂ with 1 ad, 0–1 pd and 0–1 pv; t₃ with 2 ad and 1 pd, and with apical ad more or less developed. Wings about 2.7 times as long as wide, and about twice as long as head and thorax combined.

Remarks. In having the enlarged haustellar mentum, 2 pv on t₁, and wedge-shaped surstyli, this species resembles sternalis, from which it is, however, quite different in the hypandrium with posterior arms fused with each other, distiphallus with lengthened acrophallus, characteristic spermathecae, and the characters mentioned in the key. A. glaucescens might be more closely related to longispina by having the fused posterior arms of hypandrium, long acrophallus of distiphallus, similar shape of praegonites, and 5th sternite with processes set apart from each other, though it is easily distinguishable from the latter species by the arista pubescent on basal half only, t₁ with shorter apical v, 5th sternite with processes little tapering, and other characters.

3. Acanthocnema himalaica sp. nov.

Material examined. Nepal. East Nepal: - Thudam, 3500 m, 27°45′N 87°32′E, 1♂ (holotype), 24. vi. 1972 (Y. Nishida); Thudam - Tanga La, 3500–4700 m, 1♀, 5. vii. 1972 (H. Shima). The specimens are deposited in the Biological Laboratory, College of General Education, Kyushu University.


♂. Body-length 5.4 mm; wing-length 6.3 mm. Body mainly blackish in ground colour and bluish grey in pollinosity. Interfrontalia slightly brownish near lunule in ground colour and pale brownish grey in pollinosity; parafrontalts in pollinosity pale brownish grey along inner margins and bluish grey along eye-margins; ocellar triangle and adjacent areas pale brownish grey pollinose; occiput bluish grey pollinose; parafacialts and cheeks in ground colour yellowish brown, darkened along eye-margins, and in pollinosity whitish grey; vibrissal angles yellowish brown; antennae blackish, with A₂ a little brownish dorsosapically; arista blackish; palp dark brown, and rather thinly whitish tomentose, with setulæ near apex short and blackish, other setulæ pale yellowish. Mesonotum brownish pollinose except on peripheral area; scutellum more or less brownish in ground colour on basal centre to apex. Abdomen with ground setulæ on ventral side pale yellowish, those on 5th sternite brownish yellow; cercel plate brownish; 5th sternite blackish or dark brown, with processes shining on apical margin. Legs dark, partly
brownish (owing to rather teneral condition of the specimen?); coxae blackish and partly brownish, with setae yellowish or brownish and with no blackish ones; trochanters brownish, darkened on hind one; femora blackish, more or less brownish on ventral side apically; tibiae dark brown; tarsi brownish. Wings tinged with brownish yellow; veins brownish; calypterae brownish; halteres brownish, darkened apically.

Head slightly narrower than mesonotum; frons nearly parallel-sided, and 0.47 times as wide as head; parafrontals with 2 ori and 3 ors, and more than 10 (13 in this specimen) short associated setulae; vibrissal angles with 1 strong and some weaker setae apart from ordinary vibrissa; A3 1.6 times as long as wide; arista very minutely pubescent on basal third; palpi about 4 times as long as wide and narrower than t1-height, with longest setula slightly shorter than palpus-length; haustellar mentum much narrower than t1-height, and scarcely setulose, only with a pair of rather long setulae near base and a few scattered short ones.

Mesonotum rather densely setulose along and outside rows of ia and between rows of dc and acr around 2nd and 3rd post-dc; 6 (right row) or 7 pre-acr, between the rows with 3 setulae; dc 2+3; anterior hm well developed, though slightly shorter than the posterior; ph indiscernible; ia 2, strong; 1 dark brownish prpl and no associated setulae; mesopleura with a few weak additional mpl discernible, and with no pstg; scutellum rather densely setulose towards lateral margins, with a few additional pairs of slightly developed setulae.

Abdomen 2.5 times as long as wide; tergites with developed marginal and discal setae except on middle, longest ones distinctly longer than corresponding tergites; 1st sternite with 3-4 setulae near each lateral margin; 2nd spiracles placed on tergite laterally; pregenital sclerite narrowly fused with 6th tergite on right side, thereon with right 7th spiracle (Fig. 3); 5th sternite with inner margins of processes forming an acute emagination (Fig. 11); surstylus wedge-shaped, with setae rather short (Figs. 21 & 23); hypandrium with posterior arms fused with each other (Fig. 35); distiphallus (Figs. 40, 44, & 49) with fine folds on posterior paraphalli, and with long acrophallus; ejaculatory apodeme (Fig. 71) with median blade broad and narrowly brimmed marginally.

Fore coxa with a few dark brownish setae near apex; f1, with 1 ad near apex (1 weak additional ad discernible in left f1), 7 pd, and a row of about 8 fine and yellowish pv, of which a few proximal pv are long and others becoming shorter towards apex of femur; f2 with 1 or a few av discernible though fine, an irregular row of 9-10 a (some of them situated rather anterodorsally), 1-2 pd near apex, 3-4 p in apical half, and some fine pv scattered; f3 with 4 av, a row of about 10 a except near apex, 5 ad on apical half, 1-2 pd near apex, and about 6 fine pv scattered; t1 with ventral spinules distributed on apical half and arranged in 1 row, with 1 rather strong ad about 1.5 times as long as t1-height, and near apical fourth with 1 strong pv slightly longer than t1-height, 1 fine p being discernible on left t1; apical av small though distinguishable from adjacent setulae, apical d indiscernible, apical pv somewhat developed, and apical v as long as t1-height; t2 with 1 ad and 1 pd; t3 with 2 ad and 2 pd, and with apical ad distinct. Wings about 3 times as long as wide and about 2.1 times as long as head and thorax combined.

♀ (the specimen examined appears rather teneral). Head and thorax about 3.4 mm in combined length; wings (somewhat crumpled in the specimen) about 7.4
mm. Palpi darker than in male. Parafrontals with associated setulae more numerous than in male, about 20 in this specimen. Mesonotum with 8 pairs of pre-acr, 1 setula visible between the rows; anterior hm weaker than in male though distinct.

Abdomen with marginal and discal setae less developed than in male; 1st sternite with some (5-7) setulae near each lateral margin; 2nd to 6th sternites much longer than wide; 6th spiracles placed on 6th tergite laterally and 7th ones also on this tergite in touch with posterior margin (Fig. 86); 7th tergite widely divided medianly and fused with 7th sternite on anterior third; 8th tergite undivided medianly, only with an incision there (Fig. 96), and with no setulae visible (Fig. 102); 8th sternite represented by 2 triangular sclerites, each having 2 small spine-like setae apically.

Fore tibia with apical v a little longer than t1-height; t3 with 3-4 ad and 2 pd.

Remarks. *A. himalaica* may be closely related to the succeeding *A. longispina* in having the distiphallus with a long acrophallus, the hypandrium with fused posterior arms, and the female 6th and 7th spiracles placed on 6th tergite near lateral margins and on posterior margin respectively, though it is readily distinguished from that species and also from other known Palaearctic species of the genus by the characters given in the key and details in the genital structures of both sexes. The present species may also be separated from the N. American *A. capillata* by having more numerous ground setulae on the mesonotum. In *capillata* "Thoracis dorsum praeter setas ordinarias fere nudum" (Loew, 1872).

4. *Acanthocnema longispina* sp. nov.


Distribution. Japan (Hokkaidō and Honshū).

♂. Body-length 4.5-5.7 mm; wing-length 5.1-6 mm. Body blackish in ground colour and bluish grey in pollinosity. Frons and ocellar triangle brownish or brownish grey pollinose; interfrontalia scarcely or slightly brownish near lunule in ground colour; parafrontals more or less brownish in ground colour; cheeks brown to dark brownish in ground colour, with vibrissal angles brownish yellow to brown; antennae blackish, faintly or slightly brownish on A2 dorsoapically; arista blackish; palpi variable in colour from slightly darkened yellow to dark brownish yellow, and with setulae mostly yellow or brownish yellow, some short ones on dorsal to apical part being blackish; haustellar mentum dark brown. Mesonotum rather thinly brownish pollinose in main part, shining black there in some lights, and bluish grey pollinose on median area along rows of acr especially around both ends, on peripheral region, along each section of mediadly interrupted transverse suture, and on scutellum. Abdomen blackish in ground colour, at most partly brownish on 5th sternite, and rather thinly pale bluish grey pollinose, shining black in some lights, with ground setulae on ventral side mostly yellowish. Legs blackish; trochanters
blackish or dark brown; femora and tibiae hardly or slightly brownish apically; tarsi slightly brownish especially on ventral side. Wings tinged with brown; veins dark brownish; calypttrae brownish, much darkened marginally; halteres yellow at knob and brown at base.

Head about as wide as mesonotum; frons 0.45-0.5 times as wide as head and a little narrowing ventrad; parafrontals with 2 or sometimes 3 oris and 3 (rarely 2 or 4 on one side) ors, and with about 20 or more (rarely 30) short associated setulae; vibrissal angles with 1 strong (rarely none or 2) and some weak setae besides ordinary vibrissa; A3 1.5-1.6 times as long as wide; arista distinctly pubescent on whole length; palpi about 5 times as long as wide (4 times in 1 specimen from Mt. Hayachine), with longest setula slightly shorter to a little longer than half length of palp; haustellar mentum much narrower than f1-height, and with a pair of rather long setulae near base and some scattered short ones.

Mesonotum with 5-7 pairs of pre-acr (only 4 setulae on right row in 1 specimen), and with or without 1 setula between the rows; dc 2+3, or sometimes 2+2; anterior hm indiscernible or sometimes slightly developed; ph indiscernible; ia 1, if 2 ones discernible, the anterior being very weak; 1 blackish prpl, usually associated with 1 or a few fine setulae; mesopleura with a few additional mpl discernible, a seta below the primary strong one often well developed, and with 1 pale-coloured pstg and sometimes 1 fine associated setula; scutellum sometimes with 1 or 2 additional pairs of slightly developed setulae.

Abdomen not depressed although its sternites deeply sunken to stick to the tergites in dried condition, 2.3-2.8 times as long as wide; tergites with marginal setae fine and only a little stronger than ground setulae; 1st sternite with a few or some setulae near each lateral margin; 2nd spiracles placed on lateral margins of tergite or on membrane in touch with the margins; pregenital sclerite free from 6th tergite; right 7th spiracle shifted to posterolateral corner of 6th tergite (Fig. 4); 5th sternite with inner margins of processes forming a rotund emargination (Fig. 12); surstyli rod-like, and rather sparsely setose (Figs. 24 & 26); hypandrium with posterior arms fused with each other; distiphallus with a few distinct folds on posterior paraphalli, and with long acrohallus; ejaculatory apodeme (Fig. 72) with basal disk well developed and bulbous, and with median blade broadly brimmed marginally.

Fore coxa with a few black setae near apex; f1, with 1 ad near apex, a row of 1 or 2 (rarely 3) strong and some rather weak pd (the strong setae situated distally), and 3 or rarely 4 pv on basal fourth or third, the distal pv long and strong, and more or less brownish, other pv becoming paler and finer towards base of femur; f2 with 2 (d and pd) or 3 (ad additioned) strong setae near apex, and with no av, a row of about 10 a-ad, 0-5 rather weak d or d-pd in apical third or half, and no pv; f3, with no av, 1 d or pd near apex (sometimes 1 additional pd present near apical fourth) and no pv, and with many (ca. 15-20) a-ad arranged in 1 row (a-row) on basal half and in 2 rows (a- and ad-rows) on apical half, the lower of the last-mentioned rows being complete or partly broken and composed of setae weaker than those of the upper row; t1, with ventral spines distributed on apical half or two-thirds, arranged in about 2 rows; with 1 rather weak ad (absent in 1 specimen), which is as long as or a little longer than t1-height; with 1 strong pv near apical fourth, and 0-1 fine to strong pv near middle, the distal pv being 1.3-1.9 times as long as t1-height, and the
proximal pv, if present, at most as long as and usually shorter than the distal one; apical av rather distinct though shorter than t1-height, apical d and apical pv indiscernible, and apical v well developed and 1.7-2 times as long as t1-height; t2 with 1 ad and 1 pd (both indiscernible in 1 specimen); t3 with 2-4 ad and 1 strong and sometimes 1-2 weak pd, and with apical ad only a little stronger than adjacent setulae. Wings 3.1-3.4 times as long as wide and 2-2.2 times as long as head and thorax combined.

♀. Wing-length 4.9-6.1 mm. Palpi usually darker than in male, dark yellow to blackish brown; vibrissal angles brown to dark brown. Head slightly narrower than mesonotum, 0.89-0.98 times of the latter in width; parafrontals with 2 (rarely 1 or 3 on one side) ori and 3 (2 in 1 specimen) ors, and with 14-22 associated setulae; A3 1.6-1.8 times as long as wide. Mesonotum with 4-7 pairs of pre-acr; 2 (rarely 1 or 3) ia present; pstg usually 1, yet rarely 0 or 2 in number.

Abdomen with 6th spiracles placed on 6th tergite near lateral margins; 7th spiracles on posterior margin of 6th tergite or on membrane in touch with the margin; 7th tergite not divided medianly though partly membranous there (Fig. 97), and broadly fused with 7th sternite (Figs. 103 & 108); 8th tergite not divided medially, and with no setulae discernible; 8th sternite represented by 2 triangular sclerites, each having a short spine-like seta apically.

Fore tibia always with 2 pv, and with apical d sometimes developed and rather strong; t2 with 1 ad and 0 (in 4 specimens) or 1 (in 2 specimens) pd. Wings 3-3.2 times as long as wide.

Remarks. This species is quite distinct from the others treated in this paper in having the arista pubescent on whole length, the fore tibia with a long apical v, and the right 7th male spiracle shifted to 6th tergite. The long apical v on fore tibia may be useful to separate the species from the N. American A. capillata.

5. Acanthocnema sternalis sp. nov.


Distribution. Japan (Hokkaido).

♂. Wing-length 5.3-6.4 mm; body-length usually a little shorter than wing-length, 5.1-6.2 mm. Body mainly blackish in ground colour, and rather densely bluish grey pollinose, faintly tinged with purplish colour in the pollinosity especially on abdomen. Frons and ocellar triangle brown or brownish grey pollinose, pale grey along eye-margins, and in ground colour sometimes brownish near lunule; parafacials and cheeks brown to dark brown in ground colour, and whitish in pollinosity; vibrissal angles pale yellow to brown; face in ground colour pale yellow to pale brown, slightly with a dark suffusion, and in pollinosity whitish; antennae blackish, sometimes slightly brownish on A3 dorsoapically and on A3 basally; palpi yellowish, scarcely or faintly tawny, and rarely with dark suffusion,
and with setulae yellowish; haustellar mentum dark brownish or blackish. Mesonotum broadly brownish pollinose except on peripheral region, on anterior part of median area along rows of pre-acr, along each section of medially interrupted transverse suture, and on scutellum, these areas being all bluish grey pollinose; brownish pollinosity on mesonotum rather thin, the area presenting a blackish appearance in some lights; prescutellar greyish area rather broad and intruding wedgewise between rows of post-dc; sternopleura with 1-2 ground setulae near upper margin sometimes blackish. Abdomen with 5th sternite sometimes brownish on processes. Legs blackish, sometimes partly brownish especially on trochanters. Wings with a faint (in rather teneral specimens) or distinct dark suffusion; veins blackish or dark brown; calyptrae blackish or dark brown marginally; halteres yellowish at knob and brownish at base; in older specimens the wing-colouration faded and turned more brownish.

Head about as wide as mesonotum; frons 0.48-0.54 times as wide as head and very slightly narrowing ventrad; parafrontals with 2 or rarely 3 ori and 3 or sometimes 2 ors, and with many (ca. 15-20) associated setulae, which are mostly stronger than in other species and 1 or a few of them are often rather well developed; vibrissal angles with 0-2 (usually 1) strong and some (3-8) fine to rather strong setae in addition to ordinary vibrissa; A3 1.5-1.7 times as long as wide; arista pubescent on basal half or slightly more, and bare apically; palpi more or less blade-like, 3.1-3.8 times as long as wide and narrower than t1-height, with longest setula 0.7-0.9 times as long as palpi; haustellar mentum enlarged though variable in width according to its condition in dried specimens and usually rather distinctly narrower than t1-height, and with some setulae scattered especially around centre, a pair towards base being rather long and others rather short.

Mesonotum with some (usually 6-7) pairs of pre-acr, and with no or sometimes 1 setula between the rows; dc 2+3, sometimes with 1 additional pre-cr or post-dc or both; anterior hm almost always easily discernible though variable in strength from fine to rather strong; 1 distinct or strong ph present; ia 2, strong, the anterior rarely weakened; 1 strong and sometimes 1 weaker pale-coloured prpl, usually associated with 1 or a few setulae; no or sometimes 1 blackish pstg; mesopleura with a few or some additional mpl discernible and more or less developed; scutellum, in addition to ordinary pairs of strong setae, with basal and discal pairs of setulae discernible and weakly to rather distinctly developed.

Abdomen depressed except on hypopygium in dried condition, and 2.5-3 times as long as wide; tergites with developed marginal setae except on middle, the setae mostly as long as or a little longer than corresponding tergites; 1st sternite with 1 or a few setulae near each lateral margin; 2nd to 4th sternites as long as or only a little longer than wide; 2nd spiracles placed on lateral margins of tergite or on membrane in touch with the margins; pregenital sclerite free from 6th tergite, with right 7th spiracle anteriorly (Fig. 5); 5th sternite with inner margins of processes forming an obtuse emargination (Fig. 13); surstyli wedge-shaped, with setae rather short; hypandrium with posterior arms not fused with each other; distiphallus with some folds on posterior paraphalli; acrophallus thick, with many minute spicules (Figs. 42, 46, & 51); ejaculatory apodeme (Fig. 73) with median blade narrowly brimmed marginally.

Fore coxa with some pale-coloured setae and usually no blackish ones; t1 with
1 (sometimes 0 or rarely 2) ad near apex, some (6-10) pd, and 3 (rarely 4) pv in basal third, all or at least basal one of the pv being pale-coloured, and sometimes with a few fine pv discernible in apical half or two-thirds; f2 with no av, a row of some (4-7) strong and a few or some weaker a, 1 pd and 1 p near apex, and 2-4 fine, slender and pale-coloured pv in basal half; f3 with a few or some fine or rather distinct av discernible in apical half, with some (5-8) a, of which one is usually situated near apex of the femur and all or most of the rest are in basal half, with some (3-6) ad in apical half or sometimes in a little more length, and with a few fine, slender and pale-coloured pv in basal half or more; t1 with ventral spinules distributed on apical two-thirds, arranged in about 2 rows; with 1 (rarely 0) distinct or strong ad (1 additional visible on right leg in 1 specimen), the seta a little, or often much, longer than height of the tibia; in apical half with 2 pv, the distal pv being always strong and more than twice, sometimes thrice or more, as long as t1-height, usually situated near apical eighth of the tibia, and the proximal pv variable in strength from fine to strong, almost always much weaker than the distal though usually much longer than t1-height (sometimes longer than twice the tibial height), and usually situated near apical third of the tibia; apical d distinct or rather strong, as long as t1-height or nearly so; apical pv not differentiated from adjacent setulae; apical v as long as or slightly shorter than t1-height; t2 with 1 ad (1 additional present on right leg in 1 specimen) and 1 pd (sometimes invisible on one leg); t3 with 1-3 ad and 1-3 pd, and with apical ad distinct. Wings 2.9-3.3 times as long as wide and 1.9-2 times as long as head and thorax combined.

♀. Wing-length 5.9-7.2 mm. Face dark brownish to blackish in ground colour; palpi much darker than in male, brown to blackish, and rarely pale as in male. Mesonotum with dc basically 2+3, yet often with 1 additional pre- or post-dc or both.

Abdomen with 2nd to 6th sternites much widened; 2nd sternite about as wide as long, and 3rd to 6th ones wider than long, the 3rd largest and widest (Fig. 83); 6th spiracles placed on 6th tergite near lateral margins; 7th spiracles on membrane between 6th and 7th tergites (Fig. 88); 7th tergite becoming slender mediad and completely divided there; 7th sternite almost entirely fused with 7th tergite; 8th tergite undivided medially, and with no setulae visible (2 specimens dissected); 8th sternite represented by 2 elliptical sclerites, each having a few spine-like setae posteriorly; spermaphsae (Fig. 93) encircled by folds and divided into a large apical and a small basal parts by a distinct constriction.

Fore coxa with a few setae near apex often blackish; f1 with 3 long pv in basal third as in male (basal one pale-coloured and others blackish), and in addition with 1-2 (sometimes 0) pv in middle third, 1 of them usually distinct or strong and the other, if 2 present, usually much weaker; f1 with ad often absent; t1 with proximal pv much stronger than in male, usually longer than twice t1-height and often about as long as the distal pv, and with apical v slightly shorter to slightly longer than t1-height.

Remarks. The broadened sternites especially of the female and the elliptical sclerites of the femlae 8th sternite are characteristic of A. sternalis at least among the species known from the Old World. As to the corresponding features in the N. American A. capillata no information is available in the literature. Nevertheless, A. sternalis may be separable from capillata by the antennae less ovoid and the vibrissal angles with stronger setae. The original description of the latter species says
“Antennae brevisculae, . . . , articulo terminali rotundato ovato, . . . Setae mystacinae tenues.”

REFERENCES

Figs. 1-6. *Acanthocnema* spp., *♂*, pregenital sclerite (left in Figs. 1-5, and upper in Fig. 6) and 6th tergite in right lateral view (1-5) and in dorsal view (6), setae omitted except for marginal ones on 6th tergite in Fig. 2. 1, *nigrimana*, from Slovenia, dissection no. 8530; 2 & 6, *glaucescens*, from Wales, no. 8528; 3, *himalaica*, holotype from Thudam, Nepal, no. 8532; 4, *longispina*, paratype from Mt. Soranuma, Hokkaido, Japan, no. 8171; 5, *sternalis*, paratype from Mt. Soranuma, no. 8168. Succeeding figures are based on the same individuals unless otherwise mentioned.
Figs. 7-10. *Acanthocnema* spp., ♂, 5th sternite in ventral view (7-8) and in ventrolateral view (9-10). 7 & 9, *nigrimana*; 8 & 10, *glaucescens*. 
Figs. 17-19. *Acanthocnema nigrimana*, ♂, hypopygium. 17, dorsal view; 18, lateral view; 19, ventral view, epandrium only.
Figs. 28-37. *Acanthocnema* spp., ♂, hypandrium in lateral view (28-32) and in ventral to caudal view (33-37, anterior part omitted, the angle of view shown by the arrow in corresponding lateral view). 28 & 33, *nigrimana*; 29 & 34, *glaucens*; 30 & 35, *himalaica*; 31 & 36, *longispina*; 32 & 37, *sternalis*. 
Figs. 38-51. *Acanthocnema* spp., ♂, basiphallus and distiphallus in lateral view (38-42), and distiphallus in dorsal view (43-46) and in ventral view (47-51, acrophallus omitted in Fig. 48; showing only basal part around anterior paraphalli in Figs. 49-50). 38, 43, & 47, *nigrimana*, acr., acrophallus, a.p., anterior paraphallus, p.p., posterior paraphallus; 39 & 48, *glaucescens*; 40, 44, & 49, *himalaica*; 41, 45, & 50, *longispina*; 42, 46, & 51, *sternalis*.
Figs. 52–68. *Acanthocnema* spp., ♀, praegonite in lateral view (52–58) and in caudolateral view (59–63), and postgonite (64–68). 52, 59, & 64, *nigrimana*; 53, 60, & 65, *glaucescens*; 54, 61, & 66, *himalaica*; 55, 62, & 67, *longispina*; 56, 63, & 68, *sternalis*; 57 & 58, ditto, paratype from Mt. Soranuma, no. 8516, showing apical part of right praegonite in Fig. 58.
Figs. 69–73. Acanthocnema spp., ♂, ejaculatory apodeme in lateral view (left) and in distal view (right). 69, nigrimana; 70, glaucescens; 71, himalaica; 72, longispina; 73, sternalis.
Figs. 74-78. *Acanthocnema* spp., ♂, 1st, 2nd or 3rd to 4th (rightmost) sternites. 74, *nigrimana*; 75, *glaucescens*; 76, *himalaica*; 77, *longispina*; 77', ditto, paratype from Mt. Shokambetsu, Hokkaidō, no. 8172, 1st sternite; 78, *sternalis*. 
Figs. 79–83. *Acanthocnema* spp., ♯, 1st, 2nd or 3rd to 6th (rightmost) sternites. 79, *nigrimana*, from Slovenia, dissection no. 8531; 80, *glaucescens*, from Wales, no. 8529; 81, *himalaica*, paratype from Thudam - Tanga La, Nepal, no. 8533; 82, *longispina*, paratype from Mt. Shokambetsu, Hokkaido, Japan, no. 8174; 83, *sternalis*, paratype from Mt. Soranuma, Hokkaido, Japan, no. 8169. Succeeding figures are based on the same individuals.
Figs. 84–93. *Acanthocnema* spp., ♀, posterior abdominal segments in lateral or ventrolateral view (84–88, 8th and anal segments omitted except in Fig. 88), and spermatheca (89–93). 84 & 89, *nigrimana*; 85 & 90, *glaucescens*; 86 & 91, *himalaica*; 87 & 92, *longispina*; 88 & 93, *sternalis*. Scale 1.25 mm for Figs. 84–88, and 0.5 mm for Figs. 89–93.
Figs. 94-99. *Acanthocnema* spp., ♂, 7th and 8th tergites in dorsal view (94-98, 6th also shown in Fig. 95), and posterior abdominal segments in dorsal view (99). 94, *nigrimana*; 95, *glaucescens*; 96, *himalaica*; 97, *longispina*; 98-99, *sternalis*. Scale 0.5 mm for Figs. 94-98, and 1.25 mm for Fig. 99.
Figs. 100-104. Acanthocnema spp., ♀, 7th and 8th abdominal segments in lateral view, anal segment also shown in Fig. 104. 100, nigrimana; 101, glaucescens; 102, himalaica; 103, longispina; 104, sternalis.