

A C T A Z O O L O G I C A  
C R A C O V I E N S I A

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(Raleigh N. C.)

**Kilka nowych *Collembola* z Ameryki Północnej**

**Несколько новых *Collembola* из Северной Америки**

**Some new North American *Collembola***

[With 5 figures in text]

The first genus described in this paper (*Stachanorema* n. gen.) is very near the genus *Anurophorus* NICOLET. For comparative purposes a description of the latter genus and *Anurophorus laricis* NICOLET are given. Illustrations are given of both *A. laricis* NIC. and *Stachanorema arnaudi* n. sp. in order to point out the similarities and differences between them. The latter form was found occurring with *A. laricis* NIC. in a collection from Washington State. This new genus and the one following (*Stachiomella* n. gen.) are dedicated to Dr. Jan STACH who has contributed so very much to the knowledge of this interesting group of insects.

**Genus *Stachanorema* n. gen.**

Genotype: *Stachanorema arnaudi* n. sp.

Rudimentary furcula present. Rami of tenaculum 3-dentate. Anal horns absent. Body rounded posteriorly, with segments nearly subequal, except the pronotum which is mem-

braneous. Anus ventral. Eyes 8 on each side on black patches. Postantennal organ present, of a single tubercle, isotomine in shape. Abdominal segments not ankylosed. Antennae 4-segmented, cylindrical. Unguiculus present, strongly developed. Tenent hairs present, well developed and knobbed. Integument reticulate; simple setae on body.

***Stachanorema arnaudi* n. sp.**

[Fig. 1 and 2]

Length up to 1.0 mm. Color deep granular blue all over, lighter at intersegmental sutures, and interspersed with some white round spots. Antennae and legs blue. Weakly developed

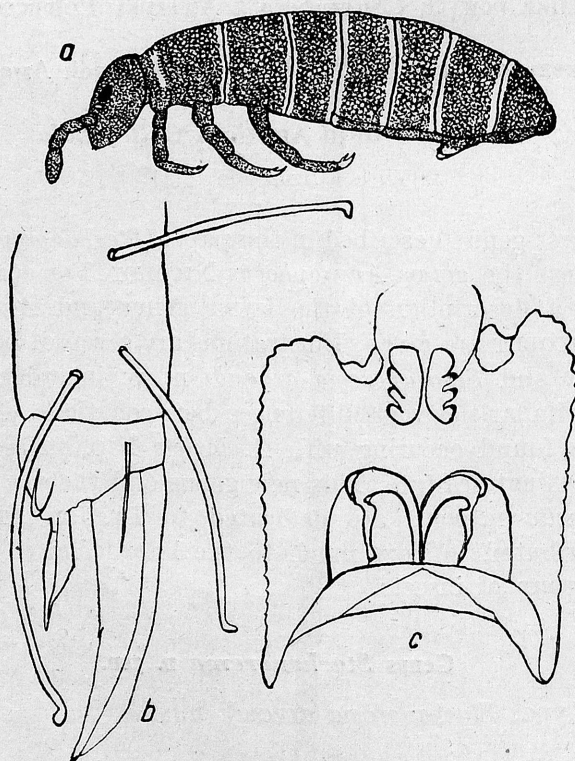


Fig. 1. *Stachanorema arnaudi* n. sp. a — lateral view of whole animal; b — foot, showing unguis, unguiculus and arrangement of tenent hairs; c — rudimentary furcula and tenaculum.

furcula present, with dentes short and blunt, and indications of vestigial mucrones [fig. 2 c]; with three setae ventrally on each dens. Rami of tenaculum tridentate and with 5 setae on corpus. This form is very close to *Anurophorus laricis* Nic. from which it differs by having a vestigial furcula. The body segments are more or less subequal, the fourth being slightly longer; posterior end of abdomen rounded; anus ventral. Antennae subequal to head in length, fourth segment twice as long as third, second and third subequal; segments as 10:13:13:25. Organ of third antennal segment consists of two small, slender, slightly bent sensory setae. Eyes 8 on each

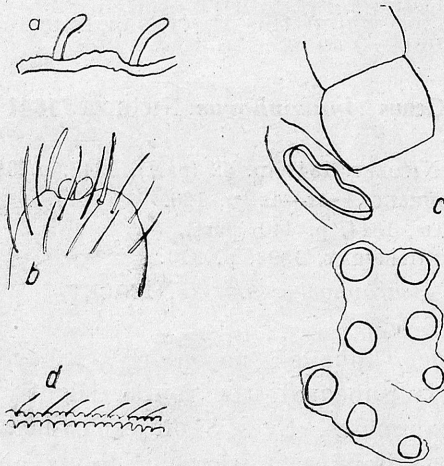


Fig. 2. *Stachanorema arnaudi* n. sp. a — organ of third antennal joint; b — apex of fourth antennal joint; c — eyes and postantennal organ; d — integument pattern.

side of head on black patches, two inner ones are smaller than others [fig. 1 c]. Postantennal organ long, curved, elliptical, and about 4 times the diameter of an adjacent eye, situated in a deep groove near the base of antennae. Unguis [fig. 2 b] rather stout, with a weak tooth on the inner margin showing on the first pair of legs. Unguiculus about two-thirds the length of unguis, strongly developed apically obliquely angled [fig. 2 b], ending in a strong point. Three long strongly knobbed tenent hairs present, one situated, high up on the tibio-tarsus remote from the others. Anal horns absent. Integument strongly



reticulated. Clothing consists of numerous short, stiff, reclinate hairs, and with longer, stouter, setae on posterior of abdomen.

This form is very near *A. laricis* NIC. in color, except it does not have the large irregular whitish spots, but does have small rounded light spots evenly distributed throughout the pigment pattern. The color is deeper blue and almost purple in shade. The furcula resembles that of *Tetracanthella wahlgreni* AXELSON in its general structure, and from this *S. arnaudi* n. sp. may well be a connecting link between the two genera.

This interesting form was taken from under Douglas fir bark at Fort Lewis, Washington on March 25, 1945, by P. H. ARNAUD for whom this species is named.

### **Genus *Anurophorus* NICOLET, 1841**

*Anurophorus* NICOLET, 1841, p. 52 (part); 1847, p. 384 (part).

*Adicranus* BOURLET, 1841—42, p. 126.

*Lipura* GERVAIS, 1844, p. 440 (part).

*Bourletia* MACGILLIVRAY, 1893, p. 313.

Genotype: *Anurophorus laricis* NICOLET.

Body slender, rounded posteriorly, subcylindrical, with segments mostly subequal, the fourth slightly longest, and pronotum membranous. Eyes 8 on each side. Postantennal organ present, isotomine in shape. Furcula and anal horns absent. Abdominal segments not ankylosed; anus ventral. Antennae 4-segmented, cylindrical. Unguiculus present. Integument reticulate; simple setae on body.

### ***Anurophorus laricis* NICOLET, 1841**

[fig. 3]

Length up to 1.5 mm. Body and head a deep blue, with light spots and intersegmental sutures [fig. 3 a, b]. Antennae deep blue; legs blue. Antennae slightly shorter than head, second and third segments subequal, fourth about 2 times the third. Fourth with a 2-lobed sensory knob and several sensory setae. Sense organ of third segment consists of two slender,



curved rods arising near a chitinous ridge. Eyes 8 on each side, two inner ones smaller [fig. 3 c]. Postantennal organ elliptical, situated in a groove, about twice as long as the diameter of an adjacent eye. First four abdominal segments subequal in length, abdomen rounded posteriorly. Unguis [fig. 3 e] unar-

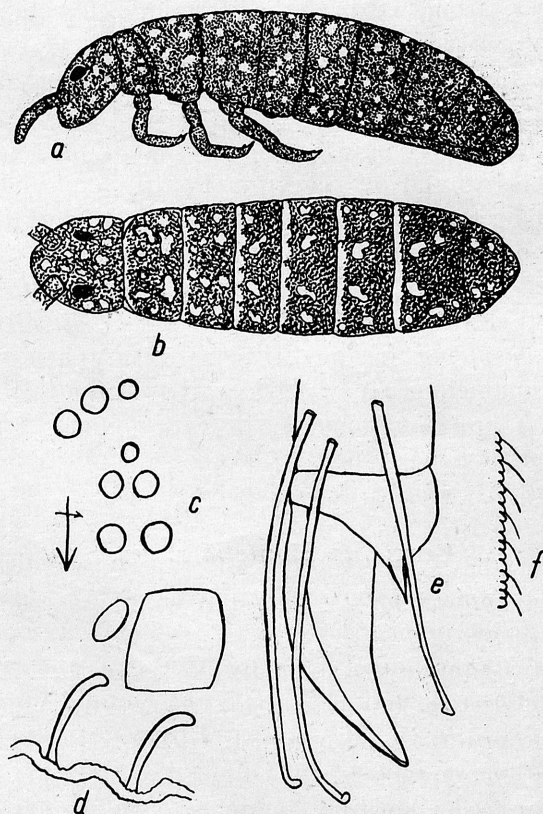


Fig. 3. *Anurophorus laricis* NICOLET. a — lateral view of whole animal; b — dorsal view of whole animal; c — eyes and postantennal organ; d — sense organ of third antennal joint; e — foot, showing unguis and unguiculus, and tenent hairs; f — integument pattern.

med, stout. Unguiculus about one fifth length of unguis, weakly developed, apically spine-like. With 3 or 4 tenent hairs on tibio-tarsus, weakly knobbed. Furcula and anal horns absent. Anus ventral. Clothing consists of rather short stiff setae

sparsely over body, and with longer stouter sensory setae on the posterior part of abdomen. Integument rather prominently reticulated.

North Carolina Records: Camp Lejeune, May 8, 1952, from leaf mould in an area only a few feet above sea level in the salt water Sound nearby; Mt. Pisgah, at an elevation of 5200 feet, from hardwood leaf mould, October 7, 1953, D. L. WRAY; Washington, Fort Lewis, taken from under bark of Douglas fir, March 25, 1945, by P. H. ARNAUD. Other United States records are: N. Y., Minn., Colo., and Iowa. Also from Europe, Siberia.

It has been found on the ground in humus, under stones; in moss; under wood, dung; on fungi; on the surface of fresh water, and on snow. This species has been found in Bohemia by ABSOLON in small dry caves. It has been found on Pike's Peak at an elevation of 8300 feet (by G. W. GOLDSMITH). A variety, (*cuspidata* STACH, 1912), has been taken with a well developed unguiculus. A whitish variety, (*pallida* ABSOLON, 1901), was found in Bohemia, in caves, under stones, and moss.

### Genus *Stachiomella* n. gen.

Genotype: *Stachiomella oxfordia* n. sp.

This genus is close to the genus *Willemia* BÖRN. in general body characteristics, but differs in having only one large tubercle in the postantennal organ, is without tibiotarsal tenent hairs and other characters.

This genus is achorutine in general body characteristics. Mouthparts are reduced and adapted for chewing, and are withdrawn somewhat into the head. Furcula, tenaculum, and anal horns are absent. Eyes absent. Body somewhat „spindle-shaped“, wider in posterior half and becoming narrower toward anterior end. Anus is ventral. Antennae 4-segmented, the basal two segments are thicker and wider than third and fourth, giving a cone-shaped appearance. Third and fourth segments somewhat fused. Third segment bearing an organ consisting of two slender bent sense rods. Fourth segment

bearing at least three lanceolate shaped sense cones. Antennae only about one-fourth as long as head. Postantennal organ of one large thick-rimmed tubercle on each side of head, broadly oval in shape. Unguis untoothed and only slightly curved. Unguiculus present, spine-like and about a fourth as long as unguis. Tenent hairs absent. Body clothed sparsely with short, curved setae, with a row across each segment dorsally. Integument finely granulate with the granulations become larger on posterior segments dorsally.

***Stachiomella oxfordia* n. sp.**

[Fig. 4]

Length from 0,6 to 0,8 mm. White in color. Body facies achorutine in form [fig. 4 a]. Mouthparts reduced but of the chewing type, withdrawn somewhat into head. Anal horns absent. Antennae shorter than head, being not over one fourth as long as the head diagonal; 4-segmented [fig. 4 d]. The first and second antennal segments very broad and the third and fourth narrower and tapering considerably to the apical end. Last two segments somewhat fused and not clearly demarcated. Fourth antennal segment with at least three large thick finger-like sense cones dorsally and with longer sensory setae. Third antennal organ consists of two slender bent sense rods situated behind a narrow chitinous ridge along top edge of third segment [fig. 4 d]. Postantennal organ present, consisting of one broadly oval tubercle on each side of head; with a thick rim around each tubercle [fig. 4 c]. Unguis untoothed and only slightly curved on inner margin [fig. 4 b]. Unguiculus spine-like and about a fourth as long as unguis. Tenent hairs absent.

Body somewhat spindle-shaped, being broadest in posterior half and tapering toward anterior end [fig. 4 a]. First thoracic segment much narrower than second and third. Sixth abdominal segment narrowly showing from a dorsal view. Anus ventral. Body is clothed sparsely with short curved setae; with a row across each segment dorsally. Integument somewhat finely granulate and somewhat more coarsely so posteriorly on segments.



This interesting new form occurred very rarely among collections I have made of *Collembola* in ground cover along the Tar River near Oxford, North Carolina, February 28, 1952.

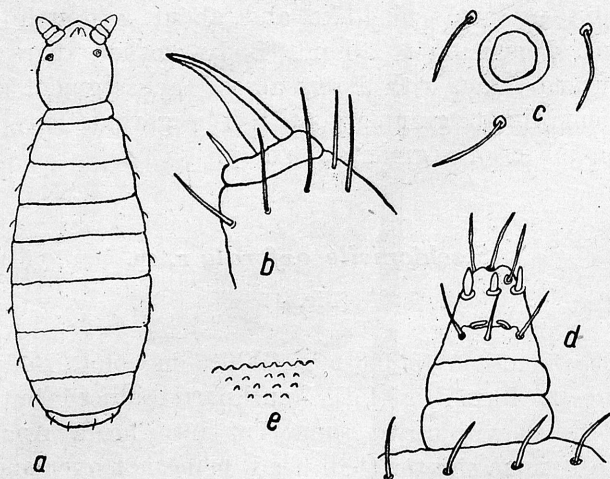


Fig. 4. *Stachiomella oxfordia* n. sp. a — dorsal view of whole animal; b — foot, showing unguis and unguiculus; c — postantennal organ; d — antenna showing apical sensory rods and organ of third antennal joint; e — pattern of granulations of integument of posterior segments.

This was in connection with a project I have under way of studying the populations of *Collembola* along the main rivers of North Carolina.

### *Entomobrya stachi* n. sp.

[Fig. 5]

Length of body including head is 3,0 mm. In length the furcula is 2,0 mm, legs 2,0 mm, and antennae 2,5 mm. Color is a yellowish-white background with purple pigment distributed in streaks and bands [fig. 5 a]. Antennal bases purple; first, second, third, and fourth antennal segments with a basal ring of purple and shaded with diffuse pigment inwardly. Fourth antennal segment heavily pigmented distally and with more diffuse pigment inwardly [fig. 5 b]. Head with a heavy

blotch of purple laterally, with diffuse pigment on genae, a dark V-shaped marking between bases of antennae, two chevron shaped pigmented markings just back of eyes across dorsum of head, and scattered small dorsal pigmented areas. First thoracic segment with a narrow band extending from mid line down laterally and back along lower edge, and with a broad dorsal band posteriorly. Second thoracic segment with a broad band extending down to side. First and second abdominal segments with a narrow dorso-lateral band each. Abdo-

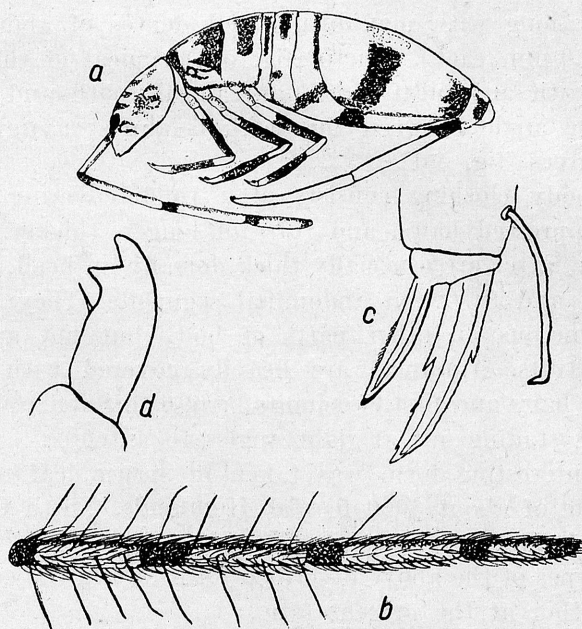


Fig. 5. *Entomobrya stachi* n. sp. a — lateral view showing color pattern; b — antenna color pattern and outstanding hairs of first two joints; c — foot showing unguis and unguiculus; d — mucro.

mental three with a narrow posterior dorso-lateral band and a broad oblique baso-lateral band. Fourth abdominal with a broad dorso-lateral band extending down to sides and a narrower posterior dorso-lateral band extending downward. Fifth abdominal with a small dorso-lateral band. Sixth abdominal unpigmented. With a small amount of pigment on base of furcula. Legs with diffuse pigment on coxal segments, with

distal two-thirds of femora pigmented, and middle half of tibiae pigmented. This tibial marking is slightly less on first pair of legs. With a mid-dorsal clear line separating pigment pattern dorsally on body. This shows up more plainly in the anterior end of body. Eyes 8 on each side on black patches. Unguis nearly straight with three pairs of teeth on inner margin and a pair of teeth on outer margin. Unguiculus lanceolate and with the inner edge finely ciliated on mid-third, about two thirds the unguis in length [fig. 5 c]. Tenent hair well developed and strongly knobbed. Abdominal segment four extremely long with manubrium and dentes of about equal length (1.0 mm each). Mucro [fig. 5 d] typical of the genus, normal, with an apical tooth, anteapical tooth and a basal spine. The angle between the teeth is almost a right angle of 90 degrees [fig. 5 d].

The body clothing consists of a thick covering of long slender appressed hairs, and tufts of longer, thicker, ciliated setae. The latter are especially thick dorsally on head, thoracic segments, and first two abdominal segments. They are also quite numerous on other parts of body but not appearing in large tufts. Antennae are heavily covered with slender appressed hairs and first two joints have 6 to 8 longer outstanding hairs stading out at right angles to antenna.

This interesting form was taken in spruce leaf mould at an altitude of about 4000 feet at Highlands, North Carolina, June 10, 1952.

The types of the above described forms are in the collection of the author at the present time.

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#### STRESZCZENIE

Autor ustanawia dwa nowe rodzaje skoczogonków, a mianowicie *Stachanorema* n. gen. i *Stachiomella* n. gen. oraz opisuje następujące nowe gatunki: *Stachanorema arnaudi* n. sp., *Stachiomella oxfordia* n. sp. i *Entomobrya stachi* n. sp. Poza tym, dla porównania, podaje opis *Anurophorus laricis* NICOLET.



## РЕЗЮМЕ

Автор устанавливает два новых рода ногохвосток, а именно: *Stachanorema* n. gen. и *Stachiomella* n. gen. и описывает следующие два новых вида: *Stachanorema arnaudi* n. sp. *Stachiomella oxfordia* n. sp. и *Entomobrya stachi* n. sp. Кроме того, для сравнения дает описание *Anurophorus laricis* NICOLET.

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Redaktor pracy — prof. dr. J. Nast

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