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Onychiuridae of Poland. New species of *Protaphorura* ABSOLON, 1901 from the Tatra Mts.

[With 8 text-figs]

Onychiuridae Polski. Nowy gatunek *Protaphorura* ABSOLON, 1901 z Tatr

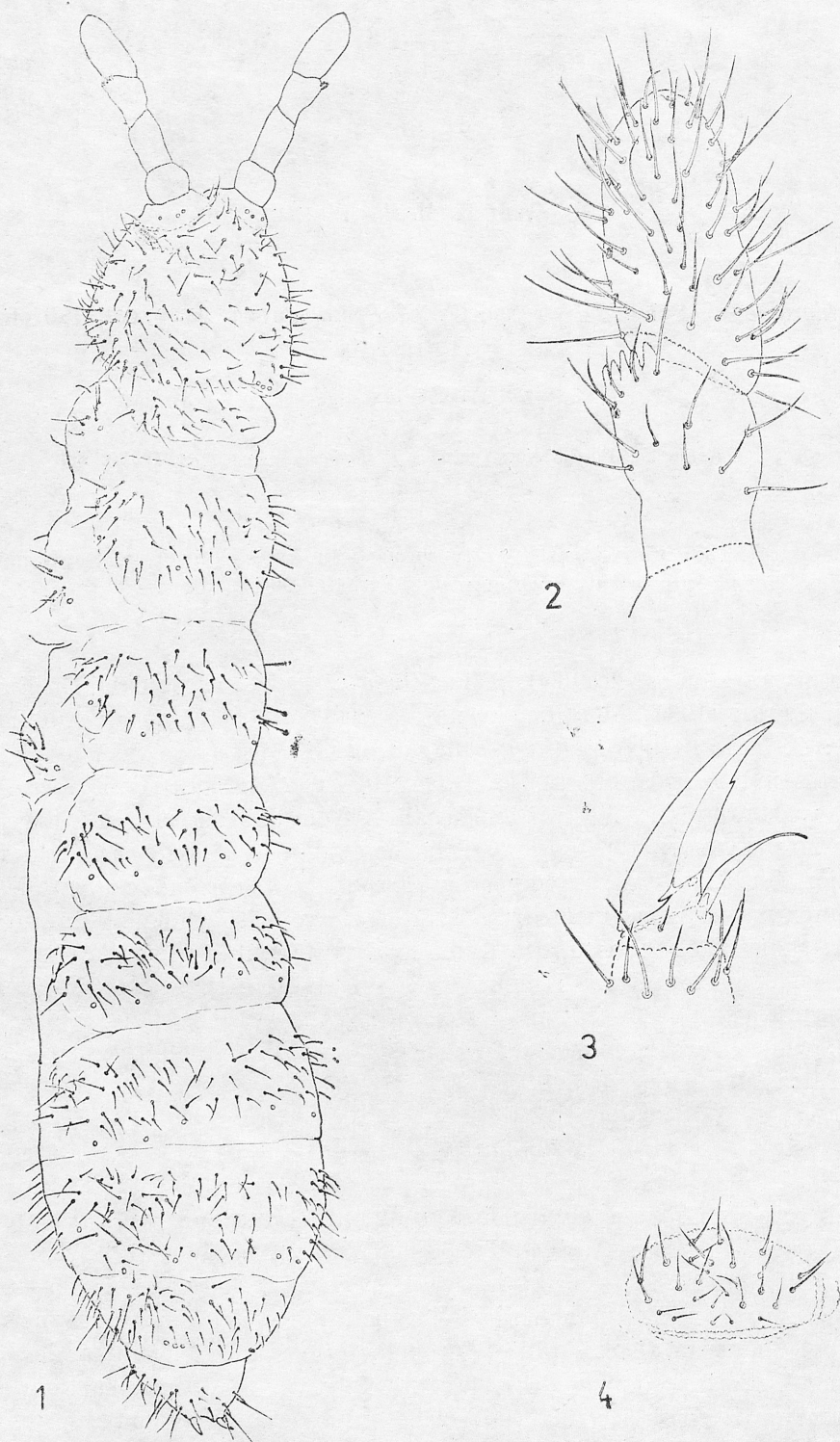
Abstract. The author describes a new species from caves in the Tatras, until now considered as *Protaphorura armata multituberculata* (STACH, 1934).

In his work on species of the genus *Onychiurus* GERV. occurring in European caves, STACH (1934) identified a new aberration of *O. armatus* (TULLBERG, 1869): *O. armatus* ab. *multituberculata*, from Klutert Cave in Westphalia. In his later monograph (STACH, 1954), he reports *O. armatus* var. *multituberculatus*, apart from the Westphalian locality, from another one in a cave in the Tatra Mts. SALMON (1964) proposed in his catalogue of *Collembola* a new combination for this form: *Protaphorura armata multituberculata* (STACH, 1934). A comparison of specimens from Klutert Cave with the material from the Tatras shows that the two forms are clearly different. Unfortunately, the condition of specimens from Klutert Cave preserved in STACH's collection does not permit a full redescription of *Protaphorura armata multituberculata* (STACH, 1934), while a separation of a new species on the basis of the material from the Tatra Mts. is needed.

Protaphorura janosik sp. n.

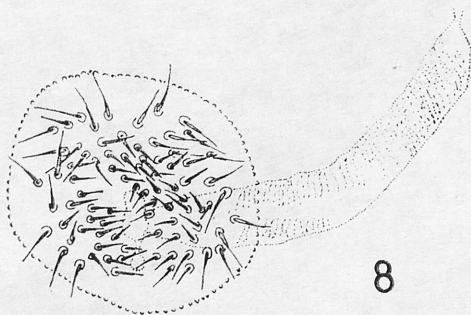
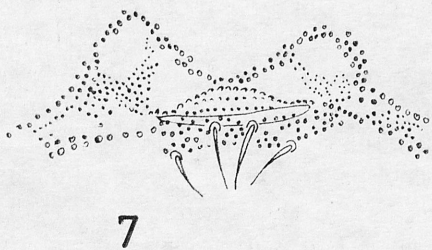
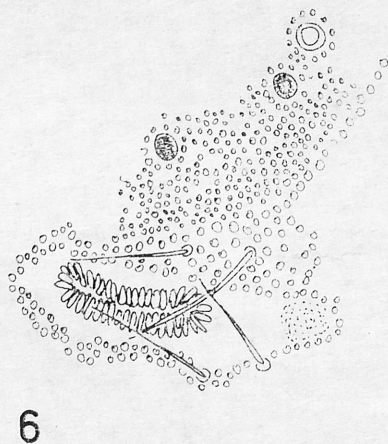
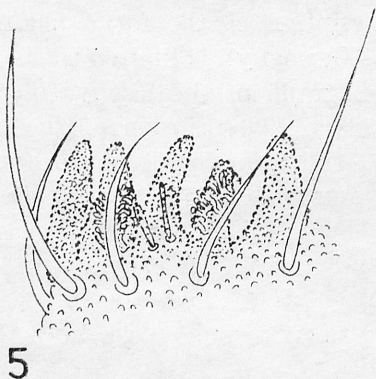
Diagnosis. Integumentary fold (remnant of furca) very small and shallow. Pseudocellar formula dorsally: 33/023/33343. Abd. V with s'. Th. I to III ventrally with: 1+1, 3+3, 3+3 setae respectively. Body length: 3.5—4.2 mm.

Description. Body length of holotype ♀ ad. — 3.9 mm, paratypes 3.50—4.2 mm. Colour in alcohol white. Antennae almost same length as head, with segment I slightly widened (Fig. 1). Ant. IV with very small subapical organ (or) and with small sensilla (mi) in latero-external position, approximately at 1/2 of height of Ant. IV, just over Ant. III-organ (Fig. 2). Ant. III-organ



Figs. 1—4: *Protaphorura janosik* sp. n. 1 — body shape with dorsal chaetotaxy, 2 — Ant. III. and IV, 3 — claw, 4 — female genital plate

built of 5 guard setae, 5 papillae, 2 smooth sensory rods and 2 small, granulated, slightly curved sensory clubs of equal size. Guard setae placed at bases of papillae. A small sensilla occurs on the ventral side at the base of the V guard seta (Figs. 2 and 5). PAO composed of 36—46 (exceptionally 32 and 51) simple vesicles (Fig. 6). Labral setae 4/242. Pseudocellular formula dorsally: 33/023/33343, ventrally: 1+1 pseudocelli on head only. One pseudocellus on each subcoxa. Chaetotaxy very rich and variable (Fig. 1), composed of two kinds of macrochaetae and microchaetae. Some of macrochaete changed into very stout, bristle-like setae. Setae sensuales indistinguishable. Small sensillae (mi) on Th. II and Th. III. Rows a, m, p can be discerned. Abd. V with s' sometimes asymmetrically doubled. Th. I—III ventrally with 1+1 (1+2), 3+3 (2+3, 3+4), 3+3 (3+4, 4+4) setae. Ventral tube with 18—22+18—22 setae on the distal part, with 3+3 (3+4) on anterior part and 3+3 (4+4, 2+2) at the base. Claw long, usually with one very small inner tooth distally at 2/3 of law length and with single lateral teeth on each side of the proximal



Figs. 5—8: *Protaphorura janosik* sp. n. 5 — Ant. III — organ, 6 — PAO, 7 — remnant of furca, 8 — male genital plate

part (Fig. 3). Empodial appendage without basal lamella, its length equalling $2/3$ of the inner edge of the claw. Tenet clavate hair absent.

A remnant of furca in the form of very small and shallow integumentary fold with $1+1$ setae on the fold and $1+1$ ($1+0$) at the base of this fold (Fig. 7). Genital plates of ♀ and ♂ as on Figs 4 and 8, respectively. Anal spines slender, equalling in length $1/2$ of the inner edge of claw and 3 times longer than their width at the base.

Type material: Tatra Mts. Kościeliska Valley, Mylna Cave, 9. 07.1988: holotype ♀, 11 paratypes on slides, 11 paratypes in alcohol; 1.05.1959, on the surface of water: 7 paratypes: 09.1962: 9 paratypes; leg. A. W. SKALSKI.

Other material: Tatra Mts.: Kościeliska Valley, Czarna Cave, 1963: 6 ex.; Chochółowska Valley, Kamienne-Mleko Cave, 13.04.1960: 2 ex., Chochółowska Szczelina Cave, on a dead bat 21.03.1959: 12 ex., leg. A. W. Skalski; Cave in Kalatówki Valley, 11.1948: 16 ex., leg. J. FUDAKOWSKI.

All material is preserved in the collection of the Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Cracow.

Derivatio nominis. The name evokes the legendary outlaw, Janosik, once hiding out in Tatra caves, who took from the rich and gave to the poor.

Discussion. The STACH's (1934) description of the form „*multituberculata*” found in Klutert Cave in Westphalia (Germany), is limited to the number of vesicles in PAO: 54 to 64. In his monograph of the family *Onychiuridae* BÖRNER, 1913, STACH (1954) given an enlarged description of the „*multituberculata*” variation also including the material from the Tatras. According to this description, the form, ascribed by STACH to both the cave in the Tatras (Poland) and Klutert Cave (Westphalia) is characteristic by its large size, vesicle number in PAO 40 to 64, the lack of lateral teeth in the claw and the pseudocellular formula 33/023/ 333 ($3-4$)3. STACH enlarged there the interval of the number of vesicles in PAO (40 to 64) so that it would cover both the Tatra (36—54) and the Westphalian (54—64) forms.

In STACH's collection, unreadable slides of *O. armatus* var. *multituberculatus* from Westthalia (Westfalen, 1932, Klutert Höhle, leg. GRIEPENBERG) were preserved along with two specimens in alcohol, of which new slides were made. Unfortunately, their state was not satisfactory due to the long preservation in alcohol. Nevertheless, it could be determined that, in agreement with STACH' description (1934), the specimens from Klutert Cave indeed do have an unusually long and rich in vesicles PAO. However, the pseudocellular formula: 32/022/33343 clearly differs from that in the description by STACH (1934) and that in *Protaphorura janosik* sp.n.: 33/023/22243.

The claw, with a very distinct inner tooth at the half of its length, is not as elongate as in the new species. Further differences between the specimens from Westphalian and Tatra caves include the chaetotaxy of Th. I which is $i2$ m in *Protaphorura armata multituberculata*, while this formula cannot be used in *P. janosik* because of macrochaetae p3. Also, a divergence occurs in the chaetotaxy of Th. I lateral part (m row in *P. janosik*). Finally, no s' seta occurs on Abd. V in *P. armata multituberculata*.

The new species differs from all other species and variations of *P. armata* (TULLBERG 1869) in size, the rich and fairly unstable chaetotaxy, especially that of Th. I, and in the very small furcula fold. In its pseudocellar formula: 33/023/33343 and the occurrence of s' on Abd. V. *P. janosik* is most closely related to *P. tricampata* (GISIN, 1956) from which it differs in the presence of m on Th. I, 3+3 setae on the bases of ventral tube, and in larger body size. The other relatively large form is *Protaphorura armata* var. *stalagmitorum* (ABSOLON, 1901) from the Sosuvske Cave (Moravia, Czechoslovakia). The original description (ABSOLON, 1901) is insufficient, but it is clear that this form has only about 28 vesicles in PAO.

Acknowledgements. I am very grateful to Dr A. SKALSKI for providing me with the rich material from caves in the Tatra Mts., Dr. R. J. POMORSKI for useful comments, and J. RYBICKI who helped me to prepare the English version of this paper.

Translated into English
by J. RYBICKI

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STRESZCZENIE

Autorka opisuje *Protaphorura janosik* sp. n. z jaskiń tatrzańskich, podawany dotychczas jako *Protaphorura armata* var. *multituberculata* (STACH, 1934).

Redaktor pracy: Dr M. Woyciechowski

