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North Korean *Collembola*. II. *The genus Oncopodura* CARL et LEBEDINSKY, 1905 (*Oncopoduridae*)

[Pp. 45–54, Pls. XI—XVII , 1 text-fig.]

Północnokoreańskie *Collembolla*. II. Rodzaj *Oncopodura* CARL et LEBEDINSKY, 1905 (*Oncopoduridae*)

Abstract. The author describes two new species, *Oncopodura yosiiana* sp. n. and *O. czmur* sp. n. from North Korea, demonstrates the taxonomic significance of the shape of setae on the tibiotarsi, in the neighbourhood of the genital pore ♂ and on urotergite V, introduces the classification and schematic designations of particular types of setae on the manubrium and dentes and gives a key to the species of the genus *Oncopodura* CARL & LEB.

INTRODUCTION

The present paper contains a description of two new species of the genus *Oncopodura* CARL & LEBEDINSKY, 1905, collected in North Korea during two expeditions undertaken by the Institute of Systematic and Experimental Zoology, Polish Academy of Sciences, in collaboration with the Institute of Zoology, Korean Academy of Sciences. The first of these expeditions was made in 1971 (see SZEPTYCKI, 1973) and the second in 1974. The whole material described here except a few specimens, marked suitably in the text, has been collected by the authors. The type material is in the possession of the Institute of Systematic and Experimental Zoology, P. A. Scs., with the exception of a few paratypes which have been delivered to the Institute of Zoology, K. A. Scs.

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(the second expedition), and also to Director of the Institute of Zoology, Mr DŽU-DONG-JUL for their help with arrangements for these expeditions and for being generally helpful during them. I thank the participants of both expeditions, Mrs. Z. STEBNICKA, Assist. Prof. J. PAWŁOWSKI and Prof. J. RAZOWSKI for help in collecting materials. I also thank Dr. W. DUNGER and Mrs W. WEINER for providing me with comparative materials of *Oncopodura crassicornis* SHOEB.

SYSTEMATIC PART

Twenty-three species of the genus *Oncopodura* CARL & LEB. excluding synonyms) have been described till now (ABSOLON & KSENEMAN, 1932; ARLÉ, 1960; BONET, 1941, 1943; CARL & LEBEDINSKY, 1905; CASSAGNAU, 1959, 1964; CHRISTIANSEN, 1960; DELAMARE DEBOUTTEVILLE, 1948; SHOEBETHAM, 1911; STACH, 1934, 1936; STOMP, 1974; WOMERSLEY, 1942; YOSII, 1956, 1964, 1966a, b). The number and shape of sensillae on particular antennal segments, the presence or absence and, in the first case, the shape of the postantennal organ, the shape of setae on the ventral side of head, the morphological details of the claw and furca, and the body proportions have been regarded so far as the main taxonomic

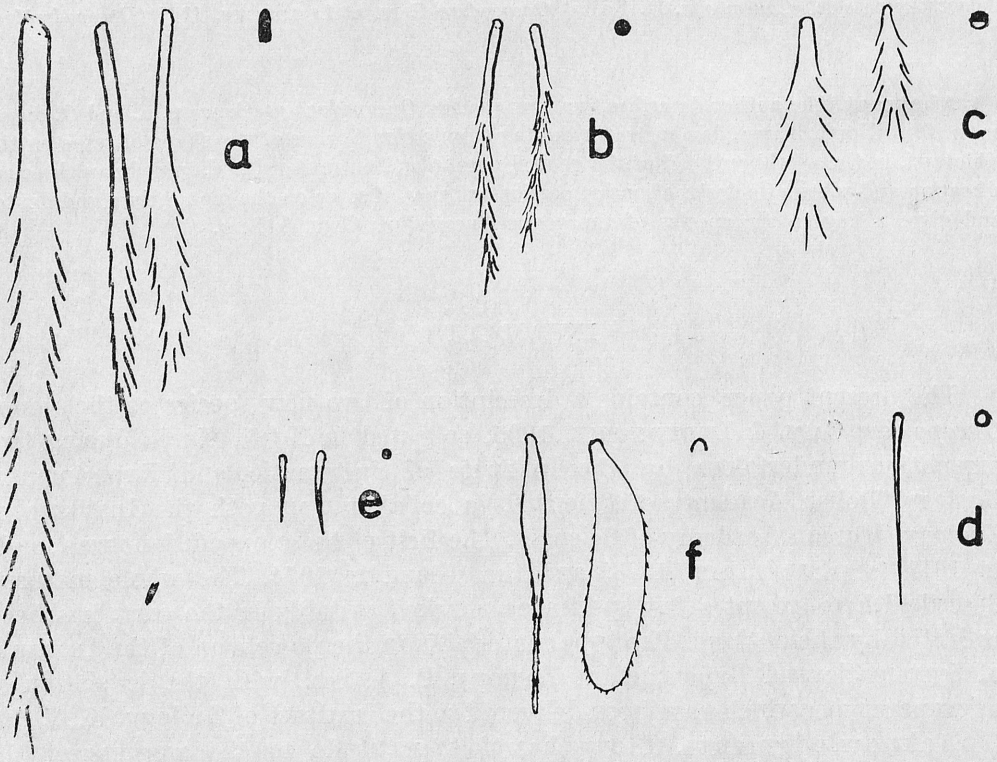

Fig. 1. Types of setae on the manubrium and dentes in *Oncopodura yosiiana* sp. n. and *O. czmur* sp. n. and their symbols. *a* — ciliated macrochaetae, *b* — ciliated mesochaetae, *c* — feathery setae, *d* — smooth mesochaetae, *e* — smooth microchaetae, *f* — scales

characters. On the other hand, no attention has been given to the shape of setae on the tibiotarsi, the shape of setae surrounding the genital pore ♂ and the chaetotaxy of urotergite V, which characters are also of some taxonomic importance.

On account of the taxonomic significance of the chaetotaxy on the dorsal side of the manubrium and dens, YOSII (1964, 1966b) introduced its schematic diagrams. However, he did not give enough attention to the morphological differentiation of setae and so I think it expedient to introduce my own designations. The following types of setae can be distinguished on the dorsal side of the manubrium and dens (Fig. 1): feathery setae, ciliated macrochaetae, ciliated mesochaetae, smooth mesochaetae, smooth microchaetae, and scales.

The species of the genus *Oncopodura* CARL & LEB. described till now are specified in the key below. The abbreviation „tr." indicates the species so far found only in caves (perhaps troglobiontic) and the abbreviation „e" edaphic ones.

1. Dentes without distal crooks . . . ***O. tiegsi*** WOMERSLEY 1942 (WOMERSLEY, 1942, Fig. 4) — Australia, e.
— Dentes with distal crooks 2
2. Mucro with two teeth . . . ***O. bidentata*** DELAMARE DEBOUTTEVILLE, 1948 (DELAMARE DEBOUTTEVILLE, 1948, Figs. 195—199) — Ivory Coast, e.
— Mucro with 3—6 teeth 3
— Mucro with numerous teeth, serrated 21
3. Basal part of dentes without crooks 4
— Basal part of dentes with at least one crook 5
4. One distal crook on inner side of dentes . . . ***O. hamata*** CARL & LEBEDINSKY, 1905 (CARL & LEBEDINSKY, 1905, Figs. 1—6) — Crimea, tr.
— Two distal crooks on inner side of dentes . . . ***O. occidentalis*** BONET, 1931 (BONET, 1931, Fig. XXX) — Pyréneés, tr.
5. Distal part of dentes with one crook on inner side 6
— Distal part of dentes with two crooks on inner side 9
— Distal part of dentes with three crooks on inner side 16
6. Claw without lateral tooth 7
— Claw with lateral tooth 8
7. Crooks on dentes smooth . . . ***O. atoyacense*** BONET, 1943 (BONET, 1943, Figs. 14—16) — Mexico, tr.
— Crooks on dentes distinctly serrated . . . ***O. iowae*** CHRISTIANSEN, 1961 (CHRISTIANSEN, 1960, Figs. 2, 5—13) — United States of America, tr.
8. Lateral tooth short, reaching less than half-way along claw . . . . . ***O. cavernarum*** STACH, 1934 (STACH, 1934, Pl. 1—2) — Yugoslavia, tr.
— Lateral tooth long, reaching 3/4 of way along claw . . . . . ***O. dalhezi*** STOMP, 1974 (STOMP, 1974, Fig. 10 D-F) — Algeria, tr.
9. Crooks on dentes more or less serrated 10
— Crooks on dentes smooth 14
10. Inner crooks on dentes thick, trapezoid in outline . . . . . ***O. indica*** YOSII 1966 (YOSII, 1966a, Fig. 37) — India, e.

— Crooks on dentes more or less elongate and pointed 11
11. Claw with lateral tooth 12
— Claw without lateral tooth 14
12. Inner side of basal part of dentes with distal crooks and two spines ***O. prietoi*** BONET, 1943 (BONET, 1943, Figs. 17—22) — Mexico, tr.
— Inner side of basal part of dentes only with distal crook, without spines. 13
13. Inner crooks of dentes with one small tooth; antennal segment II with 9 sensillae . . . ***O. jugoslavica*** ABSOLON et KSENEMAN, 1932 (ABSOLON & KSENEMAN, 1932, Figs. 1—12) — Yugoslavia, tr.
— Inner crooks of dentes with numerous small teeth; antennal segment II with 5 sensillae . . . ***O. tricuspidata*** CASSAGNAU, 1964 (CASSAGNAU, 1964, Figs. 3—5) — Pyrénées, tr.
14. Inner side of basal part of dentes with two spines . . . . . ***O. cruciata*** BONET, 1943 (BONET, 1943, Figs. 5—13) — United States of America, tr.
— Inner side of basal part of dentes with one spine . . . . . ***O. japonica*** YOSII, 1956 (YOSII. 1956, Figs. 301—308) — Japan, tr.
15. Tubercles in postantennal organ incised; outer distal spine of basal part of dentes very inconspicous and bristle-like . . . ***O. reyersdorfensis*** STACH 1936 (STACH, 1936, Figs. 1—7) — Poland, Austria, e.
— Tubercles in postantennal organ with entire margins; outer distal spine of basal part of dentes robust and spiked . . . ***O. czmur*** sp. n. (Pl. XV—XVIII) — North Korea, e.
16. Crooks on inner side of basal part of dentes digitate . . . . . ***O. hyleana*** ARLÉ, 1960 (ARLÉ, 1960, Figs. 1—16) Brazil, e.
— All crooks on dentes non-furcated, at most serrated 17
17. Claw with lateral tooth 18
— Claw without lateral tooth 19
18. Outer distal spine of basal part of dentes thick, hooked . . . . . ***O. itatiaiensis*** ARLÉ, 1960 (ARLÉ, 1960, Figs. 17—28) — Brazil, e.
— Outer distal spine of basal part of dentes thin, setose . . . . . ***O. kuramaensis*** (YOSII, 1939) (YOSII, 1939, Pl. IV; 1956, Figs. 317—320) — Japan, e.
19. Postantennal organ with four tubercles . . . ***O. meridionalis*** CASSAGNAU, 1959 (CASSAGNAU, 1959, Fig. 10) — Pyrénées, e.
— Postantennal organ with six tubercles 20
20. Basal tubercle of dentes with two ciliated mesochaetae (Pl. XIII,3); anterior submedial seta on urotergite V developed into sensory seta (Pl. XII,4); setae at genital pore ♂ feathery (Pl. XI, 4) . . . ***O. yosiiana*** sp. n. (Pl. XI—XIV) — North Korea, Japan, e.
— Basal tubercle of dentes with one ciliated mesochaeta and one scale (Pl. XIV,4); anterior submedial seta on urotergite V developed into scale (Pl. XII,5); posterior setae at genital pore ♂ smooth, pointed (Pl. XI,7) . . . ***O. crassicornis*** SHOEBOTHAM, 1911 — Europe e.

21. Claw without lateral tooth . . . ***O. puncteola*** Yosii, 1956 (Yosii, 1956, Figs. 309—316) — Japan, tr.
— Claw with lateral tooth 22
22. Inner crooks on dentes coarsely serrated, almost digitate . . . . . ***O. kuromotoi*** Yosii, 1964 (Yosii 1964, Fig. 2) — Japan, tr.
— All brooks on dentes not very strongly serrated . . . ***O. gul*** Yosii, 1966 (Yosii, 1966b, Fig. 9) — South Korea, tr.

Oncopodura yosiiana sp. n.
(Pl. XI—XIV)

Holotype. Kesŏng-si Prov., Čhŏnma-san Mts., river bank upstream of Pakjŏn Waterfalls, 7 June 1974, deciduous forest litter, adult female, designated "LO 26b" in the collection of the Institute of Systematic and Experimental Zoology, P. A. Scs. in Cracow.

Paratypes. 21 specimens collected together with holotype; Hvanghe-namdo Prov., valley upstream of Sujang-san Waterfalls, 2. June 1974, 2 sp. under stones in ruined building (leg. J. Pawłowski); Phjŏngan-namdo Prov.: Vaudo, Nampho Distr., 18 Sep. 1971, hill by the sa, acacia wood with a marked addition of pine-trees — 2 sps. under stones.

Remaining material. Janggang-do Prov.; Samdžijon Distr.: gorge of the stream Phote-čhŏn near Samdžijon, 6 Sep. 1971, deciduous forest (*Acer* sp., *Salix* sp.) with an admixture of firs — 1 sp. on bottom surface of stone; Namphode-san, southern slope, about 2100 m a.s.l., 8 Sep. 1971, larch and birch-dominant mixed forest on granite substratum — 4 sps. under rather deep-seated stones; Hamgjŏng-pukto Prov.: slopes of Susŏng-čhŏn Valley west of Čhŏngdžin, 22 May 1974, young pine wood with oak and hazel undergrowth — 1 sp. in litter from under hazel-tree and 1 sp. under stone; Džuyr Distr.: gorge of the stream Džuyr-čhŏn in the slope of Kvanmo-bong on the Onpho-ri side, about 1300 ma.s.l., 23 May 1974, oak forest with a considerable addition of *Calopanax pictum* — 4 sps. in litter and detritus from gorge slopes; Onpho-ri, 24 May 1974, oak forest with a marked addition of lime-trees on steep valley slopes — 9 sps. in litter at the foot of crags in a moist gorge and 1 sp. under stone on slope; Phjongan-namde Prov.: Thesŏng, Kangsŏ Distr., 28 Aug. 1971, acacia thicket — 2 sp. on bottom side of deep-seated stones; Vaudo, Nampho Distr., 21 June 1974, forest edge close to beach — 2 sps. under stones; Phjŏngjang-si Prov. and town of Phjŏngjang: Tesŏng-san Park, 14 Aug. 1971, fresh deciduous thicket — 1 sp. under stone; 16 May 1974, pine forest with an admixture of deciduous trees on quartzite scree — 2 sps. in litter; 18 May 1974, young pine forest with a considerable addition of oaks-1 sp. in litter on a brook gorge wall; pine ferest with deciduous undergrowth — 2 sps. in litter of needles and grass tufts and 4 sps. in moss on ground; Jongak-san Hills, 17 Aug. 1971, young deciduous forest on northern slope, close to ridge — 1 sp. in litter; Hvanghe-namdo Prov.: valley upstream of Sujang-san Waterfalls, near Hedžu, 2 June 1974, pine forest with abundant deciduous undergrowth — 9 sps. in litter at foot of crags, luxuriant deciduous forest — 14 sps. in litter from under oak and maple-trees; valley of the river Hakhjŏn-čhŏn, ca 2 km downstream of the Sujang-san Waterfalls, 3 June 1974, thin osier bed on river terrace — 1 sp. under stone. Kesŏng-si Prov.: Čhŏnma-san Mts., bank of river upstream of Pakjŏn Waterfalls, 7 June 1974 — 6 sps. in moss on shady but dry crags in forest.

Name derivation: I dedicate this species to the eminent expert in *Collembola*, Prof. R. Yosii of Kyoto University.

Description. General shape typical of genus, colour in alcohol: white or greyish white. Length of biggest specimens examined — 0·7 mm. Antennae short, about 9/10th of head length. Antennal segment I : II : III : IV ratio averages 1 : 1·4 : 2·1 : 3·1. Antennal segment IV (Pl. XI, 1) with a row of

four small roundish sensillae and several sensory setae. Segment III (Pl. XI, 2) with three large sensillae — two wrinkled and one smooth, proximal to previous ones — and two sensory setae. Segment II (Pl. XI, 2) with one big wrinkled sensilla and one sensory rod. Segment I (Pl. XI, 2) with two long sensory setae. Postantennal organ (Pl. XI, 2), in the shape of a rosette with a round central pit and six tubercles having entire margins, is very poorly seen in some specimens or unseen at all. Labrum with two small papillae on lower margin. Ventral side of head without differentiated setae. Claw (Pl. XII, 1—3) without lateral tooth, with smooth internal edge, relatively short. Empodial appendage without teeth. Outer empodial seta distinctly shorter than inner one. Tibiotarsi (Pl. XII, 1—3) with two rows of thick, clearly ciliated setae on ventral side Tibiotarsi II and III (Pl. XII, 2—3) with several ciliated setae on inner side. Tibiotarsus II (Pl. XII, 2) with big clavate hair. Ventral tube without setae, with 3+3 setae on lateral flaps. Tenaculum without setae, with 4+4 teeth. Furca relatively short, about 1/3rd of body length. The manubrium : dens : mucro ratio averages 1·7 : 1·2 : 1. Ventral side of manubrium without setae, dorsal side (Pl. XIV, 1—3) with 16+16 feathery setae, 6+6 smooth mesochaetae, 1+1 smooth microchaetae, 1+1 ciliated mesochaetae, and 1+1 ciliated macrochaetae. Distal macrochaetae (Pl. XIV,2) relatively long, narrow and broadened in a flap-like manner. Inner side of dentes (Pl. XIII, 1, 3, 4) with two crooks and one spine on basal part and three crooks on distal part. Basal tubercle (Pl. XIII, 3,4; XIV,2) with two transversely arranged, ciliated mesochaetae, of which the inner one is somewhat longer than the outer. Dorsal side of dentes (Pl. XIII, 2,6) with one elongate scale and two ciliated macrochaetae, broadened in a flap-like manner, on basal part and three analogous macrochaetae and two smooth microchaetae on distal part. Outer side of dentes (Pl. XIII, 1,2) with distal spine on basal part and distal crook on distal part. Crooks on dentes distinctly ciliated, their inner structure being ill seen. Lower side of dentes with four setae at the base of mucro. Mucro (Pl. XIII, 2) with four teeth. Genital pore ♂ as in Pl. XI, 4 — accompanying setae shaped into feathery setae. Ejaculatory ducts as in Pl. XIII, 5,6 — the microstructure of its dorsal side in the form of small circlets is well seen. Genital pore ♀ as in Pl. XI, 3 — accompanied by feathery setae. Arrangement of trichobotria over body typical of genus, i.e. 1+1 on mesonotum, 2+2 on metanotum and 1+1 on urotergite II. Middle part of urotergite V (Pl. XII, 4) with two rows of setae. In the anterior row the submedial seta is a sensory one and the two lateral setae are flame-shaped. In the posterior row one submedial seta.

Discussion. *Oncopodura yosiiana* sp. n. is unquestionably identical with the species which Yosii (1970, pp. 7—9, Fig. 5) has determined on the basis of specimens from the Tokyo region as *O. crassicornis* Shoebotham, 1911. The differences between the description of the author cited and my description consist of small divergencies in the arrangement of sensillae on the antennae, extremely difficult to perceive, and certain divergencies in the morphology of dentes. According to Yosii, there are three macrochaetae on the dorsal side

of the basal part of the dentes and one macrochaeta and three smooth microchaetae on the distal part. However, Yosii himself writes about the proximal macrochaeta on the basal part that, in contradistinction to the other macrochaetae, it is „hyaline", — thus he must have dealt with a scale here. The second macrochaeta on the distal part, not mentioned in Yosii's description, is situated close to the base of the outer crook (Pl. XIII,5). It is exceptionally brittle and has been preserved scarcely in several specimens in my material — nevertheless, its base is always visible. Yosii, too, marked the base of this seta in his drawing (op. cit., Fig. 5G), but omitted it in the diagram (Fig. 5H). In so far as the third microchaeta on the distal part is concerned, it is, according to Yosii, situated between the second and the third inner crook. In my specimens there is always a scale in this position; seen from the side, it may be readily mistaken for a microchaeta.

Yosii (1970) regarded his specimensas identical with *O. crassicornis* Shoeboth. redescribed by Stach (1920) on the basis of a specimens from the Pieniny Mts. (Carpathians). I had an opportunity, by courtesy of Mrs W. Weiner, to make a detailed examination of several specimens from this region. *O. yosiiana* sp. n. and *O. crassicornis* Shoeboth. are really closely related as regards morphology. The arrangement of sensillae on their antennae, the structure of the postantennal organ, the chaetotaxy on the lower side of the head, the shape of the claw and setae on the tibiotarsi, the chaetotaxy of the manubrium and the general pattern of distribution of setae on the dentes (Pl. XIII,6 and Pl. XIV,5) are almost identical. However, the differences in the shape of the setae on the basal tubercle of the dentes (cf. Pl. XIII, 2,3 and Pl. XIV,4), the shape of the setae surrounding the genital pore ♂ (cf. Pl. XI, 4 and 7) and the chaetotaxy of urotergite V (Pl. XII, 4 and 5) justify the recognition of the specimens from the Far East as separate species.

Oncopodura czmur sp. n.

(Plates XV—XVIII)

Holotype. Phjŏngjang-si Prov., Jongak-san Hills, 16 Aug. 1971, a specimen of undetermined sex from under a stone in a small rock shelter with dry litter. Preparation marked "LO 12" in the collection of the Institute of Systematic and Experimental Zoology, P. A. Scs., in Cracow.

Paratypes. Janggang-do Prov.: Dzedang-rjong hill near Hjesan, 31 Aug. 1971, larch forest on northern slope — 1 sp. under stone. Tesŏng-san Park in Phjŏngjang, 14 Aug. 1971, fresh deciduous brake — 1 sp. under stone.

Name derivation. „Czmur" — an imaginary monster from a poem by the Polish poet Leśmian.

Description. General shape typical of genus, colour in alcohol: white. Body length of holotype: 0·8 mm, that of paratypes, respectively, 0·7 and 0·4 mm. Antennae short, approximately as long as head. The antennal segment I : II : III : IV ratio as 1 : 1,5 : 1·8 : 2·5 (data based on only three measurements). Antennal segment IV with a row of four elongate sensillae (Pl. XV, 1)

and numerous sensory setae. Segment III (Pl. XV, 2) with two very big wrinkled sensillae and two very thick and long sensory setae. Segment II (Pl. XV, 3 and 4) with one very big wrinkled sensilla and one sensory rod. Postantennal organ (Pl. XV, 5) in the shape of a rosette with a round central pit and six tubercles with entire margins. Labrum with two small papillae on lower margin. Lower side of head without differentiated setae. Claw (Pl. XVI, 1 and 3) without lateral tooth, with smooth internal margin, relatively short. Empodial appendage without tooth. Setae on ventral side of tibiotarsi smooth, there being several ciliated setae only in the basal portion of tibiotarsus III (Pl. XVI, 3). Tibiotarsus II with big clavate hair. Ventral tube without setae, with 4+4 setae on lateral flaps (Pl. XVI, 4). The tenaculum has not been examined. Furca short, about 2/5ths of body length. The manubrium : dens : mucro length ratio has not been determined. Ventral side of manubrium without setae, dorsal side (Pl. XVII, 1 and 2) with 13+13 feathery setae, 4+4 smooth mesochaetae, 1+1 ciliated mesochaetae, 1+1 ciliated macrochaetae and 1+1 spines on distal part. Distal macrochaetae relatively short, thick and slightly broadened. Inner side of dentes (Pl. XVIII, 1) with two crooks and one spine on basal part and two crooks in distal part. Basal tubercle (Pl. XVIII, 1; Pl. XVII, 3) with two ciliated and one smooth macrochaetae. Dorsal side of dentes (Pl. XVIII, 1 and 2; Pl. XVII, 3) with three long ciliated, slightly broadened macrochaetae on basal part and two macrochaetae and two smooth microchaetae on distal part (the distal macrochaeta is broken off in all our specimens and its shape must remain unknown). Outer side of dentes (Pl. XVIII, 2) with robust distal spine and spine-shaped proximal seta on basal part and distal crook on distal part. All crooks and proximal spine smooth, poorly ciliated and with distinct internal structure on inner side. Distal crooks, outer and inner, very big, nearly twice as large as subdistal crook. Lower side of dentes with three setae at mucro base. Mucro (Pl. XVIII, 3) with five teeth. Genital pores have not been examined. Arrangement of trichobotria over body typical of genus, i.e. 1+1 on mesonotum, 2+2 on metanotum and 1+1 on urotergite II. The anterior submedial seta on urotergite V, in the form of a broad sensilla (Pl. XVI, 5), does not differ in shape from the two lateral setae. Two submedial setae in posterior row (Pl. XVI, 6).

Discussion. *Oncopodura czmur* sp. n. belongs to the group of species which in the morphology of dentes is characterized by the presence of a smooth mesochaeta on the basal tubercle and the presence of the proximal seta (variously developed) on the outer side of the basal part of the dentes. This group includes also *O. kuramotei* Yosii, *O. jugoslavica* Abs. & Ksen., *O. cavernarum* Stach, *O. tricuspidata* Cass., *O. dalhezi* Stomp & *O. prietoi* Bon. All these species however differ from *O. czmur* sp. n. in more or less serrated crooks on the dentes and a number of other morphological details, and in consequence, the new species holds a distinctly isolated position within the group under discussion (and also within the whole genus).

From the zoogeographical point of view it should be emphasized that all the species of this group with the exception of *O. czmur* sp. n. are troglobiontic.

Out of them *O. kuramotoi* YOSII is known from Japan, *O. prietoi* BON. from Mexico and the remaining species from the Mediterranean. If this whole group comprises species which are really closely related (and this is hard to decide now, owing to our poor knowledge of their morphology), this range would be characteristic of nearly Tertiary relicts associated with the coast of the Tethys (cf. the range of ground-beetles of the genus *Limnastis* MOTSCH. PAWŁOWSKI, 1974, Fig. 94).

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STRESZCZENIE

Praca zawiera opisy dwu nowych gatunków z rodzaju *Oncopodura* Carl & Leb. z Koreańskiej Republiki Ludowo-Demokratycznej. Pierwszy z nich, *Oncopodura yosiiana* sp. n. jest bardzo zbliżony do europejskiej *O. crassicornis* Shoeboth. — pod tą nazwą był też podany przez Yosiiego (1970) z Japonii. Nowy gatunek różni się jednak od europejskiego pewnymi szczegółami w morfologii dentes oraz w otoczeniu porus genitalis ♂ i ♀ chetotaksji V urotergitu. Drugi gatunek, *O. czmur* sp. n., należy do grupy gatunków charakteryzujących się obecnością szczeciny proksymalnej na zewnętrznej stronie bazalnej części dentes oraz występowaniem gładkiej mezochety na wzgórku bazalnym. Grupa ta obejmuje jeden gatunek z Japonii, jeden z Meksyku oraz cztery gatunki z obszaru śródziemnomorskiego. Nowo opisany gatunek różni się od pozostałych gładkimi kolcami na dentes. Wszystkie gatunki z omawianej grupy, poza *O. czmur* sp. n., są gatunkami jaskiniowymi. Rozmieszczenie grupy jako całości wykazuje reliktowy charakter, może związany z wybrzeżem Morza Tetydy.

PLATES

PLATE XI

1—6. *Oncopodura yosiiana* sp. n.
2. Antennal segment IV (holotype)
3. Postantennal organ with antennal segments I—III (as above)
4. Genital pore ♀ (paratype from Vaudo)
5. Genital pore ♂ (paratype from Sujang-san)
6. Ejaculatory duct, dorsal side (as above)
7. Ditto, ventral side (as above)
1. *Oncopodura crassicornis* SHOEB., genital pore ♂ and ejaculatory duct

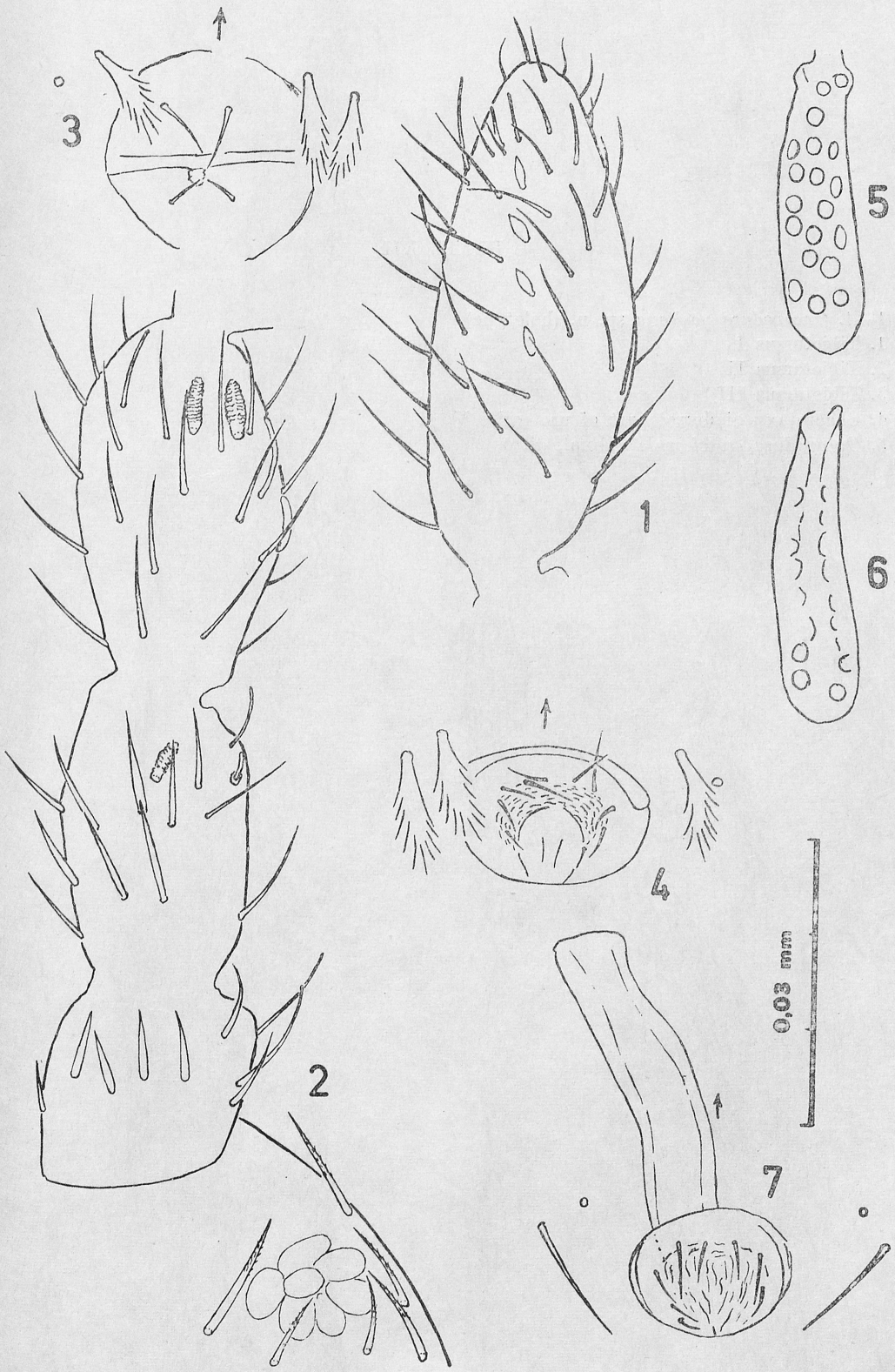
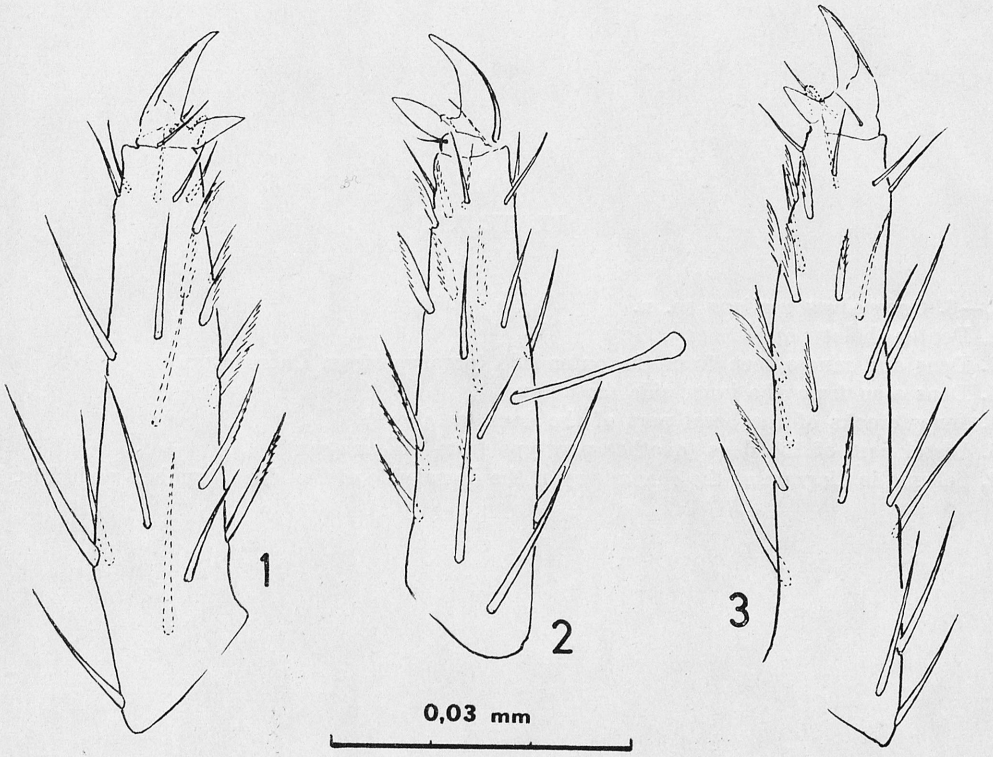

3
1
5
6
4
2
0,03 mm
7

PLATE XII

1—4. *Oncopodura yosiiana* sp. n. (holotype)
1. Tibiotarsus I
2. Tibiotarsus II
3. Tibiotarsus III
4. Chaetotaxy of dorsal part of urotergite V
5. *Oncopodura crassicornis* Shoeb., ditto



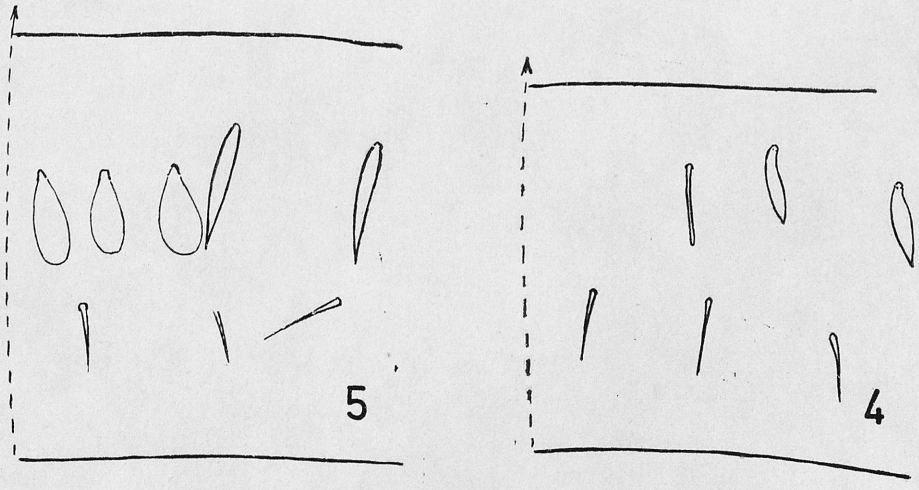


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PLATE XIII

1.—6. *Oncopodura yosiiana* sp. n.

1. Dentes (holotype)
2. Dens and mucro seen from the outer side (paratype from Čhŏnma-san)
3. Dens seen from the inner side (as above)
4. Inner crooks of the basal part of the dens (as above)
5. Distal part of the dens (another paratype from Čhŏnma-san)
6. Schematic diagram of the chaetotaxy of the dorsal side of the dens (symbols as in Fig. 1)

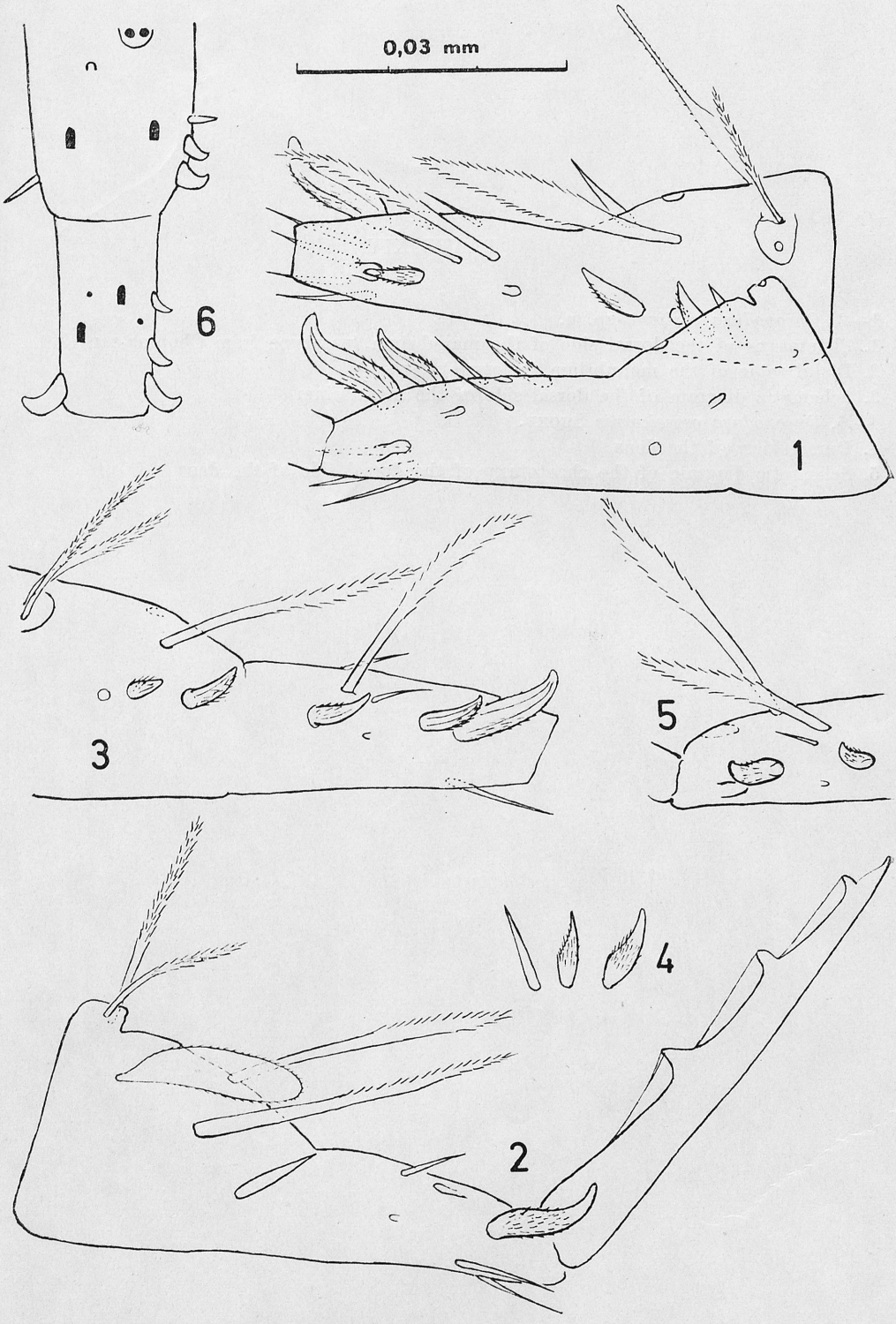

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PLATE XIV

1—3. *Oncopodura yosiiana* sp. n.
1. Chaetotaxy of the dorsal side of the manubrium (paratype from Čhŏnma-san)
2. Distal setae of the manubrium (holotype)
3. Schematic diagram of the dorsal side of the manubrium
4—5. *Oncopodura crassicornis* Shoeb.
4. Dorsal view of the dens
5. Schematic diagram of the chaetotaxy of the dorsal side of the dens

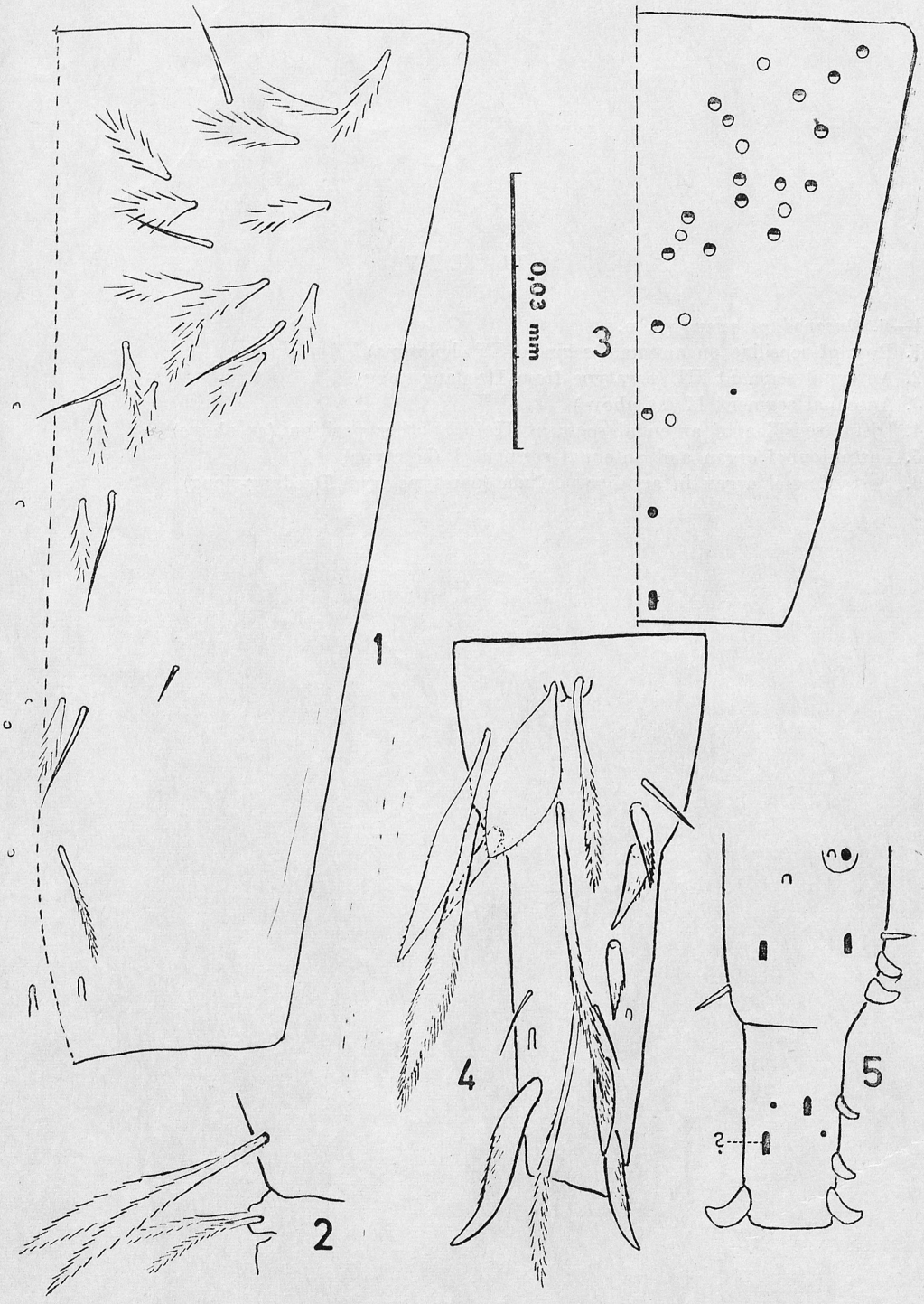

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PLATE XV

1—6. *Oncopodura czmur* sp. n.

1. Row of sensillae on antennal segment IV (holotype)
2. Antennal segment III (paratype from Dzedang-rjong)
3. Antennal segment II (as above)
4. Distal sensillae of antennal segment II in another position (as above)
5. Postantennal organ and antennal segment I (holotype)
6. Postantennal organ in another position (paratype from Dzedang-rjong)

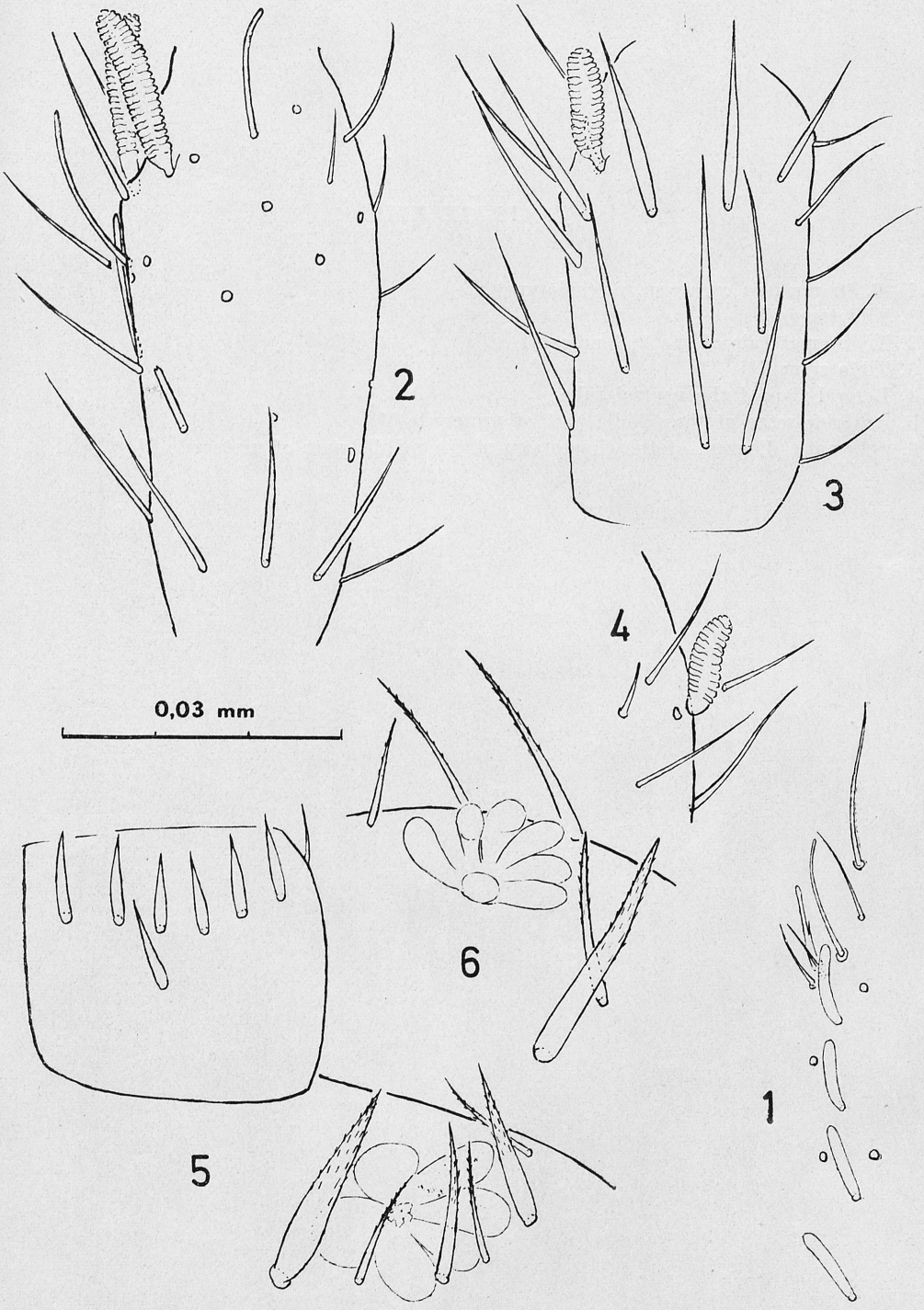

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PLATE XVI

1—6. *Oncopodura czmur* sp. n. (holotype)
1. Tibiotarsus I
2. Tibiotarsal hair of the 2nd pair
3. Tibiotarsus III
4. Lateral flap of the ventral tube
5. Anterior setae of the middle part of urotergite V
6. Schematic diagram of the chaetotaxy of the middle part of urotergite V

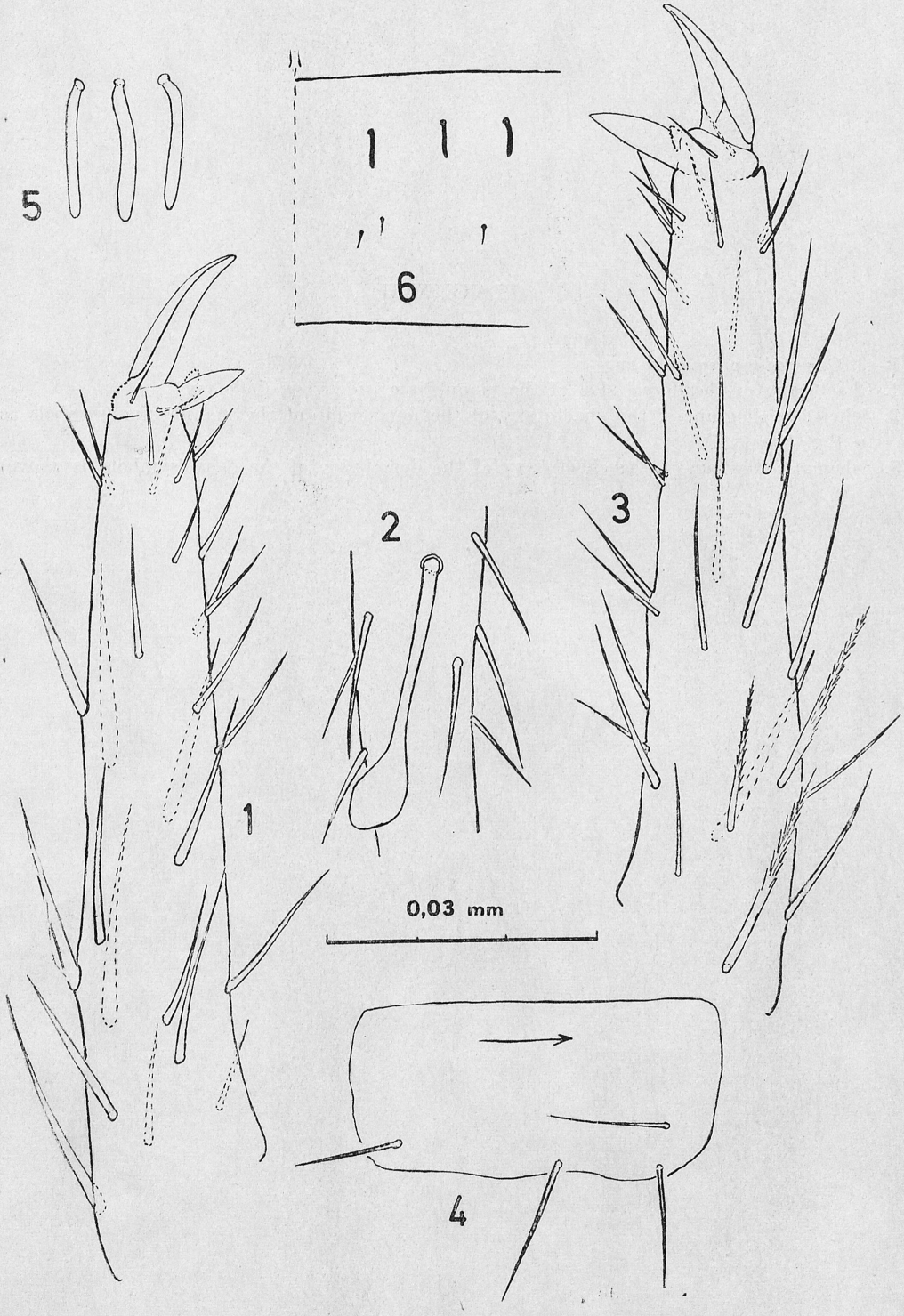

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PLATE XVII

1—3. *Oncopodura czmur* sp. n.

1. Chaetotaxy of the dorsal side of the manubrium, side view (holotype)
2. Schematic diagram of the chaetotaxy of the dorsal side of the manubrium (symbols as in Fig. 1)
3. Schematic diagram of the chaetotaxy of the dorsal side of the dens (symbols as above)

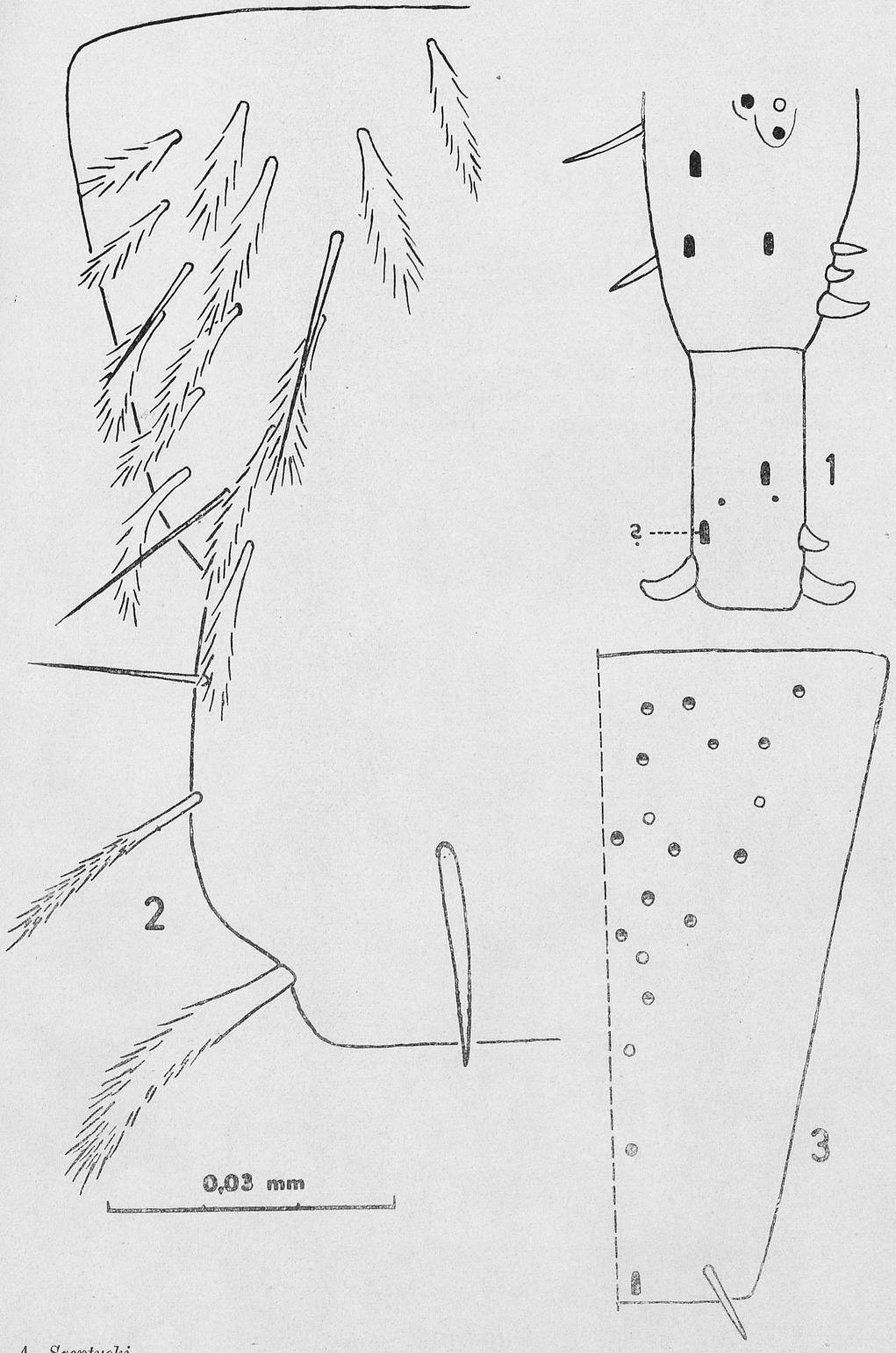

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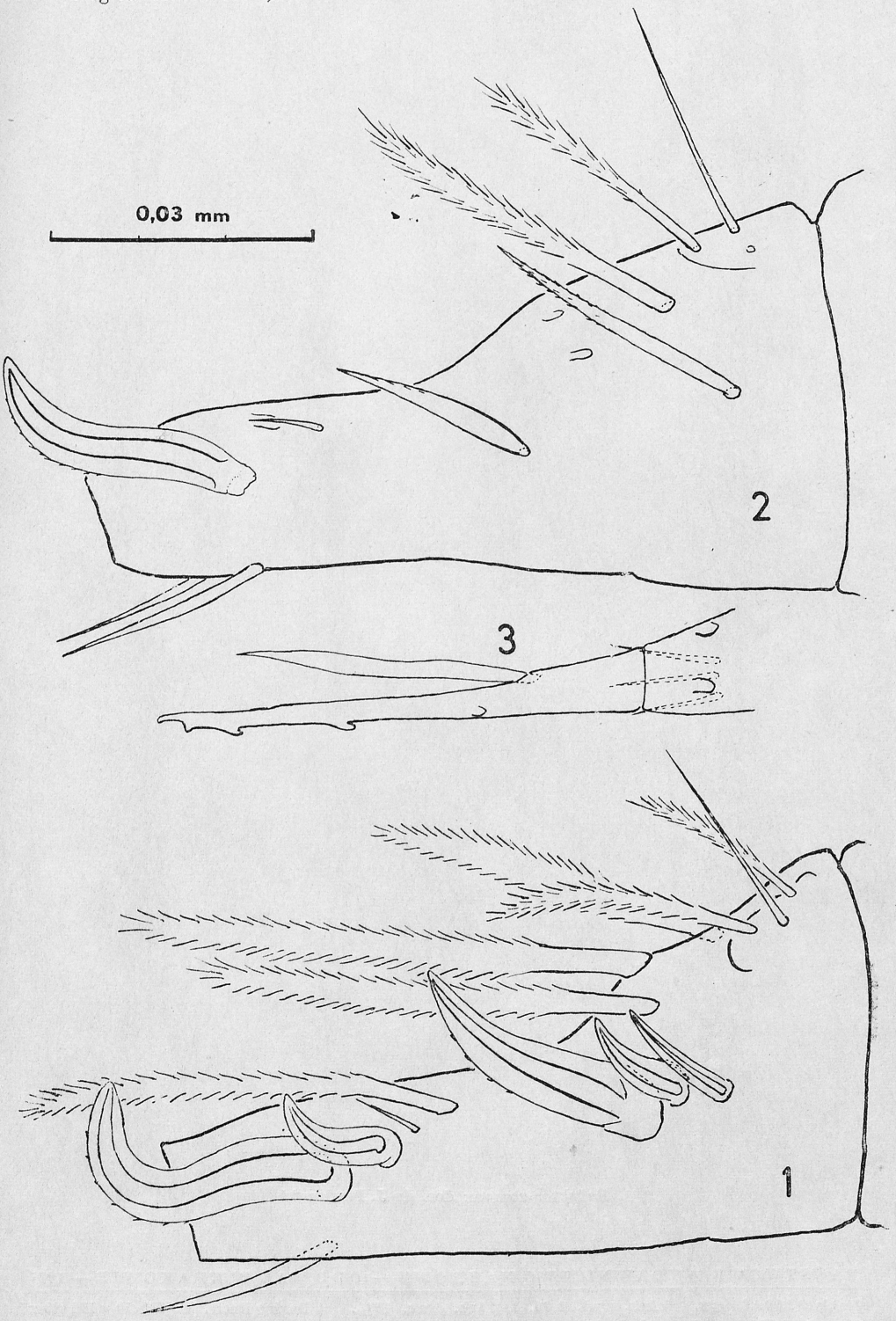
PLATE XVIII

1—3. *Oncopodura czmur* sp. n.
1. Dens seen from the inner side (holotype)
2. Dens seen from the outer side (as above)
3. Mucro seen from above (paratype from Tesŏng-san)



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