

## REVISION OF THE RUSSIAN *VEJDovskyella* MICHAELSEN, 1903 (OLIGOCHAETA, NAIDIDAE), WITH A DESCRIPTION OF FOUR NEW SPECIES FROM LAKE BAIKAL

Viktor SEMERNOY<sup>a</sup> and Tarmo TIMM<sup>b</sup>

<sup>a</sup>Ярославский государственный университет, кафедра зоологии (Chair of Zoology, Yaroslavl University). Проезд Матросова, 9, 150057 Ярославль, Россия (Russia)

<sup>b</sup>Eesti Teaduste Akadeemia Zooloogia ja Botaanika Instituudi Võrtsjärve Limnoloogiajaam (Võrtsjärve Limnological Station, Institute of Zoology and Botany, Estonian Academy of Sciences). Rannu, EE-2454 Tartumaa, Eesti (Estonia)

Presented by K. Elberg

Received February 23, 1994; accepted February 28, 1994

**Abstract.** The priority of the senior synonym *Macrochaetina* Bretscher, 1899, should be rejected as a generic name for the sake of stability of nomenclature. Instead of it, the new name *Machetna* is proposed for the use on the subgeneric level. The genus is divided into two distinct subgenera: *Vejdovskyella* Michaelsen, 1903 (the nominate subgenus), and *Machetna* nom. nov. The first subgenus includes three species: the Holarctic *V. (V.) comata* (Vejdovský, 1883), the Palaearctic *V. (V.) macrochaeta* (Lattočkin, 1921) (syn. *grandisetosa* Finogenova, 1962), and the Sino-Indian *V. (V.) simplex* Liang, 1958. The second subgenus consists of the Holarctic *V. (M.) intermedia* (Bretscher, 1896) and an assemblage of closely related Baikalian species: *V. (M.) baicalensis* Semernoy, sp. n., *V. (M.) schizodentata* Semernoy, 1982, *V. (M.) dilucida* Snimshikova, 1987, *V. (M.) galinae* Semernoy sp. n., *V. (M.) sublitoralis* Semernoy sp. n., *V. (M.) margaritae* Semernoy sp. n., and *V. (M.) koshovi* (Sokolskaya, 1962) comb. nov. The last taxon is transferred here from the genus *Nais*. *V. (V.) simplex* was recently found in the Russian Far East. Thus, all 11 valid species of *Vejdovskyella* are represented in the Russian fauna. A key to the species is given.

**Key words:** Oligochaeta, Naididae, *Vejdovskyella*, *Macrochaetina*, taxonomy, distribution.

### INTRODUCTION

*Vejdovskyella* Michaelsen, 1903, is a genus of small naidid oligochaetes belonging to the subfamily Stylariinae (pro Stylarinae) Nemeč & Brinkhurst, 1987. Two of them were known from the last century, at first as *Bohemilla comata* Vejdovský, 1883, with several synonyms, and *Macrochaeta intermedia* Bretscher, 1896. Michaelsen (1903) created the name *Vejdovskyella* since *Bohemilla* appeared to be preoccupied; even before that, *Macrochaeta* was modified, for the same reason, into *Macrochaetina* by Bretscher (1899). Piguet (1928) placed both known species under the common generic name *Vejdovskyella*, without perceiving the *Macrochaetina*'s right to primogeniture. In the same year, Strand (1928) proposed a new but unnecessary name *Bohemillula*, instead of *Bohemilla*, apparently being not aware of the earlier renomination by Michaelsen (1903).



The following additional taxa were described in our century: *Bohemilla comata* var. *macrochaeta* Lastočkin, 1921; *V. comata* var. *scotica* Stephenson, 1922; *V. faeroensis* Ditlevsen, 1936; *V. simplex* Liang, 1958; *V. comata grandisetosa* Finogenova, 1962; *V. intermedia schizodentata* Semernoy, 1982; *V. dilucida* Snimschikova, 1987. One species, *V. hellei* Brinkhurst & Jamieson, 1971, was later transferred into genus *Specaria* by Brinkhurst & Kathman (1983).

After several more new taxa have been discovered in Lake Baikal by the first author, which form a chain of phenotypical transitions between *Vejdovskyella intermedia* and *Nais koshovi* Sokolskaya, 1962, a need for revision became evident. As the Russian fauna includes all valid taxa of *Vejdovskyella* known so far around the world, our material seemed to be sufficient for resolving some nomenclature problems created by the incorrect counting of segments by various authors, and by repeated merging and splitting the taxa by Brinkhurst & Jamieson (1971), Brinkhurst & Kathman (1983), et al. The state of the generic name, too, was a challenge for formal clarification.

## MATERIAL AND METHODS

The Baikalian species were described on the material collected by the first author on the southern and northern parts of Lake Baikal (1978 and 1982, respectively). Qualitative benthos samples were taken with dredge (at 5—150 m depth), a pond-net and a bottom-scraper (in shallow water), also by scraping periphyton from the stones for observing it under a binocular microscope, and sometimes by SCUBA divers. Worms were extracted from the sediment, using a pipette, forceps, and a needle. After they had been observed in living condition, more than 100 stained whole mounts were made in Canada balsam. Drawings were made with a camera lucida. All measurements given were made on preserved animals.

*Vejdovskyella simplex* was found by the second author among a large preserved collection (3900 oligochaete specimens in 63 samples) completed in 1989—1990 by the Far East Science Center, Vladivostok, on the rivers in and near Ussuriisk, Primorski Region. They were studied as whole mounts in glycerine.

Mostly literature data were used for treating all the remaining taxa. The drawings of *Vejdovskyella comata* and *V. intermedia* were made by the second author after the whole-mounted worms from Estonia.

## Genus *Vejdovskyella* Michaelsen, 1903

*Vejdovskyella* Michaelsen, 1903:184; Sperber 1948:137; 1950:65; Чекановская 1962:164—165; Brinkhurst & Jamieson 1971:347—349; Chekanovskaya 1981:203—204; Попченко 1988:110—111. *Bohemilla* Vejdovský, 1883:218. *Bohemillula* Strand, 1928:36. *Macrochaeta* Bretscher, 1896:509. *Macrochaetina* Bretscher, 1899:392.

Type species *Bohemilla comata* Vejdovský, 1883.

**Description.** Prostomium short, with or without eyes. Ventral setae bifid, usually with proximal nodulus, those of VI in the asexual individuals often enlarged and modified but different from the penial setae of mature ones. Dorsal bundles begin with VI, with thick and mostly serrated or plumose hair setae, and with thin simple, sharp-tipped needle setae. Spermathecae with long duct not distinctly separated from ampulla. Vasa deferentia without prostate cover. Atrial ampullae



roundish or sacculate, covered with prostate cells only, or thicker on their anterior and lower side, around the mouth of vas deferens; efferent ducts short.

Remarks. The genus should be correctly named *Macrochaetina* Bretscher, 1899, since Piguet (1928) merged the latter genus into *Vejdovskyella* contrary to the law of priority. However, the united genus was named *Vejdovskyella* by all authors after 1928. Therefore, we propose rejecting the senior synonym *Macrochaetina* as a *nomen oblitum*, for the sake of the stability of the nomenclature, according to article 79c of the International Code of Zoological Nomenclature (Международный кодекс... 1988). The proposal is passed to the International Commission of Zoological Nomenclature for inspection (received 29 October, 1993, under the number 2908).

The genus can be divided into two distinct subunits. We prefer to treat them as two subgenera, although some authors (e.g. Brinkhurst & Kathman 1983) interpret them as two polytypical species.

Subgenus *Vejdovskyella* Michaelsen, 1903, with type species *Bohemilla comata* Vejdovský, 1883. It includes the taxa with eyes, with thick sabre-shaped double-serrated hair setae, and with a gap of ventral setae in V or IV—V: *V. comata* (Vejdovský, 1883), with several synonyms; *V. c. grandisetosa* Finogenova, 1962; *V. c. macrochaeta* (Lastockin, 1921); and *V. simplex* Liang, 1958.

For the second subgenus, with type species *Macrochaeta intermedia* Bretscher, 1899, we propose a new name — *Machetna* Semernoy et Timm, nom. nov., derived from the rejected generic name *Macrochaetina* Bretscher, 1899, by means of abbreviation. The subgenus includes eyeless taxa with more slender, simply serrated to smooth hair setae: the type species and all Baikalian forms are described below. Unlike the nominative subgenus, they prefer more lotic habitats in large lakes and rivers.

#### *Vejdovskyella* (*V.*) *comata* (Vejdovský, 1883). Fig. 1

*Bohemilla comata* Vejdovský, 1883:218, 1884:28, Pl. II, figs. 1—7; Michaelsen 1900:30. *Vejdovskyella comata* Michaelsen 1903:185; Schuster 1915:27—34; Piguet 1928:83—86; Sperber 1948:137—140, fig. 26C; 1950:65—66, fig. 17C—F; Сокольская 1961:59—60, fig. 5; 1983:31—32; Чекановская 1962:165—166, fig. 85; Chekanovskaya 1981:204—206, fig. 85; Brinkhurst & Kathman 1983:2309—2310, fig. 2; Попченко 1988:111—112, fig. 7(4). *V. comata* (partim) Brinkhurst & Jamieson 1971:347—349, fig. 7.10A—E. *V. comata* var. *scotica* Stephenson, 1922:281—282, fig. 1. *V. faeroensis* Ditlevsen, 1936:11—13. *Nais hamata* Timm, 1883:152—153, Pl. XI, fig. 24.

Holotype not designed.

Description. Length of chains 2—8 mm. Number of segments in the first zooid (n) 12—24, in non-budding individuals (s) 24—34. Prostomium shorter than length, filled with granular tissue. Eyes present. Body wall transparent, bearing scattered papillae not seen by us, according to Sperber (1948). Anterior segments with long sensory hairs visible in living worms only. Ventral setae relatively straight but with a proximal bend, with proximal nodulus, the upper tooth thinner and a bit longer than the lower one. Ventral bundles of II—III and further, beginning from VI, with 3—6 setae, those of II 80—105  $\mu\text{m}$  long, in the remaining segments 51—92  $\mu\text{m}$ . Less or no setae in IV, none in V. Single modified penial setae in VI of mature specimens. Dorsal bundles with 4—8 very robust sabre-shaped hair setae, 170—420  $\mu\text{m}$  long, with a double serration on the convex side, and with 1—8



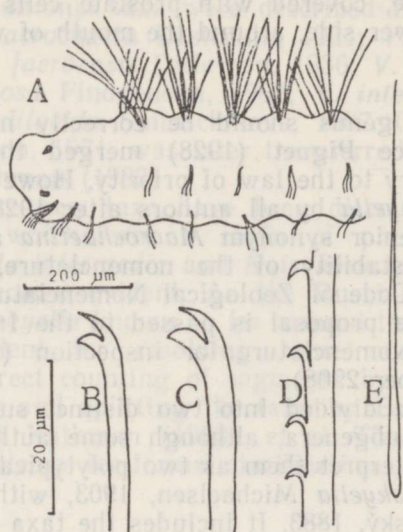


Fig. 1. *Vejdovskyella (V.) comata* (Vejdovský, 1883). Lake Kurtna Valgejärv, Estonia. A — anterior end, B — ventral seta of II, C — posterior ventral seta, D — middle portion of a hair seta, E — needle seta.

thinner, straight and simple needle setae, 47—90  $\mu\text{m}$  long. Stomachal dilatation of digestive tract in VIII.

Clitellum on V—VIII. Spermathecal pores on the anterior edge of V, male pores in VI before penial setae. Spermathecae with small weakly distinguished ampulla, 35—50  $\mu\text{m}$  long and 20  $\mu\text{m}$  wide, and with rather long, 20  $\mu\text{m}$  wide thick-walled duct; it can reach from V into VI within sperm sac. Cup-shaped sperm funnels open into sperm sac. Vasa deferentia about 160  $\mu\text{m}$  long and 10  $\mu\text{m}$  wide, with several sharp bends, joining the anterior lower side of atria. Atrial ampullae oval or rounded, 50—85  $\mu\text{m}$  long, their wall consisting of a muscular and an unevenly developed epithelial layer. Ampullae are covered with prostatic tissue, the thickest on the anterior side and lacking on the posterior side. Small indistinct efferent ducts about 30  $\mu\text{m}$  long and 15  $\mu\text{m}$  thick. Sperm sacs extending through IX, ovisac through XI. The above description of the genital system is compiled after Schuster (1915) and Sperber (1948), since no mature individuals have been seen by the authors.

Remarks. The lack of ventral setae in V and, sometimes, in IV repeatedly resulted in an erroneous decision that dorsal bundles in *V. comata* begin in V (Vejdovský 1883, 1884; Schuster 1915; Sperber 1948, et al.). Specimens described by Ditlevsen (1936) as *V. faeroensis* bear dorsal bundles from II; apparently they were half-developed zooids of *V. comata*. Brinkhurst & Kathman (1983) discovered cleft-tipped hair setae in North American specimens; the same character (apparently connected with the double serration and not always visible) was noticed earlier by Schuster (1915) in Germany. Černosvitov (1942) found, from the Ural River, three specimens with unusually long setae in II, 204  $\mu\text{m}$ , and single setae in ventral bundles of VI and backwards, 56—64  $\mu\text{m}$  long. They probably belong to another, unknown taxon.



**Distribution.** Holarctic. Besides numerous findings in Europe and North America, known also in West Siberia (Семерной 1970, Залозный 1976), Irkutsk Region (Малевич 1950, Попченко 1974, Акиншина & Томилов 1976), Kamchatka Peninsula (Сокольская 1983), Primorski Region (Сокольская 1961), and Hokkaido Island (Ohtaka 1985). The single (introduced?) specimen from South Africa (Brinkhurst 1966) can belong to any species of *Vejdovskyella*, since the finder lumped even *V. intermedia* with *V. comata* this time (Brinkhurst & Jamieson 1971). The species is rather tolerant to humic substances and low pH.

*Vejdovskyella* (*V.*) *macrochaeta* (Lastočkin, 1921). Fig. 2

*Bohemilla comata* var. *macrochaeta* Ласточкин 1921:73—74, figs. 1—2. *Vejdovskyella macrochaeta* Ласточкин 1927:69; Чекановская 1962:167, fig. 87; Чекановская 1981:207—208, fig. 87; Попченко 1988:113, fig. 7(5). *V. comata grandisetosa* Финогенова 1962:220, fig. 1; Попченко 1988:112.

Holotype not designed.

**Description.** Length of the non-budding individuals 1—3 mm, number of segments 12—21. Prostomium roundish, with eyes. Body wall with large papillae (according to Finogenova (Финогенова 1962)), anterior segments with sensory hairs (Попченко 1988). Ordinary ventral setae 1—3 per bundle, about 3  $\mu\text{m}$  thick, with proximal nodulus and slightly longer upper tooth; 112  $\mu\text{m}$  long in II and gradually shorter, down to 78  $\mu\text{m}$  backwards according to Finogenova (Финогенова 1962); Lastočkin (Ласточкин 1921) did not describe these setae. No ventral setae in IV—V. In ventral bundles of VI, VII and sometimes VIII, IX, single (rarely double) enlarged setae, 82—98  $\mu\text{m}$  long and up to 5.5  $\mu\text{m}$  thick, strongly curved, with distal nodulus, small upper tooth and very thick, curved lower tooth. Single simple-pointed penial setae in ventral bundles of VI in mature worms 79  $\mu\text{m}$  long. Dorsal bundles from VI onward, with double-serrated hair setae, 182—368  $\mu\text{m}$  long, and simple needle setae, 56—84  $\mu\text{m}$  long, altogether 4—12 setae per bundle (Финогенова 1962).

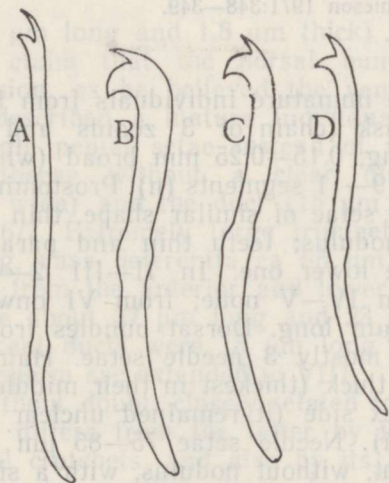


Fig. 2. *Vejdovskyella* (*V.*) *macrochaeta* (Lastočkin, 1921). Ventral setae: A — from III, B — from VI, C — from VII, D — from IX. Redrawn after Finogenova (Финогенова 1962) (as *V. comata grandisetosa*).



Genital system was shortly described by Lastočkin (Ласточкин 1921). Clitellum on 1/2V—VII, spermathecal pores laterally in V, male pores by the side of penial setae in VI. Spermathecae tubular, without any distinct division into ampulla and duct. Pear-shaped atrium covered with prostate tissue around the entrance of vas deferens (according to Lastočkin (Ласточкин 1921) distal part of vas deferens covered with prostate cells). Sperm sac through VIII.

Remarks. The synonymization of *V. macrochaeta* with *V. intermedia* by Hrabě (1954) rested (besides the presence of enlarged ventral setae in VI of both species) on the erroneous assumption of dorsal bundles in V in *V. comata*. Finogenova (Финогенова 1962) also distinguished her *V. comata grandisetosa* from *V. macrochaeta*, mainly believing the dorsal bundles to begin in V in the first taxon (as in nominate subspecies). She did not perceive the lack of ventral setae in both IV and V, as Lastočkin (Ласточкин 1921) did. All the other characters of these taxa, as far as described, seem to be identical. Both taxa were originally described as the subspecies or variations of *V. comata*. The loss and recurrence of analogical enlarged ventral setae are known in *Pristina aequisetata* Bourne when cultivated in different ionic concentrations (Loden & Harman 1980). However, the possible conspecificity of *V. macrochaeta* with *V. comata* would need an experimental proof; besides, ordinary setae seem to be less numerous in *V. macrochaeta*. Both taxa were found as sympatric in the same lake by Lastočkin (Ласточкин 1921).

Distribution. Eastern Europe and Western Siberia: Ivanovo Region (Ласточкин 1921), Karelian and Komi Republics (Попченко 1988), Nenets Autonomous District (Финогенова 1962, 1966), the Votkinsk Reservoir on the Kama River (Гореликова 1980), the Saratov Reservoir on the Volga River (Попченко et al. 1981), floodplain lakes of the middle Ob River (Семерной 1970).

### *Vejdovskyella* (*V.*) *simplex* Liang, 1958. Fig. 3

Liang, 1958:42—43, 50—51, fig. 7—13; Brinkhurst et al. 1990:908. *V. comata* (partim) Brinkhurst & Jamieson 1971:348—349.

Holotype not designed.

Description of two immature individuals from the Razdolnaya (Sui-fun) River in Ussuriisk (chain of 3 zooids and anterior fragment). Zooids 0.6—1 mm long, 0.15—0.25 mm broad (when compressed under the cover glass), with 9—11 segments (n). Prostomium shorter than width, with eyes. All ventral setae of similar shape, thin (2  $\mu$ m), with weakly developed proximal nodulus; teeth thin and parallel, the upper tooth twice longer than the lower one. In II—III 2—4 setae per bundle, 120—125  $\mu$ m long; in IV—V none; from VI onwards mostly 3 setae per bundle, 80—110  $\mu$ m long. Dorsal bundles from VI onwards, with 2—4 hair setae and mostly 3 needle setae. Hair setae 150—340  $\mu$ m long and up to 4  $\mu$ m thick (thickest in their middle part), sabre-shaped, serrated on the convex side (it remained unclear if there exist one or two rows of denticuli). Needle setae 75—85  $\mu$ m long and basally up to 2  $\mu$ m thick, straight, without nodulus, with a simple slowly tapering sharp tip.

Remarks. Liang (1958) described numerous immature specimens of slightly smaller dimensions (ventral setae in II 99—100  $\mu$ m long and 1.4—1.5  $\mu$ m thick, hair setae 131—262  $\mu$ m long and 3  $\mu$ m thick,



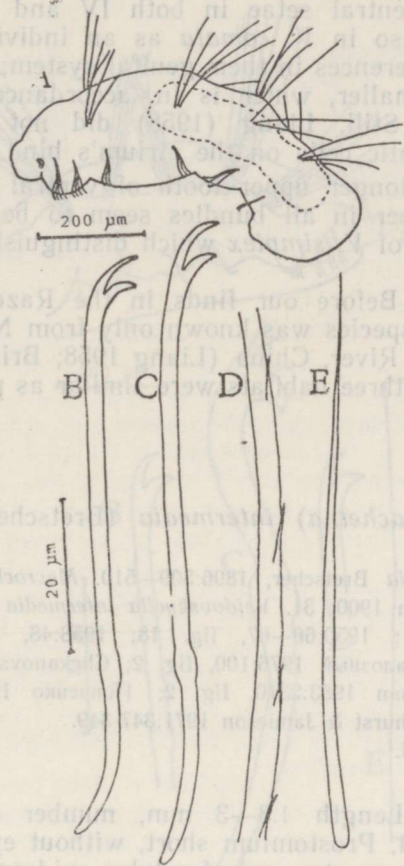


Fig. 3. *Vejdovskyella (V.) simplex* Liang, 1958. River Razdolnaya. A — the first zooid, B — ventral seta of II, C — ventral seta of VI, D — middle portion of a hair seta, E — needle seta.

needle setae 45–64  $\mu\text{m}$  long and 1.8  $\mu\text{m}$  thick) but otherwise identical with our ones. His claim that the dorsal bundles start with V is apparently a confusion, as he believed the ventrals to be lacking in IV only. He also described a mature individual with a clitellum on V–1/2VIII and single penial setae instead of ventral bundles of VI. Claviculate spermathecae without a clear distinction between the ampulla (ca 24  $\mu\text{m}$  wide) and the duct (15  $\mu\text{m}$  wide) reached from V to the dissepiment 6/7. Extremely large trumpet-shaped sperm funnels were ca 24  $\mu\text{m}$  long, vasa deferentia ca 65  $\mu\text{m}$  long and 6  $\mu\text{m}$  wide, entering the atrium from the anterior and lower side. The small ovoid atrial ampullae were about 37  $\mu\text{m}$  long and 23  $\mu\text{m}$  wide, covered with prostatic cells. Efferent ducts were 18  $\mu\text{m}$  long and 12  $\mu\text{m}$  wide, with a small lumen. The sperm sac extended to VIII.

*V. simplex* is, without doubt, closely related to *V. comata*. According to Liang (1958), it differs from the latter by fewer but longer setae, by straighter ventral crotchets, and also by its smaller body and by the lack of integumental papillae (not always visible in *V. comata*, either). *V. comata* described by Sokolskaja (Сокольская 1961, 1983) from the Russian Far East had setae roughly of the same length as *V. simplex*, while the worms themselves were larger. The upper tooth of ventral setae in *V. simplex* is always relatively longer than in *V. co-*



*mata*. The lack of ventral setae in both IV and V, characteristic of *V. simplex*, occurs also in *V. comata* as an individual variant. There exist no principal differences in their genital system; however, all details of *V. simplex* are smaller, which is in accordance with its smaller general dimensions. Still, Liang (1958) did not notice any weaker development of prostatic cells on the atrium's hind side.

The considerably longer upper tooth of ventral setae together with a smaller setal number in all bundles seem to be the most authentic distinctive characters of *V. simplex* which distinguish it from *V. comata*.

**Distribution.** Before our finds in the Razdolnaya River (first time in Russia), the species was known only from Nanking and Wuhan, on the lower Yangtze River, China (Liang 1958; Brinkhurst et al. 1990). In all probability, all three habitats were similar as polluted urban water bodies.

#### *Vejdovskyella (Machetna) intermedia* (Bretscher, 1896). Fig. 4

*Macrochaeta intermedia* Bretscher, 1896:509—510. *Macrochaetina intermedia* Bretscher 1899:392; Michaelsen 1900: 31. *Vejdovskyella intermedia* Piguët 1928:86—87, fig. 3; Sperber 1948:140—141; 1950:66—67, fig. 18; 1958:48, fig. 1—2; Чекановская 1962:166—167, fig. 86; Залозный 1976:100, fig. 2; Чекановская 1981:206—207, fig. 86; Brinkhurst & Kathman 1983:2310, fig. 2; Попченко 1988:112—113, fig. 7(6). *V. comata* (partim) Brinkhurst & Jamieson 1971:347-349.

Holotype not designed.

**Description.** Length 1.3—3 mm, number of segments in the first zooid (n) 11—14. Prostomium short, without eyes. Body opalescent due to abundant coelomocytes and glandular epidermis. Ordinary ventral setae relatively straight, with proximal nodulus and considerably longer upper tooth. In II—V 2—4 setae in ventral bundles, in posterior segments only one seta, 66—110  $\mu\text{m}$  long (the longest in II). Single (seldom 2—3) enlarged setae in ventral bundles of VI (or also of some following segments, up to IX), not longer but several times thicker than ordinary setae, with thick curved lower tooth while the upper tooth is cleft into 2—3 thin branches. Dorsal bundles from VI, with 2—9 finely serrated hair setae, 210—341  $\mu\text{m}$  long, and 3—9 fine simple needle setae, 55—66  $\mu\text{m}$  long. Stomachal dilatation in VI—VII. Genital system has not been studied.

**Remarks.** *V. intermedia* was once lumped with *V. comata* by a few western authors (Brinkhurst & Jamieson 1971 et al.) who had no access to Russian literature. They erroneously regarded *V. macrochaeta*, with its enlarged ventral setae, a transition form. This confusion was again settled by Brinkhurst & Kathman (1983). Sperber (1948, 1950, 1958) mentions that some individuals of *V. intermedia* can be devoid of enlarged ventral setae. In Lake Baikal, a great variety of different taxa with and without enlarged ventral setae occur that have possibly developed from an ancestor close or identical to *V. intermedia* (see below).

**Distribution.** Holarctic but lacking in the Far East; the easternmost finding place is the Angara River with its reservoirs (Акиншина & Томилов 1976). Living mostly on the sandy bottom of rivers and large lakes.

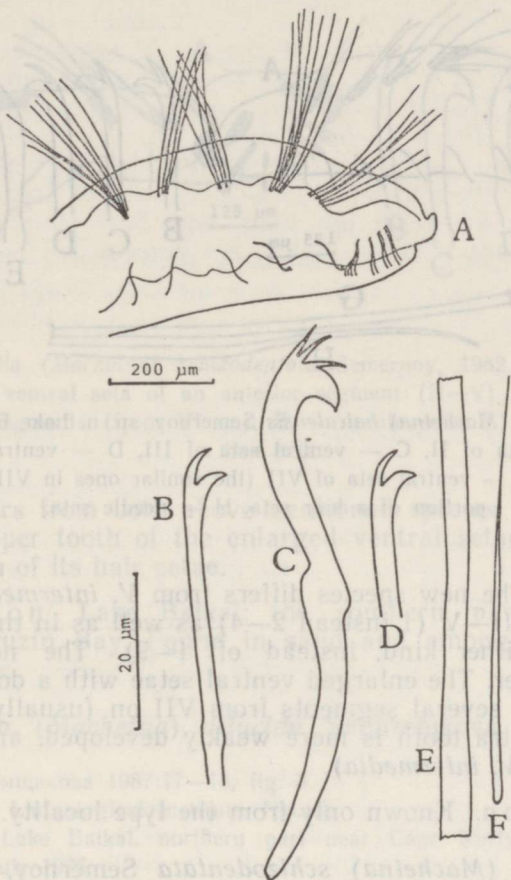


Fig. 4. *Vejdovskyella (Machetna) intermedia* (Bretscher, 1896). Lake Peipsi (Chudskoye). A — anterior end, B — ventral seta of II, C — ventral seta of VI, D — posterior ventral seta, E — middle portion of a hair seta, F — needle seta.

*Vejdovskyella (Machetna) baicalensis* Semernoy sp. n. Fig. 5

Holotype. Zoological Institute, St. Petersburg, No 43337, whole mount in Canada balsam.

Type locality. Lake Baikal, Barguzin Bay, coarse sand at 10 m depth.

Etymology. Named after the lake.

Description. Length of the first zoid in holotype 1.0 mm, number of segments (n) 14. Prostomium rounded, without eyes, filled with peritoneal cells covering the brain. Ventral setae of II—V with thinner and shorter upper tooth, and with proximal nodulus. In II 3 setae per bundle, 83—88  $\mu\text{m}$  long; in III—V single setae per bundle (or two in III), 53—59  $\mu\text{m}$  long. From VI on also single setae but somewhat larger, 65—69  $\mu\text{m}$  long (decreasing down to 53  $\mu\text{m}$  again in hindmost segments), in VII—X with small additional upper tooth. From XI on, ventral setae become thinner and have longer upper tooth. Dorsal bundles beginning in VI, with 2—3 sabre-shaped hair setae, 250—275  $\mu\text{m}$  long, and 3 needle setae, 94  $\mu\text{m}$  long, the latter ones with median nodulus and bent prolonged distal part. Genital system not known.



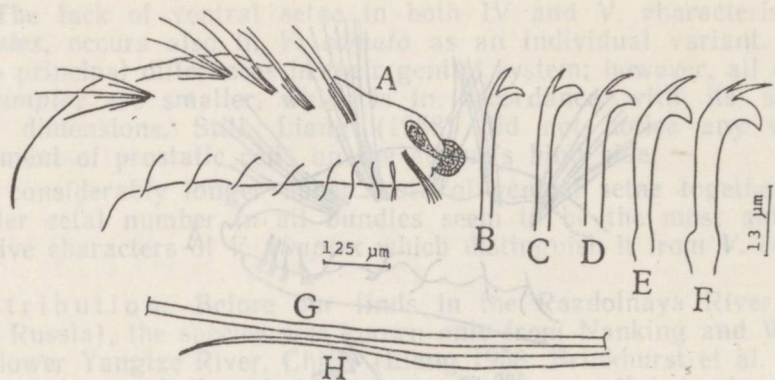


Fig. 5. *Vejdovskyella (Machetna) baicalensis* Semernoy sp. n. Lake Baikal. A — anterior end, B — ventral seta of II, C — ventral seta of III, D — ventral seta of IV, E — ventral seta of VI, F — ventral seta of VII (the similar ones in VIII—X), G — middle portion of a hair seta, H — needle seta.

Remarks. The new species differs from *V. intermedia* by a smaller setal number in III—V (1 instead 2—4) as well as in the dorsal bundles (2—3 setae of either kind, instead of 4—9). The needle setae are considerably larger. The enlarged ventral setae with a double upper tooth are distributed in several segments from VII on (usually in VI in *V. intermedia*); the extra tooth is more weakly developed, and always single (often double in *V. intermedia*).

Distribution. Known only from the type locality.

*Vejdovskyella (Machetna) schizodentata* Semernoy, 1982. Fig. 6

*V. intermedia schizodentata* Семерной 1982:60—61, fig. 2.

Holotype. Zoological Institute, St. Petersburg, No 43341, whole mount in Canada balsam.

Type locality. Lake Baikal, eastern shore between Cape Shiroki and the railway station Ulanova, sand at a depth of 5 m.

Etymology. The species name points to the cleft upper tooth of enlarged ventral setae.

Description. Length of single individuals 2 mm; number of segments (s) 15. Prostomium broad and flat, without eyes. External segmentation indistinct. Body wall thin and transparent, containing greenish pigment grains. Ventral setae of II—V with thinner and slightly shorter upper tooth, and with proximal nodulus gradually shifting to median position in IV—V. In II 3—4 setae per bundle, 104  $\mu\text{m}$  long; in III 2 setae, in IV—V only one seta per bundle, all 75  $\mu\text{m}$  long. From VI on, one thicker seta per bundle, 76  $\mu\text{m}$  long, with longer upper tooth cleft into 2—3 branches in its distal part, and with thick strongly bent lower tooth. Dorsal bundles from VI on, with 1—3 thick sabre-shaped, serrated hair setae, 230  $\mu\text{m}$  long, and 1—3 thinner needle setae, 75  $\mu\text{m}$  long, their distal part being thin and prolonged. Serration more distinct near the distal end of hair setae. Genital system not known.

Remarks. The species resembles *V. intermedia* and *V. baicalensis* by a cleft upper tooth in enlarged ventral setae. It differs from *V. intermedia* by the shape of anterior ventral setae, as well as by the smaller number of anterior ventral setae and dorsal setae, like *V. bai-*

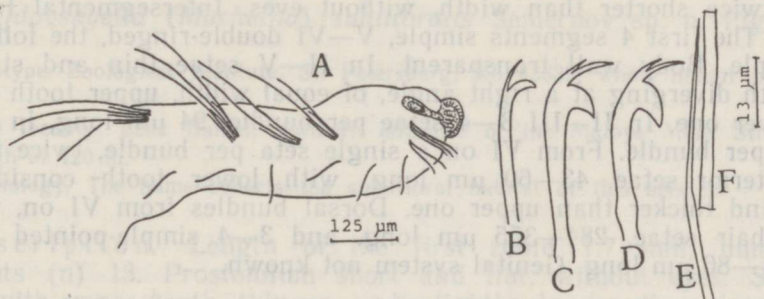


Fig. 6. *Vejdovskyella (Machetna) schizodentata* Semernoy, 1982. Lake Baikal. A — anterior end, B — ventral seta of an anterior segment (II–V), C and D — ventral setae of posterior segments (from VI on), E — needle seta, F — middle portion of a hair seta.

*calensis*. It differs from both above-mentioned species by a longer, only halfway cleft upper tooth of the enlarged ventral setae, and by a more distinct serration of its hair setae.

**Distribution.** Lake Baikal: the southern part, Maloye More Strait, the Barguzin Bay. Found in sand and among periphyton, at a depth of 5–10 m.

*Vejdovskyella (Machetna) dilucida* Snimshchikova, 1987. Fig. 7

*V. dilucida* Снимщикова 1987:17–18, fig. 3.

Holotype in the Limnological Institute, Irkutsk.

Type locality. Lake Baikal, northern part near Cape Kurly, coarse sand at a depth of 50 m, 17 July 1975.

**Etymology.** *Dilucida* means “transparent” in Latin.

**Description.** Length of the sole anterior fragment 1.1 mm, maximum diameter 0.28 mm; at least 15 segments. Prostomium flat,

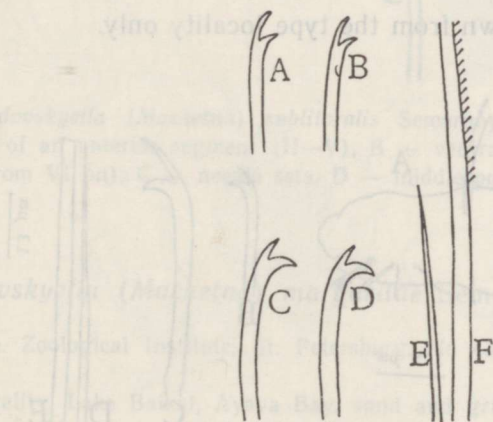


Fig. 7. *Vejdovskyella (Machetna) dilucida* Snimshchikova, 1987. Lake Baikal. A — ventral seta of II, B — ventral seta of III, C — ventral seta of IX, D — ventral seta of X, E — needle seta, F — middle portion of a hair seta. Redrawn after Snimshchikova (Снимщикова 1987).



almost twice shorter than width, without eyes. Intersegmental furrows distinct. The first 4 segments simple, V—VI double-ringed, the following ones triple. Body wall transparent. In II—V setae thin and straight, with teeth diverging at a right angle, of equal width, upper tooth longer than lower one. In II—III 3—4 setae per bundle, 94  $\mu\text{m}$  long, in IV—V 2 setae per bundle. From VI on a single seta per bundle, twice thicker than anterior setae, 43—60  $\mu\text{m}$  long, with lower tooth considerably longer and thicker than upper one. Dorsal bundles from VI on, with 3 serrate hair setae, 284—355  $\mu\text{m}$  long, and 3—4 simple-pointed needle setae, 71—86  $\mu\text{m}$  long. Genital system not known.

Remarks. The species differs from all other congeners by posterior ventral setae having their lower tooth much longer than the upper one.

Distribution. Known from the type locality only.

*Vejdovskyella (Machetna) galinae* Semernoy sp. n. Fig. 8

Holotype. Zoological Institute, St. Petersburg, No 43338, whole mount in Canada balsam.

Type locality. Lake Baikal, Chivyrkuy Bay, coarse detritus at a depth of 10 m.

Etymology. Named in the honour of Dr. Galina Fedotovna Mazepova of the Limnological Institute, Irkutsk.

Description. Solitary individual 1.0 mm long, with 12 segments (s). Prostomium broad and flat, without eyes. Ventral setae of II—V almost equal in length, upper tooth shorter; nodulus proximal. In II—III 3—5 setae per bundle, 64—88  $\mu\text{m}$  long; in IV—V one seta per bundle, 64—71  $\mu\text{m}$  long. From VI on, single thickened setae in ventral bundles, 64  $\mu\text{m}$  long, with upper tooth twice as lower one. Dorsal bundles from VI on, with 2—3 thick non-serrated hair setae, 270—312  $\mu\text{m}$  long, and 3—4 twice thinner needle setae, 59  $\mu\text{m}$  long, with thin sharp distal end. Stomachal dilatation of intestine in VII. Genital system not known.

Remarks. *V. galinae* differs from *V. dilucida* and *V. sublitoralis* by enlarged posterior ventral setae with a simple upper tooth which is considerably longer than the lower one, and by its smooth hair setae.

Distribution. Known from the type locality only.

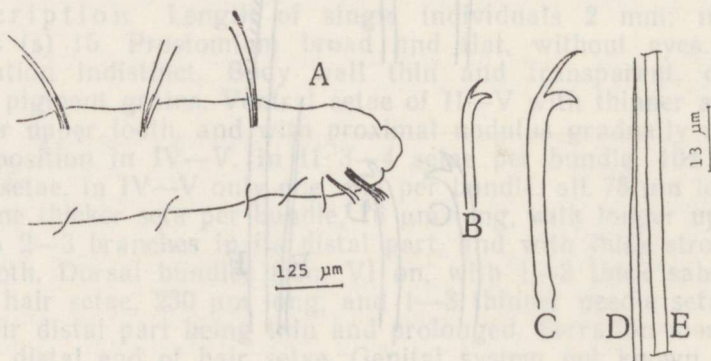


Fig. 8. *Vejdoskyella (Machetna) galinae* Semernoy sp. n. Lake Baikal. A — anterior end, B — ventral seta of an anterior segment (II—V), C — ventral seta of a posterior segment (from VI on), D — needle seta, E — middle portion of a hair seta.

*Vejdovskyella (Machetna) sublitoralis* Semernoy sp. n. Fig. 9

Holotype. Zoological Institute, St. Petersburg, No 43339, whole mount in Canada balsam.

Type locality. Lake Baikal, northern entrance of the Maloye More Strait, sand at a depth of 120 m.

Etymology. The name reflects the sublittoral habitat of this species.

Description. Length of the first zooid 1.7 mm, number of segments (n) 13. Prostomium short and flat, without eyes. Setae of II—V with upper tooth thinner and slightly longer than lower one, with proximal nodulus. In II 4 setae per bundle, 88  $\mu\text{m}$  long; in III 3 setae per bundle, 71  $\mu\text{m}$  long; in IV—V 2 setae per bundle, 64—71  $\mu\text{m}$  long. From VI on one thick seta in every ventral bundle, 60—65  $\mu\text{m}$  long, with teeth of almost equal length upper one being much thinner and straighter. Dorsal bundles from VI on, with 3 thick plumose hair setae, up to 370  $\mu\text{m}$  long, and with 3 gradually tapering simple-pointed needle setae, 71  $\mu\text{m}$  long. Genital system not known.

Remarks. In comparison with the other species bearing posterior enlarged ventral setae with a simple upper tooth (*V. dilucida* and *V. galinae*), in the case of *V. sublitoralis* both teeth are equally long in these setae.

Distribution. Known from the type locality only.

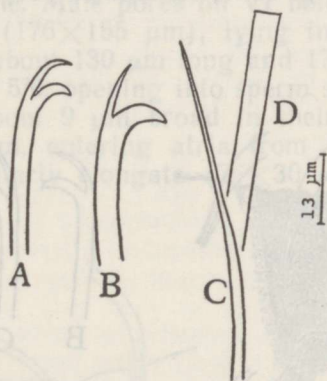


Fig. 9. *Vejdovskyella (Machetna) sublitoralis* Semernoy sp. n. Lake Baikal. A — ventral seta of an anterior segment (II—V), B — ventral seta of a posterior segment (from VI on), C — needle seta, D — middle portion of a hair seta.

*Vejdovskyella (Machetna) margaritae* Semernoy sp. n. Fig. 10

Holotype. Zoological Institute, St. Petersburg, No 43340, whole mount in Canada balsam.

Type locality. Lake Baikal, Ayaya Bay, sand and gravel at a depth of 5 m.

Etymology. Named in the honour of Dr. Margarita Yulyevna Bekman of the Limnological Institute, Irkutsk.

Description. Prostomium broad and flat, without eyes. Anterior segments folded, with adhering fine sediment particles. All ordinary (non-genital) ventral setae of similar shape, with teeth of equal length,



lower tooth thicker; nodulus proximal. In II 4 setae per bundle, 118—130  $\mu\text{m}$  long; in III 3 setae, 100—106  $\mu\text{m}$  long; in IV—V 2 setae, 83—106  $\mu\text{m}$  long; from VI on one single seta per bundle, 88—106  $\mu\text{m}$  long. In mature individuals modified penial setae in VI. Dorsal setae from VI on, one thick sabre-shaped hair seta per bundle, 173—215  $\mu\text{m}$  long, and one thinner, distally slightly curved simple-pointed needle seta, 64—75  $\mu\text{m}$  long.

Circular nontransparent loose clitellum on VI—VII, covering also the dorsal side of V and the anterior part of VIII. Spermathecal pores on the posterior edge of V, on the line of ventral setae. Male pores on the middle part of VI, before penial setae. Spermathecae attached to V but with elongate ampulla lying mostly in VI. Spermathecal duct not clearly distinguished, usually bent at a right angle. Short and thin vasa deferentia entering atria anteriorly from below. The anterior part of sacculate atrial ampullae is covered with prostatic cells all round, unlike the bigger bare posterior part which sometimes reaches VII. Differentiated short efferent ducts equipped with distinct circular musculature.

Remarks. *V. margaritae* together with *V. koshoi* (see below) form a subunit of the subgenus *Machetna* devoid of enlarged ventral setae. Equal tooth length but unequal thickness in ventral setae is its distinctive character in comparison with the latter species.

Distribution. The most common representative of the genus in the littoral of the Maloye More Strait and northern Lake Baikal. In periphyton of stones and in sand, sometimes abundantly.

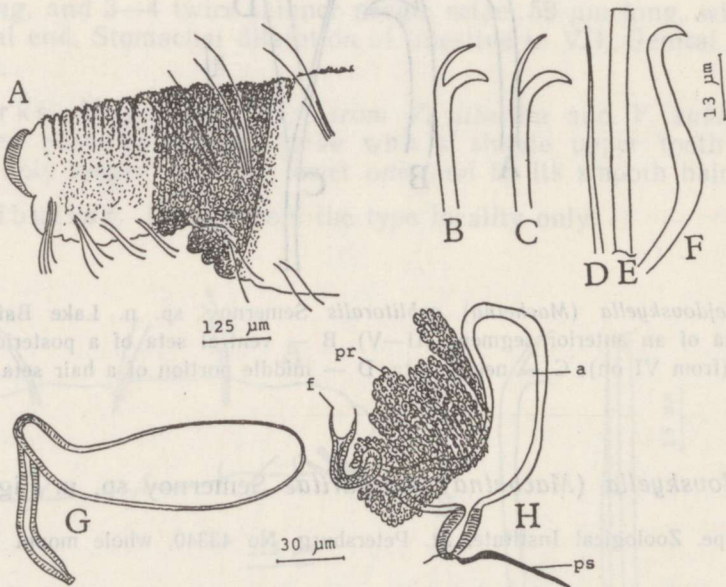


Fig. 10. *Vejdovskyella (Machetna) margaritae* Semernoy sp. n. Lake Baikal. A -- anterior end of a mature individual, B -- ventral seta of an anterior segment (II—V), C -- ventral seta of a posterior segment (from VI on), D -- needle seta, E -- middle portion of a hair seta, F -- penial seta, G -- spermatheca, H -- male ducts: a -- atrium, f -- sperm funnel, pr -- prostatic cells, ps -- penial seta.

*Vejdovskyella (Machetna) koshovi* (Sokolskaya, 1962) comb. n. Fig. 11

*Nais koshovi* Сокольская 1962:138—139, fig. 6.

Holotype. Zoological Museum of Moscow University, No 629.

Type locality. Lake Baikal, Barguzin Bay near Ust-Barguzin, silted sand at a depth of 8 m, July 26, 1958.

Etymology. Named in the honour of Dr. Mikhail M. Kozhov of the Irkutsk University.

Description. Mature individuals 0.7—3.0 mm long and 0.2—0.5 mm thick, with 12—22 segments (s). Prostomium short, broad and flat, without eyes. Anteclytellar segments double-ringed, postclytellar ones triple-ringed, setae-bearing ring being the longest. All ordinary (non-genital) ventral setae of similar shape, with proximal nodulus, with teeth of equal thickness, upper tooth 2—2.5 times longer than lower one. In II 4 ventral setae per bundle, 126  $\mu$ m long; in III—V 3 setae per bundle, 100—118  $\mu$ m long. From VI on ventral setae 2—3 per bundle, 83—105  $\mu$ m long. In mature individuals, the usual ventral setae of VI replaced with or accompanied by 1—2 modified penial setae per bundle. These are 92  $\mu$ m long, blunt-pointed, with distal nodulus. Dorsal bundles from VI on, with 1—2 thick sabre-shaped hair setae, 164—236  $\mu$ m long, up to 3.5  $\mu$ m thick, and 1—2 simple-pointed sharp needle setae, 59—88  $\mu$ m long, with distal nodulus. Distinct stomachal dilatation of intestine in VII.

Thin circular clitellum on V—VII, not much different from neighbouring segments by colour. Spermathecal pores on the posterior border of V, on the ventral setal line. Male pores on VI before penial setae. Spermathecal ampullae oval (176 $\times$ 155  $\mu$ m), lying in VI. Spermathecal ducts not clearly delimited, about 130  $\mu$ m long and 17  $\mu$ m wide. Sperm funnels about 30  $\mu$ m broad, on 5/6, opening into sperm sac in VI. Vasa deferentia short, not winding, about 9  $\mu$ m broad in their proximal end and then widening up to 16  $\mu$ m, entering atria from before and below. Atrial ampullae in VI irregularly elongate (76 $\times$ 30  $\mu$ m), with thick muscular

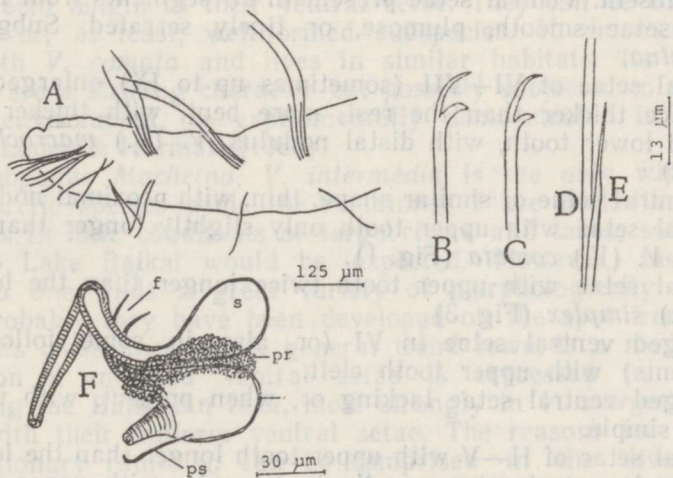


Fig. 11. *Vejdoskyella (Machetna) koshovi* (Sokolskaya, 1962) comb. n. Lake Baikal.

A — anterior end, B — ventral seta of II, C — ventral seta of VI, D — middle portion of a hair seta, E — needle seta, F — internal reproductive organs: a — atrium, f — sperm funnel, pr — prostatic cells, ps — penial seta, s — spermatheca.



walls. High prostatic cells cover only the anterior wall of ampulla, surrounding also the end of vas deferens. Efferent duct well-distinguished, 13  $\mu\text{m}$  long and 8  $\mu\text{m}$  broad.

Remarks. The species was originally described as a member of the genus *Nais*. Sokolskaja (Сокольская 1962) erroneously interpreted the prostatic tissue surrounding the end of vas deferens as attached to this duct (a character of *Nais*) while it is, in fact, attached to the anterior surface of the atrium as in all *Vejdovskyella* studied in this respect. Sabre-shaped hair setae, simple needle setae, and a short flat prostomium are other characters of *Vejdovskyella* in this species while the lack of eyes is shared with the other members of the subgenus *Machetna*. *V. koshovi* is an extreme link in the variation range of the subgenus in Lake Baikal, characterized by a complete loss of enlarged ventral setae and even any distinct difference between the anterior and posterior ventral setae. It differs from the most similar taxon, *V. margaritae*, by having a considerably longer upper tooth in its ventral setae.

Distribution. Found by the first author in the upper littoral of the whole eastern shore of Lake Baikal, as well as in the Maloye More Strait. There exist literature data on findings in North Baikal, in the Possolski Sor Bay (Снимщикова 1987), South Baikal (Акиншина et al. 1990), and even in the outflowing Angara River with its reservoirs (Акиншина & Томилов 1976; Томилов et al. 1978).

#### Key to the species of *Vejdovskyella*

Only the characters visible in immature individuals are taken into account, without possible modification of penial setae in VI.

- 1 Eyes present. Ventral setae of V or IV (or both) lacking. Hair setae roughly serrated, with two rows of denticuli on the convex side. Subgenus *Vejdovskyella*.
- Eyes absent. Ventral setae present in all segments from II on. Hair setae smooth, plumose, or finely serrated. Subgenus *Machetna*. 4
- 2(1) Ventral setae of VI—VII (sometimes up to IX) enlarged, up to twice thicker than the rest, more bent, with thicker and curved lower tooth, with distal nodulus. *V. (V.) macrochaeta* (Fig. 2). 3
- All ventral setae of similar shape, thin, with proximal nodulus. 3
- 3(2) Ventral setae with upper tooth only slightly longer than the lower. *V. (V.) comata* (Fig. 1).
- Ventral setae with upper tooth twice longer than the lower. *V. (V.) simplex* (Fig. 3).
- 4(1) Enlarged ventral setae in VI (or also in some following segments) with upper tooth cleft. 5
- Enlarged ventral setae lacking or, when present, with upper tooth simple. 7
- 5(4) Ventral setae of II—V with upper tooth longer than the lower. Enlarged ventral setae usually in VI only, with upper tooth cleft into 2—3 equal thin branches. *V. (M.) intermedia* (Fig. 4).
- Ventral setae of II—V with upper tooth shorter than the lower. Enlarged ventral setae in VI (or VII)—X or further on.
- 6(5) Enlarged ventral setae with short double upper tooth, the upper branch being the shortest. *V. (M.) baicalensis* (Fig. 5).



- Enlarged ventral setae with long upper tooth cleft into 2—3 branches to the half of its length. *V. (M.) schizodentata* (Fig. 6).
- 7(4) In ventral bundles from VI on single enlarged setae. 8
- Ventral setae from VI on similar to anterior ones, 1 or more per bundle. 10
- 8(7) Enlarged ventral setae with upper tooth considerably shorter and thinner than the lower one. *V. (M.) dilucida* (Fig. 7).
- Enlarged ventral setae with upper tooth longer, or teeth of equal length. 9
- 9(8) Enlarged ventral setae with upper tooth twice longer. *V. (M.) galinae* (Fig. 8).
- Enlarged ventral setae with teeth of about equal length. *V. (M.) sublitoralis* (Fig. 9).
- 10(7) Ventral setae with teeth of equal length, the upper tooth being thinner. *V. (M.) margaritae* (Fig. 10).
- Ventral setae with teeth of equal thickness, the upper tooth being 2—2.5 times longer. *V. (M.) koshovi* (Fig. 11).

## DISCUSSION

11 taxa of *Vejdovskyella* living in Russia but representing also the whole known world fauna of the genus, are treated as valid species here. The two distinct, apparently monophyletic groups are discriminated among them, the subgenera *Vejdovskyella sensu stricto* and *Machetna* (nom. nov. pro *Macrochaetina*). Lumping both groups into a single species in the guide-book by Brinkhurst & Jamieson (1971) was unjustified and caused some confusion in the western literature. Interspecific relations within both subgenera are based so far on the setal characters only. Descriptions of the reproductive system are rare and not easily comparable.

In the subgenus *Vejdovskyella*, the Holarctic *V. comata* and the Sino-Indian *V. simplex* are allopatric and clearly distinguishable by the relative teeth length in their ventral setae. They can be considered good species or, at least, well-formed subspecies. *V. macrochaeta* is sympatric with *V. comata* and lives in similar habitats. Its enlarged ventral setae are a striking character but possibly subjected to variation in different environment, as experimentally demonstrated in *Pristina aequiseta* by Loden & Harman (1980).

In the subgenus *Machetna*, *V. intermedia* is the only widely distributed Holarctic species while the remaining 7 are Baikalian. *V. intermedia* lives in lotic conditions of large rivers and lakes, so its past invasion into Lake Baikal would be expected. However, instead of *V. intermedia* one finds a great variety of morphologically different taxa here. Probably they have been developed on the spot from *V. intermedia* or its close ancestor. A general trend towards a modification or degradation of enlarged ventral setae is expressed in different degrees among the Baikalian taxa, most strongly in *V. margaritae* and *V. koshovi* with their uniform ventral setae. The reasons for such effective evolutionary radiation can be comprised in the diversity of ecological niches in this ancient rift lake with its permanently cool and oxygen-rich water. Separation of the Baikalian taxa on the species level remains provisional, as their genetical isolation has not been proved. The prevailing asexual mode of reproduction (by budding) may contribute to the clonal multiplication of different morphs in the stable living conditions.



## ACKNOWLEDGEMENTS

The first author is greatly indebted to the Limnological Institute of the Russian Academy of Sciences for the working facilities and technical assistance during his collection trips on Lake Baikal. The second author expresses his gratitude to the Far East Science Center, especially to Dr. T. S. Vshivkova for the samples from Ussuriisk, as well as to Mrs. Ester Jaigma for her linguistical help.

## REFERENCES

- Bretscher, K. 1896. Die Oligochaeten von Zürich in systematischer und biologischer Hinsicht. — *Rev. Suisse de Zool.*, **3**, 4, 499—532.
- Bretscher, K. 1899. Beitrag zur Kenntnis der Oligochaeten-Fauna der Schweiz. — *Rev. Suisse de Zool.*, **6**, 2, 369—426.
- Brinkhurst, R. O. 1966. A contribution towards a revision of the aquatic Oligochaeta of Africa. — *Zool. Africana*, **2**, 2, 131—166.
- Brinkhurst, R. O. & Jamieson, G. B. M. 1971. Aquatic Oligochaeta of the world. Oliver & Boyd, Edinburgh.
- Brinkhurst, R. O. & Kathman, R. D. 1983. A contribution to the taxonomy of the Naididae (Oligochaeta) of North America. — *Canad. J. Zool.*, **61**, 10, 2307—2312.
- Brinkhurst, R. O., Qi Sang & Liang Yanling, 1990. The aquatic Oligochaeta from the People's Republic of China. — *Canad. J. Zool.*, **68**, 901—916.
- Cernosvitov, L. 1942. Oligochaeta from various parts of the world. — *Proc. Zool. Soc. London*, **B**, **111**, 197—236.
- Chekanovskaya, O. V. 1981. Aquatic Oligochaeta of the USSR. Amerind Publishing Co., New Delhi.
- Ditlevsen, A. 1936. Oligochaeta. — *Zoology of the Faroes*, **1**, **2**, 17, 1—15. Copenhagen.
- Hrabě, S. 1954. Kroužkovci — Annelida. — *Klíč zvířeny CSR*, **1**, 287—320.
- Liang Yan-lin. 1958. On some new species of Naididae from Nanking including remarks of certain known species. — *Acta Hydrobiol. Sinica*, **7**, 41—58.
- Loden, M. S. & Harman, W. J. 1980. Ecophenotypic variation in setae of Naididae (Oligochaeta). — In: Brinkhurst, R. O. & Cook, D. G. (eds). Aquatic oligochaete biology, Plenum Press, New York — London, 33—39.
- Michaelsen, W. 1900. Oligochaeta. *Das Tierreich*, **10**. Berlin.
- Michaelsen, W. 1903. Oligochaeta. *Hamburgische Elbuntersuchungen IV*. — *Mitteilungen des Naturhistorischen Museums, Hamburg*, **19**, 169—209.
- Nemec, A. F. L. & Brinkhurst, R. O. 1987. A comparison of methodological approaches to the subfamilial classification of the Naididae (Oligochaeta). — *Canad. J. Zool.*, **65**, 691—707.
- Ohtaka, A. 1985. Taxonomical studies of the Japanese Naididae (Annelida, Oligochaeta) 1. Four unrecorded species in small genera. — *J. of the Faculty of Sciences, Hokkaido University*, **VI**, *Zoology*, **24**, 2, 113—121.
- Piguet, E. 1928. Sur quelques Oligochètes de l'Amérique du Sud et d'Europe. — *Bull. de la Société Neuchâteloise des Sciences Naturelles*, **52**, 78—101.
- Schuster, R. 1915. Morphologische und biologische Studien an Naiden in Sachsen und Böhmen. — *Int. Rev. Ges. Hydrobiol. Hydrogr. Biologisches Supplement zu Band VII*.
- Sperber, C. 1948. A taxonomical study of the Naididae. *Almqvist & Wiksell, Uppsala*.
- Sperber, C. 1950. A guide for the determination of European Naididae. — *Zoologiska Bidrag från Uppsala*, **29**, 45—78.



- Sperber, C. 1958. Über einige Naididae aus Europa, Asien und Madagaskar. — *Arkiv för Zoologi*, ser. 2, 12, 2, 45—53.
- Stephenson, J. 1922. On some Scottish Oligochaeta, with a note on encystment in a common freshwater oligochaete, *Lumbriculus variegatus* (Müll.). — *Trans. Royal Soc. of Edinburgh*, 53, 2, 14, 277—295.
- Strand, E. 1928. Miscellanea nomenclatorica zoologica et palaeontologica. — *Archiv für Naturgeschichte*, 92, A, 30—36.
- Timm, R. 1883. Beobachtungen an *Phreoryctes Menkeanus* Hoffm. und *Nais*. — *Arbeiten aus dem Zoologisch-Zootomischen Institut in Würzburg*, 6, 109—157.
- Vejdovský, F. 1883. Revisio Oligochaetorum Bohemiae. — *Sitzungsberichte der Königlichen Böhmisches Gesellschaft der Wissenschaften*, 1883, 215—228.
- Vejdovský, F. 1884. System und Morphologie der Oligochaeten. Franz Rivnáč, Prag.
- Акиншина Т. В., Томилов А. А. 1976. Олигохеты р. Ангары и Братского водохранилища. — *Ип: Гидробиологические исследования водоемов Сибири. Иркутск*, 104—112.
- Акиншина Т. В., Кравцова Л. С., Варыханова К. В., Сафронов Г. П. 1990. Зообентос приустьевых участков рек Южного Байкала. Депонирована в ВИНТИ, № 1601-B90.
- Гореликова Н. М. 1980. Малоцетинковые черви (Oligochaeta) Воткинского водохранилища. — *Ип: Биологические ресурсы водоемов Западного Урала, Пермь*, 36—41.
- Залозный Н. А. 1976. Фауна водных олигохет и пиявок Западной Сибири. — *Ип: Проблемы экологии*, 4. Томск, 97—112.
- Ласточкин Д. А. 1921. Исследования по фауне Иваново-Вознесенской губернии, организованные сельскохозяйственным факультетом И.-В. П. И. летом 1920 года. 3. Фауна Oligochaeta limicola района исследования. — *Изв. Иваново-Вознесенского политехн. ин-та*, 4, 70—77.
- Ласточкин Д. 1927. Материалы по фауне Oligochaeta limicola России. III. Фауна Oligochaeta limicola Иваново-Вознесенской и Владимирской губерний. — *Изв. Иваново-Вознесенского политехн. ин-та*, 10, 65—76.
- Малевич И. И. 1950. К фауне олигохет прибайкальских водоемов. — *Тр. Всесоюз. гидробиол. об-ва*, 2, 281—286.
- Международный кодекс зоологической номенклатуры. 1988. Наука, Ленинград.
- Попченко В. И. 1974. О фауне малоцетинковых червей прибайкальских водоемов. — *Ип: Продуктивность Байкала и антропогенные изменения его природы. Иркутск*, 277—287.
- Попченко В. И. 1988. Водные малоцетинковые черви (Oligochaeta limicola) Севера Европы. Наука, Ленинград.
- Попченко В. И., Ломакина Л. В., Попченко И. И. 1981. Фитофильные комплексы организмов Саратовского водохранилища. — *Гидробиол. ж.*, 17, 2, 25—30.
- Семерной В. П. 1970. Олигохеты некоторых гумифицированных водоемов Тюменской области. — *Изв. СО АН СССР, сер. биол. н.*, 1, 5, 80—85.
- Семерной В. П. 1982. Новые виды олигохет из озера Байкал. — *Ип: Новое о фауне Байкала. Наука, Новосибирск*, 58—85.
- Снимщикова Л. Н. 1987. Олигохеты Северного Байкала. Наука, Новосибирск.
- Сокольская Н. Л. 1961. Материалы по фауне наидид (сем. Naididae, Oligochaeta) Приморского края. — *Сб. тр. Зоол. музея МГУ*, 8, 47—77.
- Сокольская Н. Л. 1962. Новые данные по фауне Naididae (Oligochaeta) озера Байкал. — *Ип: Малоцетинковые черви планарии озера Байкал. — Тр. Лимнолог. ин-та СО АН СССР*, 1, 1, 127—151.
- Сокольская Н. Л. 1983. Пресноводные малоцетинковые черви (Oligochaeta) Камчатки и Корякского нагорья. — *Ип: Беспозвоночные и рыбы (исследования по фауне Советского Союза). — Сб. тр. Зоол. музея МГУ*, 20, 22—119.
- Томилов А. А., Ербаева Э. А., Акиншина Т. В., Механикова И. В., Жарикова Л. К., Сахаровский С. И. 1978. Байкальские эндемики в зообентосе водохранилищ Ангарского каскада. — *Гидробиол. ж.*, 14, 5, 18—23.



- Финогорова Н. П. 1962. К изучению малощетинковых червей бассейна р. Усы. —  
 Ип: Рыбы бассейна р. Усы и их кормовые ресурсы. АН СССР, Москва—  
 Ленинград, 219—224.
- Финогорова Н. П. 1966. Малощетинковые черви Вашуткинских озер. — Ип: Гид-  
 робиологическое изучение и рыбохозяйственное освоение озер Крайнего  
 Севера СССР. Наука, Москва, 63—70.
- Чекановская О. В. 1962. Водные малощетинковые черви фауны СССР. АН СССР,  
 Москва—Ленинград.

**PEREKONNA VEJDovskyELLA MICHAELSEN, 1903  
 (OLIGOCHAETA, NAIDIDAE) REVISJON VENEMAAL  
 JA NELJA UUE LIIGI KIRJELDUSED BAIKALI JÄRVEST**

Viktor SEMERNOY, Tarmo TIMM

Venemaal esinevad kõik 11 maailmas seni tuntud kehtivat liiki perekonnast *Vejdovskyella*: *V. (V.) comata* (Vejdovský, 1883), *V. (V.) macrochaeta* (Lastočkin, 1921) (sünonüüm *grandisetosa* Finogenova, 1962), *V. (V.) simplex* Liang, 1958 (esmasleid Venemaal), *V. (Machetna) intermedia* (Bretscher, 1896), *V. (M.) baicalensis* Semernoy sp. n., *V. (M.) schizodontata* Semernoy, 1982, *V. (M.) dilucida* Snimschikova, 1987, *V. (M.) galinae* Semernoy sp. n., *V. (M.) sublitoralis* Semernoy sp. n., *V. (M.) margaritae* Semernoy sp. n. ja *V. (M.) koshovi* (Sokolskaya, 1962) comb. n. Viimased 7 liiki on Baikali endemikud. *V. koshovi* on üle toodud perekonnast *Nais*. Juurdunud nime *Vejdovskyella* säilitamiseks on loobutud vanemast, kuid unustatud sünonüümist *Macrochaetina* ning loodud viimase asemele alamperekonna jaoks uus nimi *Machetna*.

**РЕВИЗИЯ РОДА VEJDovskyELLA MICHAELSEN, 1903  
 (OLIGOCHAETA, NAIDIDAE) В РОССИИ И ОПИСАНИЕ  
 ЧЕТЫРЕХ НОВЫХ ВИДОВ ИЗ ОЗЕРА БАЙКАЛ**

Виктор СЕМЕРНОЙ, Тармо ТИММ

В России встречаются все известные в мире 11 валидных видов рода *Vejdovskyella*: *V. (V.) comata* (Vejdovský, 1883), *V. (V.) macrochaeta* (Lastočkin, 1921) (синоним *grandisetosa* Finogenova, 1962), *V. (V.) simplex* Liang, 1958 (первая находка для России), *V. (Machetna) intermedia* (Bretscher, 1896), *V. (M.) baicalensis* Semernoy sp. n., *V. (M.) schizodontata* Semernoy, 1982, *V. (M.) dilucida* Snimschikova, 1987, *V. (M.) galinae* Semernoy sp. n., *V. (M.) sublitoralis* Semernoy sp. n., *V. (M.) margaritae* Semernoy sp. n. и *V. (M.) koshovi* (Sokolskaya, 1962) comb. n. Последние 7 видов — байкальские эндемики. *V. koshovi* переведена из рода *Nais*. Для сохранения укоренившегося родового названия *Vejdovskyella* отвергнут старший, но забытый синоним *Macrochaetina*, и вместо его создано новое название *Machetna* для обозначения подрода.