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Oligoneuriella mikulskii n. sp. *(Ephemeroptera)*

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During the examinations of bottom fauna of the lower course of the San river in the vicinity of Stalowa Wola, I found, among the sampled material of mayflies, several larvae of an unknown species from the *Oligoneuriidae* Ulm. family, which was unknown to me. I identified them as being neither the well known and very common species *Oligoneuriella rhenana* Imh. nor the species *Oligoneurisca borysthenica* (Tshern.) described by Černova (1937) from the Dniepr river. These species can be regarded as, according to the literature available to me (Ulmer 1929, Schoenemund 1930, Lestage 1938, Černova 1940, Grandi 1947), the only two European species known of this family. I suppose that the forms of larvae caught belong to an, as yet, unknown species. I call it: *Oligoneuriella mikulskii* n. sp., in honour of Prof. Dr Józef St. Mikulski an outstanding expert on the problems concerning mayflies in Poland.

The collected larvae doubtlessly belong to the genus *Oligoneuriella* Ulm. because of their chief distinctions: general characteristic shape of the body and comparatively small scaly gills of which the first pair is ventrally situated. At the first sight they differ from *O. rhenana* Imh. by their different lively pigmentation and the smaller size of the body. There are also some divergencies in the structure of the morphological details of the body.

Description of the fully grown nymph ♀ (formalin 4%).

Size: lenght of the body without cerci 11 mm, lenght of the lateral setae of cerci 4 mm, lenght of the median setae 3 mm, lenght of the abdomen 7 mm.

The head was flattened in a dorsiventral direction tightly adherent to the thorax with an archwise fore margin rounded and covered with thick hairs. Compound black, bean shaped eyes were not narrower

towards the front, as it is with *O. rhenana*. Ocelli dark, median ocellus triangular. Antennae were almost as long as the head. Similar in general appearance to the antennae of *O. rhenana* but the segments were less numerous (16?). The terminal segment was covered with hairs on the apex.

Mouthparts: labrum was ± twice as wide as long. The fore margin was rounded, covered with thick long bristles. Mandibles were of comparatively large molar surfaces, rectangular, and of a reddish coloured. General appearance was similar to mandibles of *O. rhenana*. Some small differences are visible in the shape of the canines (Tab. I, fig. 1, 2), and the prostheca at the right mandible. Maxillae were basically provided with growing tufts of maxillary gills having two segmented palpi maxillares which grow over the height of the lacinia. In comparison with the *O. rhenana* the bristles in the semi-circular row on the surface of the lacinia are less numerous (Tab. I, fig. 5). There were about 25 bristles there, whereas, in the above mentioned species — in the case of full grow nymphs — there were more than 40. The hypopharynx was in three lobes with a comparatively large median lobe, in general it was similar to that of *O. rhenana*. The labium was built in a characteristic way for this species. Paraglossae was broadly flattened and grown together forming a kind of adhesion apparatus which together with the two-segmented palpus labialis covere — at a resting state the rest of the mouth parts. Rather small glossae were situated in a hollow, tightly fitting to each other. Labial palps with lateral grooves are among other transversal rows of bristles. Such archwise rows are also found on the paraglossae. Labium in general is similar in appearance to that of *O. rhenana*.

The pronotum was convex and relatively broad, and was tightly fitted to the mesonotum. On the fore margin large and shallow hollows corresponded to the protuberance of the hind margin of the head.

The abdomen was slightly more slender than thot of the *O. rhenana* and gradually narrowed towards the back. Individual segments had arched and elongated lateral margins towards the back, and partly overlapped the next segment. Distinct, short spines were visible on these margins. Segment 9, the longest, had distinct arched lateral margins the prolongations of which almost reached to the end of a rather small terminal segment (Tab. II, fig. 4). Sternites of segments were irregularly covered with blunt spines of different sizes, and were assembled in the middle near their back margin. On the tergites where the gills fit tightly, tufts of very thin stiff hairs were visible.

The cerci were shorter than the length of the abdomen with evenly displaced rings. The lateral setae were covered with hairs from the inner side, the median setae from both sides. Rings on the lateral setae were slightly slanting in relation to their long axis.

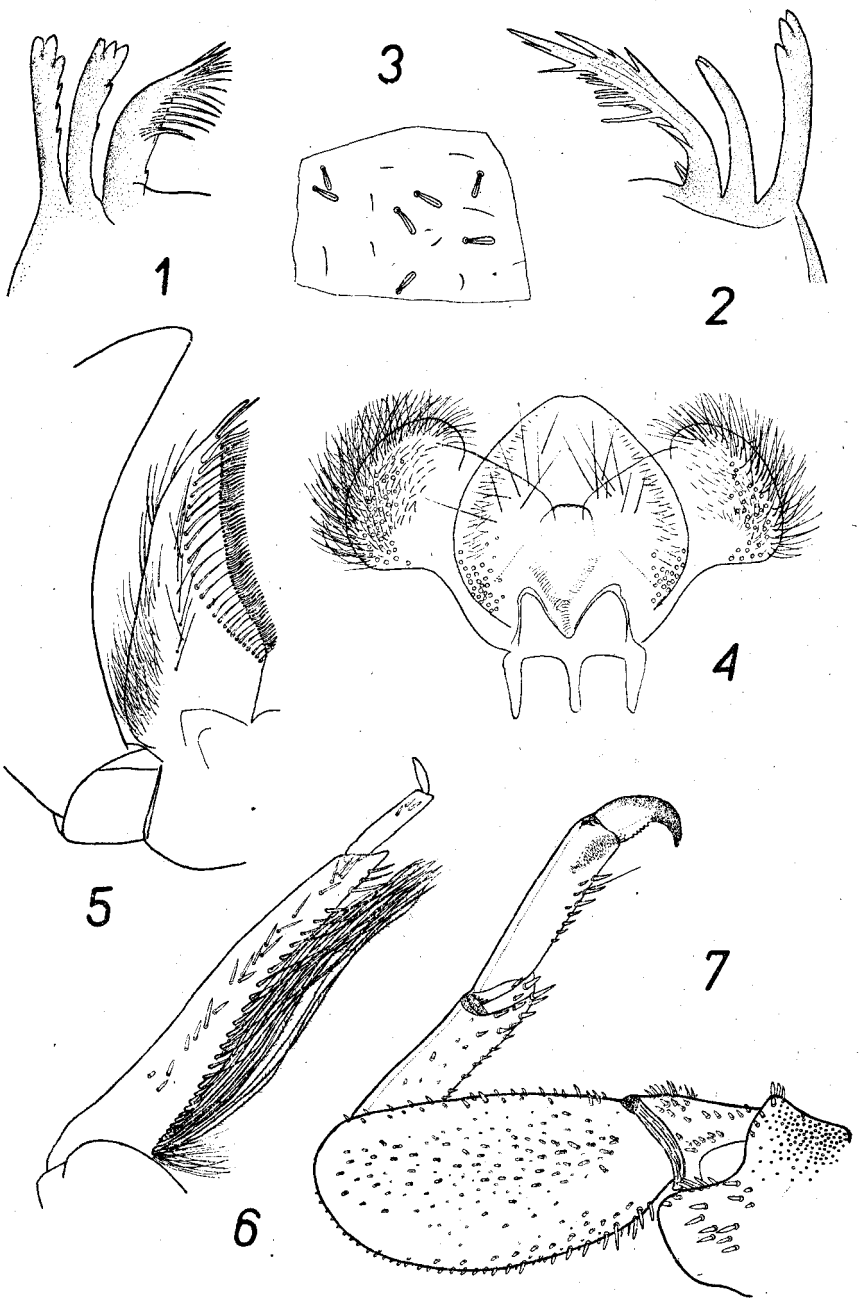

Plate I. The nymph *Oligoneuriella mikulskii* n. sp. Fig. 1, 2, canines and prosthecae of mandibula sinistra and mandibula dextra; Fig. 3. fragment of a wing pad of the first pair of the wings; fig. 4. hypopharynx; fig. 5. lacinia of the maxilla; fig. 6. fragment of the leg of the fore pair; fig. 7. leg of median pair.

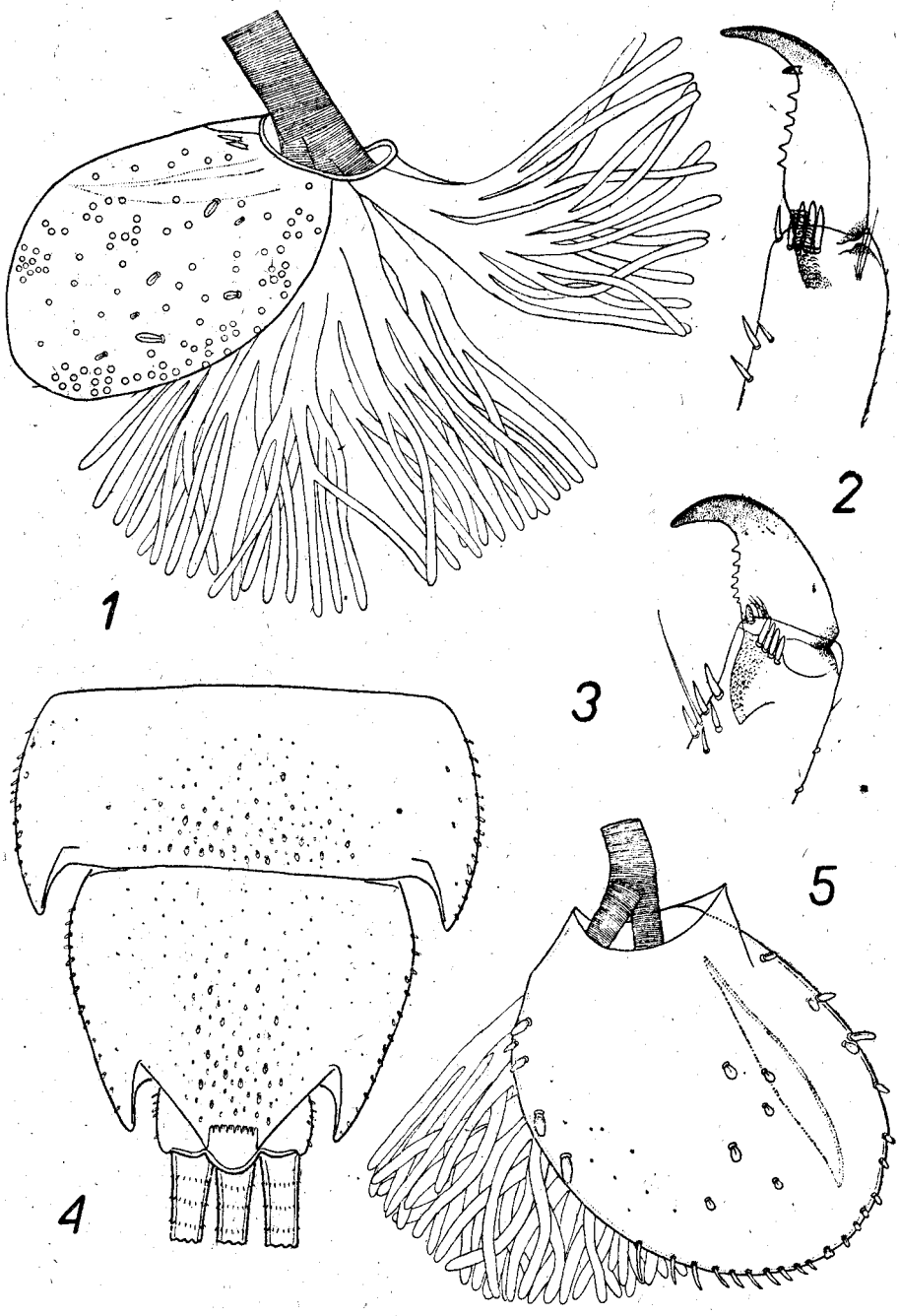

Plate II. The nymph *Oligoneuriella mikulskii* n. sp. Fig. 1. gill of the first pair, right; fig. 2. claw of the fore pair leg; fig. 3. claw of the median pair leg; fig. 4. terminal segments of the abdomen (ventral side); fig. 5. gill of the 4th pair, right.

Legs. Legs of the fore pair were similar to the *O. rhenana*, having long bristles growing in two parallel rows on the fore margin of the femorae (the part of the femorae close to the thorax) and on the inner side of the tibiae. The whole of it forms a filtration apparatus characteristic of the genus. The femorae of the other pairs of legs was comparatively short and broad (in relation of the length to the breadth equals ± 2 : 1, whereas, the *O. rhenana* ± 2,5 : 1), possess on their surface and margins irregularly distributed spines of different sizes and shapes, more differenciated than on the *O. rhenana*. The hind margins of these femorae arches did not form any visible bend an the part close to the thorax, as plainly visible as on the *O. rhenana*. There is also a complete lack of long and thin bristles (!) growing out of this place, a characteristic feature of the above mentioned species. The tibiae of the fore pair of legs have an oblong row of scarcely distributed acute spines (Tab. I fig. 6) running along the middle, and almost along their whole length (in the *O. rhenana* occurs only on a short fragment of the part of the tibiae near the foot). Claws are strongly hooked and those on the legs of the fore pair are about twice as small as the other ones and more delicatelly structured.

The gills numbering in pairs of 7 — built in a way characteristic to the species — consisted of tufts of dichotomous forked filaments and scaly protection shields, were covered with spines. Gills of the first pair were situated ventrally under the abdomen, the other 6 pairs — equally developed are on the dorsal lateral part of the segments of the abdomen. The gill covers of the first pair were irregularly oval without any spines on their margins. The length of these gill covers equals more or less the length of the protective shields of the other 6 pairs (in compared specimens of *O. rhenana* the gill covers of the first pair are almost twice as long as the other ones and have on their margins quite a number of thin acute spines). Filaments were considerably longer than on other pairs, and were almost as long as the protective shields.

On the wing pads of the fore wings were quite distinct (Tab. I, fig. 3) scarcley and irregularly distributed spines (wing pads of *O. rhenana* have small, different shaped processes).

Pigmentation very characteristic of this species. On a bright orange backgrund, the nymph had intensive brown spots, especially on the abdomen. Bright coloured head with a brown spot between the ocella. Pronotum on the sides with two irregular spots facing each other, close to the fore margin. Along the mid line of the thorax there was a rather narrow, distinct bright coloured band on which sides, rectangular brown spots with a bright point each, are visible on individual segments. On the sides of the segments there were intensively tinted brown, halfmoon shaped spots, with their concavities situated outwardly. Near by there were distinct bright spots, quite close to the fore margin. The

width of the brown spots bordering the bright middle band grew smaller and smaller towards the end of the abdomen. The lateral parts of the segments and the gills present were brightly coloured. Cerci as well as the legs and the whole ventral part of the thorax were brightly tinted. However on the femorae, individual, dark spots were visible in the middle of the part near the tibiae. The above given pigmentation was partly visible already in young nymphs and even in grown up larvae.

The surface of the body, especially the head, wing pads and gill covers of the nymph were richly overgrown with diatom cells of *Cocconeis placentula* Ehr, var. *euglypta* (Ehr.) Cl. I found these diatoms (identificated by Dr K. Wasylik) also on specimens of mayfly *O. rhenana*, collected from other water basins and used them a material of comparasion.

Following features are characteristic for the nymph *Oligoneuriella mikulskii* n. sp.:

Black, bean shaped, compound eyes that do not become narrower in front.

Maxillary lacinia has on its surface ± 25 bristles; they are situated in a semi-circular row.

Segments of the abdomen, as well as the lateral (8 and 9), have arched lateral margins with plainly visible spines.

Tibiae of the fore pair of legs have an longitudinal row of spines running down the middle, almost along the whole length.

Femorae of the other pairs of legs are almost twice as long as wide with arched, unbroken hind margins.

No long bristles were growing on these margins where only short spines are visible.

Gill covers of the first pair are more or less of the same length as the gill covers of the other pairs and the fillaments of the first pair exceed, in length, their gill covers and are longer than the fillaments of other pairs.

Pigmentation is orange-yellow with a characteristic design on the abdomen, consisting of a distinct bright band running down the middle and bordered with rows of rectangular brown spots on both sides and rows of lateral half-moon shaped brown spots.

Ecology. The sampled larval forms in the lover course of the San river were caught, in the part of the river close to the banks, on water plants and on immersed tree-branches. In this region the San is a big river 50—60 m wide and 2—3 m deep at average water level. The river bottom is sandy and the speed of the current attains 0,8 m/sec. The water temperature at the time samples were taken oscillated about 16 °C, pH 8,4, oxygen content 9,1 mg/l O_2. Young larval stages were collected

in a warm water stream (± 28 °C!) comming from an electric works located near by.

Besides the species discussed above the mayflies community also contained: *Baëtis bioculatus* L., *B. scambus* Etn., *B. tricolor* Tshern., *Isonychia ignota* (Walk), *Ametropus eatoni* Brodskij, *Heptagenia flava* Rost., *H. sulphurea* (Müll.), *Brachycercus minutus* Tshern. and *Caenis pseudorivulorum* Keffermm.

Material: The San river in Stalowa Wola: September 19th 1960 — 1 matured larva, 2 young nymphs; the San river in Radomyśl: September 20th — 1 full grown nymph ♀ — holotype, in preparations in the Hydrobiological Dapartement of the Jagiellonian University Kraków.

STRESZCZENIE

Autor podaje opis nowego gatunku jętki z rodziny *Oligoneuriidae* Ulm. (*Ephemeroptera*), który złowił — w stadium larwalnym — w dolnym biegu Sanu w okolicy Stalowej Woli, podczas prowadzenia w tej rzece, w jesieni 1960 roku, hydrobiologicznych badań fauny dennej.

Złowione nimfy — ogólnie biorąc podobnie zbudowane jak pospolita u nas w kraju *Oligoneuriella rhenana* Imh. — wyróżniają się szeregiem cech dotyczących zarówno budowy ciała, jak i jego ubarwienia: czarne oczy złożone nimfy ♀, kształtu fasoli, nie zwężają się na przodzie. Łacinia żuchwy posiadą na swej powierzchni ± 25 szczecin biegnących w półkolistym szeregu. Segmenty odwłoka, także ostatnie (8 i 9), mają łukowate krawędzie boczne z wyraźnie widocznymi kolcami. Golenie przedniej pary odnóży posiadają podłużny szereg kolców, biegnący środkiem prawie przez całą ich długość. Uda pozostałych par odnóży ± 2 × dłuższe od swej szerokości mają łukowate, nie załamane krawędzie tylne, na których nie wyrastają długie szczecinki pływne, a widoczne są jedynie krótkie kolce. Okrywy skrzelotchawek 1 pary równe są mniej więcej długości okryw pozostałych par, a nitki respiracyjne tej pary przerastają długość swoich okryw, będąc wyraźnie dłuższe od nitek pozostałych par. Nimfy ubarwione są pomarańczowo-żółtawo; mają charakterystyczny brązowy rysunek na odwłoku; na rysunek składa się biegnący środkiem wyraźny, jasny, dość wąski pas, ograniczony po obydwu stronach szeregami prostokątnych brązowych plam a poza tym szeregi bocznych, także brązowych plam kształtu półksiężycowatego, wklęsłościami zwróconych na zewnątrz.

Poza podaniem dokładnego opisu nimfy ♀ wyrośniętej, zilustrowanego rysunkami i fotografią, autor omawia także warunki występowania, środowisko oraz faunę towarzyszącą nowego gatunku.

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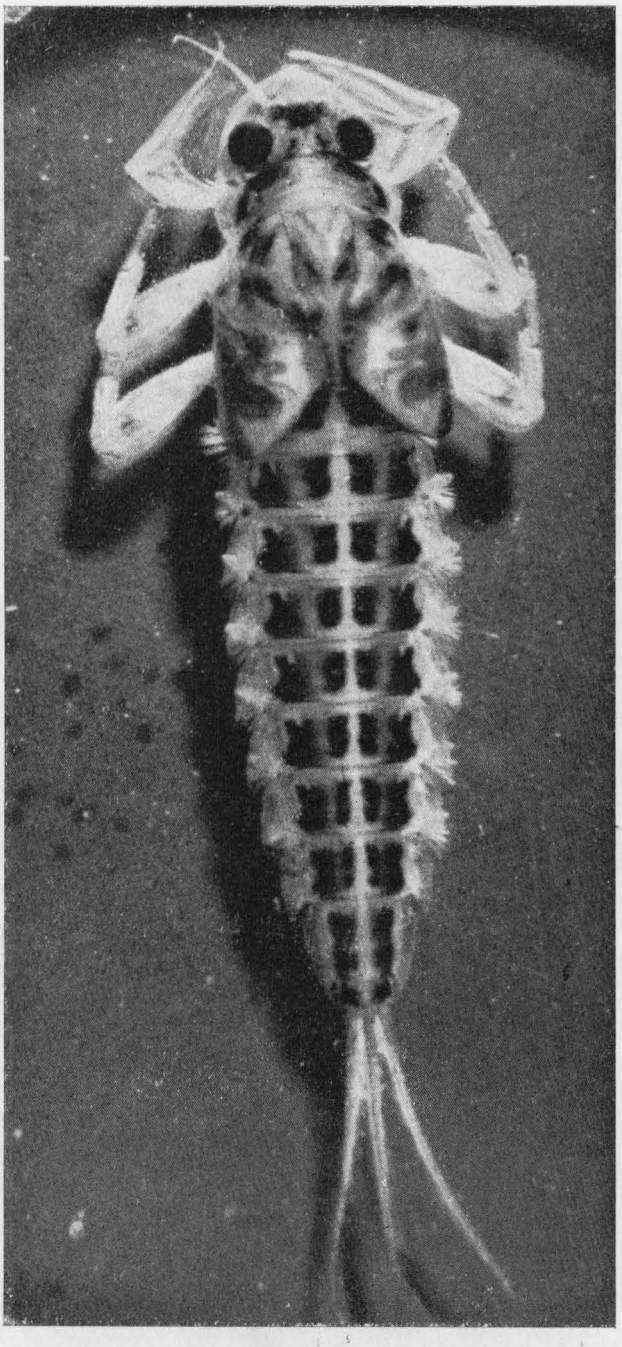

Photo 1. Full grown nymph ♀, *Oligoneuriella mikulskii* n. sp.
phot: R. Sowa