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To the Knowledge of Chaetopterygini from the Caucasus (USSR)

(Trichoptera, Limnephilidae)

With 14 Figures

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A large series of a Caucasian chaetopteryginid species was uncertainly refered to *Chaetopteryx kelensis* MART. (KUMANSKI, 1980). The type series of this species and other Caucasian materials belonging to the collections of the Leningrad Zoological Institute were studied and a new species was found. Undetermined series from all other species of the tribe known in that area so far were determined. This paper presents the description of a new genus and species, new genital drawings of *Ch. kelensis* and some other faunistic data.

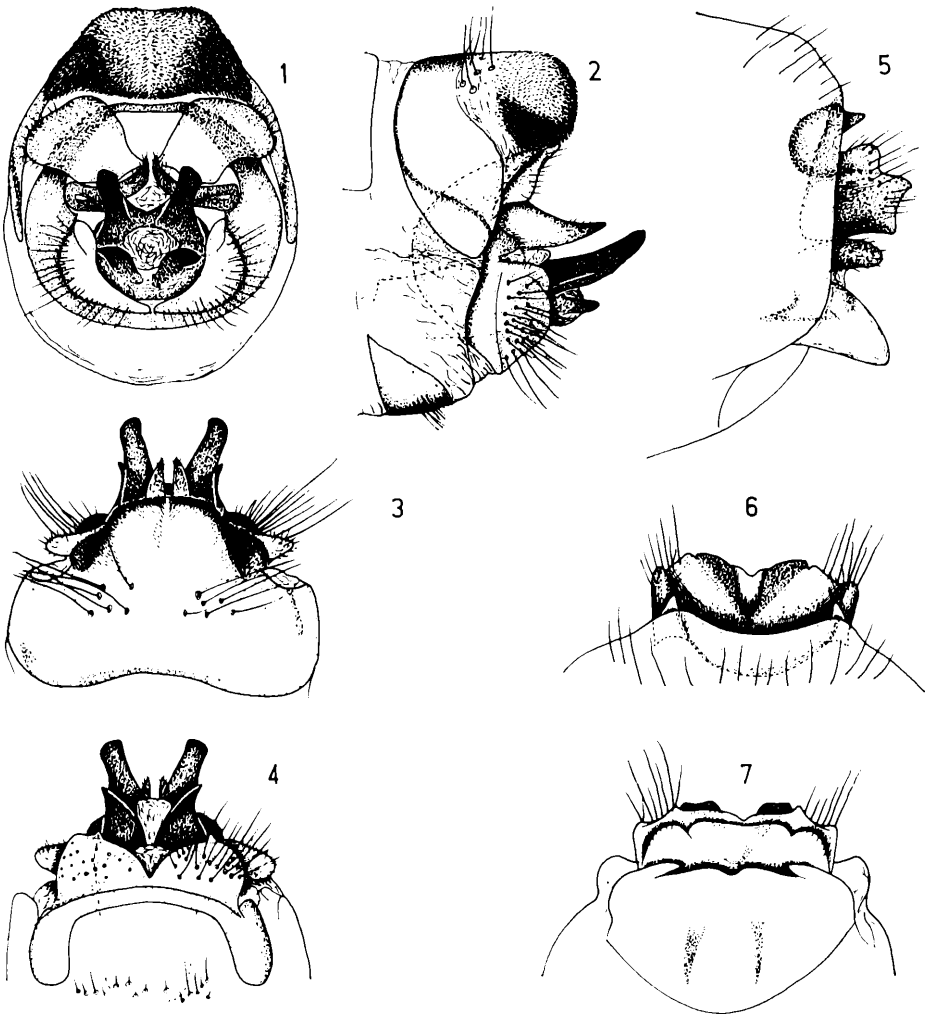
It is my pleasant obligation to express great thanks to Dr. L. ZHILTZOVA and to Mrs. E. TETYUEVA from the Zoological Institute, Leningrad for the valuable information and active assistance during my work there.

Psilopterygopsis n. gen.

MARTYNOV (1916) described the genus *Chaetopterygella* and its only species *abchazica*. Later, describing *kelensis*, the same author (MARTYNOV, 1926) refered it provisionally to the same genus, emphasizing the significant difference between these two species. Nevertheless, neither the unhomogenity nor the validity of this genus have been discussed until SCHMID (1959) found *abchazica* also in Iran. He established (op. cit.) that it was nothing else but a *Chaetopteryx* species. Following the generotype, *kelensis* was automatically placed to that genus, too.

The study of a series of Caucasian representatives of *abchazica* (incl. the types) confirmed its belonging to *Chaetopteryx*. SCHMID (1959) pointed out the similarity between *abchazica* on one hand, and *kelensis* MART. and *curviclavatus* BOTS. (the latter being a *Psilopteryx* by the way) on the other. The contradiction between MARTYNOV's opinion concerning the *abchazica-kelensis* relations and that of SCHMID (op. cit.) is evident. The comparison between the type materials of both species confirms the opinion of the former.

A large series of insects wrongly determined as *kelensis* was also found in the Leningrad collection. In fact, they belong to a new species. A numerous series of that was just published (KUMANSKI, 1980) with some doubt, as *Chaetopteryx kelensis*.



Figs. 1–7 *Psilopterygopsis kelensis* (MART.). 1 male genitalia, caudal – 2: the same, lateral – 3 the same, dorsal – 4: the same, ventral – 5: female genitalia, lateral – 6: the same, dorsal – 7 the same, ventral.

Being similar in habitus and, partly, in genitalia shape, the two species *kelensis* and *martynovi* n. sp. form a separate branch of the tribe, which is considered here as a new genus. Showing much of the features of *Chaetopteryx*, the new genus resembles also *Psilopteryx* and *Acropsilopteryx*.

The diagnosis of *Psilopterygopsis* n. gen. is a combination of the following features: body short and robust, with slight tendency of brachypterisme; fore wings with erected chaetae both on the veins and membrane; spurs, ♂ 0, 3, 3, ♀ 1, 3, 3; male genitalia – 8th tergite

shortened, laterally with an inner chitinous margin passing obliquely; distodorsally with a vast, more or less undulated spinulose zone; superior appendages large, drawn in the 9th segment's cavity; intermediate appendages large, distally eminent; inferior appendages very short, obtuse, feebly prominent and without freely sticked upper part; parameres absent;; aedeagus with a dorsoapical pair of strongly sclerotized appendages.

Generotype *Psilopterygopsis kelensis* (MART.).

Psilopterygopsis kelensis (MART.)

Chaetopterygella kelensis MARTYNOV, 1926

Chaetopteryx kelensis MART. auctorum

A total of 17 ♂♂ and 7 ♀♀ were found in the collection, as following:

1. The type series is contained in a jar with alcohol, labelled: "The Caucasus, (Gudaur) [1]), Lake Kel, Georgian Military Road, 5–6. IX. 1923, Tarnogradsky" It includes 5 ♂♂ and 3 ♀♀ (instead of 2 ♂♂ and 4 ♀♀ indicated in the description), distributed in three tubes: first one with 1 ♂ and 1♀, the label written by MARTYNOV "*Chaetopterygella kelensis* n. sp.", the second tube, containing 3 ♂♂ and 1 ♀ and the third one with 1 ♂ and 1 ♀, the last two labelled also by MARTYNOV himself: "*Chaetopterygella kelensis* MART." As far as no holotype was indicated I designated as lectotype the male of the first tube and all other specimens as paralectotypes.

2. Other determined material: one tube with 3 ♂♂, labelled "Lake Kely, 17–18. IX. 1933, det. Martynov"; a second tube with 1 ♀: "Valley of Teberda, southwards from the resort, on snow, 11. XII. , leg. L. Arens, det. S. Lepneva" and, finally, 3 ♂♂ pinned "Bacuriani, 2. XII 1921, leg. V Zaitzev, det. Martynov"

3. Undetermined material: three tubes from Bakuriani, leg. J. TASUNOVA: 1 ♂ (30. IX. 1956), 1 ♀ (3. X. 1955) and 3 ♂♂ and 1 ♀ (6. X. 1955) [2]), and 4 pinned specimens from the same locality 1 ♂ (21. X. 1953), 1 ♀ (24. X. 1953), 1 ♂ (25. X. 1953), and 1 ♂ (26. X. 1953).

Although the original description is in general exhaustive, I find it worth-while to publish new genital drawings made after macerate preparations (Figs. 1–7).

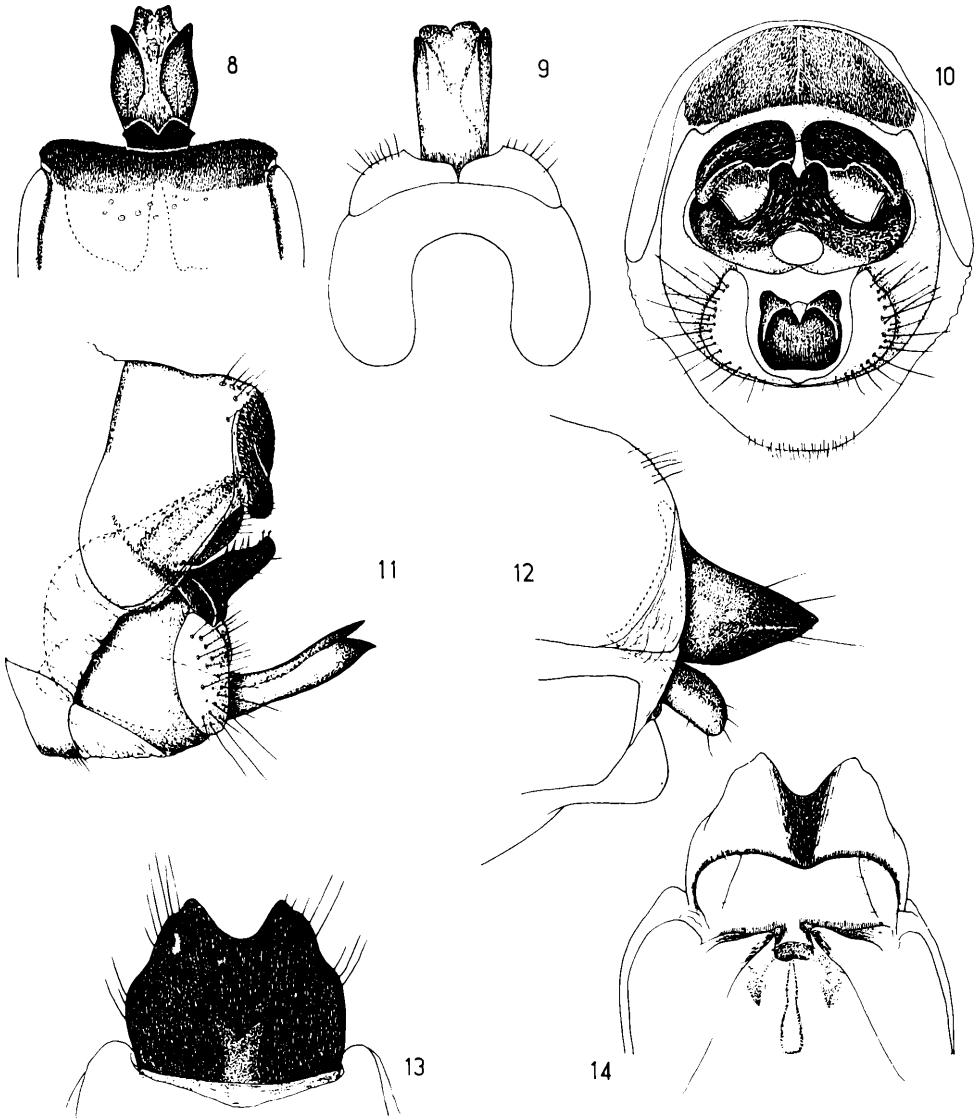
Psilopterygopsis martynovi n. sp.

Chaetopteryx kelensis MART. (?); KUMANSKI, 1980: 46, 47.

Robust insects, habitually much resembling *kelensis*. General colour monotonously brownish, the dry specimens some darker than those in alcohol, dark brown. Fore wings shortened and, especially in the smaller individuals, with rounded apex. Postcostal area very broad. The dimensions considerably variable: lenght of fore wing, ♂ 5.2–8.8 mm, ♀ 7.2–11.3 mm. Spurs, ♂ 0,3,3, ♀ 1,3,3.

Genitalia ♂ 8th tergite shortened, laterally higher than long. An inner chitinous margin passing obliquely above the lower margin of that tergite (fig. 11). Spinulate zone slightly concave and very broad, wholly occupying the distal part of tergite (fig. 8). 8th sternite much smaller than the corresponding tergite. 9th segment deeply invaginated into 8th, strongly enlarged in lateral view and narrowed dorsally and ventrally (fig. 9). Superior appendages laterally almost wholly hidden into the apical cavity. Viewed

[1]) The nearest settlement to the lake of Kel (author's note).
[2]) 2 ♂♂ and the ♀ from that tube are now kept in the collection of the National Natural History Museum, Sofia.



Figs. 8–14. *Psilopterygopsis martynovi* n. sp. 8 male genitalia, dorsal – 9 the same, ventral – 10 the same, caudal – 11 the same, lateral – 12 female genitalia, lateral – 13 the same, dorsal – 14 the same, ventral.

caudally, they are very large, concave and with strongly sclerotized and enlarged disto-dorsal margins (fig. 10); their dorsomedial corners especially enlarged. Lateral bulges of

10th segment strongly developed, medially gradually turning into the intermediate appendages. The latters very big, medially fused in a common piece (fig. 10), diverging as soon as near the tips (fig. 11). Penial apparatus moderately sclerotized; phallus semimembranous, slightly bilobed and somewhat strongly sclerotized at the apex. Dorsally it bears a pair of strongly chitinized, laterally narrow and dorsally enlarged pointed lobes (figs. 8–11). Their tips as long or only a bit longer than the phallus itself.

Genitalia ♀ 9th and 10th segments dorsally fused in a common, strongly chitinized large piece. Viewed from above (fig. 13), it presents a broad plate with convexe side margins. The distal margin forms two triangular parts, separated by an oval medial incision. Viewed laterally, this piece is triangulate, with acute distal angle (fig. 12). Ventral appendages of 10th segment connected medially by a vast semimembranous supragenital plate, forming with the latter a common plate, as broad as the dorsal piece (fig. 14). Viewed laterally, this plate is elongate and obtuse, as long as the half of the dorsal piece. Subgenital plate with individualized lateral lobes and with faintly marked central ones.

Material The type series can be divided into two quantitatively similar parts as following:

The first part consists of the materials stored in the collections of the Leningrad Zoological Institute. All localities are in the region of the Teberda reserve, Northern Caucasus. Caucasus.

A. A small number of insects were wrongly determined as *Chaetopterygella kelensis* (det. S. G. LEPNEVA): Alibek river, 12. XI. 1953, 7 ♂♂ and 2 ♀♀ (all pinned); the meadow of Dombai, on snow, 13. XI. 1953, 1 ♂ and 1 ♀ (pinned); Kyol-Bashi, 22. X. 1951, 1 ♂ and 22. XI. , 1 ♀ (in alcohol); Teberda, brook in the locality of Krugozor, 27. X. 1953, 1 ♂ (in alcohol); the Gonatshkhyr road, 18. XI. 1953, 1 ♂ and 1 ♀ (in alcohol). All these insects collected by L. ARENS.

B. Undetermined material (all pinned) Kyol-Bashi, 22. X. 1951, 1 ♂ (leg. L. ARENS); Garalykol river, 22. X. 1951, 1 ♂ and 1 ♀ (leg. L. ARENS); Shumka river, station 293, 23. X. 1954, 14 ♂♂ and 10 ♀♀ (leg. L. ZHILTZOVA); Teberda, brook in the locality of Krugozor, 27 X. 1953, 2 ♂♂ (leg. L. ARENS); the Dombai road, 12. XI. 1953, 4 ♂♂ (leg. L. ARENS); Dombai-Yolgen river, on snow, 13. XI. 1953, 3♂♂ and 4 ♀♀ (leg. L. ARENS); the way from Teberda to the river of Gonatshkhyr, 18. XI. 1953, 7 ♂♂ and 5 ♀♀ (leg. L. ARENS); from Gonatshkhyr to Shumka river, 19. XI. 1953, 3 ♂♂ and 4 ♀♀, leg L. ARENS); ARENS); Teberda, southwards from the resorts, 27. IX. 1953, 1 ♂ (leg. L. ARENS); Teberda reserve, XII. 1954, 1 ♂ (leg. TYTARENKO) and 10. X. 1954, 1 ♂ (leg. ARENS); the "Medvezhya balka" locality, 28. XII. 1954, 5 ♂♂ and 2 ♀♀ (leg. L. ARENS); Dombai, 19. X. 1954, 1 ♂ and 1 ♀ in copula (leg. L. ARENS).

The other part of the type series was collected by Mr. and /or Mrs. JOOST also in the Northern Caucasus and, except 5 ♂♂ and 5 ♀♀ in author's collection, was stored in the collection of Dipl.-Biol. W. JOOST, Leipzig. Though the localities, as well as some genital drawings taken after that material have already been published (KUMANSKI, 1980), I shall repeat them again:

The basin of the river of Teberda: Terskol stream, spring brooklets, 27 IX. 1974, 22 ♂♂ and 13 ♀♀; right confluent of Terskol (ca. 2250 m a. s. l.), 26. IX. 1974, 1 ♂ and 1 ♀; Irik stream (left confluent of Baksan), 2. X. 1974, 9 ♂♂ and 6 ♀♀; nameless brook in the locality of Baydaevych, ca. 1 km upstream from the ravine (ca. 2300 m a. s. l.), 4. X. 1974, 14 ♂♂ and 6 ♀♀; Dongusorun-Baksan streams, 25. IX. 1974, 1 ♂; right confluent of Dongusorun, between 2100 and 2700 m a. s. l., 1 ♂ and 1 ♀; Adyrsu (right confluent of Baksan), 1650–2400 m a. s. l., 28. IX. 1974, 2 ♂♂ and 1 ♀; right confluent of Yusengi (right confluent of Baksan), 1800–2400 m a. s. l., 29. IX. 1974, 1 ♂ and 1 ♀.

Holotype ♂ in Leningrad collection, chosen among the insects from the river of Shumka.

Discussion The relations between *kelensis* and *martynovi* n. sp. are exhibited by the similarity in the habitus and the general structure of ♂ genitalia – 8th tergite shortened, with an oblique chitinous lateral margin and a very broad spinulose zone, occupying the entire distal board; superior appendages large, inferior ones shortened, without protruding parts; aedeagus without parameres and with a pair of relatively large dorsal appendages. The males could be easily distinguished by the form and/or the degree of sclerotization of almost all genital structures. Thus, the 8th segment's spinulose zone of *kelensis* is much more undulated, forming a projected central part, while in *martynovi* n. sp. it is slightly concave; superior and intermediate appendages of the former species less sclerotized, without enlargements, the intermediate appendages being more slender and not fused medially; contrary to this, the aedeagus of *kelensis* bears a pair of very strong and massive dorsal appendages, projected caudally much further than the proper lobes of the aedeagus; the latter also stronger than those of the new species. As to the females, my previous declaration that there is almost nothing common between the genital forms of these two species (KUMANSKI, 1980) remains fully valid. That fact supports the conclusion of MARTYNOV (1926), modified by SCHMID (1952), that the "Group of *Chaetopteryx*" (e. g. the tribe of Chaetopterygini) unites species very distinct one hand and difficult to incorporate in special genera, on the other.

Badukiella prohibita MEY et MUELL.

The whole Leningrad series of that species consists of pinned specimens from its "locus typicus" – Teberda reserve.

Kyol-Bashi, 22. 10. 1951, 1 ♂ and 1♀ (leg. L. ARENS); Shumka river, station 293, 23. 10. 1954, 5 ♂♂ and 4 ♀♀ (leg. L. ZHILTZOVA); Muhu river, station 294, 24. 10. 1954, 19 ♂♂ and 15 ♀♀ (leg. L. ZHILTZOVA); the way from Teberda to Gonatshkhyr river, 18. 11. 1953, 1 ♂ (leg. L. ARENS); the valley of Teberda, southwards from the resort, 27 11. 1954, 1 ♂ and 1 ♀ on snow (leg. L. ARENS).

Describing this species MEY & MÜLLER (1979) created the new genus *Badukiella* for it. Simultaneously, they gave *Acropsilopteryx* (a former subgenus of *Psilopteryx*) generic status. Because of the evident similarity in features (spurs, wing chaetotaxy, 8th tergite of the male etc.) between *Badukiella* and *Acropsilopteryx*, their distribution probably was the main reason to refer these to separate genera. Thus, *Badukiella* is a speculatively created genus and until comparison with specimens of *Acropsilopteryx esparraguerra* SCHM. its genuineness is doubtful.

Chaetopteryx abchazica (MART.)

Besides the small type series some more insects (pinned) from various Caucasian localities were found in the undetermined materials:

Region of Teberda: Dombai-Yolgen river, station 233, 27. VII. 1954, 1 ♀ (leg. L. ZHILTZOVA); Dombai-Yolgen, brook, 1800–1900 m a. s. l., 2. IX. 1965, 2 ♀♀ (leg. GORODKOV); Muhu river: 8. VIII. 1954, 1 ♀ (leg. L. ZHILTZOVA); 1900 m a. s. l., 18. VIII. 1954, 2 ♂♂ (leg. E. TETJUEVA); 27 VIII. 1954, 1 ♂ (leg. E. TETJUEVA); 1. IX. 1954, 1 ♂ (leg. L. ZHILTZOVA) and 1 ♂ (leg. E. TETJUEVA), and 3. IX. 1954, station 288, 1 ♀ (leg. E. TETJUEVA); tributary of Kluhor, downwards from the Northern Rest Home, station 275, 16. VIII. 1954, 1 ♂ (leg. L. ZHILTZOVA); Baduk river, station 256, 10. VIII. 1954, 1 ♀ (leg. L. ZHILTZOVA), and station 257, the same date, 1 ♀.

The basin of Terek river: the village of Lars, Terskaya province [3]), 8. VIII. 1920, 1 ♀ (leg. M. RYABOV), and Tagaurka river near Lars, 1. IX. 1921, 1 ♀ (leg. M. RYABOV).

The Trialetian range: Bakurianka river near Bakuriani, 22. VIII. 1953, 1 ♂ (leg. L. ZHILTZOVA); Bakuriani: 3. IX. 1954, 1 ♂ and 1 ♀ (leg. J. TASUNOVA), and 23. X. 1954, 1 ♀ (leg. J. TASUNOVA).

General notes

Obviously the tribe Chaetopterygini originated from Europe and is distributed mostly in this continent. The Caucasian mountains are the only adjacent territory, inhabited by a more or less completed chaetopteryginid fauna. Three genera and four species are known from this complex so far. *Chaetopteryx abchazica* is, evidently, the less specialized among them and has relatively wider distribution. It occurs both in the mountains of the Caucasus and the range of Elburz (Northern Iran), the latter being the most southeastern limit of the whole tribe. Morphologically *Ch. abchazica* is one of the most isolated species within the genus, which reveals its prolonged geographical isolation. An outstanding peculiarity of this species is probably its biological plasticity, exhibited by its phenology. The emergence starts as soon as July (!) and lasts through November.

The new genus *Psilopterygopsis* with its two species may be considered the Caucasian vicariant of the European *Psilopteryx*. Judging by its abundance in the collection, *Psilopterygopsis martynovi* n. sp. can be mentioned among the most common autumnal caddisflies in the Caucasus. It is know only from the Northern slopes so far, but probably occurs in the rhitral of other Caucasian regions, too. The second species, *Ps. kelensis*, seems to be less common, although its localities cover a considerably broader territory – the Northern Caucasus (Teberda) and southwards from the Main Watersheding Range (the lake Kel), as well as the Trialetian range (Bakuriani). The locus typicus of this species is a high (3104 m a. s. l.) and large (135 ha, 64 m deep) alpine lake (TARNOGRADSKY, 1945). There is no more detailed information about the other habitats but is not likely that *kelensis* sticks only to stagnant waters.

The last member of the group, *Badukiella prohibita*, can also be expected in other parts of the vast region of the Caucasian mountains.

Contrary to *Ch. abchazica*, the other three species are higly specialized: typically autumnal, with their emergence starting in September and lasting usually through November or, even – *Ps. martynovi* n. sp. – through the end of December.

Our knowledge on the Caucasian Trichoptera fauna has to be extended. The discovering of more autumnal species is likely. Most probably these are going to be new rather than species described already in other regions.

Literature

KUMANSKI, K., 1980: A Contribution to the Knowledge of Trichoptera (Insecta) of the Caucasus. – Acta zool. bulg. **14**: 32–48.

MARTYNOV, A., 1916: Notes sur quelques nouveaux Trichoptères du Musée du Caucase. – Bull. Mus. Caucase, **9**, 3–4: 186–202 (in Russian).

—, 1926: To the Knowledge of Trichoptera from Central Caucasus and their Metamorphoses. – Trav. Stat. Biol. Cauc. **1**, 3: 19–62.

[3]) now in North-Osetian ASSR (author's note)

MEY, W. & A. MÜLLER, 1979: Neue Köcherfliegen aus dem Kaukasus (Trichoptera). – Reichenbachia, Mus. Tierk. Dresden **17**, No. 21 175–182.
SCHMID, F., 1952: Le groupe de *Chaetopteryx* (Limnophilidae, Trichoptera). – Rev Suisse Zool. **59**, 3: 99–171.
—, 1959: Trichoptères d'Iran. Beitr. Ent. (Berlin) **9**: 200–219; 376–412; 683–698; 760–799.
TARNOGRADSKY, D., 1945: The Lake Kely and other basins of the volcanic Plateau of Kel (South Osetia). – Tr. Nord Cauc. St. Hydrobiol. **4**, 2–3 27–31 (in Russian).

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Addendum at second correction
Just before last proof of this paper I got the article of W. MEY „*Kelgena* n. gen. aus dem Kaukasus (Trichoptera: Chaetopterygini)" – Dtsch. Ent. Z., N. F. **26**, 4–5: 256–270 (1979). This genus is identical with *Psilopterygopsis* n. gen., as well as *Psilopterygopsis martynovi* n. sp. is *Kelgena minima* MEY