

### Mayflies from Iraq

(Insecta, Ephemeroptera)

With 12 Figures

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The mayfly fauna of Iraq is nearly unknown. There is only one description concerning Palingeniid *Mortogenesia mesopotamica* produced by MORTON (1921) sub nom. *Palingenia mesopotamica*. LESTAGE (1923) then transferred the species to genus *Mortogenesia* erected by himself.

Recent activities of mayfly workers in the neighbour countries indicate that faunistical and taxonomical study of the order Ephemeroptera in the "kleinasiatischer Grenzbereich" (ILLIES, 1978) is more and more increasing. Contributions to mayflies of Turkey last time came from BRAASCH (1981), KAZANCI (1984) and KOCH (1985). Notes to some species of Iran are given by BRAASCH (1981). Near East studies in mayflies were made by ALOUF (1977; Leban), KOCH (1980, 1981), SAMOCHA (1972; Israel) and THOMAS (1982; Leban). Findings of mayflies in Iraq have demonstrated relation between Caucasus fauna and fauna of adjacent countries up to Iraq. So we should mention works of BRAASCH (1979), SINITSHERNOVA (1976), TSHERNOVA (1938) and ZIMMERMANN (1981) dealing with elements of Caucasus fauna.

Here presented material has been collected by senior and third author during some excursions into the mountain and upper plains and foothills regions in the north of Iraq. Investigated waters are part of rhithral system of Tigris river. Dr. M. BUNNI was so kind to provide junior author with some specimens of above mentioned Palingeniid we have enclosed in our work. This species was found in the potamal system of Tigris southern of Baghdad. To avoid repeating finding places we give a list of locations as follows:

#### Mountain region

##### Amadiya district

- No. 1: Duhok, Sulave; current moderately fast, sandy bottom with small stones; water temperature 25 °C, elevation 1100 m; 8.5.1985
- No. 2: Duhok, Sulave; current very fast, stony bottom; water temperature 15 °C, elevation 1000 m; 8.5.1985
- No. 3: Duhok, Sawita; current slow, sandy bottom with gravel; water temperature 22 °C, elevation 860 m; 8.5.1985
- No. 4: Duhok, Sawita; current, stony bottom with a lot of algae; water temperature 21 °C, elevation 860 m; 8.5.1985
- No. 5: Mosul-Agra, Gally Zavita; current fast, stony bottom; water temperature 23 °C, elevation 716 m; 12.7.1984
- No. 6: Mosul, Agra; current fast, stony bottom; water temperature 20 °C, elevation 716 m; 12.7.1984
- No. 7: Mosul, Agra; current fast, bottom with gravel of different sizes and sand; water temperature 28 °C, elevation 225 m; 9.5.1985
- No. 8: Duhok, Zakho; Saranish Al-eslam village; fast current; water temperature 14 °C, elevation 700 m; 13.7.1984
- No. 9: Duhok, Zakho, Khaboar river; current fast, stony bottom; water temperature 19 °C, elevation 442 m; 13.7.1984

## Rawanduz District

- No. 10: Arbil, Shaklava; current slow, bottom with large gravel covered with silt; water temperature 26 °C, elevation 900 m; 10.5.1985  
 No. 11: Arbil, Shaklava; current slow, bottom with large stones covered with silt; water temperature 23 °C, elevation 850 m; 10.5.1985  
 No. 12: Arbil, Bekhal water fall; current very fast; elevation 1100 m; 9.7.1984  
 No. 13: Arbil, Kalifan; current very fast, bottom with large stones; water temperature 19 °C, elevation 950 m; 10.5.1985  
 No. 14: Arbil, Gali Ali; current moderate, stony bottom; water temperature 25 °C, elevation 950 m; 9.7.1985  
 No. 15: Arbil, Gali Ali water fall; current fast, stony bottom with clay; water temperature 22 °C, elevation 950 m; 10.5.1985

## Sulaimaniya District

- No. 16: Sulaimaniya, Chuarta; current slow, sandy bottom; water temperature 18 °C; 11.7.1984

## Jabal Sinjar District

- No. 17: Mosul, Sinhar; current moderate, stony bottom; water temperature 22 °C, elevation 476 m; 7.5.1985

## Upper plains and foothills region

## Nineveh District

- No. 18: Mosul-Duhok high way, Al-bakak river; current slow, bottom with gravel and clay; water temperature 25 °C, elevation 223 m; 8.5.1985  
 No. 19: Mosul, Tigris river bank; elevation 220 m; 25.5.1985

## Arbil District

- No. 20: Arbil, Cori; current moderate, stony bottom with silt; water temperature 17 °C, elevation 945 m; 10.5.1985  
 No. 21: Arbil, Cori village; current slow, sandy bottom; water temperature 20 °C; 9.7.1984

## Fam. Baetidae

1. *Baetis buceratus* EATON, 1870

1 nymph (No. 7); 5 nymphs (No. 17); 1 nymph (No. 14); 1 nymph (No. 5); 2 nymphs (No. 16).  
 - New for Iraq. Just recorded by KAZANCI (1984) from Turkey.

2. *Baetis lutheri* MÜLLER-LIEBENAU, 1967

2 nymphs (No. 2); 1 nymph (No. 6); 2 nymphs (No. 11); 1 nymph (No. 13); 1 nymph (No. 14); 10 nymphs (No. 20). - New for Iraq. KAZANCI (1984) gives notice of this species in Turkey. ZIMMERMANN (1981) describes subspecies *B. lutheri georgiensis* from Caucasus region. In our specimens we also see slight differences in comparison with nominal form, f. expl. less labrum bristles, colour pattern of pronotum. It will be necessary to look for adults in future.

3. *Baetis* ex gr. *rhodani*

5 nymphs (No. 1: 1985); 7 nymphs (No. 1: 1984); 2 nymphs (No. 2); 4 nymphs (No. 3); 1 nymph (No. 4); 4 nymphs (No. 5); 3 nymphs (No. 6); 1 nymph (No. 7); 3 nymphs (No. 8); 2 nymphs (No. 9); 16 nymphs (No. 10); 3 nymphs (No. 11). - This species is probably new for science but it is due to further studies. From Caucasus there are described other species of *rhodani*-group: *B. illex* JACOB et ZIMMERMANN, 1978 and *B. baksan* SOLDAN, 1977, which resembles our species in some points. Adults should be found in addition.

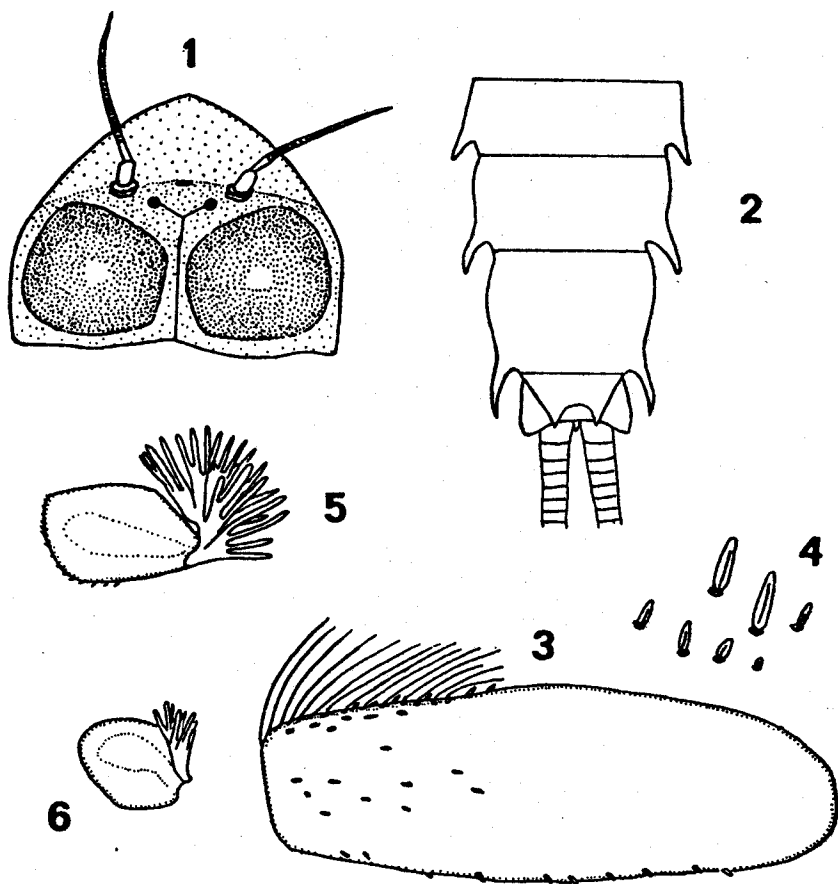
## Fam. Oligoneuriidae

4. *Oligoneuriella zanga* SOLDAN et LANDA, 1977

1 nymph (No. 13). - New for Iraq. Up till now only known from Turkey.

5. *Oligoneuriella bicaudata* n. sp.

♂ - nymph, mature; body length 9.5 mm, Cerci 4.5 mm.



Figs. 1-6. *Oligoneuriella bicaudata* n. sp., nymph. 1: head - 2: abdomen, last segments, ventrally - 3: femur, fore leg - 4: scales, femur, fore leg - 5: gill I, ventrally - gill III, ventrally.

Head, pronotum, abdomen light brown, without any pattern; in a female specimen on sides and fore margin except middle of pronotum diffuse darker markings; head shows fig. 1; abdominal sterna (fig. 2) with outwards, at the top some bit inwards bent projections (in female they are more straight ones), abdominal segment I without projection, segment II acute pointed corner; legs light yellow, middle femur shows fig. 3; first gill (fig. 5) bigger than following ones, these are nearly equal in length (fig. 6); 2 cerci, light yellow.

Species here described differs from all other species of Europe, so far known, by possession of 2 filaments (other spp. 3) and by its small size.

**Holotype:** ♂-nymph; Iraq, Duhok, Zakho, mountain region, Amadiya district, Khaboor river with fast current and stony bottom, temperature of water 19 °C, elevation 442 m, 13.7.1985, leg. AL-ZUBAIDI, paratypes 3 nymphs in coll. BRAASCH, Potsdam and some nymphs in coll. ZUBAIDI, Baghdad. The holotype is deposited in Zoologisches Museum der Humboldt-Universität zu Berlin.

#### Fam. Heptageniidae

##### 6. *Epeorus zaitcevi* TSHERNOVA, 1981

5 nymphs (No. 13). - New for Iraq. Locus typicus is situated in Soviet Armenia, recently proved for Turkey (KAZANCI & BRAASCH, in prep.). The specimens from Israel (DEMOULIN, 1973) seem to belong to the same species (BRAASCH vid. immature nymphs, sent by DEMOULIN).

7. *Iron nigripilosus* SINITSHENKOVA, 1976

3 nymphs (No. 12). — New for Iraq. In the moment known from Caucasus region and Turkey (KAZANCI & BRAASCH, in prep.).

8. *Rhithrogena expectata* BRAASCH, 1979 (?)

2 nymphs (No. 13). — New for Iraq. Probably the above nominated species, but specimens are hardly damaged and not full grown. Also recorded from Turkey (KAZANCI & BRAASCH, in prep.). In Caucasus with wide distribution.

9. *Afronurus kugleri* DEMOULIN, 1973

9 nymphs (No. 5). — New for Iraq. Known from Israel and Turkey (KAZANCI & BRAASCH, in prep.). This species, not belonging to genuine *Afronurus* but similar in adult stage is to combined new in future. At present time there is lack of some more knowledge about Asiatic genera/subgenera related to *lateralis* group of *Ecdyonurus*.

## Fam. Isonychiidae

10. *Isonychia arabica* n. sp.

♂, subimago; body length 12.5 mm, length of fore wing 14 mm, length 15 mm. Head yellow, eyes grey, separated from one another by breadth of median ocellus; thorax and abdomen whitish, terga with reddish markings dorsally and ventrally (figs. 9–11); fore legs with brownish femora, dark brown tibiae and darkened tarsi; at inside base of fore legs remnants of gill tufts; middle and hind legs yellowish, last tarsal joint and claws darkened; wings with dark brown shadowed cross veins between C, Sc and R1, other cross veins with fainted brown, posterior margins of wings tinged some brownish; cerci brown and annulated in the first third, other two thirds whitish, terminal filament with segments. Genitals (fig. 7) with deeply emarginated styliger, in the middle slightly convex; penis slender (fig. 8), at the tip with rounded lobes.

New species in dorsal pattern of terga resembles *I. khyberensis* (ALI, 1970), but this species shows divergence of lobes, broadened at the ends like in other European/Asiatic species.

Holotype: ♂ subimago; Iraq, Mosul, upper plains and foothills region, Nineveh district, Tigris river bank, elevation 220 m, 25.5.1985, leg. AL-ZUBAIDI. The holotype is deposited in Zoologisches Museum der Humboldt-Universität zu Berlin.

## Fam. Ephemerellidae

11. *Ephemerella ignita* (PODA, 1761)

2 nymphs (No. 13); 1 nymph (No. 14). — New for Iraq. Species is widely spread in palae-arctic region. Also recorded from Turkey (KAZANCI, 1984).

12. *Ephemerella major* (KLAPALEK, 1905)

1 nymph (No. 13). — New for Iraq. Just recorded from Turkey (KAZANCI, 1984); also found in Caucasus (BRAASCH, unpubl.).

## Fam. Caenidae

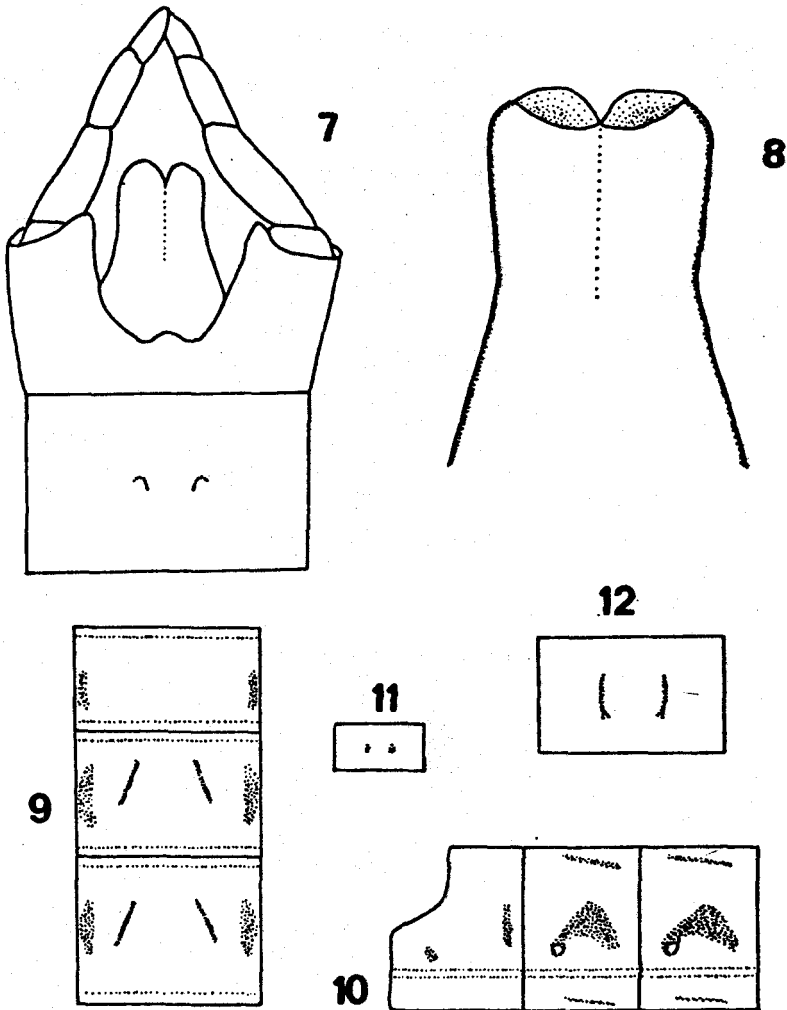
13. *Caenis ex gr. macrura*

2 nymphs (No. 5), 1 nymph (No. 13), 4 nymphs (No. 15), 5 nymphs (No. 19), 1 nymph (No. 21). — *Caenis macrura* STEPHENS, 1835 shows great variability in dependence from geographical area (MALZACHER, 1984) already in adults, so that determinations in this group as to adjacent regions of Europe are impossible at time.

## Fam. Palingeniidae

14. *Mortogenesia mesopotamica* (MORTON, 1921)

7 ♂♂, subimagines; Iraq, Tigris, southern of Baghdad near Kut, march 1984, leg. M. S. SALEH. — Since description more than 65 years ago this species has not been found again. We can suppose that water quality in Tigris system by this is indicated to be in good condition.



Figs. 7-12. *Isonychia arabica* n. sp., ♂ subimago. 7: genital segment, ventrally - 8: penis, dorsally - 9: terga I-III - 10: terga I-III, laterally - 11: tergum X - 12: sternum V.

#### Summary

From Iraq 14 species of mayflies are recorded; new for science are *Oligoneuriella bicaudata* n. sp. (nymph), *Isonychia arabica* n. sp. (♂, subimago); new for Iraq are *Baetis buceratus*, *B. lutheri*, *Oligoneuriella zanga*, *Epeorus zaitcevi*, *Iron nigripilosus*, *Rhithrogena expectata*, *Atronurus kugleri*, *Ephemerella ignita*, *E. major*; *Mortogenesia mesopotamica* has been refound after 65 years.

#### Zusammenfassung

#### EINTAGSFLIEGEN AUS IRAK

Von 14 Eintagsfliegenarten werden Fundnachweise aus Irak mitgeteilt; neu für die Wissenschaft sind *Oligoneuriella bicaudata* n. sp. (Nymphen), *Isonychia arabica* n. sp. (♂, Subimago); neu für Irak sind *Baetis buceratus*, *B. lutheri*, *Oligoneuriella zanga*, *Epeorus zaitcevi*, *Iron nigripilosus*, *Rhithrogena expectata*, *Atronurus kugleri*, *Ephemerella ignita*, *E. major*; *Mortogenesia mesopotamica* ist nach 65 Jahren erstmals wiedergefunden worden.

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