

## A contribution to knowledge of the Tabanidae (Diptera) of Bulgaria

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### Introduction

For some time we have been occupied by the study of *Tabanidae* from Central and Southeastern Europe. In this paper we give a short survey of the material of this family collected by various collaborators in Bulgaria. In that country the family *Tabanidae* is quite well known. A monograph was published by Drensky (1929), who recorded 57 species and 8 forms altogether. To this number it is necessary to add five species, which we have found in the material studied. It is probable that this number will increase during the next research in Bulgaria.

For comparison we give a survey of the number of recorded species in the neighbouring countries. 72 species and forms are known from Rumania (Dinulescu 1958), 65 from Yugoslavia (Moucha 1959) and 65 from Greece (Shannon and Hadjinicolaou 1936). The Horsefly fauna of Turkey is little known. Austen (1925) recorded 17 species during his work on the blood-sucking flies of the Dardanelles. From the European part of Turkey we recorded four species (Moucha and Chvála 1957).

The material which we have at our disposal from Bulgaria contains 343 specimens of 27 species. In this country we have discovered five species which are neither recorded in Drensky's monograph (1929), nor in the catalogue by Kröber (1938). These are: *Chrysops (Pseudochrysops) hamatus* Lw. (recorded from Turkey only), *Tabanus velutinus* Kröb. and *Tabanus shannonellus* Kröb. (both these species have an endemic distribution in the Balkan Peninsula). *Tabanus regularis* Jaen. has been recorded from various countries of Southern Europe, but not yet from Bulgaria. *Tylostypia distinguenda* Verr. has a large area of distribution; this species was probably mistaken for the other species of the genus *Tylostypia* End.

In the first part of this paper we give a survey of all studied species and their localities, in the second part there are descriptions of all species which are not recorded in Drensky's monograph (1929). We give also short descriptions of the interesting specimens of *Pangonius pyritosus* Lw. and *Tabanus spectabilis* Lw.

**Pangoniinae**

**Pangonius pyritosus** L w.: Varna, 7.57, 2 ♂♂, 3 ♀♀ (Z. Bouček).

**Chrysopinae**

**Chrysops pictus** Meig.: Varna, 7.57, 2 ♀♀ (Z. Bouček), Svilengrad 14.—18. 6. 47, 8 ♀♀ (L. Hoberlandt).

**Chrysops (Heterochrysops) italicus** Meig.: Varna, 7.57, 1 ♂ (Z. Bouček); Pomorie 22. 8. 60, 1 ♀ (J. Moucha); mouth of river Ropotamo, 25. 8. 60, 2 ♀♀ (J. Moucha).

**Chrysops (Pseudochrysops) hamatus** L w.: Sandanski, 19. 7. 56 1 ♀ (L. Hoberlandt).

**Tabaninae**

**Tylostypia distinguenda** Verr.: Vitoša, 27. 7. 58, 1 ♀ (O. Kudrna); Varna, 7.57, 4 ♂♂, 3 ♀♀ (Z. Bouček).

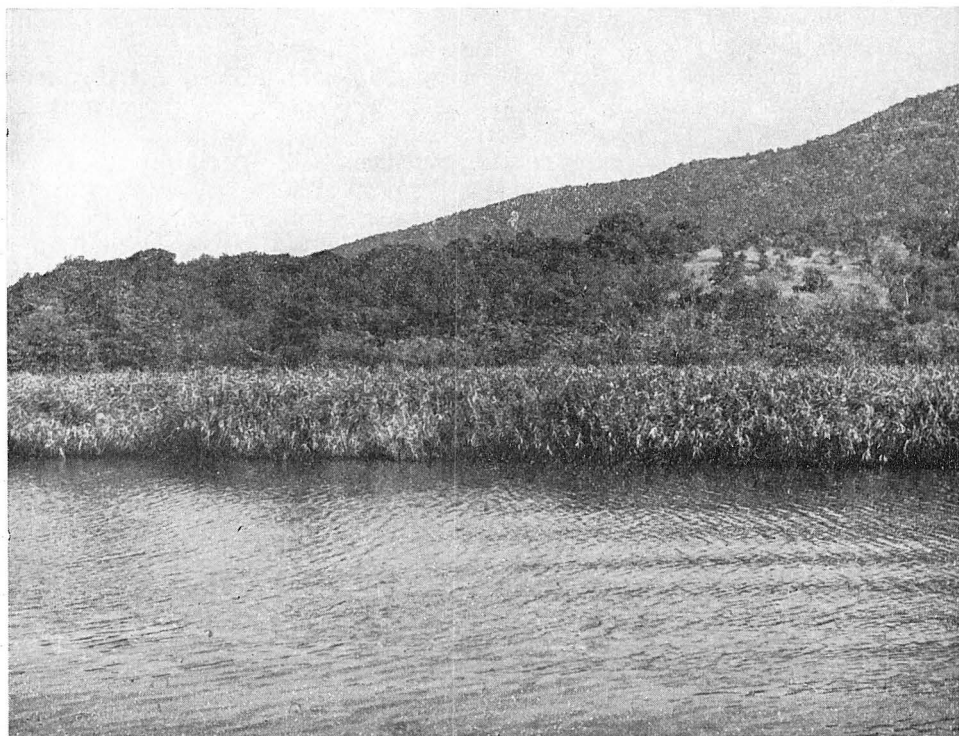


Fig. 1. The Ropotamo River, in the neighbourhood of the natural reservation „Blato Arkutino“. The locality of *Chrysops (Heterochrysops) italicus* Meig., *Tabanus shannonellus* Kröb., a. o.

Phot. 25. VIII. 1960 J. Moucha

**Atylotus fulvus** Meig.: Vitoša, 24. 7. 58, 1 ♀ (O. Kudrna); Asenovgrad, Rhodope Mts., 6. 8. 60, 1 ♀ (J. Mařan); Varna, 9. 8. 60, 1 ♀ (J. Moucha).

**Tabanus quatuornotatus** Meig.: Rila Mts. 1700 m, 25. 6. 60, 2 ♀♀; Rhodope Mts. 1215 m, 19. 6. 60, 1 ♀; Asenovgrad, Rhodope Mts., 3. 6. 59, 1 ♀; Peřtera, 19. 5. 60, 2 ♀♀; Kalofer, 26. 5. 60, 1 ♂ (P. Angelov).

**Tabanus bifarius** Lw.: Nessebar, 29. 6. 60, 1 ♀ (J. Soffner).

**Tabanus nigritus** Fabr.: Nessebar, 11. 7. 59, 1 ♀ (J. Soffner).

**Tabanus apricus** Meig.: Rila Mts., 20. 7., 1 ♀ (F. Gregor); Kosteneć, 7.35, 1 ♀ (K. Táborský).

**Tabanus graecus** Fabr.: Varna, 7.57, 4 ♂♂, 17 ♀♀ (Z. Bouček); Nessebar, 24. 6. 60, 2 ♀♀ (J. Soffner); Primorsko, 6.33, 1 ♀ (J. Mařan).

**Tabanus regularis** Jaen n.: Cape Galata, 12. 8. 60, 6 ♀♀ (J. Moucha).

**Tabanus miki** Brauer: Varna, 7.57, 1 ♀ (Z. Bouček).

**Tabanus velutinus** Kröb.: Varna, 9. 8. 60, 2 ♀♀ (J. Moucha).

**Tabanus bromius** L.: Vitoša, 24. 7. 58, 7 ♀♀ (O. Kudrna); Kjustendil, 24. 7. 60, 1 ♂; Rila Mts. 1700 m, 25. 6. 60, 2 ♀♀; Plovdiv, 18. 6. 60, 1 ♀ (P. Angelov); Varna, 7.58, 4 ♂♂, 40 ♀♀; Kamčija, 31. 7. 58, 1 ♂, 40 ♀♀ (O. Kudrna); Cape Galata, 12. 8. 60, 5 ♀♀ (J. Moucha); Nessebar, 11. 7. 59, 2 ♂♂, 3 ♀♀ (J. Soffner).

**Tabanus tergestinus** Egger: Vitoša, 24. 7. 58, 3 ♀♀ (O. Kudrna); Kjustendil, 24. 7. 60, 3 ♀♀; Plovdiv, 13. 7. 60, 1 ♀ (P. Angelov); Asenovgrad, Rhodope Mts., 6. 8. 60, 1 ♀ (J. Mařan); Varna, 7. 57, 3 ♂♂, 3 ♀♀ (Z. Bouček), 1. 8. 60, 1 ♀ (J. Sklenář).

**Tabanus shannonellus** Kröb.: Petrič, Strumešnica, 10. 8. 60, 1 ♀ (J. Mařan); Varna, 15. 8. 60, 12 ♀♀; Sveti Vlasi, 6. 9. 59, 2 ♀♀; Cape Maslen nos, 24. 8. 60, 2 ♀♀; natural reservation Blato Arkutino, 25. 8. 60, 1 ♀ (J. Moucha).

**Tabanus glaucois** Meig.: Kjustendil, 24. 7. 60, 4 ♂♂, 1 ♀ (P. Angelov); Rila Mts., 20. 7., 1 ♀ (F. Gregor).

**Tabanus exclusus** Pand.: Balčik, 17. 8. 60, 1 ♀; Varna, 15. 8. 60, 2 ♀♀; Cape Maslen nos, 24. 8. 60, 3 ♀♀ (J. Moucha).

**Tabanus mixtus** Szil.: Varna, 7.57, 4 ♂♂, 20 ♀♀ (Z. Bouček); Kamčija, 31. 7. 58, 2 ♀♀ (O. Kudrna); Nessebar, 11. 7. 59, 2 ♀♀ (J. Soffner).

**Tabanus spodopterus** Meig.: Vitoša, 24. 7. 58, 1 ♀ (O. Kudrna); Rila planina, 20. 7., 1 ♀ (F. Gregor); Bjala, 28. 7. 60, 1 ♀ (J. Sklenář); Varna, 7.57, 3 ♀♀ (Z. Bouček); Nessebar, 11. 7. 59, 1 ♀, 2. 7. 60, 4 ♂♂, 2 ♀♀ (J. Soffner).

**Tabanus bovinus** Lw.: Balčik, 2. 8. 60, 1 ♀ (J. Sklenář).

**Tabanus autumnalis** L.: Vitoša, 24. 7. 58, 1 ♀ (O. Kudrna); Sitovo, Rhodope Mts., 31. 5. 60, 1 ♀ (P. Angelov); Varna, 7. 57, 1 ♀ (Z. Bouček); Kamčija, 31. 7. 58, 1 ♀ (O. Kudrna).

**Tabanus spectabilis** Lw.: Vitoša, 24. 7. 58, 1 ♀ (O. Kudrna); Varna, 7. 57, 1 ♀ (Z. Bouček); Nessebar, 1. 7. 59, 1 ♀ (J. Soffner).

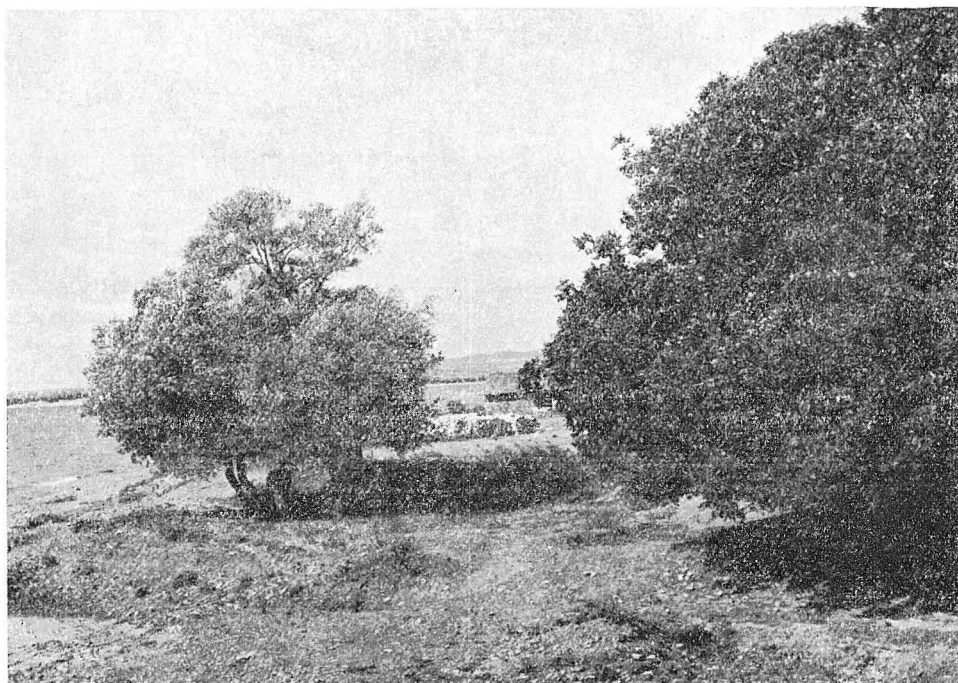


Fig. 2. Black Sea Coast near the village Sveti Vlasi by Nessebar.  
The locality of various species.

Phot. 6. IX. 1959 J. Moucha

**Haematopota pandazisi** Kröb.: Varna, 15. 8. 60, 2 ♀♀; Cape Maslenos, 24. 8. 60, 5 ♀♀; natural reservation Blato Arkutino, 25. 8. 60, 56 ♀♀ (J. Moucha).

**Haematopota hispanica** Szil.: Varna, 7. 57, 1 ♀ (Z. Bouček); Nessebar, 1. 7. 60, 1 ♀ (J. Soffner).

**Haematopota pluvialis** L.: Vitoša 1500 m, 2. 8. 60, 1 ♀ (P. Angelov); Nessebar, 11. 7. 59, 1 ♀ (J. Soffner).

#### DESCRIPTIONS OF NEW RECORDED OR INTERESTING SPECIES

##### **Chrysops (Pseudochrysops) hamatus** Loew 1858

(Verh. zool.-bot. Ges. Wien, 8: 617—618)

**Female:** Frontal stripe greyish, broad, nearly square shaped, the upper side only a little contracted. Vertex with shining black ocellar callus, which occupies nearly the whole breadth of the frontal stripe. Frontal callus shining black, quadratic, reaching to the eye-margin. Face yellowish brown, with two very small shining brownish black face calli. Cheeks grey. Palpi darkish brown, slender, with sharp tip. Antennae long, about 3 times length of head, the first two joints are the same length.

3rd joint thicker and only little perceptibly longer. First joint light brownish yellow, apex of the first joint and the further two joints black.

Thorax greyish black, at dorsal part with three indistinct black longitudinal stripes. The sides and the lower part with long greyish pubescence. Legs blackish brown, only first femora and tibiae basally, and the whole and hind tibiae brown. Wings hyaline with intensive brown and along the front margin as far as the mouth of  $Cu_2$ . In the middle part the brown band reaches along the veins nearly to the hind margin. Discal cell nearly wholly hyaline.

Abdomen: First and second segments yellowish brown with black design in central part, the other segments with yellowish border on the distal margin. Second sternite yellowish with black central spot. Length: 9,5 mm.

Male: Face calli hardly visible, head and thorax with dense white pubescence. Legs and wings as in the female. Abdomen lighter, with fine grey hairs, first four tergites yellow or whitish with dark central spots. The last tergites grey. Sternites with darkish brown middle stripe, which occupies the whole last sternites. Length: 8-9,5 mm.

Distribution: This species was described from the vicinity of Makri in Asia Minor (Loew 1858). Later another capture was announced by Szilády (1917) from Turkey. We had at our disposal some specimens from Sariseki (10 km north from Iskenderun) in Southern Turkey (Moucha and Chvála 1957). The find in Bulgaria is a first report of this species in Europe. One female was collected by Dr. L. Hoberlandt near Sandanski in the valley of the river Struma.

### ***Tylostypia distinguenda* Verrall 1913**

(Brit. Flies, vol. 5: 371)

Female: Eyes short greyish hairy, with three bands. Frontal stripe about 5-6 times as high as broad below, lower frontal callus square-shaped, black without lustre. Vertex with shining brownish black ocellar callus. Antennae reddish brown, the style is dark. Palpi yellowish or greyish brown, with short black hairs.

Thorax blackish grey, at dorsal part with three indistinct longitudinal stripes. Notopleural calli brownish, halteres darkish brown. First tibiae basally brown, middle and hind tibiae light brown, the other parts of legs grey or blackish. Wings hyaline, veins darkish brown.

Abdomen with reddish brown spots on 1st-4th tergite, the black middle stripe occupies about a fourth part the width of the segments. Whitish grey median triangles are present. The sides of the second tergite with golden hairs only, the other parts of abdomen are covered with golden and black hairs. First to fifth sternites yellowish, the other are grey. First and second sternites with grey spot in the middle. Length: 13-15 mm.

Male: Eyes with brownish grey hairs and with two bands. On the lower third the eye-facets are smaller, but not strikingly separated. Antennae as in the female, but narrower. Palpi greyish brown, very short and swollen, with long grey hairs. Thorax as in female, but with long pubescence, notopleural calli sometimes dark. Abdomen with large red-

dish brown spots on first to fourth tergites, the black middle stripe is often broken. The last segments are black. Length: 14-15 mm.

From the other species of this genus, which are characterised by the reddish side spots, the female of *T. distinguenda* Verr. is very well distinguished by the golden hairs on the sides of the second tergite having no admixture of black hairs. The male differs in the structure of palpi, which are very short and swollen, and also in the form of eye-facets.

**Distribution:** This species occurs in England, through North and Central Europe as far as the Ural Mts., Siberia and Japan (Kröber 1938). In the Balkan Peninsula it is known from Greece, Yugoslavia and Rumania. Our material from Bulgaria does not differ from the specimens from Central Europe. The first record from Bulgaria.

### ***Tabanus regularis* Jaennicke 1866**

(Berl. Ent. Zeitschr. 10: 85)

**Female:** Eyes bare and unbanded, frontal stripe dirty yellowish grey, about 6 times as high as wide, nearly parallel. Frontal triangle darker, sharply separated from whitish pubescent under part of the face. The lower frontal callus brownish, often rectangular, joined with black club-shaped middle frontal callus. Antennae brownish, the two basal joints sometimes yellow or grey, third joint red with dark terminal style. Palpi whitish with short black hairs at apex.

Thorax ashy grey, on the lower side with white pubescence. Halteres brown, whitish at apex. Legs greyish, tibiae brown, tarsi and front coxae blackish. Front tibiae black on distal third. Wings hyaline.

Abdomen grey with black and whitish yellow pubescence, the lighter markings are similar to those in *Tabanus bromius* L., but brown colouration on basal tergites is not visible. Tergites blackish with three greyish spots, the lateral ones are enlarged. Sternites grey, the last three or four sternites a little yellowish. Length: 10—15 mm.

**Male:** Head large, hemispherical. Eyes with one band and with sharply separated larger facets, which are 3—5 times larger than the smaller ones. Otherwise as in the female, abdomen obviously pointed, sometimes little brownish at the base. Length: 13—14,5 mm.

Similar to *Tabanus velutinus* Kröber, but differs in narrower frontal stripe, in brownish lower frontal callus and in grey colouration of abdomen. Similar also to *Tabanus bromius* L., but differs easily in unbanded eyes.

**Distribution:** *Tabanus regularis* Jaenn. was recorded from various countries of Southern Europe. New record from Bulgaria.

### ***Tabanus velutinus* Kröber 1936**

(Acta Inst. Mus. Zool. Univ. Athen. 1: 36)

**Female:** Eyes bare and unbanded. Frontal stripe yellowish grey, about 4 times as high as broad, nearly parallel. Lower frontal callus shining black, nearly touching the eye-margin, upwardly connected with the



club shaped middle frontal callus. Frontal triangle is the same colour as the frontal stripe, face with long greyish hairs. Palpi swollen at base, sharply pointed, pale yellowish coloured. Antennae reddish brown, first joint enlarged, third joint with well visible tooth, and with distinctly articulated style.

Thorax greyish black, with poorly visible longitudinal stripes on the dorsal part. Notopleural calli brownish, halteres brown, in the lower part

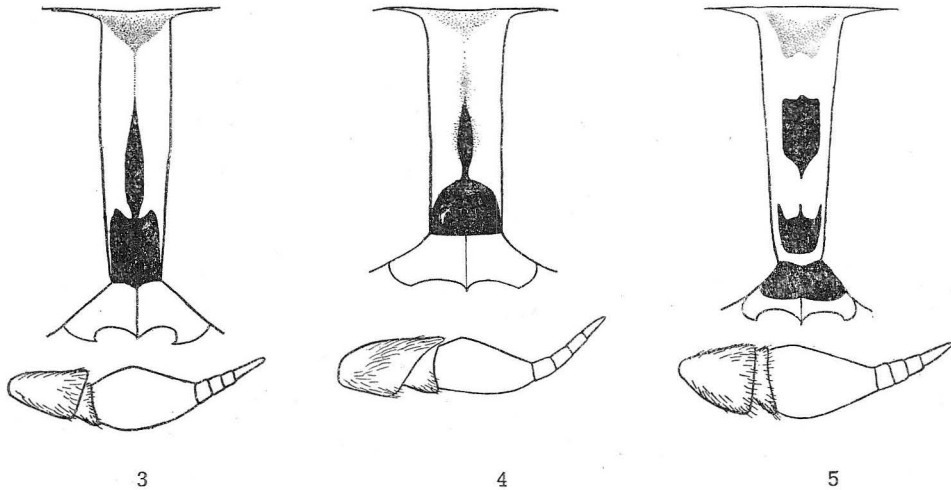


Fig. 3. Frons and antenna of *Tabanus regularis* Jaenn. — Fig. 4. Frons and antenna of *Tabanus velutinus* Kröb. — Fig. 5. Frons and antenna of *Tabanus shannonellus* Kröb.

whitish. Front legs black, only tibiae on basal two-thirds yellowish. Second and third femora grey, the other parts yellowish, tarsi darker. Wings hyaline with black veins.

The markings on abdomen as in *Tabanus bromius* L. The whole abdomen with finely yellow and black pubescence. Ground colour blackish grey, tergites with a row of light median triangles and round lateral spots, which, on second to fourth tergites, are brownish. Sternites blackish grey, second and third or second to fourth sternites yellowish brown coloured. Length: 14—15 mm.

Male: unknown.

Very similar to *Tabanus bromius* L., but eyes are unbanded. From *Tabanus miki* Brauer it differs in more greyish colouring and different markings on abdomen.

**Distribution:** Previously the only known locality was Laia-Seres (Northern Greece). Our specimens were collected on the coast of the Black Sea in the surroundings of Varna; it is a new record for Bulgaria. Kröber (1936) describing this species did not mention the date of capture. Our specimens were collected in August.

### **Tabanus shannonellus** Kröber 1936

(Acta Ins. Mus. Zool. Univ. Athen. 1: 36)

Female: Eyes bare, with three bands. Frontal stripe yellowish grey, about 5 times as high as broad at the base. Frontal calli shining black, the lower frontal callus is smaller square-shaped, the middle one nearly egg-shaped, about 1.5 times as long as wide. Frontal triangle also yellowish grey, in the upper part shining black. Face with long greyish or whitish hairs, palpi sharply pointed, whitish with short black hairs. Antennae reddish yellow, the third joint with hardly visible tooth, the style is sometimes darker.

Thorax black grey with grey pubescence, dorsal part with three longitudinal stripes. Notopleural calli brown, scutellum strikingly whitish grey. Halteres brown, yellowish at base. Femora grey, tarsi dark brownish, middle and hind tibiae, and also basal part of front tibiae yellowish brown. Wings hyaline, veins brown.

Abdomen blackish brown, tergites with a row of grey median triangles, which are strikingly enlarged on second and third tergites, and with row of round yellowish brown lateral spots. Sternites brownish yellow, the last are grey. Length: 12,5—14 mm.

Male: unknown.

This species is similar to *Tabanus obsolescens* Pand., but it differs in the absence of the brown stripe near base of antenna, in the clearer markings on tergites with enlarged grey median triangles, and in the striking whitish scutellum. *Tabanus shannonellus* Kröber is also similar to *Tabanus glaucopis* Meig., but it can be easily distinguished by its shorter length.

There are some females in our material, which are conspicuously dark, the grey median triangles on tergites being poorly visible and the reddish brown sidespots on second and third segments are enlarged. A similarly coloured female is also described by Kröber from Greece.

Distribution: This species was described by Kröber (1936) from Greece (the valley of river Strymon). *Tabanus shannonellus* Kröber is probably not rare on Balkan Peninsula because it has recently been found in the environment of Skopje in Macedonia and on the island Hvar in Dalmatia (Moucha 1959). We have at our disposal a number of specimens from the Black Sea coast. The adults were collected on dry hillsides covered with bushes (localities Sveti Vlasi near Nessebar or Cape Maslen nos near Sozopol) and also in the neighbourhood of a swamp "Blato Arkutino". New record for Bulgaria.

### **Pangonius pyritosus** Loew 1859

(N. Beitr. 6: 27)

*Pangonius pyritosus* Lw. is a rather widely distributed species, well known from the Balkan Peninsula, Asia Minor and Ukraine. Drensky (1929) reports this species from Bulgaria from several localities. We have at our disposal 2 ♂♂ and 3 ♀♀ from the surroundings of Varna on the Black Sea coast.



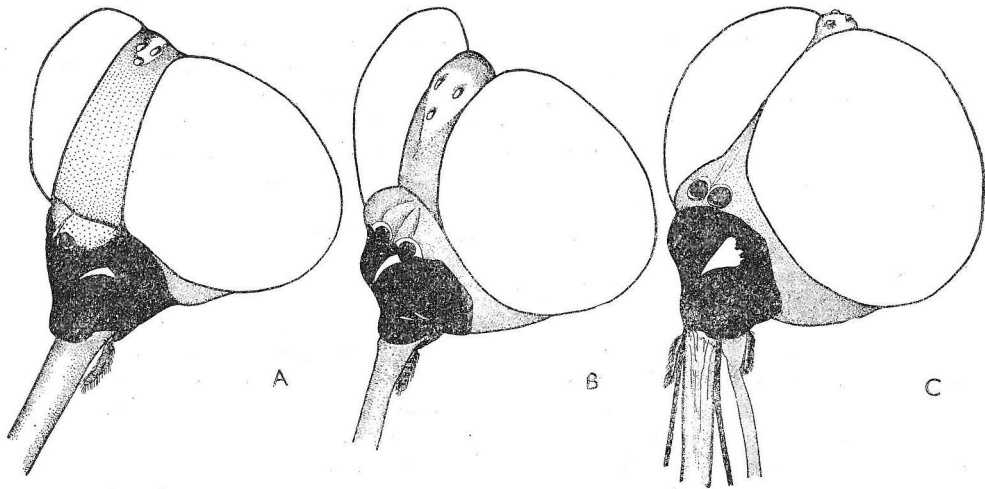


Fig. 6. Head of *Pangonius pyritosus* Lw.: A — female, B — described specimen, C — male.

In our material is one specimen the eyes of which are separated by the frontal stripe as in the female although all the other characters are as in male. Since this specimen is very interesting, we give a short description.

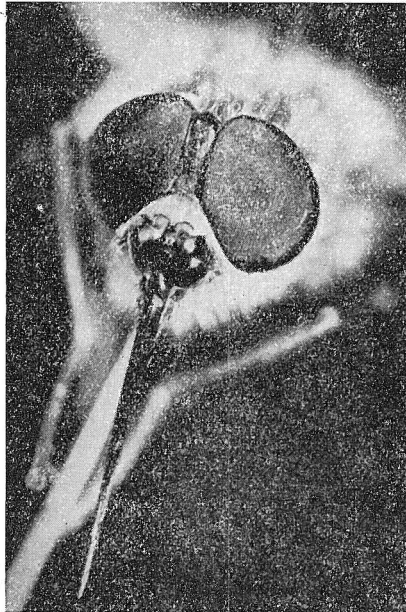


Fig. 7. Head of the described specimen of *Pangonius pyritosus* Lw.  
Phot. Dr. J. Zahradník

Head about the same width as thorax, eyes distinctly separated by the parallel frontal stripe, which is only a little narrower than in female. Ocellar callus conspicuously swollen and enlarged, and shifted down as far as the middle of the frontal stripe (see figs. 6—7). Frontal stripe greyish dark, frontal triangle and face yellowish grey. All the other marks on head, thorax and abdomen are as in the male.

***Tabanus spectabilis* Loew 1858**

(Verh. zool.-bot. Ges. Wien, 8: 605)

One female from Nessebar which is normally coloured and does not differ from the other material of this species, which we have at our disposal from the island of Korfu (Greece) and from Albania (Berat). Two females collected in Varna and on Vitoša Mt. have pale sidespots on second to fourth tergites conspicuously reddish brown, the lateral colouring on sternites is also more reddish. According to the reddish brown colouring on tergites both these females seem analogous to the form *brunnescens* Szil. of the species *Tabanus autumnalis* L.

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**Príspevek k poznání ovádovitých (Diptera, Tabanidae)  
Bulharska**

Během studia ovádovitých (*Diptera, Tabanidae*) střední a jihovýchodní Evropy jsme získali zajímavý materiál i z Bulharska. Byl sbírán různými spolupracovníky převážně na černomořském pobřeží a v jihozápadní části země. Monografické zpracování ovádovitých Bulharska uveřejnil Drensky (1929), který tu zjistil 57 druhů a 8 forem. V našem materiálu je zastoupeno celkem 27 druhů, z nichž pět je z Bulharska hlášeno poprvé. Jsou to: *Chrysops (Pseudochrysops) hamatus* Lw., *Tylostypia distinguenda* Verr., *Tabanus velutinus* Kröb., *Tabanus shannonellus* Kröb. a *Tabanus regularis* Jaenn.

Seznam všech zjištěných druhů a jejich nalezišť tvoří další část práce. Všechny v Bulharsku nově zjištěné druhy jsou podrobně popsány a je uvedeno i jejich dosud známé zeměpisné rozšíření. Předkládáme rovněž stručné popisy zajímavých forem druhů *Pangonius pyritosus* Lw. a *Tabanus spectabilis* Lw.

Dokladový materiál je uložen ve sbírkách entomologického oddělení Národního muzea v Praze.

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**К познанию слепней (Diptera, Tabanidae) Болгарии**

Изучая слепней Средней и Юго-восточной Европы нам удалось приобрести материалы также из Болгарии. Последние были собраны разными сотрудниками преимущественно на черноморском побережье и в юго-восточной части страны. Монография слепней Болгарии была опубликована Дренским (1929), который приводит 57 видов и 8 форм. В нашем материале, представленном 27 видами, имеется 5 видов, найденных в Бол-

гари впервые: *Chrysops (Pseudochrysops) hamatus* Lw., *Tylostypia distinguenda* Ver r., *Tabanus velutinus* Kr ö b., *Tabanus shannonellus* Kr ö b. и *Tabanus regularis* Ja en n.

В работе дается список всех видов, найденных в Болгарии, а также и их местонахождения. Все виды, новые для Болгарии, подробно описываются, кроме того здесь даны также все известные данные об их географическом распространении. Приведены также краткие описания интересных форм вида *Pangonius pyritosus* Lw. и *Tabanus spectabilis* Lw.

Соответствующие материалы хранятся в коллекциях Энтомологического отделения Национального Музея в Праге.

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