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# Reinstatement of the genus *Tinearia* Schellenberg (Diptera, Psychodidae)

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**Taxonomy, faunistics, world species**

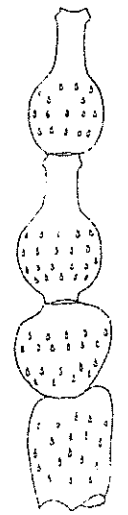
Latreille (1802) established as type-species of the genus *Psychoda* Latreille, 1796 the species *Tipula phalaenoides* Linné, 1758 by subsequent monotypy. The genera *Philosepedon* and *Threticus* were erected for species from this genus by Eaton (1904), and the genera *Feuerborniella* and *Copropsychoda* by Vaillant (1971) without establishing type-species. The genera *Philosepedon* Eaton, 1904, *Threticus* Eaton, 1904 and *Feuerborniella* Vaillant, 1971 were placed in the Telmatoscopini by the latter author. The present paper now removes and redescribes from synonymy under *Psychoda* Latreille, 1796 the genus *Tinearia* Schellenberg, 1803 with type-species *Psychoda alternata* Say, 1824 established by Coquillett (1910) by subsequent designation, who placed it as a synonym of *Psychoda* Latreille, 1796. There remains the second synonym of *Psychoda* Latreille, 1796, viz. *Trichoptera* Meigen, 1803 with *Tipula phalaenoides* Linné, 1758 as type-species (Quate, 1965), established by Coquillett (1910). The name *Tinearia* Schellenberg, 1803 was wrongly listed by both Enderlein (1936) and Rapp (1945a) as valid with *Trichoptera fuliginosa* Meigen, 1804 as type-species, and *Ulomyia* Haliday in Curtis, 1838 (not Walker, 1856!) was listed as a synonym of that by Enderlein (1936). This problem was discussed by Fairchild (1951). Coquillett's paper was omitted by Sara (1952), who described a new species from Italy as *Tinearia mirabilis* on the interpretation of the genus by Enderlein (1936) and Rapp (1945a). This paper is concerned with a group of species which were referred to the "alternata complex" by Quate (1955), and aims to prove on the basis of morphological study both of males and females, in contrast to Vaillant (1971), that this complex does not lie in the range of species of *Psychoda phalaenoides* (Linné, 1758). All material was collected 1971—1974 mostly by the author and preserved in alcohol or on slides.

## Genus *Tinearia* Schellenberg, 1803

Type-species: *Psychoda alternata* Say, 1824

Differential diagnosis: 13th—15th segments of the apex of flagellum are not separated, reduced upwardly in comparison with foregoing one (Fig. 4). Sensory filaments small, with three branches. Brown spots at the tips of the veins. Male with three conspicuous phallomeres of equal size, the two upper ones jointed apically (Fig. 11). Subgenital plate of female without a sensory stake (Fig. 15), genital chamber with three pairs of winged processes of the typical shape (Fig. 16).





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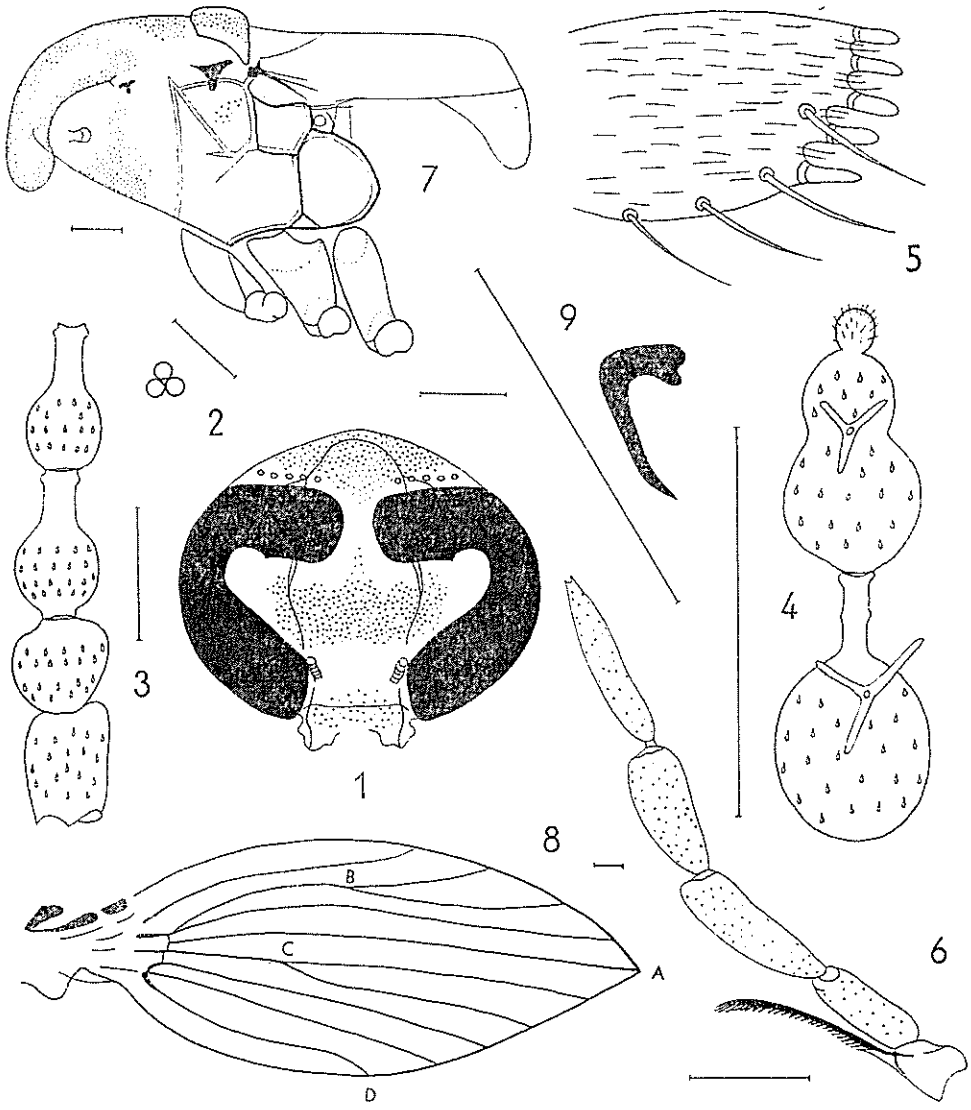
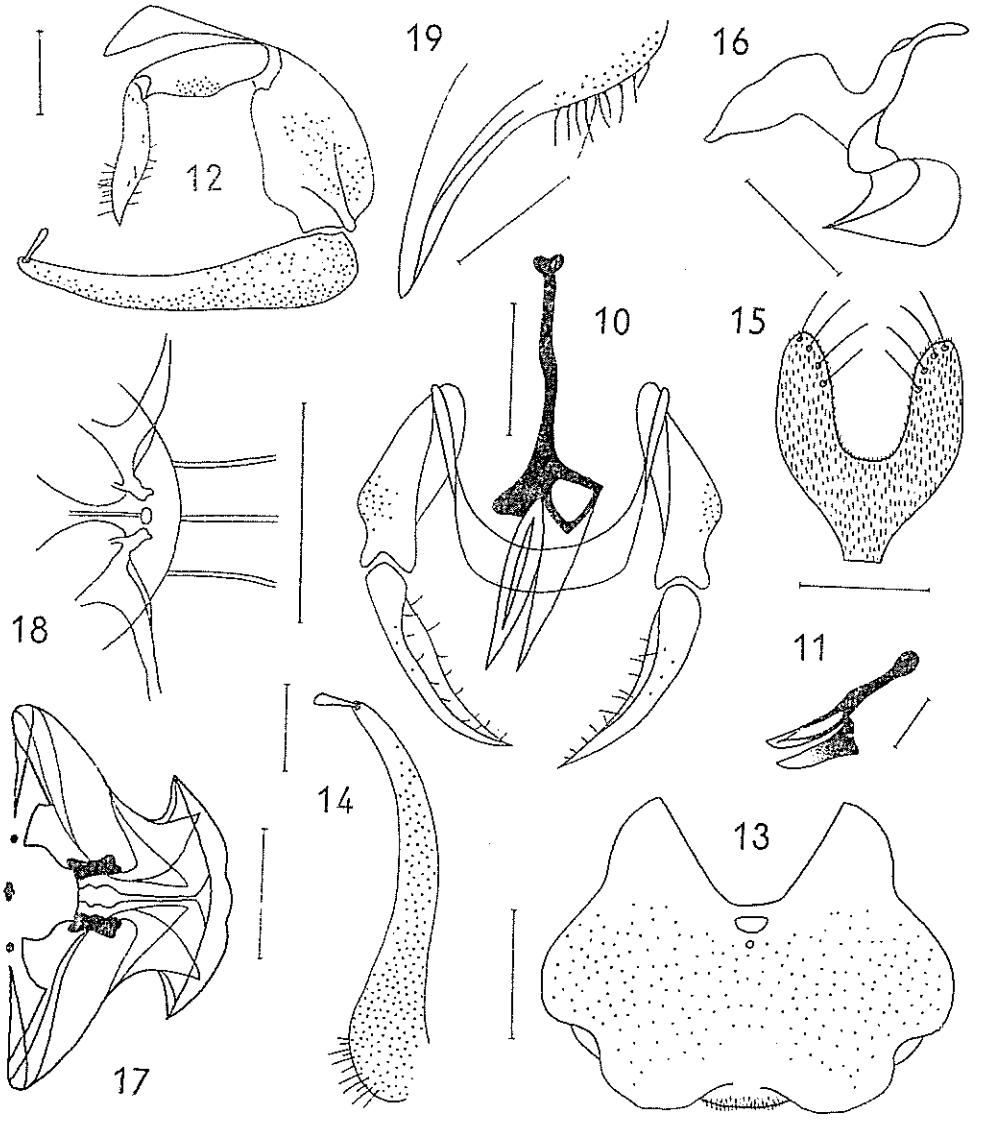



Figs. 1—9. *T. alternata* (SAY) ♂: 1 — head, 2 — facets, 3 — basal antennal segments, 4 — apical antennal segments, 5 — terminal lobe of labium, 6 — maxillary palpus, 7 — thorax laterally, 8 — wing, 9 — claw of $P_1$ laterally. Scale 0.1 mm.

*Psychoda* LATREILLE, 1796 s. str., with type-species *Psychoda phalaenoides* (LINNÉ, 1758), may be diagnosed and distinguished as follows: apical two antennal segments of the same size, separated, distinctly reduced in comparison with foregoing one. 13th and 14th segments with very short neck and distinct subapical spine, 15th segment without such neck and spine. Sensory filaments big, with three branches. Without brown spots at tips of the veins. Genital lobes of male not as above, lower phallomera rudimentary. Sub-




Figs. 10—19. *T. alternata* (Say), ♂ (figs 10—14), ♀ (figs 15—19): 10 — genitalia dorsally, 11 — phalomeres and basal apodeme laterally, 12 — hypopygium laterally, 13 — epandrium dorsally, 14 — cercus ventrally, 15 — subgenital plate, 16 — structures of genital chamber laterally, 17 — the same anteriorly, 18 — a part of genital chamber ventrally, 19 — cercus laterally. Scale 0.1 mm.

genital plate of female with a sensory stake, genital chamber with different combination of characters.

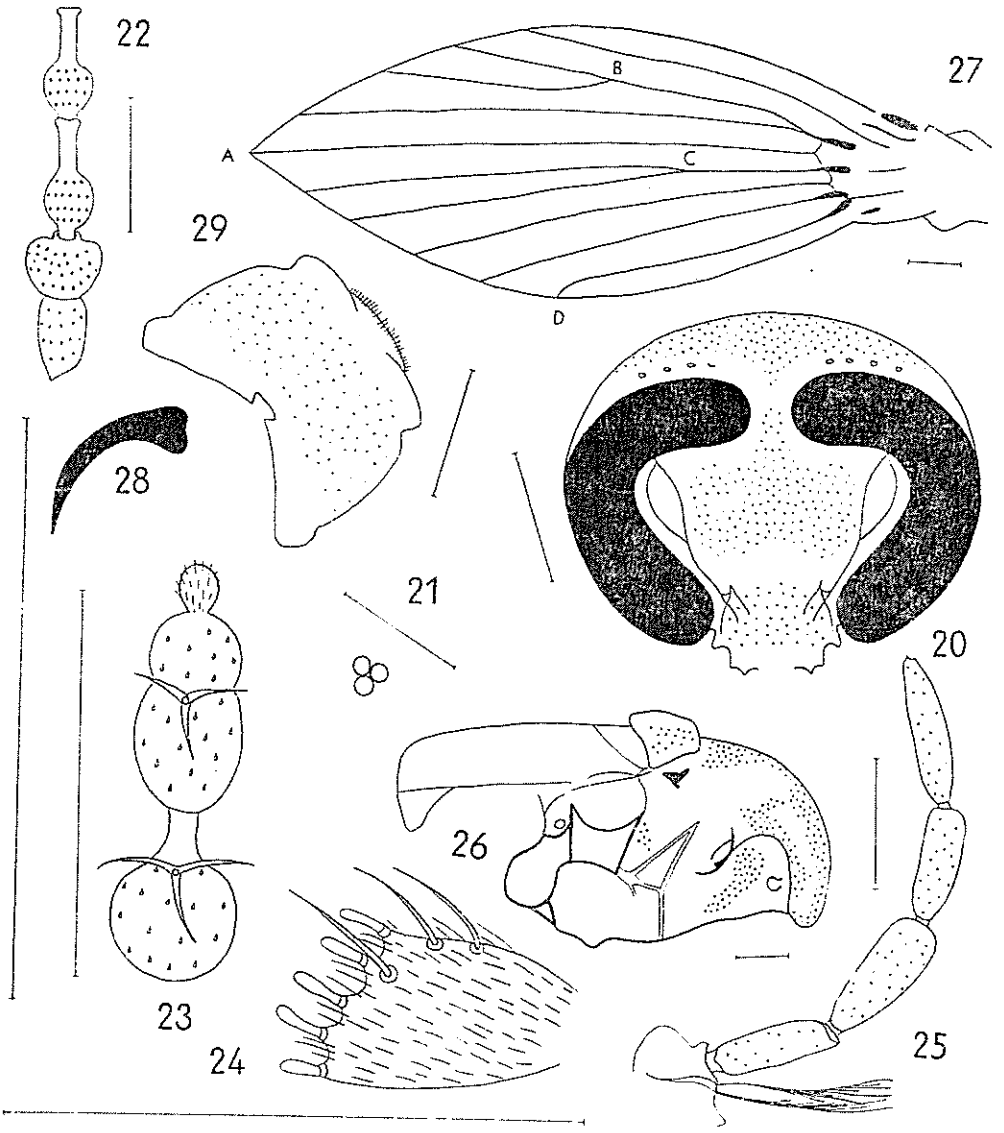
*Tinearia alternata* (Say). **comb. rev.**

*Psychoda alternata* Say, 1824 : 358.
*Psychoda tripuncata* Macquart, 1838 : 81.

*Psychoda sexpunctata* PHILLIPI, 1865 : 631.
*Psychoda conspicillata* HUTTON, 1881 : 13.
*Psychoda schizura* KINCAID, 1899 : 32.
*Psychoda floridica* HASEMAN, 1907 : 316, 324.
*Psychoda nocturnala* HASEMAN, 1907 : 319.
*Psychoda bengalensis* BRUNETTI, 1908 : 371.
*Psychoda albimaculata* WELCH, 1912 : 411.
*Psychoda dakotensis* DYAR, 1926 : 106.
*Psychoda alternata* var. *marmosa* ABREAU, 1930 : 123.
*Psychoda alternata* var. *floridica* JOHANNSEN, 1934 : 25.
*Psychoda septempunctata* RAPP, 1945b : 29.
Synonymy after QUATE (1955), modified.

Diagnosis. Yellowish species, the length of the wings 2—3 mm, striking dark brown tufs of hairs at the tips of veins of wings, harpagones with blade shape laterally (Fig. 12), subgenital plate (Fig. 15) and genital chamber (Figs. 16—18) of female of characteristic form.

Male. Eye bridge (Fig. 1) with a little more than two rows of facets (Fig. 2) on its widest part. Frons with long yellowish hairs. Antennae with 15 segments, clad with unicolorous yellowish hairs. Scapus (Fig. 3) shortly cylindrical, pedicellus nearly ball-shaped, segments of flagellum flask-shaped, three apical segments fused, reduced upwardly in comparison with foregoing one (Fig. 4). Sensory filaments rather small, with three branches. Mouth parts yellow haired, terminal lobes of labium, maxilla and maxillary palpus as figured (Figs. 5, 6). Labrum pointed, with short fine hairs, epipharynx forked with long hairs, clypeus not very large. Maximal length of cibarium to length of epipharynx 3 : 4. Thorax yellowish haired; spacing thoracic bristles and shape of postnotum as figured (Fig. 7). Pleural suture without a curve at the lower end. Wings (Fig. 8) milky clouded, yellowish haired, largely lancet-shaped, with striking dark brown tufs of hairs at the tips of veins, basal costal nodus distinct as well as distal one. Subcosta rather long, interrupted. $R_1$ moderately S-shaped, the start of $R_{2+3}$ closely before basal field, $R_{2+3}$ and $R_2$ as well as $R_{2+3}$ and $R_3$ S-shaped. $R_4$ arched to the radial fork, $R_5$ almost straight, with the mouth in the apex of the wing. $M_{1+2}$ straight, $M_1$ arched to the radial fork, $M_2$ S-shaped, $M_3$ straight. $M_3$ and Cu connected on $M_4$. The angle of veins r-r and r-m straight, m-m developed. Medial angle of the wing 106°. Index of the wing AB : AC : AD = 8.2 : 9.4 : 7.6 and BC : CD : BD = 2.5 : 3.7 : 5.1. Length of the halteres to their largest breadth 2.4 : 1. Hairing of the legs completely yellowish, ratios of the length of coxa, tibia and first tarsal segment $P_1$ = 13 : 14 : 5, $P_2$ = 14 : 18 : 6, $P_3$ = 16 : 20 : 7. Paired tarsal claws (Fig. 9) curved. Abdomen yellowish haired. Laterosternites nearly elliptical, strongly sclerotized and elongated. Anterior and posterior tergites of abdominal segments divided medially, sclerotization of posterior tergites only slightly distinct. Sternites of abdominal segments analogue divided, with indistinct sclerotization. Basal apodeme (Fig. 10) of genitalia slightly curved, divided at apex. Phallobasis irregularly shaped, gonoporus with three phallomeres around. Dorsal phallomeres jointed apically, ventral phallomera of somewhat different shape with straight point (Fig. 11). Coxopodits (Fig. 12) with conspicuous protuberances externally, harpagones a little longer than coxopodits, distinctly extended laterally. Epandrium (Fig. 13) of characteristic shape. Apertura almost semicircular, the sclerotised remainder of 10th tergite and sternite inside of epandrium indistinct. Hypandrium rather narrow. Epiproct very




Figs. 20—29. *T. lativentris* (Berd.) ♂: 20 — head, 21 — facets, 22 — basal antennal segments, 23 — apical antennal segments, 24 — terminal lobe of labium, 25 — maxillary palpus, 26 — thorax laterally, 27 — wing, 28 — claw of $P_1$ laterally, 29 — epandrium dorsally. Scale 0.1 mm.

short. Hypoproct triangular, rounded, its length a little less than its breadth at the base. Cerci (Fig. 14) S-shaped ventrally, with one retinaculum on the apex only.

Female. Subgenital plate (Fig. 15) characteristically U-shaped. Structures of genital chamber complicated, with a pair of posterior and a pair of dorsal projections, unpaired ventral part with characteristic structures inside (Fig. 16). Genital chamber figured anteriorly (Fig. 17) and cercus (Fig. 19).

Comments. The original description by SAY (1824) is short and lacks figures; the holotype was deposited in Philadelphia, Pennsylvania but is probably destroyed, vide QUATE (1955). Differential features of this species were figured by TONNOIR (1922) and JUNG (1956); the species was briefly redescribed by QUATE & QUATE (1967); the larva was described in detail by SATCHEL (1947). It is a cosmopolitan species cited from Czechoslovakia by THALHAMMER (1899), SZABÓ (1964, 1965), VAILLANT (1966), ROZKOŠNÝ (1971), JEŽEK (1972) and HALGOŠ (1973). Adults were recorded in nature from April to September frequently, maximal occurrence being in the summer months, especially in sewage works on the beds of gravel over which a trickle of water is maintained by moving distributors, the walls of cesspools, on excrement, on litter of fresh potatoes, on bogs with alders, on the banks of streams with undergrowth of *Alnus*, *Salix*, *Populus*, *Acer*, *Picea*, *Urtica* and *Geum*, on the banks of ponds shaded by *Alnus*, *Fraxinus*, *Robinia*, *Pinus*, *Corylus*, *Phragmites* and *Urtica*, on the banks of rivers and inlets with *Alnus*, *Salix*, *Urtica* and *Calamagrostis*, on the banks of gulleys containing foul organic matter with an undergrowth of *Alnus*, *Salix*, *Populus*, *Fraxinus*, *Sambucus*, *Acer*, *Mentha* and *Urtica*. Single specimens were casually collected on a train window.

Material examined: about 10 000 specimens (♂♂, ♀♀), deposited in the National Musoum (Praha).

Bohemia: Bechyně (J.), Bělčice distr. Strakonice (J.), Blatná distr. Strakonice (J.), Bohutín distr. Příbram (J.), Bukovany distr. Sokolov (J.), Český Brod (J.), Čelákovice (J.), Chodová Planá (J.), Deštné distr. Rychnov n. K. (J.), Golčův Jeníkov (V.), Horní Černůtky (Kn.), Horní Lipka (J.), Hořice v Podkrkonoší (J.), Karlovy Vary (R.), Kbely-Vinoř (J.), Kolín (J.), Kynšperk n. O. (J.), Lázně Kynžvart (J.), Lnáře (J.), Louny (J.), Mělník — district town (J.), Milevsko (J.), Mimoň (J.), Nýřany (J.), Poděbrady (Kn.), Polička (J.), Prachatice (J.), Praha-Libuš (J.), Protivín (?), Roudná distr. Tábor (J.), Roželov (J.), Rožmitál p. T. (J.), Sedloňov (J.), Soběslav (J.), Špindlerův Mlýn (J.), Tachov — district town (J.), Teplá distr. Karlovy Vary (J.), Velešín (?), Vrbno distr. Strakonice (B.), Zichovec (K.), Železná Ruda (J.).

Moravia: Brodek u Prostějova (J.), Český Těšín (H.), Hulín distr. Kroměříž (J.), Kojetín distr. Přerov (J.), Komorní Lhotka (H.), Nová Ves distr. Břeclav (J.), Otaslavice (J.), Spytihněv (J.), Střelice distr. Znojmo (J.), Tlumačov distr. Gottwaldov (J.), Třebíč (J.), Hodonín — district town (J.), Znojmo (J.).

Slovakia: Piešťany (J.).

The name of the district town is only given where according to the alphabetic list of settlements of ČSSR one or more homonyms of the locality exist.

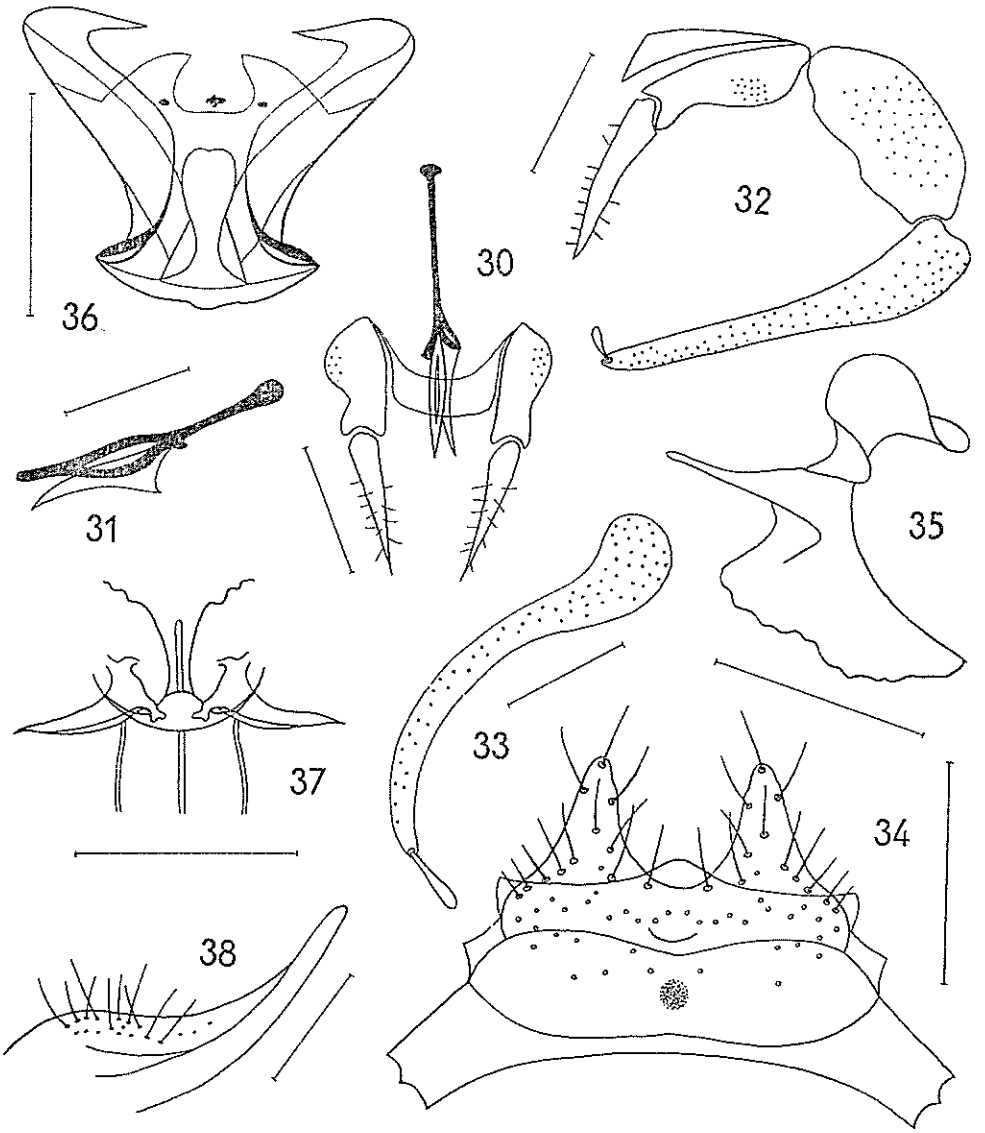
Lgt.: B — Bukva, H — Hetschko, J — Ježek, K — Kovář, Kn — Kneift, R — Reinhard, V — Vimmer.

### *Tinearia lativentris* (BERDÉN), comb. n.

*Psychoda alternata*: del ROSARIO (nec SAY, 1824), 1936 : 93 (partim, ♀).
*Psychoda lativentris* BERDÉN, 1952 : 111.
Synonymy after QUATE (1955).

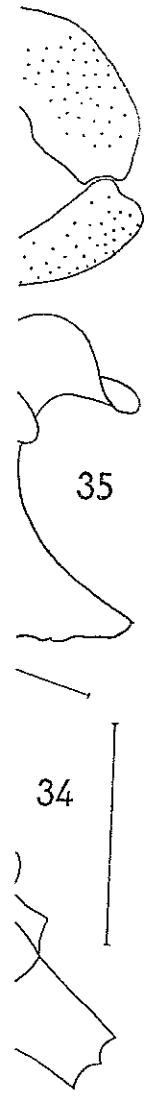
Diagnosis. Small white-yellowish species, the length of the wings 1.5 to 2 mm, with imperceptible brown tufts of hairs at the tips of the veins, harpagones (Fig. 32) from lateral view narowed and pointed apically, subgenital plate (Fig. 34) and genital chamber (Figs. 35—37) of female of characteristic shape.

Male. Eye bridge (Fig. 20) nearly as three rows of facets (Fig. 21) on its widest part. Frons with long yellowish hairs. Antennae with 15 segments, clad with unicolorous yellowish hairs. Scapus (Fig. 22) cylindrical, pedicellus nearly ball-shaped, segments of flagellum flask-shaped, the three apical segments fused, reduced upwardly in comparison with foregoing one (Fig. 23).




Figs. 30—38. *T. lativentris* (BERD.), ♂ (figs 30—33), ♀ (figs 34—38): 30 — genitalia dorsally, 31 — phallomeres and basal apodeme laterally, 32 — hypopygium laterally, 33 — cercus ventrally, 34 — subgenital plate, 35 — structures of genital chamber laterally, 36 — the same anteriorly, 37 — a part of genital chamber ventrally, 38 — cercus laterally. Scale 0.1 mm.

Sensory filaments rather small, with three branches. The mouth parts yellow haired, terminal lobes of labium, maxilla and maxillary palpus as figured (Figs. 24, 25). Labrum pointed, with short fine hairs, epipharynx forked with long hairs, clypeus rather small. Maximal length of cibarium to length of epipharynx as 1 : 1. Thorax yellowish haired; spacing of thoracic bristles and shape of postnotum as figured (Fig. 26). Pleural suture with a curve at

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the lower end. Wings (Fig. 27) yellowish haired, largely lancet-shaped, with imperceptible brown tufts of hairs at the tips of veins. Basal costal nodus indistinct in comparison with distal one. Subcosta rather long, uninterrupted. $R_1$ arched to the subcosta, the start of $R_{2+3}$ wide of basal field, $R_{2+3}$ and $R_2$ as well as $R_{2+3}$ and $R_3$ hardly S-shaped. $R_4$ slightly arched to the radial fork, $R_5$ almost straight, with the mouth in the apex of the wing. $M_{1+2}$ nearly straight, as well as $M_1$ and $M_2$, $M_3$ moderately arched to the medial fork, $M_3$ and Cu without connection on $M_4$. The angle of veins r-r and r-m not straight, m-m developed. Medial angle of the wing 94°. Index of the wing AB : AC : AD = 9.5 : 11.2 : 8.8 and BC : CD : BD = 2.9 : 4.5 : : 5.7. Length of the halteres to their largest breadth 1.8 : 1. Hairing of the legs completely yellowish, ratios of the length of coxa, tibia and the first tarsal segment $P_1 = 9 : 10 : 4$, $P_2 = 11 : 14 : 5$, $P_3 = 14 : 17 : 5$. Paired tarsal claws moderately curved only (Fig. 28). Abdomen yellowish haired. Laterosternites elongated, narrowed anteriorly, expanded posteriorly, sometimes of elliptical shape, distinctly sclerotized. Anterior and posterior tergites of abdominal segments divided medially, however, anterior tergites with narrower gap. Sclerotization of sternites only slightly distinct in comparison with tergites, analogue divided. Basal apodeme (Fig. 30) of genitalia straight, divided on the apex. Phallobasis of irregular shape, gonoporus with three phallomeres around. Dorsal phallomeres jointed apically, the apex of ventral phallomera deviated from dorsal one (Fig. 31). Coxopodits with conspicuous protuberances externally, harpagones (Fig. 32) from lateral view narrowed and pointed apically and of the same length as coxopodits. Epandrium of characteristic shape (Fig. 29), with V-cut anteriorly, sclerotised remainder of 10th tergite and sternite inside of epandrium indistinct. Hypandrium narrow. Epiproct very short, haired distinctly, hypoproct of triangular shape, rounded. The length of hypoproct a little shorter than its breadth at the base. Cerci (Fig. 33) S-shaped ventrally, with one retinaculum on the apex only.

Female. Subgenital plate (Fig. 34) of characteristic U-shape with broad base. Structures of genital chamber complicated (Figs. 35—37) with pair of posterior and pair of dorsal projections, unpaired ventral part with characteristic structures inside. Cercus as figured (Fig. 38).

Comments. Female was described and figured by BERDÉN (1952); holotype deposited in the Entomological Museum of the University in Lund, Sweden. Some details were figured by SALAMANA (1966). Unique male was described and figured from a specimen from Sweden by QUATE (1955). Larva was described and figured by VAILLANT (1973). A conjecture about parthenogenesis has not been proved experimentally so far. This species is known from Europe and Asia, QUATE (1955) mentions under the name *Psychoda lativentris* many males and females from Canada, U.S.A. and Mexico. Further material of males of Palaearctic *T. lativentris* is badly needed for the verification of North American populations of *Psychoda limicola* described recently by VAILLANT (1973). New species for the fauna of Czechoslovakia. Adults were collected from July to September on swamps with *Alnus*, *Phragmites* and *Carex*, in inundated forests with undergrowth of *Alnus*, *Salix*, *Scirpus* and *Lemna*, on the banks of streams and gulleys with foul organic matter shaded by *Alnus* and *Salix*, on the banks of rivers with *Alnus*, *Salix*, *Populus*, *Calamagrostis* and *Urtica* around, and on the banks of ponds

with *Alnus, Corylus, Fraxinus, Robinia, Pinus, Salix, Phragmites* and *Urtica*. Sporadically frequent species; a solitary male was collected by the author on the bank of an inlet of the river Elbe near Kolín on 26. 8. 1971.

Material examined: 1 ♂ and about 250 ♀♀.

Bohemia: Bečov n. T., Bělčice distr. Strakonice, Blatná distr. Strakonice, Chodová Planá, Čáslav distr. Kutná Hora, Český Brod, Františkovy Lázně, Hořice v Podkrkonoší, Kolín, Bohdaneč distr. Pardubice, Lázně Kynžvart, Lnáře, Malý Rapotín, Meziměstí, Nymburk, Roželov, Soběslav, Tchořovice.

Moravia: Plumlov, Přibyslavice distr. Třebíč, Spytihněv, Záhlinice, Hodonín — district town.

Using the alphabetic list of settlements of ČSSR, I have given the district when the locality is a homonym.

All material was collected by the author.

The three following species are transferred to the genus *Tinearia* SCHELLENBERG, 1803 on the basis of literary descriptions: *Tinearia alternicula* (QUATE, 1955), comb. n. and *T. limicola* (VAILLANT, 1973), comb. n., both occurring in North America, and *T. pseudalternata* (WILLIAMS, 1946), comb. n., occurring in the Hawaiian Islands and Australia only.


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