PRELIMINARY SURVEY OF THE PALAEARCTIC SPECIES OF THE SUBGENUS BACTRA STEPHENS (BACTRA, TORTRICIDAE, LEPIDOPTERA)

by

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(with textfigures 1-37, and pls. I-XVIII)

INTRODUCTION

In 1956 I published a revision of a part of the genus *Bactra* Stephens and ventured to state that "To a diligent student of genital characters *Bactra* does not present any serious problems" (p. 2). Since that time I had the opportunity to examine an extensive new material; and came to the conclusion that my former statement was unduly optimistic, at least, when applied to the species of the subgenus *Bactra* Stephens. Contrary to my previous opinion discrimination of several of these species proves to be extremely difficult.

Therefore, it seems advisable to anticipate my proposed, more definitive, world-wide revision of the entire genus *Bactra* by publishing the present preliminary paper, representing the latest results of my examination of the Palaearctic species of the subgenus *Bactra*. This study is chiefly based on the rich collection of the Zoological Institute of the U.S.S.R. Academy of Sciences, Leningrad, but for a part also on material studied earlier from other sources.

The Palaearctic representatives of the subgenus *Bactra* form a central *furfurana* group of closely related species, beside a few species which are less closely related.

Most of these species are not identifiable without a minute study of the genital characters of the two sexes. It was necessary to describe these structures at some length. I tried to simplify the descriptions as much as possible by introducing some simple terms which are explained in fig. 1a. It was not easy to put slight differences into words; therefore I tried to illustrate the descriptions by as many figures as possible. Not only type specimens are figured but also additional material, in order to show the individual variation of the external as well as of the internal characters.

The markings of the fore wings of the species in the subgenus *Bactra*

can easily be grouped in five general types; one or more of these types may occur in each species, irrespective of their mutual relationships.

In the beginning of the special part of this paper I defined the five types and indicated them by non-latin names. To avoid lengthy repetitions I refer to these types when describing colouring and markings of every species. Although these external characters often are of little or no taxonomic value, there are marked exceptions to this rule, which necessitate a complete description of every species, colouring and markings included.

As to the methods used, every specimen of a series available should be dissected and the genitalia examined; it is necessary to study the male genitalia with the valvae opened and looking in rostrad direction (i.e., from the top of the abdomen in the direction of its base); the exactly similar position of the valva in the mount usually is of great importance; severing one valva from the vinculum and pressing it down with the cover glass is advised, lest it turns around. The female genitalia, on the contrary, should be studied exactly from the ventral side of the abdomen; already a slight turning of the abdomen around its longitudinal axis makes these characters often unidentifiable. In my experience the degree of sclerotization of certain parts, being manifest by a delicate brown colouring of the sclerites, becomes entirely invisible after staining. Therefore I usually leave the objects unstained.

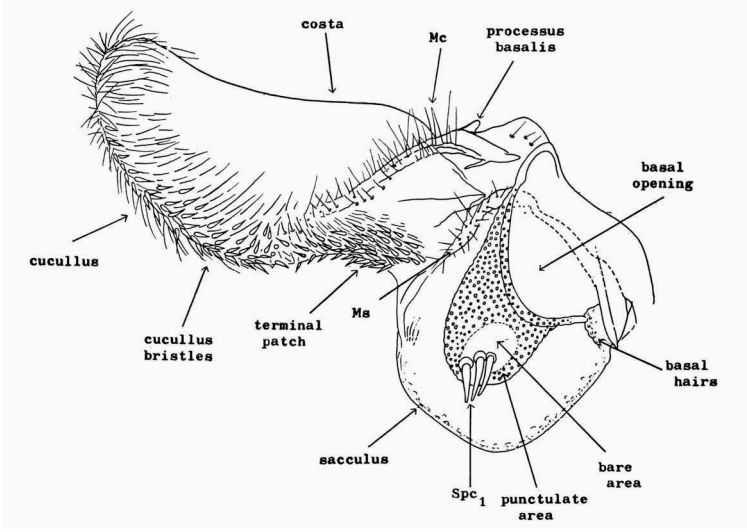


Fig. 1a. Left valva of a *Bactra* (*Bactra*) species, illustrating terms used in this paper.

The present survey has been made possible by borrowing much material from other collections. I wish to express my sincere gratitude for this help

to the following institutions and colleagues: especially to the Zoological Institute of the U.S.S.R. Academy of Sciences, Leningrad (V. I. Kuznetsov, M. I. Falkovich); this large collection forms the backbone of the present paper. Furthermore to: the Naturhistorisches Museum, Vienna (Dr. S. Kasy); the Zoologisches Museum der Humboldt Universität, Berlin (Prof. Dr. E. M. Hering, Dr. H. J. Hannemann); Dr. H. G. Amsel, Karlsruhe; the Instituto Español de Entomología, Madrid (Ramon Agenjo) and the British Museum (Natural History), London (J. D. Bradley). Several other colleagues have promised to send me their *Bactra* collections and I am eagerly looking forward to start the examination of further material.

Because no additional material of the Palaearctic forms, *Bactra* (*B.*) *longinqua* Diak., its subspecies *iranica* Diak., and *B. amseli* Diak. was available, these forms are omitted from the present paper.

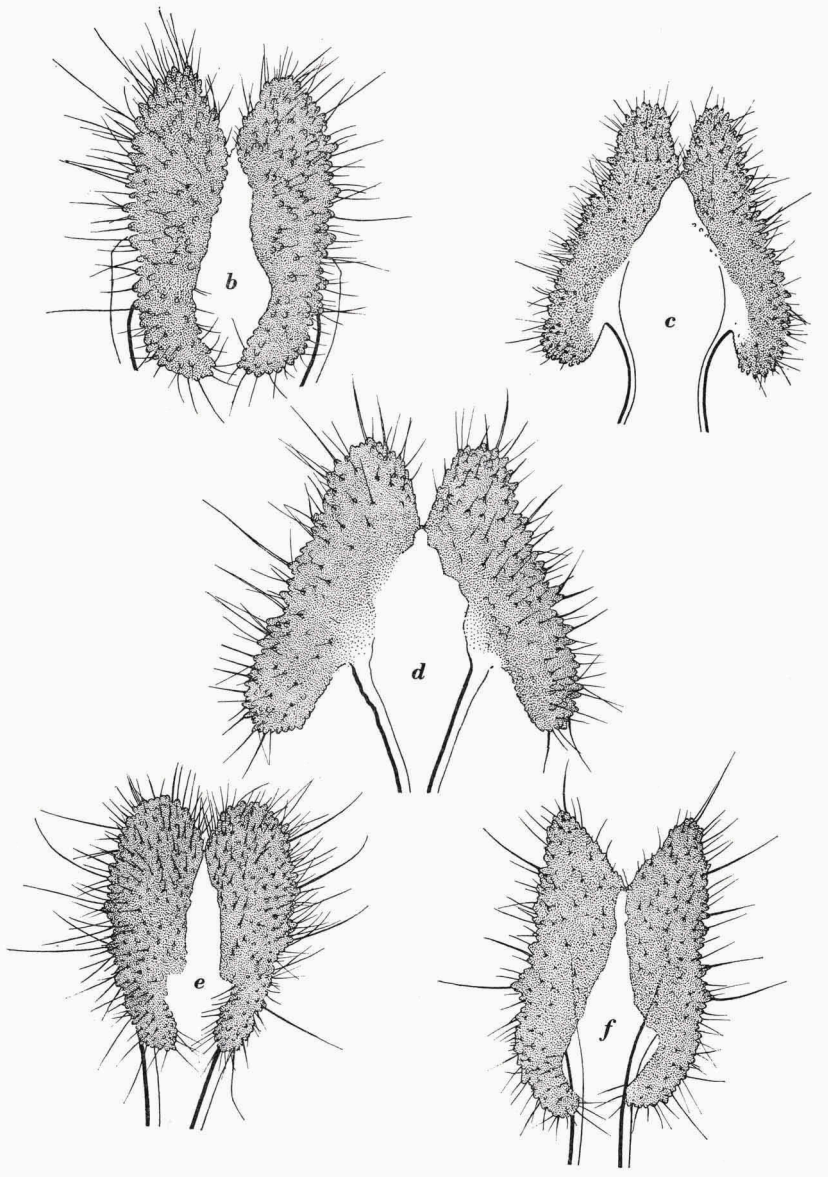
As to the literature, only the original descriptions of the species and those of the most recent synonyms are cited. More extensive literature will appear in the definitive revision or is already cited in my previous papers of 1956 and 1959, to which may be referred now.

Colouring and Markings

As remarked above, the colouring and markings of the Palaearctic species of the subgenus *Bactra* can be grouped in five standard types. Without wishing to attribute taxonomic significance to these types I shall indicate them below, in order to simplify descriptions. The small number of types of colouring and markings rather stresses the limited specific value of these characters in the genus, a few cases excepted.

(1) Fasciate type (pl. IV fig. 25) is one of these exceptions, for it is characteristic for *B. furfurana* only. Apparently this pattern is the most primitive. Basal patch reaching beyond 1/3 of wing, its edge strongly angulate, rather serrate, with a truncate top (representing the first discal patch). This patch may be interrupted by pale reticulation of the ground colour to such an extent that it becomes divided into a small basal patch proper and a broad angulate fascia posteriorly. A strongly angulate and rather broad median transverse band, parallel with the edge of basal patch or slightly less oblique, containing in the middle of outer edge the hook-shaped or crescentic dark second discal spot. Stigma, a pale dot in the centre of this spot, usually not conspicuous. A large apical longitudinal streak, from beyond preceding fascia running into apex, rather broad, concave above. Costa with a small triangular spot between basal patch and transverse fascia; three more subtriangular spots along posterior half of costa, becoming smaller posteriorly; all these costal spots flanked on both sides by minute transverse strigulae;

an inwards-oblique suboval patch rising from dorsum before tornus (being the centre of ocellus), with anterior edge parallel to lower half of transverse fascia, with top truncate; a smaller wedge-shaped or spindle-shaped mark along lower part of termen.



Figs. 1b-f. Lobi anales of some of the Palaearctic *Bactra* species. b. *lanceolana*; c. *robustana*; d. *gozmanyana*; e. *graminivora*; f. *furfurana*

This primitive pattern may be extended or simplified and forms in the last case the maculate type.

(2) Maculate type (pl. I fig. 1), usually with the pale ground colour more or less suffused with deeper colour and infuscated or irrorated with darker; with darker markings as follows: a series of small transverse costal strigulae; a first discal spot, in the middle of disc at 1/3, diversely shaped and of variable size, being fragments of the edge of basal patch; a second discal spot, at the end of cell, approximately V-shaped, usually asymmetrical, with the inner arm dilated and extended basad, often connected with the middle of costa, the outer arm shortened; the stigma, a pale dot on closing vein inside the "V"; seldom a pretornal and a preterminal roundish or oval spots; an apical spot, usually shaped as a short longitudinal streak, terminating in or below apex; a dorsal row of dots (e.g., the "typical" *lanceolana* ♂).

(3) Reduced type (pl. III fig. 18), the albinistic version of the former type: with pale, little obscured ground colour, and dark, usually well-defined, contrasting markings, limited to the costal series of strigulae, one or both the discal spots, dorsal dots, and sometimes traces of the other markings (e.g., *graminivora* ♂).

(4) Unicolorous type (pl. III fig. 20), with all markings obliterate except the costal strigulae and the dorsal dots; the ground colour from pale ochreous to tawny, sometimes evenly suffused with deeper shade of these colours or with olive, light fulvous, or brown (may occur in any species, especially in females).

(5) Vittate type (pl. I fig. 4, pl. II fig. 14), with the costal third of wing much paler than the remainder or with a more or less pronounced longitudinal suffused stripe slightly above the middle of wing, running from base to apex. This type is confined to the females of all the species, common in *robustana, lanceolana,* and *gozmanyana,* occuring less frequently in *furfurana.*

Male Genitalia

Tegumen is triangular, with legs forming a low arc, with the upper (uncus) portion porrected under a right angle. Therefore it is difficult to flatten these two portions without either deforming the tegumen, or severing one or both its bases from the vinculum. The last method is preferable for distinct mounts. Uncus is hooked, of diverse length, edged throughout except at base with a close series of rigid spines with flattened subobtuse tips. Socii are rather small, rounded pads with upper part usually folded over; only in *lanceolana* the socii are larger and are supported by rigid sclerotized edges

of the tegumen continued far upwards (cf. figs. 2, 4*e*). Gnathos almost entirely absent but for its lateral fragments, mesially membraneous and weak. Vinculum is band-like, broader in larger species, narrower in small. Juxta triangular, of diverse size. Caulis moderate. Valva (cf. fig. 1) elongate, sublanceolate, with distinctly separated sacculus and cucullus, the former of diverse size and shape; these differences are of the greatest taxonomic importance. Cucullus more or less oval, also different specifically and in some cases significant; it is edged along top and lower margin by diversely dense series of 2-4 or more rows of bristles and spines. These series may end before the primary incision undilated or extend beyond it and form a terminal dilated patch (*helophaea, gozmanyana,* figs. 26-28, 33); usually there are two transverse series of bristles or bristly hairs running obliquely across the disc of the valva, the first of these forming the continuation of the cucullus spines and terminating at the processus dorsalis; I shall indicate this series with the name medio-cucullar bristles (Mc series); and a second or proximal series, running across the sacculus before its posterior edge; these I call the medio-saccular bristles (Ms series). Sacculus has a large basal somewhat oblique opening, and beyond this an obliquely transverse elongate tumescense of diverse shape and size, covered with numerous round punctulations or impressions, with fine short hairs in and between them; at the distal extremity of this tumescense there is a small cavity with the Spc_1 (spine cluster 1), which is a group of strong spines. In two species there are one or two separate spines above and lateral of the Spc_1. The inner edge of the cavity usually forms a rigid and smooth blade or collar around the Spc_1.

The armature and the shape of the valva and especially of the sacculus provide the most trustworthy characters for the separation of the Palaearctic species of the subgenus.

Female Genitalia

Lobi anales are moderate, diversely shaped, usually specifically distinct (figs. 1b-f); in at least one species they allow identification without dissection. The sterigma is specifically more distinct and of the greatest taxonomic value. It is situated in the eighth sternite and is but moderately developed. Ostium bursae is rather small. Lamella antevaginalis is usually shaped as a simple, more or less rigid and protruding, curved transverse band or lip, ill-defined laterally. Lamella postvaginalis indicated by characteristic small folds or verrucose thickenings or by a combination of both; small aciculate areas may also be developed, flanking the sterigma. Colliculum is funicular at the beginning, tubular below, of diverse length, rigid throughout. Ductus

bursae is membraneous and so easily discernible from the end of the colliculum; it makes an upward and backward loop, representing the atrium in which open the ductus seminalis and the bulla seminalis; the latter is of the same shape as the corpus bursae but about 1/3 of its size, with a long ductus; the receptaculum seminis often contains a minute semicircular or circular rod of dark chitine, often showing in mounts, sometimes absent. Ductus bursae simple, corpus bursae moderate, pear-shaped. Signum, when present, a shallow, cup-shaped, rounded or oval sclerite, of diverse size, specifically distinct; sometimes signum is entirely absent (*graminivora*).

Survey of the Species

Bactra (Bactra) lanceolana (Hübner)

Text figs. 1b, 1g, 2-6; pl. I figs. 1-5

Tortrix lanceolana Hübner 1796, Samml. europ. Schmett., vol. 7, Tortr., t. 13 fig. 80.
Bactra (Aphelia) fumosana Kennel 1900, Iris, vol. 13, p. 263.

Male 13.5-18.5 mm (1) Maculate type is the "classical" *lanceolana* (pl. I fig. 1). Ground colour pale ochreous, markings of the various shades of fuscous and tawny-fuscous. Anterior half of costa with 7-8 short brown strigulae; posterior half of costa with the strigulae elongated, more or less sinuate, fasciate-wedgeshaped, alternating with minute straight marks, both kinds continued and merging in one or more sinuate horizontal greyish subcostal lines, more or less crossing pale grey streaks along veins. Basal patch usually reduced to its narrow dark edge which is undulate throughout and angulate in middle, reaching to beyond 1/3 of wing; the patch traversed by several undulate transverse strigulae; first discal spot forming a moderate transverse blotch (being the edge of basal patch), sometimes obliterate; second discal spot V-shaped, inner arm at top extended into an oblique-quadrate, paler spot, its upper angle connected with the dark strigula on the middle of costa; ocellus of pale ground colour, centred with a short dark brown inwards-oblique mark, and limited above and posteriorly by brown strigulae; sometimes two parallel strongly curved lines between cell and apex; apex centred with a brown point.

In darker specimens there is an indication of a fuscous median suffusion from base to apex (so tending to the vittate type). In paler specimens discal and preapical marks reduced, ocellus ill-defined, the whole wing being strongly transversely marbled or strigulated with fuscous or fuscous-olive (pl. I fig. 3). Finally only marginal markings and the second discal spot may remain.

(2) Unicolorous type is less common and is derived from the last men-

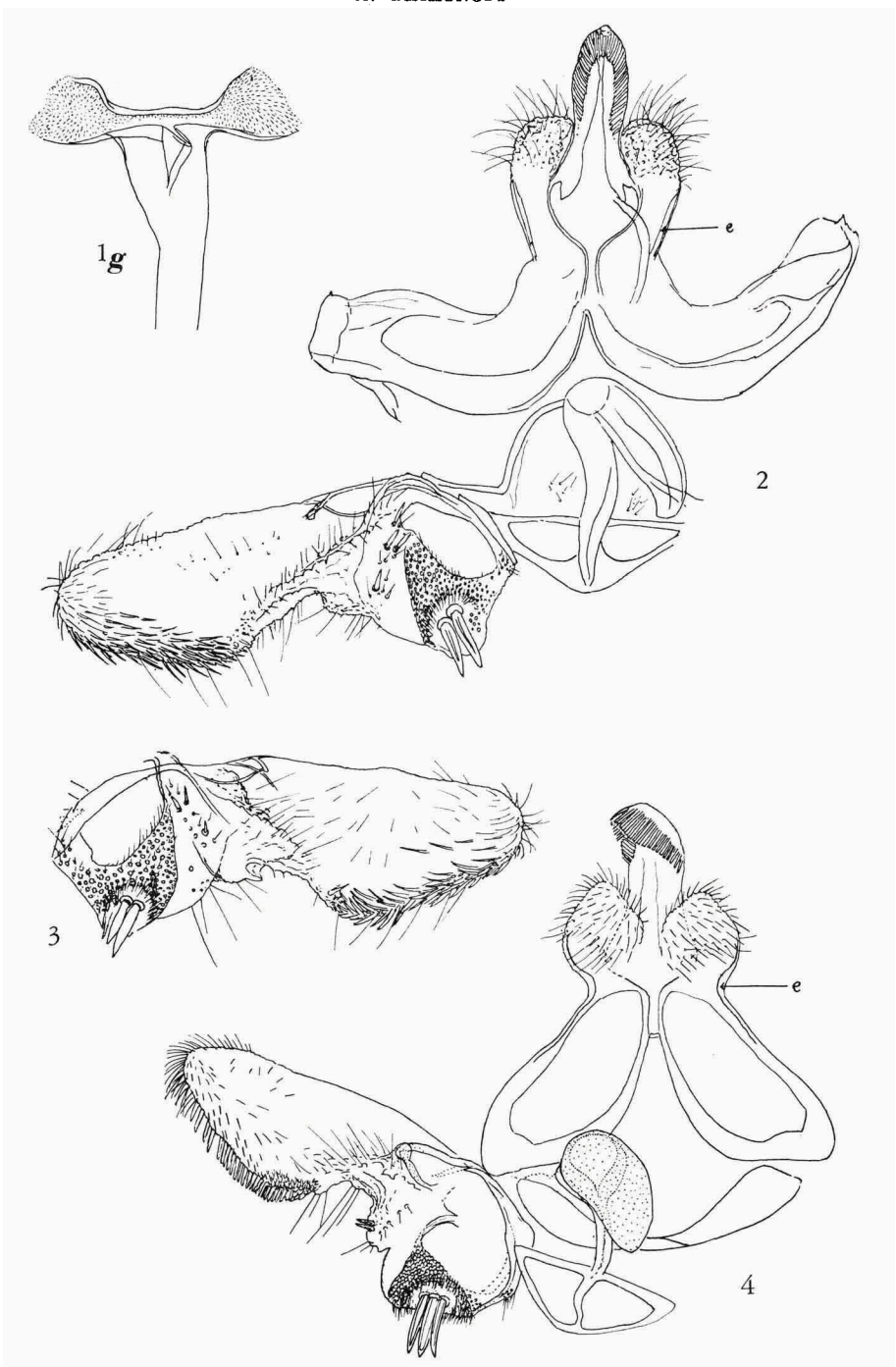


Fig. 1g. *Bactra* (*B.*) *lanceolana* Hb., ♀, sterigma (gen. no. 1911). Fig. 2. The same, ♂ genitalia (no. 3989). Fig. 3. Right valva of the same. Fig. 4. The same, ♂, no. 1836. (Figs. 1 and 4 after Diakonoff, 1956).

tioned situation. All discal markings have vanished. In paler specimens dorsal or even costal markings disappear. Then the wing is light ochreous, with shady terminal marks only which sometimes are bright ochreous.

(3) At last there is the vittate type (a single specimen, gen. no. 4045, Russia, pl. I fig. 5): unicolorous ochreous ground colour, faintly marbled with greyish and suffused with bright ochreous, with a suffused longitudinal infuscation along the median third of wing breadth, from base to apex.

♀ 15.5-21 mm. (1) Vittate type (pl. I fig. 4), with the median stripe of very variable extent, is the common type; ground colour whitish to whitish-ochreous, more or less suffused with tawny; dark streak or suffusion of various shades of brown to dark fuscous.

(2) Unicolorous type is the next common form. Ground colour varying from whitish-ochreous or pale yellowish-ochreous to rather bright tawny-ochreous. Marginal markings much reduced or almost entirely absent.

There is also a combination of the vittate with the maculate type, where the median stripe is interrupted by a pale stigma above a triangular lower part of the second discal spot, brown or dark fuscous; marginal markings clearly developed (pl. I fig. 2).

(3) Maculate type is rare, with discal markings much reduced and suffused, but with costal strigulae well-developed, elongate and almost forming a transverse strigulation across wing, giving the insect a finely mottled appearance, to which impression adds light olive retination extended across wing (Central Asia, Khamar-Daban, no. 3999).

Hind wing in the two sexes variably coloured, pale greyish-fuscous to rather deep fuscous-tawny. Material from Afghanistan and also from Holland has rather darker fuscous-grey hind wings.

Male genitalia. Tegumen strong, more sclerotized than in other species, rectangularly bent midway, with upper half porrected (in mounts, when flattened out, appearing erect-triangular, with characteristic narrow, darkly sclerotized long edges which support socii, fig. 2, sub *e*, cf. sub *suspensa* subspec. nov., figs. 11, 12). Uncus rather short, robust, top slightly clavate-pointed, curved. Socius large, with a broad and rigid base, and an elongate apical lobe, folded over ventrad and touching medially. Gnathos very weak, strongly plicate, subrectangular, median portion dilated, upper edge with a median prominence, lower emarginate, sides rounded. Vinculum well-sclerotized, rather broad. Valva with a large primary incision. Cucullus semioval, with a rounded top, appearing pointed when not entirely flattened; cucullus bristles and spines markedly weaker along the upper portion of the edge, along the rounded lower portion condensed and forming a thick patch ending abruptly before the incision; Mc series formed only by very fine hairs,

inconspicuous, along an elevated ridge running to a distinct processus basalis. The sacculus is subspheroid or subtetraëdric, strongly sclerotized, ribs and angles strong; with a very large basal opening. The punctulate area extending to the top of the sacculus, elongate-oval, very densely punctulated, concealing one or more short but strong spines, near to the edge of cavity; Spc_1 in a small round excavation, spines 3-4, very strong and blade-like. Ms series variable, either a double series of hairs and short spines or a single series of hairs with a few isolated spines, or only hairs; sometimes the series ends with a wart on the edge of the primary incision crowned with one or two moderate spines.

Female genitalia (figs. 1g, 5-6). Lobi anales (fig. 1b) rather broad, gradually dilated caudad, free top of each lobe obtuse or bluntly pointed. Postapophyses very long, longer than anapophyses, slender. Eighth segment strongly sclerotized, forming a ring, with the posterior edge of the tergite rounded-prominent rostrad, the sclerotized sublateral lobes of the sclerite well-defined. Ostium bursae (fig. 1g) rather large, lamella antevaginalis not or hardly sclerotized, usually visible as a transverse band, with a slight frontal vertical fold; lamella postvaginalis, a transverse well-defined band with the median portion rather smooth, edged above by a curved small rod, laterally the band is dilated and abruptly truncate at the ends, finely aciculate. (When the sterigma is seen under a smaller angle, in a more vertical aspect, it may have a quite different appearance; this may cause erroneous identification. The band of the lamella postvaginalis appears then narrower and more straight and the lip of the lamella antevaginalis, flattened and curved. This suggests *robustana*). Sternite on each side of the sterigma is slightly sclerotized and forms finely punctulate, rounded, and concave fields. Colliculum shorter and wider than in *robustana* and more dilated above; ductus bursae rather long. Corpus bursae round. Signum present, a moderate, finely scobinate oval and concave sclerite.

This is the most common species of the subgenus occurring throughout the Palaearctic region. I have studied material from several countries in Europe: Portugal, Spain, France, England, Holland, Germany, Austria, Hungary; from North Africa: Algeria; Sardinia, Madeira, Cyprus, Asia Minor; throughout European Russia, Crimea, Caucasus, Caspian region, Persia, Afghanistan, Central Asia, Siberia.

Bactra (Bactra) lanceolana suspensa subspec. nov.

Text figs. 7, 9, 11, 12, pl. I figs. 7, 8

♂ 13-17 mm (holotype 15 mm, pl. I fig. 7). Head, thorax and abdomen whitish with a faintest yellowish tinge. Palpus rather short, triangularly

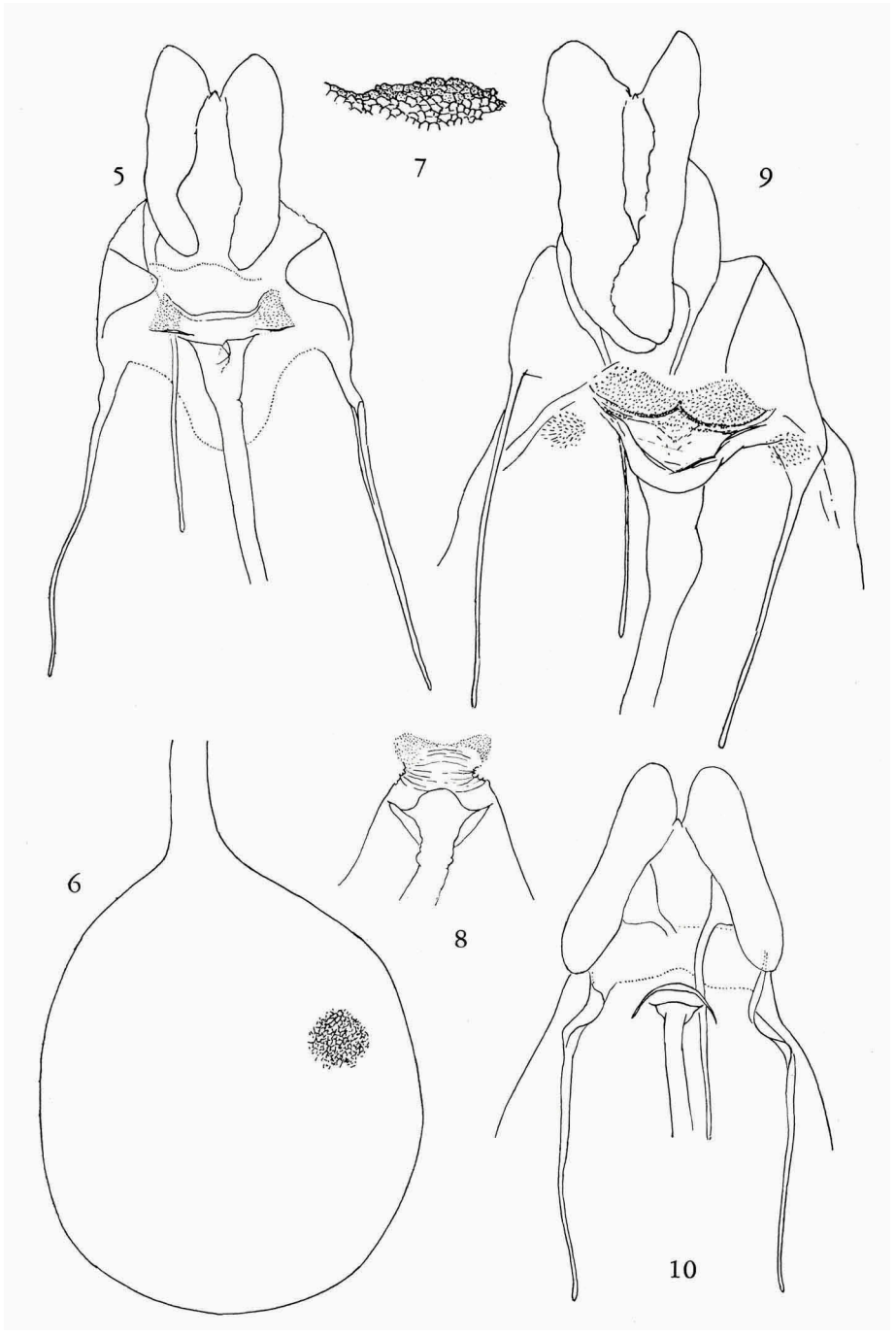


Fig. 5. *Bactra* (*B.*) *lanceolana* Hb., ♀ genitalia (no. 1911). Fig. 6. The same, corpus bursae (no. 3980). Fig. 7. *B.* (*B.*) *lanceolana suspensa* subspec. nov., signum (no. 3962). Fig. 8. *B.* (*B.*) *gozmanyana* Toll., ♀ sterigma (no. 1835). Fig. 9. *B.* (*B.*) *lanceolana suspensa* subspec. nov., ♀ genitalia (no. 3962). Fig. 10. *B.* (*B.*) *furfurana* Hw. (no. 1864) (Figs. 5, 8, 10, after Diakonoff, 1956).

dilated, roughish above; whitish, basal half dark grey. Antenna whitish, dark-ringed.

Fore wing rather broad, dilated, pointed, costa gently curved, termen long, sinuate, oblique. Whitish. Markings of the reduced type, but strongly obliterate and limited, formed by dark fuscous and faint ochreous suffusion. Costal strigulae dark fuscous, narrow and short; a fine oblique line from about 1/4 of costa, indicating upper half of edge of basal patch; second discal spot reduced to irregular fuscous irroration, connected by a faint ochreous irregular suffusion with middle of costa; costal markings along third fourth of wing somewhat larger, more distinct, and almost horizontal; subapical mark extended so as to form a moderate grey suffusion confluent with a dark grey apical spot, interrupted in middle of termen and ill-defined along its lower half; a series of very small marks along dorsum. Cilia white, opposite apex with a blackish subbasal line and infuscated tips.

Hind wing rather dark grey-fuscous, with a faint purplish tinge, unicolorous. Cilia white with a continuous well-defined concolorous subbasal line.

In faded specimens markings entirely absent, hind wing pale grey. Two darker paratypes are finely sprinkled with darker fuscous and evenly suffused with grey.

Male genitalia (Figs. 11, 12) extremely similar to those of *B. l. lanceolana* Hb. but differing by a more slender and slightly shorter uncus and especially, by smaller socii which have shorter lateral sclerotized edges. These differences from the nominate form are very slight, but constant; they are the only I am able to find, besides those of the colouring.

♀ 17 mm (pl. I fig. 8). Antenna darker fuscous. Head and palpus pale ochreous, median segment with a greyish spot at apex below.

Fore wing narrower, costa more curved. Of the vittate type. Whitish ground-colour finely punctate with pale tawny-fuscous, lower two thirds of wing evenly darker infuscated and with some tawny spots towards apex and termen. Costal markings reduced to small dark points. Cilia with a dark subbasal line.

Hind wing rather deep purplish-fuscous, with basal half gradually becoming slightly paler.

Female genitalia (Fig. 9) resembling those of *l. lanceolana,* however, with lamella postvaginalis formed not by a continuous, in middle narrowed, aciculate or verriculose band, but by two triangular tumescences, almost touching mesially, with in middle (between these tumescences) a vertical streak of larger verrucae. Lamella antevaginalis with a flattened rim. Signum rather large. Otherwise as in the nominate form.

Central Asia, Pamir, 3660 m, along midstream of the West Pshart River

(a tributary of the Murgab River), *Salix* bushes, 26.VI.-11.VII.1958 (K. Gorodkov), 1 ♂, holotype, 26.VI.1958, gen. no. 3961; 1 ♀ allotype, 27.VI. 1958, gen. no. 3962; 25 ♂, paratypes, 26-28.VII, 2.VII, and 11.VIII.1958, gen. nos. 3964, 3965, 4160-4162 (Leningrad Museum).

The whole series of this subspecies is very pale and superficially of a whitish-ochreous, or tawny, tinge, while the nominate form is always warmer tinged, yellowish, ochreous or tawny, however pale. The isolated habitat supports the distinctness of this subspecies. The genitalia in the two sexes are only slightly differing from those of the nominate form, *l. lanceolana*; but in that species the genitalia are very much constant; therefore the present, however slight difference in *suspensa* is important and sufficient for the separation of this subspecies.

I am grateful to Mr. M. I. Falkovich, of the Zoological Institute of the U.S.S.R. Academy of Sciences, for the permission to describe this subspecies which he correctly separated from the nominate form.

Bactra (Bactra) robustana (Christoph)

Figs. 1c, 13-16, pl. II figs. 11-16

Aphelia robustana Christoph 1872, Horae Soc. ent. Ross., vol. 9, p. 13, t. 1 fig. 10.
Bactra griseana A. M. Djakonov 1929, Rev. Russe Entom., vol. 23, p. 164, figs. 21-22.

Male 16-20 mm. Head usually whitish-ochreous, sometimes more or less infuscated only laterally. Palpus strongly dilated, roughish along lower edge and apex, terminal segment almost concealed; sordid whitish, median segment suffused externally with dark grey. Antenna dark-ringed. Thorax light fuscous or light tawny-fuscous, more or less mixed with whitish (edges of scales). Abdomen fuscous.

Fore wing sublanceolate, of slightly variable shape, being more or less dilated. There are two types of markings.

(1) Maculate type (pl. II figs. 11-13). The ground colour whitish, greyish-white or very pale ochreous-grey. The entire wing densely and evenly suffused with rather dark olive-fuscous and scattered with small roundish points, dots and short streaks of ground colour. These fine pale markings are interconnected, so as to form intricate reticulation, marbling and strigulation. The paler markings are more conspicuous in West European specimens, where they obscure costal pairs of pale strigulae; there is an ill-defined round pale spot above end of cell, traversed by darkly streaked veins. A specimen from Hungary (Dönsöd, no. 2804, pl. II fig. 13) has narrower wings, rather tawny-brown than olive-coloured, and is sprinkled posteriorly with clear white. The Taganrog (Russia) specimens are more densely suffused with dark olive-fuscous, sometimes strongly obscuring markings and ground colour

(no. 3922); the pale costal pairs of strigulae, however, are clearly showing; first discal spot faint, second easily traceable, V-shaped, anterior arm dilated; a more or less distinct blackish-fuscous roundish spot halfway between cell and termen, connected with terminal streaks along upper third and lower third of termen, respectively. A more or less developed white terminal line invariably present.

(2) Reduced type (pl. II fig. 15). Only one, exceptionally large (20 mm) specimen from Taganrog, with whitish ground colour extended, dark fuscous markings reduced as follows: a series of fine transverse strigulae along costa with a larger dot in middle of costa: an ill-defined and irrorated rather large faint discal spot; second discal large, inner arm with top extended anteriorly, outer arm shortened; apical spot large, fasciate, slightly suffused; pretornal small, obliquely oval; dorsum with strigulae; fine dotting spread over wing.

Hind wing evenly fuscous, seldom grey (no. 1847, Holland), extreme base paler.

Female 15.5-24 mm. Head as in male, mostly somewhat more tawny-tinged, sometimes entirely ochreous-white. Palpus longer and more dilated than in male, suffused as in male but suffusion usually very pale tawny, not conspicuous. Thorax light tawny irrorated with whitish (edges of scales), sometimes pale ochreous-whitish throughout. Abdomen as in male.

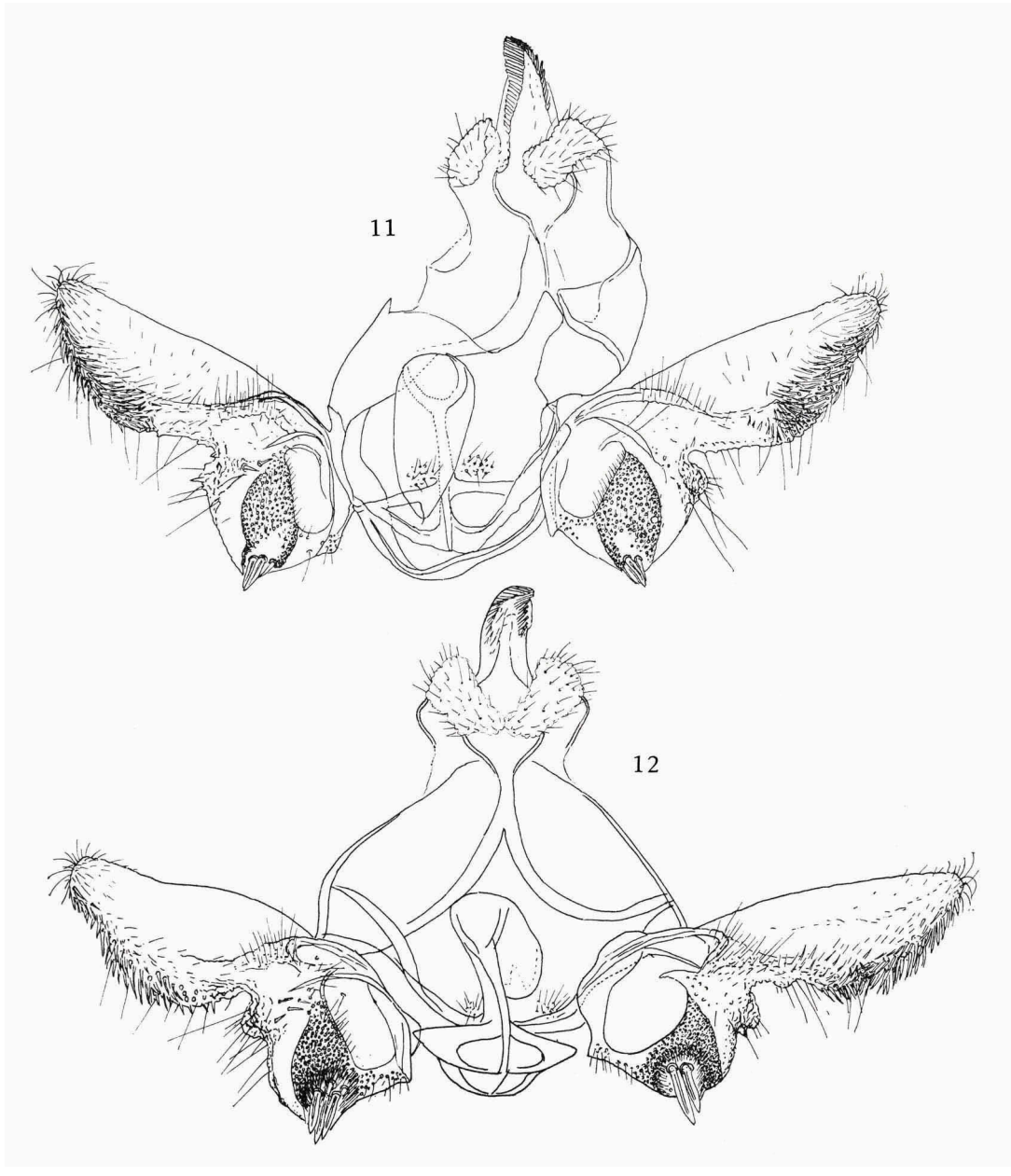
Fore wing broader than in male, similarly variable as to its shape. Termen sinuate. There are three types of markings.

(1) Vittate type (pl. II fig. 14) is the most common. Less than costal third of wing ochreous-whitish, more or less suffused with light ochreous-olive or pale ochreous-fulvous-olive, with a series of numerous very short dark fuscous transverse strigulae along costa; extreme costal edge whitish; lower portion of wing deeper olive-tawny or ochreous-tawny, more or less suffused with dark fuscous, this suffusion becoming less conspicuous towards dorsum; dorsum with a row of dark marks; a clear white terminal fascia, thicker than in male, towards dorsum broken into dots. In some specimens ground colour almost white, markings dark fuscous.

(2) Unicolorous type (pl. II fig. 12). Dark fuscous suffusion of lower part of wing absent. Costal portion not paler. Costa and termen as in (1). There is a faint indication of dark brown lines between veins towards termen. Stigma mostly distinct.

(3) Maculate type. One specimen (Taganrog, no. 4111), deep olive-tawny, deeper coloured posteriorly, with the two discal spots large, irregular, dark fuscous-brown; stigma distinct.

(4) Reduced type (pl. II fig. 16). One specimen (Taganrog, no. 4080),



Figs. 11-12. *Bactra* (*B.*) *lanceolana suspensa* subspec. nov., male genitalia. Fig. 11, holotype (no. 3961); Fig. 12, paratype (gen. no. 4162).

clearly yellowish-white, markings purplish-black: a row of minute costal markings, a series of less distinct dots just before termen, two discal spots, large, irregular and well-defined, second obliquely subfasciate; a series of dots along dorsum and a few scattered black scales here and there.

Hind wing fuscous, mostly paler than in male, sometimes much paler, with a darker fuscous-grey termen.

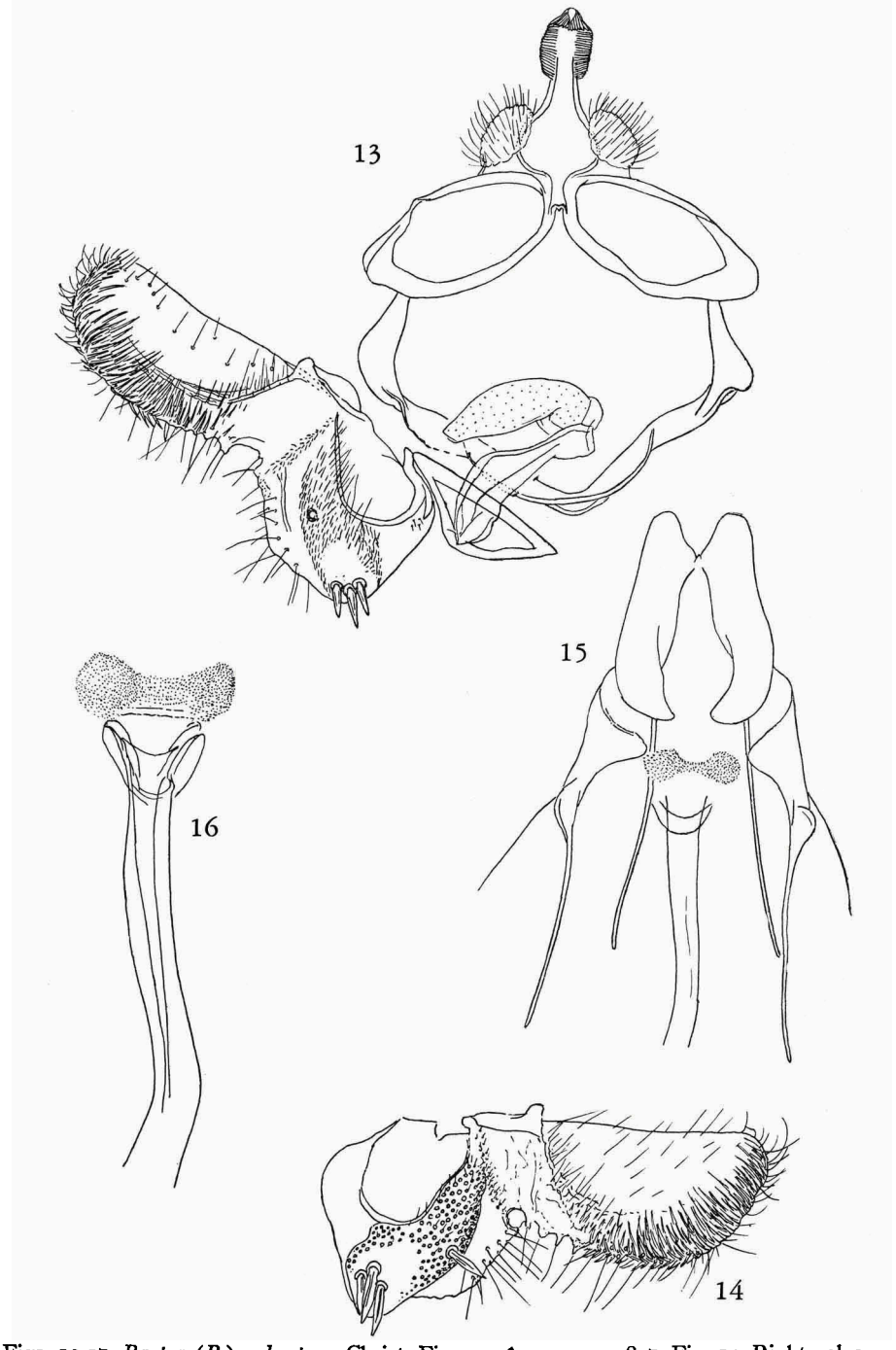
Male genitalia (Figs. 13, 14). Uncus long and slender; socius rather large (when flattened), with a rudiment of sclerotized edge at the extreme top. Vinculum rather large, band-like. Cucullus with strongly rounded and blunt top. (In one specimen from Taganrog, no. 4065, the cucullus is less rounded and in fact exactly similar to that of *lanceolana*; in all other respects, however, the genitalia are normal). The band of cucullus bristles broad; not reaching the primary incision but changing into Mc series which is formed by fine but dense bristles, along an elevated obliquely-transverse ridge, running to processus basalis, which is distinct. Sacculus rather small, sclerotized, almost globular, with a large basal opening; punctulate area very broad, with seldom one, mostly two separate and strong, blade-like spines halfway between its top and Spc_1. Ms series diversely shaped, usually the dorsal (upper) half formed by slender spines, lower by fine bristles, sometimes spines more extended.

Easily recognizable by the additional spines halfway on the punctulate area; only *lanceolana* also has additional spines, but there they are shorter and very much concealed, being shifted near the very edge of the cavity of the Spc_1.

Female genitalia (Figs. 15, 16). Tops of lobi anales elongate, rather slender, lobi long and slender, not dilated apicad (Fig. 1c). Eighth tergite moderately sclerotized, less so than in *lanceolana*. Lip of lamella antevaginalis little sclerotized, usually flattened, broad, but short, with somewhat irregular contours. Ostium bursae narrow. Lamella postvaginalis with numerous small round verrucae and a few undulate folds, running horizontally in middle below, descending obliquely laterally; verrucose portion forming a rounded tumescence at each end of the bunch of horizontal folds, usually united into a transverse tumescence, shaped like a shallow V; colliculum long, sclerotized but hyaline, tubular, being little dilated towards ostium bursae. Signum small or moderate, coarsely reticulate, sometimes edges well-defined all around. Eighth sternite with a shallow semicircular impression on each side of sterigma, clothed with fine aciculae.

Characteristic by slender lobi anales, allowing identification of dry specimens even without previous dissection.

This is the largest Palaearctic species of the subgenus *Bactra*. It is rather



Figs. 13-17. *Bactra* (*B.*) *robustana* Christ. Fig. 13. ♂, gen. no. 1847. Fig. 14. Right valva of the same. Fig. 15. ♀, gen. no. 1916. Fig. 16. sterigma, more magnified, gen. no. B.M. 2459. Fig. 17. sterigma, gen. no. 2718. (Figs. 13, 15-16 after Diakonoff, 1956).

scarcely represented in the collections, especially the males are rare. Probably the species is very local everywhere; its distribution is hardly delimited by the occurrence of the food plant, *Scirpus maritimus*. The plant is far from rare, e.g., in Holland, occurring everywhere along the sea coast and along the banks of brackish and fresh water. But it occupies large continuous areas only in saline regions, which might be obligatory surroundings for the occurrence of *robustana*.

The type locality is Sarepta, in Eastern Central Russia. The largest amount of specimens, mostly females, which I saw, was from Taganrog, on the Sea of Azof. Furthermore I studied material from Crimea, Caucasus, Persia, Afghanistan, Central Asia, Asia Minor; England, Danmark, Holland, Germany, Hungary. (The previous record of a ♀ from Sardinia is erroneous).

Judging from the presence of additional spines of the sacculus and strong sclerotization of the male genitalia the species is nearest related to *lanceolana*.

Bactra (Bactra) festa Diakonoff

Figs. 21-23, pl. I figs. 9, 10

Bactra (*Bactra*) *festa* Diakonoff 1959, Bijdr. Dierk., fasc. 29, p. 179, figs. 9, 13, 14 (♂ ♀, Japan, Hokkaido).

Since the description of this species only one additional specimen, a male from Teshio, Japan (gen. no. 3238) came to my notice (Brit. Mus.).

Male 15-16 mm (pl. I fig. 9, holotype). Only of the maculate type, with markings richly extended, apical streak broken; there is a curved line from below costa posteriorly, descending to lower part of termen; inner arm of second discal patch connected with costa.

Hind wing dark grey.

Male genitalia (Figs. 21, 22) very characteristic, uncus as in *robustana*; socius rather small; valva with a long, sinuate cucullus with a rounded top, and a large, oval sacculus; this has an elongate basal opening and a large punctulate area, with Spc_1 not in a cavity but excentrically and before the top of that area, formed of 6-7 spines of various length. Mc formed of long and fine hairs. Ms, a single row of short spines becoming fine hairs; cucullus bristles in a dense row, with or without a terminal patch. Aedeagus unusually short.

Female (a single, worn specimen, allotype, pl. I fig. 10) with remains of markings of the maculate type. Hind wing as in male.

Female genitalia (Fig. 23) with a complicated and sclerotized cordiform sterigma; ostium bursae with a darkly sclerotized edge, whole lamella antevaginalis is shaped like a strongly sclerotized large punctulate plate with small cavities flanking the ostium. Signum, a small substellate sclerite.

The curious specialized sterigma suggests a connection with the subgenus *Chiloides* Butl.

Bactra (Bactra) graminivora Meyrick

Figs. 1e, 18-20, 29, 30; pl. III figs. 17-20

Bactra graminivora Meyrick 1922, Exot. Microlep., vol. 2, p. 521 (♂ ♀, Bengal).
Bactra cyperana Amsel 1951, Bull. Soc. Sci. nat. Maroc, vol. 31, p. 68, fig. 4 (♂, Morocco).
Bactra mediterraneana Agenjo 1952, Faunula Lep. Almeriense, p. 99, pl. 4 figs. 32, 33, pl. 12 figs. 6, 7 (♂ ♀, Spain, prov. of Almeria).

Male (12.5-15 mm) is rather uniform, of the maculate type only, with extended and intricate markings (pl. III figs. 17, 19). The ground colour is very pale ochreous or whitish, seldom grey. The markings are either fuscous, fuscous-tawny or pale tawny, infuscated. Basal patch usually complete, including the second discal spot, well-defined, to 1/3, edge oblique on costa, vertical on dorsum, its median third forming a rounded prominence. The second discal spot hook-shaped, encircling the ill-defined stigma, and broadly extended anteriorly and towards costa, so forming a fascia to middle of costa, sharply zigzagged above cell. Pairs of white costal strigulae richly developed and extended, becoming gradually longer along the posterior half of costa; a terminal line with a series of black neural marks, largest of these below apex; sometimes a whitish streak from stigma to before apex of wing. In pale specimens ground colour less obscured, only moderately irrorated with fuscous, markings more or less reduced and rather bright olive-ochreous or olive-tawny (as said above).

Hind wing dark grey-fuscous, sometimes slightly paler along base.

Female 13.5-15.5 mm. (1) A type, intermediate between the unicolorous and the vittate is perhaps the most common (pl. III fig. 20): ground colour ochreous-whitish, suffused with tawny or with light ochreous from base to end of cell and from upper edge of cell to dorsum; edge of this suffusion rather well-defined, posterior edge tolerably straight and vertical; sometimes this suffusion restricted to cell only, extending from base to closing vein, or reduced to a broad and oblique transverse fascia from 1/2 of costa across end of cell, narrowed on dorsum; marginal markings well-defined, dark brown: costal moderate, dorsal minute, terminal rather large.

(2) Reduced type (pl. III fig. 18) is also rather common, with conspicuous dark brown discal spots, sometimes interconnected by black sparse irroration and then tending to form a streak from base to apex. Costal strigulae slender and light tawny; there may be additional light tawny or light olive marbling along termen and dorsum; sometimes the first discal spot is reduced; in

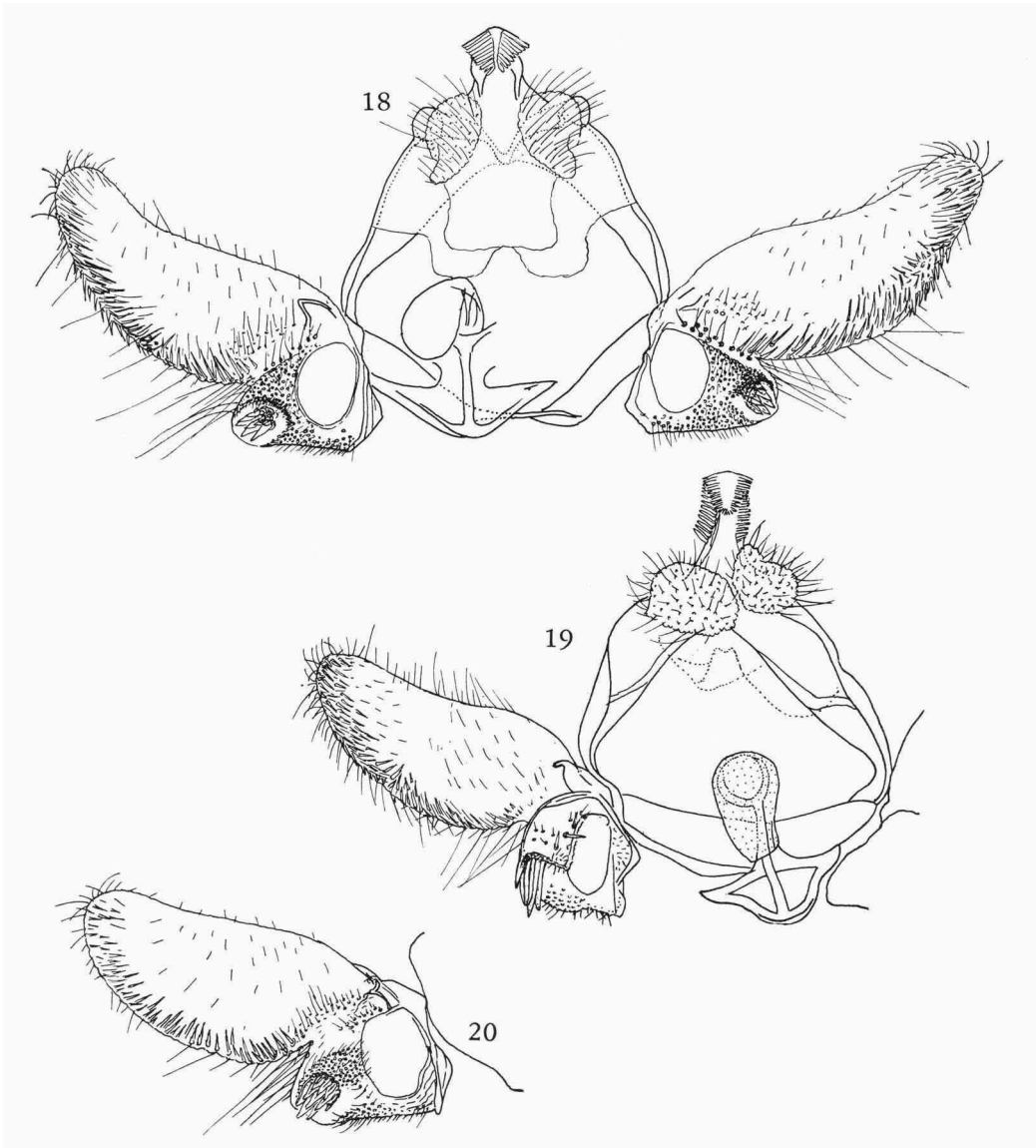
some specimens there is a brown, strongly curved line from about 4/5 of costa, crossing obliquely to termen, thence along termen to tornus.

(3) The maculate type is rare. A single specimen (gen. no. 1899, Central Asia, Marghelan), with ground colour ochreous-white and markings extended, of various shades of tawny-fuscous. Basal patch to 1/3, pale fuscous, edge angulate, this angle dark fuscous (being a transverse first discal mark); the edge above angle much more oblique than below. Second discal spot slender and long, rectangular, inner arm extended to upper edge of cell, thence zigzagged and narrow, to middle of costa; costal markings distinct and rather long, interspaces being indicated by strigulae which are dark brown along anterior half of costa, light tawny along posterior half; veins beyond cell streaked with dark fuscous; a small transverse strigula just below apex; a fuscous subterminal line. The specimen has the appearance of a *lanceolana* male!

Hind wing pale fuscous, rather unicolorous.

Male genitalia (Figs. 18-20). Tegumen and vinculum sclerotized. Uncus slender, long and curved. Socii large, enveloping the base of uncus and meeting ventrally. Gnathos membraneous and weak but well-defined, forming a rectangularly bent rather broad pending band, with the upper edge trapezoidal, the lower excised in middle and produced into a short and weak blunt point. Tuba analis membraneous but traceable. Valva rather long and slender. Cucullus long, more or less pointed, its shape strongly differing with the position in mount (cf. Figs. 18 and 20); costa rather sinuate, rounded and prominent beyond the processus basalis which is short, shifted ventrad. Cucullus bristles rather dense, at the end the series is slightly extended, so as to form a moderate patch, hardly reaching the primary incision, gradually continued into Mc series which consists of 2-3 rows of small bristles and hairs. Sacculus small, compact, three-sided pyramidal, with the Spc_1 area forming a conical prominence, rather narrowed, with a very large basal opening and a prominent basal angle (Fig. 18). The punctulate area is rather long-haired, moderate, limited to the conical portion of sacculus; the excavation of the Spc_1 is deep, at the top of the punctulate area and encircling the Spc_1 group outwardly as by a sclerotized wall (collar). Spc_1, about 7-8 bristles; the Ms series rather variable, usually two rows of short spines, sometimes a single row of bristles (both forms may be present right and left in a single specimen). The extreme edge of sacculus before and along the primary incision with a row of very long bristles. Juxta small, anellus membraneous, forming a double fold below the aedeagus, on each side with a small group of bristles.

Female genitalia (pl. VI) are subject to moderate variation. Lobi anales



Figs. 18-20. *Bactra* (*B.*) *graminivora* Meyr., ♂. Showing great differences of the aspect of the valva in slightly different positions. Fig. 18. Gen. no. 1017, with the sacculus strongly curved upwards. Fig. 19. Gen. no. 1922, sacculus in a more flattened position. Fig. 20. Gen. no. 4018, sacculus in intermediate position, cucullus more flattened. (Fig. 19 after Diakonoff, 1956).

rather small and compact, with the top more rounded than in other species (Fig. 1e). Eighth segment moderately sclerotized laterally, especially strong are the bases of the anapophyses. Ostium bursae wide, oval. Lamella antevaginalis shaped as a simple more or less sclerotized, narrow lip, usually not dilated in middle; seldom this lip is subtriangular and then resembling that in *robustana*. Lamella postvaginalis somewhat diversely but only little developed; usually with a horizontal straight and rather long band of several fine folds, seldom slightly diverging at extermities, more often parallel; beyond each end of the band, a rounded tumescence of minute verrucae (Fig. 30); sometimes these tumescences absent, or they may be more extended (in a few specimens some larger warts in these verrucose areas, seldom bearing a weak bristle, pl. VI fig. 43). Lateral rims of the ostium usually are imperceptible. The frontal rim of ostium (lamella antevaginalis) seemingly floating unconnected with the lamella postvaginalis (Figs. 29-30); sometimes these lateral edges are thickened, hyaline but distinct; seldom they are sclerotized (pl. VI fig. 40). Colliculum hyaline, submembraneous, moderate. Ductus bursae and corpus bursae are weak and not easily traceable in definitive mounts. Signum invariably absent.

Usually the band of the lamella postvaginalis is but little longer than the ostium is wide; but in a series of specimens from Aivadzh (Kafirnigan River, Tadzhikistan border of Afghanistan) the entire sterigma is somewhat enlarged and this band longer than ostium (pl. VI figs. 39, 41, 43).

A slender, rather obscure species with a superficial appearance of *lanceolana* and usually identified accordingly in collections. However, this neglected species, originally described from Tropical Asia, appears to be widely distributed along the south-eastern border of the Palaearctic region. It occurs in the Near East, as far westward as the Canary Islands and from Asia Minor through Caucasus, Caspian region, northern Persia, into Tadzhikistan, Bukhara and Afghanistan. Its occurrence in Spain (eastern province of Almeria) suggests a much further westward extended distribution.

A tropical species, *B.* (*B.*) *honesta* Meyr., from Assam, which has not been recorded yet from the Palaearctic region, seems to be intermediate between *graminivora* and *furfurana*. The left valva of a specimen from Shillong (in Leningrad Museum) is figured in pl. XVI fig. 82. The valva is narrow, sinuate and pointed; the sacculus is small, rather angular, finely but distinctly sclerotized throughout, with the basal edge forming a distinct fold, visible in the figure.

Previously I regarded this form as a subspecies of *lanceolana*, but this certainly is not correct.

Bactra (Bactra) furfurana (Haworth)

Figs. 1d, 10, 24-25, pl. IV, pls. VII-IX, pl. XVII figs. 89-90

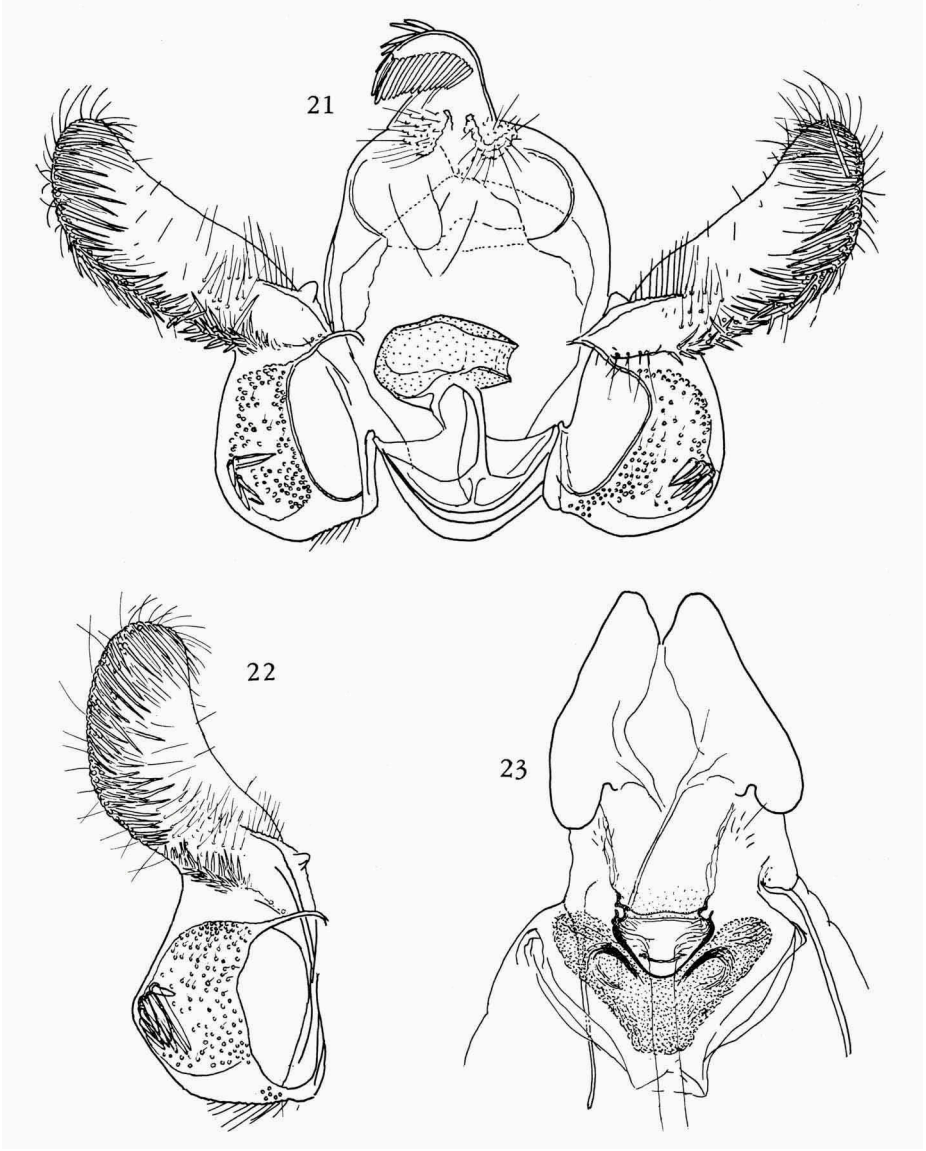
Tortrix furfurana Haworth 1811, Lep. Brit., p. 466.

Male 12-19 mm. Of the fasciate type of colouring and markings only which type is characteristic for the species. It is described in the introduction to this paper above.

Male genitalia (Figs. 24-25, pl. VII, pl. VIII figs. 47-48). Tegumen broad and short. Uncus rather short and slender, gradually attenuated, top hooked. Socii moderate, weak, rounded, not contiguous mesially. Gnathos indicated by short lateral processes and an entirely membraneous and hyaline band, narrow in middle, much dilated laterally. Vinculum rather strong but small. Valva more or less elongate, with a shallow primary incision. Cucullus of a variable shape, usually rather broad, slightly narrowed at base, moderately dilated in middle, with a more or less rounded top; rarely cucullus is broader and strongly rounded (this type resembling *gozmanyana* type very much, differing only by less narrowed base, pl. VII fig. 46); another, equally less frequent type has distinctly shorter cucullus with a thickened lower edge and a rather pointed top (pl. VIII fig. 47; an analogous form occurs also in *gozmanyana*); there is finally a *helophaea*-like type of cucullus with strongly sinuate costal edge, being rounded-prominent beyond the processus basalis, and a rather slender, somewhat curved upwards top of cucullus (pl. VIII fig. 48). Cucullus bristles in a moderately dense row extending beyond Mc series and reaching edge of sacculus; characteristically this row of cucullus bristles is *not* dilated into a distinct terminal patch of spines at its end, but ends rather abruptly and is continued across sacculus only by a slender Ms series of a few short spines, followed by a single row of small hairs; the Mc series branching off from the row of cucullus bristles, is formed by a few rows of small hairs. (The row of cucullus bristles may only seemingly be dilated at the end, being adjacent to the dilated lower, rostral, end of the Mc series of hairs; however, it is easy to discern these slender hairs from cucullus spines proper, cf. enlarged figs. of valvae in figs. 44-46; this character is of great importance for the descrimination of *furfurana* from the allied species, as is elaborated below). Sacculus large, swollen, roundish, usually with a slightly narrowed lower portion, which appears bluntly conical and is of variable size (pl. VII figs. 44, 45); this part in most cases is entirely smooth, being devoid of any hairs or scales (Fig. 25); usually there are several hairs at the base of the sacculus, towards the primary incision; punctulate area broad at base but clearly narrowed beyond its middle, with a small central, not punctulate bare field, while the apical excavation

with the Spc_1 is not distinct, and forms laterally (in mount, under or behind Spc_1), a moderate sclerotized collar-like blade. There are 4-5 Spc_1 spines, inequal, slender, rather long, and slightly bent. Basal field of hairs small.

Thus sacculus may be larger, rounded-triangular in circumference; this



Figs. 21-23. *Bactra* (*B.*) *festa* Diak. Fig. 21. Holotype, ♂, genitalia no. 2839. Fig. 22. Left valva, paratype, gen. no. 2845. Fig. 23. Allotype ♀, genitalia no. 2841. (After Diakonoff, 1959).

is usually the case in forms with a broadly rounded top of cucullus (pl. VII fig. 46); but usually sacculus is spherical with an obtusely conical Spc_1 portion; this portion may be of variable size (pl. VII figs. 44-45, pl. VIII fig. 47).

The above mentioned variations of the shape and size of the parts of genitalia are, in my opinion, of no specific importance but fall within the individual variation. They are connected by intermediates. At the other side, four characters which I regard as specific, either remain constant throughout all these cases or at least three of them are manifest. These specific characters are (1) absence of a terminal patch of bristles at the end of cucullus series, i.e., the row of cucullus bristles is not dilated proximally; (2) punctulate area of sacculus is more or less distinctly narrowed at or beyond the middle; (3) the periphery of the conical portion or the meso-ventral surface of sacculus entirely smooth, being devoid or any hairs, scales or scars thereof (cf. sub *furfurana* var. *kurentsovi*); (4) all males studied had fasciate type of markings.

Female 13-22 mm. (1) Usually entirely similar to the male being also of the fasciate type (pl. II figs. 26, 27); seldom this type becomes somewhat simplified, tending towards the maculate type by the transverse fascia being obliterated on dorsum (pl. IV fig. 30); however, the dense fuscous dotting and strigulation of the ground colour, and the general "motley" appearance of the insects make the identification quite easy.

(2) The vittate type (pl. IV fig. 31) apparently is rare (a single somewhat rubbed specimen: Vinogradovka, Ussuri region, gen. no. 4049). The sordid ochreous-fuscous ground colour is obscured by a median ill-defined blackish streak from base to apex.

Hind wing varying from light to rather dark fuscous-grey, mostly unicolorous, sometimes with a paler dorsum.

Female genitalia (Fig. 10, pl. VIII figs. 49-50, pl. IX). Lobus analis (Fig. 1d) similar to that in *lanceolana*. Lamella antevaginalis shaped as a simple, thin-walled, little sclerotized lip, with edge rounded-prominent in its middle, this edge not bent over or flattened, but being produced forward, it may appear in mounts with a small vertical fold in the middle (the widest portion being pressed down and so flattened); sometimes there are smaller additional folds at the sides (pl. VIII figs. 49-50, pl. IX fig. 51). Lamella postvaginalis somewhat variably shaped; two types may be discerned, connected by several intermediate forms. The simple, "classical" type possesses a small, curved and concave cap over the ostium, its sides not descending beyond the sides of ostium (pl. VIII figs. 49, 50, pl. IX fig. 52); below this "cap" the wall of the ostium showing several horizontal folds above,

upper of which have the tendency to be concave above, lower to be concave below; and a few lateral folds, obliquely descending into the ostium. Lamella postvaginalis above the cap usually with a short undulate rising fold on each side (above these only seldom minutely punctulate) (Fig. 10, pl. IX figs. 51, 55). The more complicated type of the lamella postvaginalis, clearly showing a connection with the species of *gozmanyana* group, has the "cap" more curved and stronger convex above, almost conical, with the sides descending below the sides of the ostium, the area of the lamella antevaginalis below the ostium being more or less distinctly sclerotized and brownish-tinged. The lamella postvaginalis above the "cap" either unmodified (pl. IX figs. 51, 55), or with a small horizontal band of puncturation, usually narrow in middle and slightly dilated at the sides (so resembling that in *lanceolana*, but smaller, not edged with sclerotized ridge, nor truncate laterally; and that in *robustana*, but quite smaller). Ostium always funnel-shaped and rather quickly narrowed downwards; colliculum narrow and little sclerotized, moderately long. Signum either a very small, roundish or oval, scobinate sclerite or a moderately large, more concave (basket-shaped) or "parietal" sclerotization, being simply rather reticulate than scobinate structure of an area of the wall of corpus bursae. Often — but certainly not always — the small signum goes with the simple type of the sterigma, the larger signum with the more complicated type; however, this must be only coincidental.

As is remarked above, *furfurana* is the only Palaearctic species of the subgenus *Bactra* which may be easily recognized by the markings alone, except with vittate specimens. It is very closely related with *gozmanyana* but this relation is only evident from the genitalia of the two sexes. Superficially the two species have quite different appearance, *gozmanyana* being almost a replica of *lanceolana*.

Bactra (Bactra) furfurana kurentsovi var. nov.

Figs. 25a-b, pl. II fig. 6, pl. III figs. 21-22, pl. XVI figs. 83-84, pl. XVII fig. 87

♂ 14 mm (pl. III fig. 21). Head pale tawny, face white. Palpus whitish-ochreous, with a longitudinal dark fuscous streak along upper edge of median segment, not reaching extremities. Thorax tawny-fuscous, pale laterally. Abdomen light greyish-fuscous.

Fore wing glossy ochreous-whitish, densely strewn with pale grey. Markings dull, light tawny, densely mixed and edged with fuscous. Of the fasciate-maculate type. Basal patch forming a broad angulate band across the second sixth of wing, angle (middle of edge of patch) excized; transverse fascia

obliterate on dorsum; pretornal patch slender, inwards-oblique, top to vein 4; three subtriangular dark spots on posterior half of costa distinct, preceded, alternating and followed by fine dark strigulae; a well-defined semicircular streak from beyond upper edge of cell, curving down and along lower third of termen, gradually attenuated, to tornus; a dark dot in apex, preceded by a zigzag oblique line. Cilia light tawny-ochreous, paler in tornus, with a fuscous bar opposite apex.

Hind wing pale grey, becoming white towards base, dark grey towards apex.

There are three ♂ paratypes: no. 4027 with darker ground colour and less contrasting markings, basal patch not excised, curved preterminal line obliterate; no. 4176, as type, but with darker markings; and no. 4177, with slightly suffused dorsum.

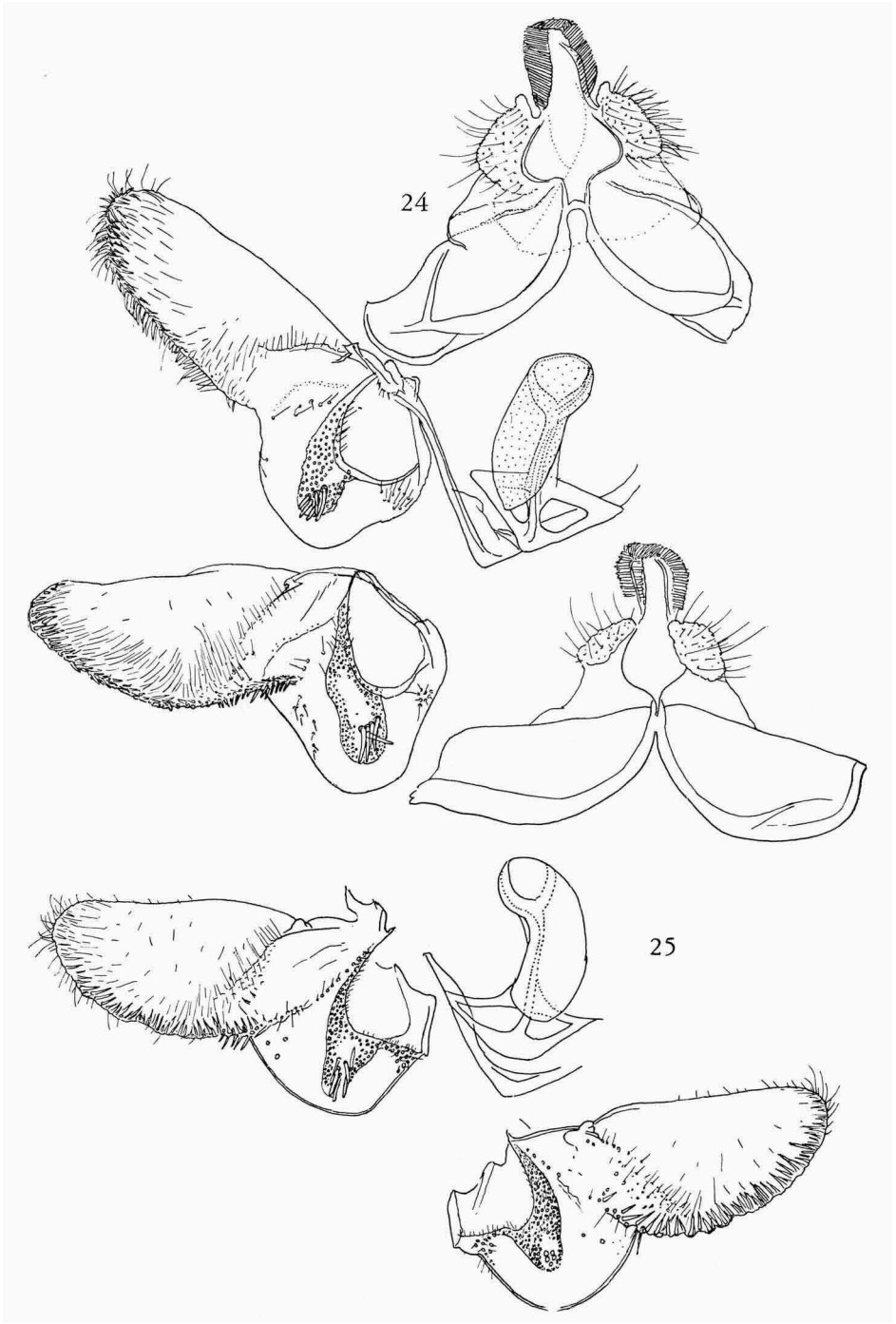
♀ 14-15 mm (1) Fasciate type (pl. III fig. 22). Very similar to the nominate form, but rather brighter ochreous tinged, with markings warmer brown (allotype).

(2) Vittate type (pl. II fig. 6). One slightly rubbed specimen, with median third of wing suffused with dark brown.

Male genitalia (Fig. 25a, pl. XVI figs. 83-84) resembling those of *furfurana* as to the shape, but with a shorter and broader valva; cucullus elongate-oval with a rounded top. As to the bristling, the genitalia resemble more those of *gozmanyana,* the row of cucullus bristles reaching sacculus and forming a small but distinct terminal spine patch. Mc series formed by fine hairs arranged in 3-4 rows. Sacculus intermediate between that in *furfurana* and that in *gozmanyana*: sphero-conical, finely haired along edge, with distinct hairs at the foot of Mc, which series is weak, formed by one row of fine hairs. Punctulate area moderate, broader than in *furfurana,* narrower than in *gozmanyana,* only the extreme top being slightly narrowed; excavation of the Spc_1 small; central not punctulate area above Spc_1 small; Spc_1 spines moderately long, the outer collar present; basal hairs as in *furfurana.* Gnathos, a weak, hardly traceable band. Other features as in *furfurana.*

Female genitalia (Fig. 25b) very similar to those of *gozmanyana.* Sterigma sclerotized. Cap over ostium of the lamella postvaginalis with a conical top; an ill-defined punctulate band above this, slightly dilated laterally. Characteristic is the wall of ostium below the cap, with a few horizontal folds and below these a series of down-bent folds; between these several rows of fine punctulations (these are absent in both *furfurana* and *gozmanyana*). Signum resembling that in *gozmanyana* but smaller.

This form might easily be taken for a hybrid of *furfurana* and *gozmanyana,* with the colouring and markings closely resembling those of the first, but



Figs. 24-25. *Bactra* (*B.*) *furfurana* Hw., ♂ genitalia. Fig. 24 Gen. no. 1844; below left, left valva of no. 1834. Fig. 25. Gen. no. 4050 with characteristically swollen sacculus. (Fig. 24 after Diakonoff, 1956).

with the genitalia in the two sexes rather more similar to those of the second species.

It was necessary to have studied very extensive material of the two species, *furfurana* and *gozmanyana,* from various localities all through the Palaearctic region, to get the certainty that the slight differences between these two species are real and constant to such an extent that the present intermediate form does not violate the validity of the two, but that it must represent a local variety of *furfurana.* For, var. *kurentsovi* is quite local, which supports this view. If it was only a hybrid (a kind of "deus ex machina", to which I am reluctant to resort) then it rather would have occurred throughout the Palaearctic region. In that case it would have been hardly posible to maintain the validity of *gozmanyana.*

Siberia, Ussuri Region, Suchan, 2. VII. 1928, 1 ♂, holotype, gen. no. 4029; the same locality, 8. VII. 1928, 1 ♀, allotype, gen. no. 4048; the same locality, 2. VII-30. VIII. 1928, paratypes, 1 ♂, gen. no. 4027, 5 ♀, gen. nos. 4019, 4022, 4026, 4030, and 4047 (A. I. Kurentsov). Ussuri Region, Vinogradovka, 4 and 9. VII. 1929, 2 ♀, paratypes, gen. nos. 4124 and 4069, respectively. Nikolsk-Ussuriiski, at light, 14-15. VIII. 1931, 3 ♂, paratypes, gen. nos. 4176, 4177, 4178 (L. Tokareva). Environs of Vladivostok, Okeanskaja, 6. IX. 1950, 1 ♂, paratype, gen. no. 4181 (A. K. Zaguljaev). 5 ♂, 6 ♀.

Dedicated to one of the collectors, Professor A. I. Kurentsov.

Bactra (Bactra) gozmanyana Toll [1])

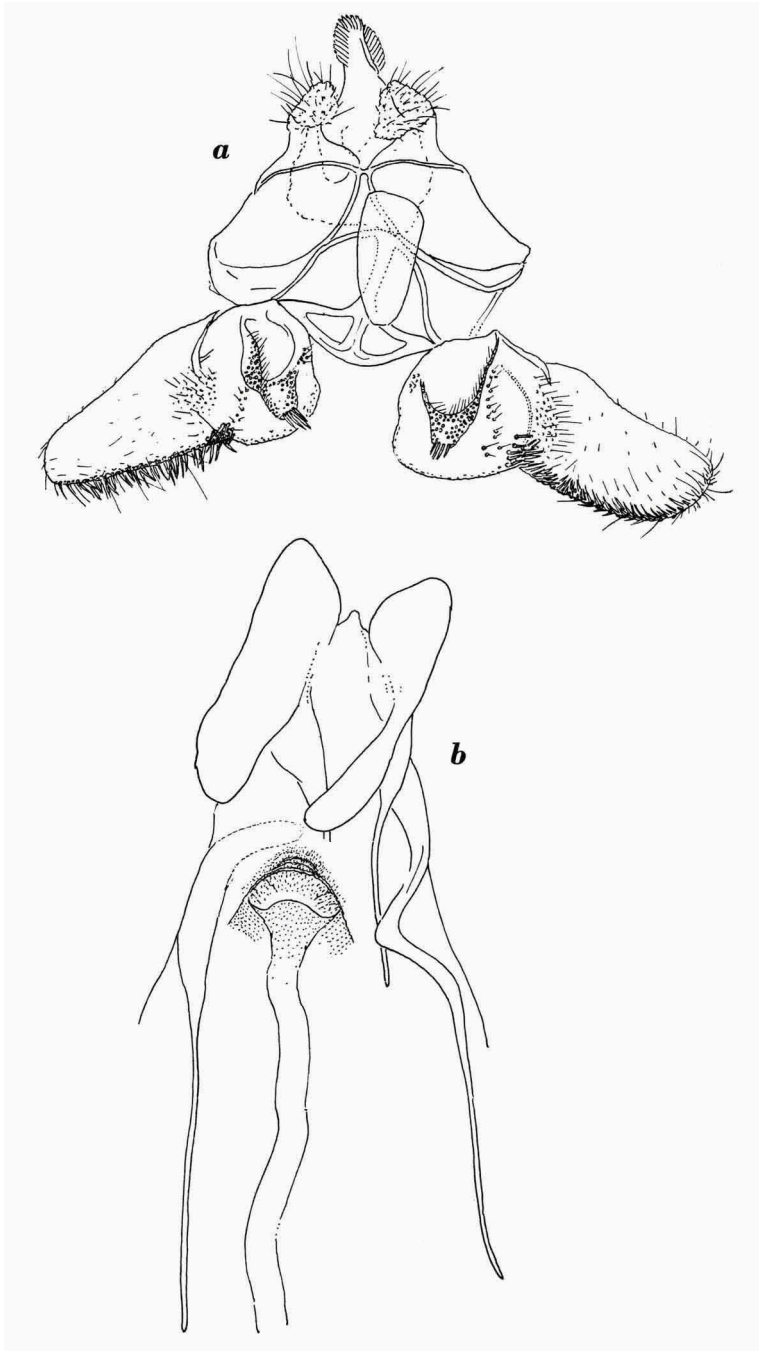
Figs. 1f, 8, 26-28, 31-32; pl. V, X, XI, XII fig. 67, pl. XV figs. 78-80

Bactra gozmanyana Toll 1958, Ann. Zool., vol. 17, p. 65, figs. 1, 2, t. 2 figs. 1, 5, t. 3 fig. 8. — Diakonoff 1959, Bijdr. Dierk., vol. 29, p. 186. — Jäckh 1959, Bombus, vol. 2, p. 71. — Hannemann 1961, Tierwelt Deutschl., vol. 48, part 1, p. 196, no. 408, fig. 408, t. 22 fig. 12. Etc.

Bactra (Bactra) furfurana type II (partim) Diakonoff 1956, Zool. Verh., no. 29, p. 7 fig. 6 (♂).

♂ 13-17 mm. (1) Only of the maculate type (pl. V figs. 32, 34), with markings often elaborate and with rich strigulations. Externally exactly similar to *lanceolana* and actually not separable from it without the use of the genitalia, which of course are entirely different. Ground colour from glossy ochreous-whitish (e.g., no. 4035, Lissa), to, usually, pale fuscous-lilac or faintly purplish. Markings of diverse shades of tawny or fuscous. Basal patch to 1/3, ill-defined, first discal spot often absent, consequently; second discal spot distinct, oblique, elongate-V-shaped, usually connected with costa only by some fine tawny strigulae; apical streak very diversely shaped, often ill-defined and suffused, or hardly traceable at all, sometimes distinct; in

1) N.B.: for change of this name see Appendix, p. 45.



Figs. 25a-b. *Bactra* (*B.*) *furfurana kurentsovi* var. nov., genitalia a. ♂, holotype; b. ♀, allotype.

pale specimens this streak clearly light ochreous, edged in middle above and beneath by a fine brown strigula; curved streak sometimes complete, usually its terminal, lower part present; pretornal spot may be present or absent.

Hind wing from pale to rather dark fuscous-purplish, mostly becoming paler towards dorsum.

Male genitalia (Figs. 26-28, pl. X-XI, XII fig. 67, pl. XV figs. 78-80). Tegumen, uncus, socii, and vinculum as in *furfurana*. Valva elongate, slightly longer. Cucullus elongate-oval, moderately narrowed at base, broadest in the middle, with a rounded top. This is the usual and characteristic type (fig. 26); sometimes the cucullus may appear to be less rounded, with costa more sinuate (figs. 27, 28); this may be due to slight individual variation, but more so to the not quite flattened position of the valva in the mount (cf. right and left cucullus in fig. 28, where the right cucullus lays more flat and appears broader and more regularly oval). Cucullus bristles as in *furfurana* but characteristically always forming a terminal patch; this feature is invariably present, although the size of the bristles may be slightly inequal, outer bristles being somewhat stronger than inner (cf. pl. XI fig. 64, no. 1888). Sacculus usually is slightly more conical than in *furfurana* (pl. XI fig. 65, no. 1914) or rounded (pl. XII fig. 67, no. 1915, pl. X figs. 58, 59, no. 2418), its surface always distinctly punctulate throughout or at least only along the periphery (due to fine scaling of the sacculus; in *furfurana* the prominent bottom of the sacculus, at least, is always entirely smooth, cf. there). Punctulate area broad and rounded, not narrowed; bare area small; Spc_1 with 3-5 spines, collar distinct.

In plate XV three valvae of less usual shapes are illustrated, viz., cucullus long, with a curved lower edge (fig. 78); sacculus elongate, resembling that in *B. festa* (fig. 79); and cucullus moderately long but strongly narrowed at base (fig. 80).

♀ 12-17 mm (pl. V figs. 33, 34). The common type is a combination of reduced and vittate types. Ground colour pale ochreous, marginal markings mostly well-defined, bright tawny, almost fulvous, discal markings dark fuscous, more or less obscured by a longitudinal fuscous shadow of diverse width, extending from base to apex, usually reaching dorsum on anterior half of wing.

Hind wing whitish or pale grey, variably suffused with grey-purplish, base paler.

Female genitalia (Fig. 8, 31, 32) are closely resembling those of *furfurana*, but differ as follows. Lobi anales more pointed (Fig. 1f). Lamella postvaginalis usually with numerous transverse (horizontal) folds, on lower half bent

down in the middle, on upper half arching upwards; the cap-like large fold of *furfurana* may be entirely absent in its median portion, being replaced by above-mentioned small folds which extend higher up along the lamella postvaginalis (Fig. 8); punctulate area of the lamella postvaginalis is more extended, laterally dilated into somewhat produced angles; sometimes this area is limited laterally by a single vertical small fold. Ostium bursae wider than in *furfurana*. Ductus bursae similar. Signum usually much larger, basket-shaped (Fig. 32, pl. X figs. 61, 63); its wall has wide reticulated structure in the middle (being large obtuse teeth which are visible only in lateral aspect); at the sides the edges of the signum are somewhat flattened and finely reticulate.

The female genitalia may vary slightly as to the extent of the characteristic punctulate area of the lamella postvaginalis and the shape of the signum (cf. pl. X figs. 61 and 63, nos. 2452 and 1835). Distinction from *furfurana* is not very difficult for the always much larger signum in *gozmanyana* is decisive. But separation of *gozmanyana* females from those of *alexandri* spec. nov. is somewhat uncertain. The signum in the latter is larger, a wide but more shallow cup without flattened rims; the ostium is much wider.

We owe the separation of the present species from *furfurana* to the discernment of my lamented colleague, the late Dr S. Toll, who described it in 1958, after specimens from Hungaria.

It is extremely difficult to distinguish this species from *Bactra* (*Bactra*) *helophaea* Meyrick 1928, originally described from Assam. For a long time, therefore, I was dubious about the validity of *gozmanyana*. After having studied several hundreds of specimens from all over the Palaearctic region, I finally arrived at the conclusion that *gozmanyana* is distinct from Meyrick's species, although the only difference is the shape of the cucullus of the valva (Fig. 33, pl. XII fig. 66).

This difference, of course, is slight. But after sufficient training it is possible to recognize it easily enough. Alas, there are not enough data available so far on the females of *helophaea*.

Upon my request, Dr. Toll very kindly sent me for closer study the whole type series of his species. A couple of paratypes of *gozmanyana*, ♂♀, was retained by me in the Leiden Museum collection and their genitalia served innumerable times for close comparison with doubtful material. Without so close and repeated a study of the typical material I certainly would not be able to recognize the species fully. *B. gozmanyana* occurs almost everywhere in the Palaearctic region, side by side with *furfurana* and *lanceolana*. I saw it from Hungary, Poland, Holland, Germany and Austria. Within the borders of the U.S.S.R. it extends from Estonia and Leningrad

to Vladivostok, Kazakhstan and the Caucasus. A complete list of localities will be given later.

Bactra (Bactra) helophaea Meyrick

Fig. 33, pl. XII fig. 66, pl. XIV, pl. XVI fig. 85

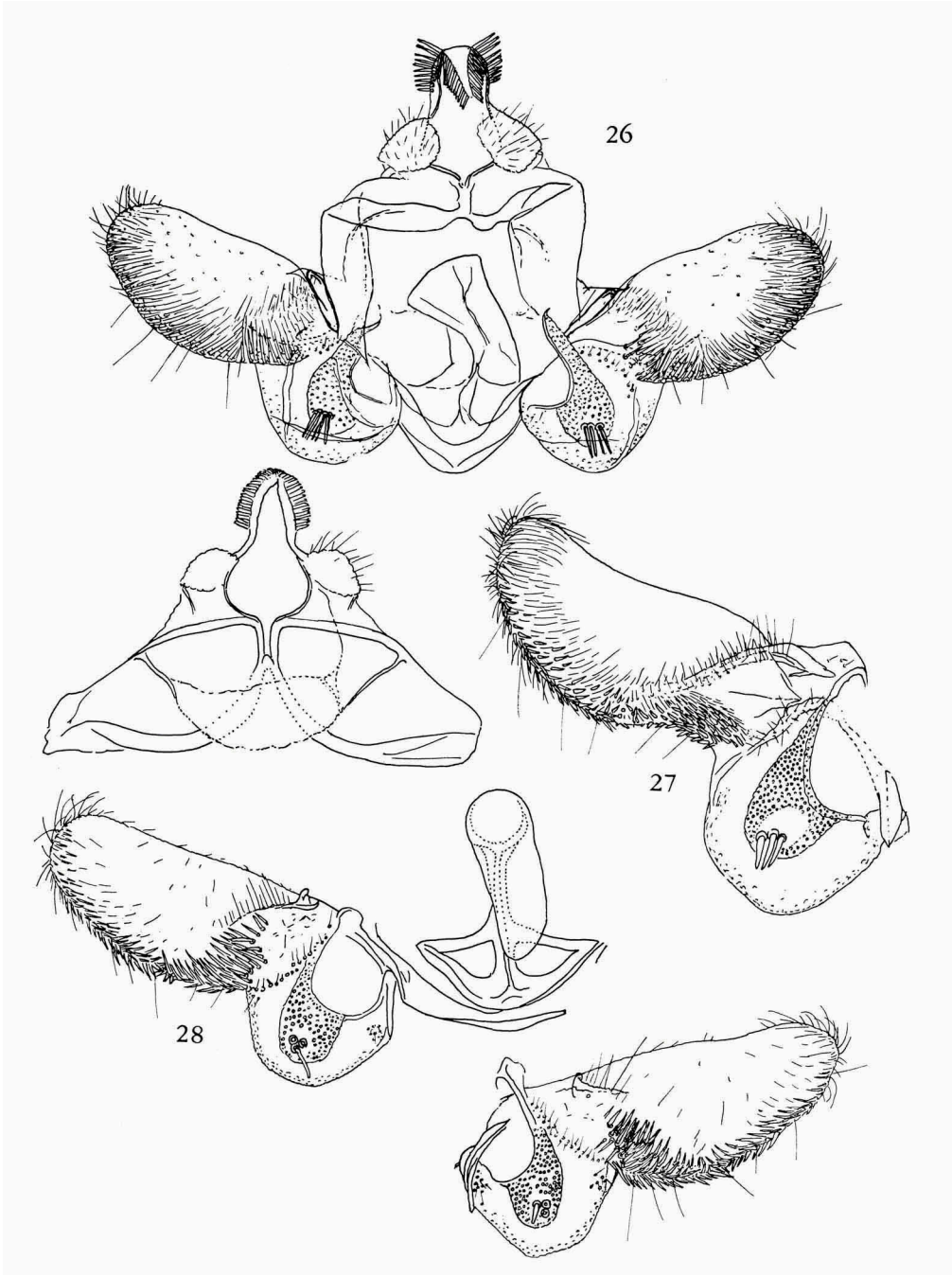
Bactra helophaea Meyrick 1928, Exot, Microl, vol. 3, p. 442 (Assam, Shillong, ♂ ♀). — Diakonoff 1950, Bull. Brit. Mus., Ent., vol. 1, p. 287, t. 5 fig. 21 (gen. ♂), t. 7 figs. 32, 35 (gen. ♀) (Lectotype selected, syn. of *furfurana*). — Clarke 1958, Meyrick's Types, vol. 3, p. 311, t. 154 figs. 3-3a (distinct species).

Bactra furfurana Diakonoff 1950 (non Hw.), Bull. Brit. Mus., Ent., vol. 1, p. 287, t. 5 fig. 21 (gen. ♂), t. 7 figs. 32, 35 (gen. ♀) (*helophaea* = syn. of *furfurana*).

This species of tropical origin is rare in collections and has been rather neglected. After having regarded it as a synonym of *furfurana* I suspected that it might have a much wider distribution than originally known and that it actually might be conspecific with *gozmanyana*. Clarke correctly pointed out (1958) that *helophaea* is distinct from *furfurana*. It was much more difficult to decide about its distinctness from *gozmanyana*. After having compared numerous males of the latter species with the photographs and the original genitalia of the type of *helophaea* (pl. XII fig. 66, pl. XIV) I found as a single point of difference the shape of the cucullus which is broad and rather regularly oval in *gozmanyana*, with equally convex costa and lower edge, while in *helophaea* it is distinctly narrowed towards top and sinuate at the same time (cf. figs. 26 and 33). It is true that in *gozmanyana* the costa of the cucullus sometimes may also appear sinuate when valva is not sufficiently flattened out (fig. 27); but the cucullus in this species is not so distinctly narrowed towards top. Therefore I decided for the present to regard the both species, *helophaea* and *gozmanyana*, as distinct.

Superficially the male of *helophaea* is of the reduced type and exactly similar to the maculate *gozmanyana*. Apparently the species is tropical. There are no specimens from the Palaearctic region at my disposal at present which may belong to *helophaea*. In future the species may be found in that region though, the reason why I am recording it at this place.

Male genitalia (Fig. 33, pl. XI fig. 66). Tegumen, uncus and socii as in *gozmanyana*. Vinculum rather slender. Aedeagus rather long, apparently somewhat more slender and longer than in *gozmanyana*. Valva somewhat longer and narrower, with cucullus different, being distinctly narrowed towards apex, with costa rather strongly sinuate, being rounded and prominent before middle, slightly concave beyond (in *gozmanyana* cucullus, at least when sufficiently flattened, usually is more regularly oval, with costa convex in its middle and top of cucullus broadly rounded). Cucullus bristles forming a distinct terminal patch. Mc series formed by several rows of numerous



Figs. 26-28. *Bactra* (*B.*) *gozmanyana* Toll, ♂ genitalia. Fig. 26. Sketch of the genitalia of the holotype, no. 2440. 27. Gen. no. 1857. Fig. 28. Gen. no. 4038, note the large terminal patches of cucullus bristles. (Fig. 27 after Diakonoff, 1956).

fine bristles. Sacculus either rounded (rather more so than it is usually rounded in *gozmanyana*) or subconical and entirely *gozmanyana*-like; punctulate area broad and rather short, bare part small, collar present. Spines 2-4, all broken in the holotype, there were four left, two right. Mc, a single row of fine hairs. Periphery of sacculus finely punctulate (scars of hairs or scales).

Female genitalia need to be re-studied.

Bactra (Bactra) extrema spec. nov.

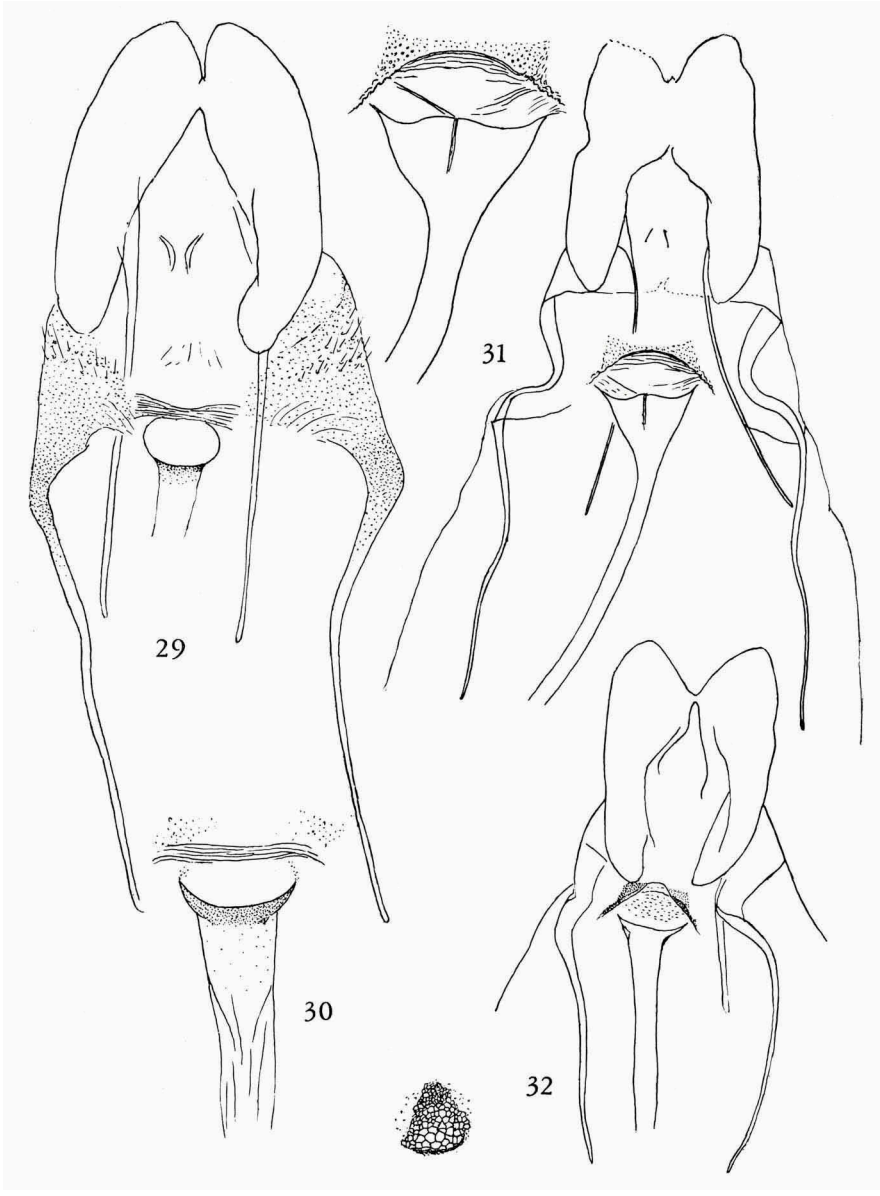
Pl. XIV figs. 75-77; pl. XV fig. 80; pl. XVI fig. 85

♂ 12-14 mm (holotype 13 mm). Head whitish-ochreous, antenna dark fuscous. Palpus rather short, strongly dilated; pale ochreous, median segment with lower edge, and terminal segment entirely, infuscated, upper edge of median segment with a dark fuscous spot in middle. Thorax fuscous-ochreous, mixed with darker. Abdomen pale fuscous.

Fore wing rather broad, costa curved throughout, apex moderately pointed, termen gently sinuate, moderately oblique. Whitish-ochreous, markings of the maculate-reduced type, dark fuscous-brown and pale ochreous. Basal patch to 1/3, on dorsum obliterate; this patch fuscous suffused with ochreous, its edge obtusely serrate; basal fourth of costa with a dark fuscous streak, thence costa with five oblique narrow strigulae, brown on costa, ochreous in disc; these strigulae alternating with minute black marks; second discal spot connected with second costal strigula, V-shaped and rather slender, inner arm long, outer shorter, connected with end of apical streak which is straight and thick, fuscous-brown, running into apex; subterminal spot traceable, but ill-defined; preterminal spot ill-defined. Cilia pale ochreous irrorated with tawny, with a dark brown subbasal line. Veins beyond cell more or less streaked with brown.

Hind wing glossy whitish-ochreous, posterior half suffused with light grey, with a strong golden gloss. Cilia whitish mixed with pale fuscous.

Male genitalia of the type of *B. gozmanyana,* but notably more slender, with long, slender and sinuate cucullus, narrowed towards top (pl. XIV figs. 75-76); this portion is more similar to the cucullus in *helophaea,* but in that species it is clearly broader and shorter (cf. pl. XIV figs. 73 and 74, as against figs. 75 and 76). The cucullus is slightly variable and may appear to be less narrowed (pl. XV fig. 85) or broader (pl. XIV fig. 77, pl. XV fig. 80), but also in these examples the genitalia are distinctly more slender than in *gozmanyana* or in *helophaea*; cucullus bristles without a distinct terminal patch (with one exception); sacculus as in *gozmanyana,* subconical, but smaller; the basal group of hairs is clearly isolated on a roundish tumescence (pl. XIV fig. 76, arrow).



Figs. 29-32. Female genitalia of *Bactra*. Fig. 29. *B.* (*B.*) *graminivora* Meyr., no. 2585. Fig. 30. The same, sterigma, more magnified. Fig. 31. *B.* (*B.*) *gozmanyana* Toll, sketch of the genitalia of the allotype, with above, sterigma, more magnified. Fig. 32. Gen. no. 1541, with signum (Figs. 29-30 after Diakonoff, 1959; fig. 32, after the same, 1956).

Female genitalia unknown.

Siberia, Okeanskaja near Vladivostok, apicultural station, 30. VIII. 1950, 1 ♂, holotype, gen. no. 4171; 3 ♂, paratypes, 11, 30. VIII. and 12. IX. 1950, gen. nos. 4173, 4172, and 4174, respectively (A. K. Zaguljaev). Okeanskaja near Vladivostok, 9. VIII. 1929 (Transhel), 1 ♂, paratype, gen. no. 3852. Ussuri, Suchan, 23. VIII. 1928 (A. I. Kurentsov), 1 ♂, paratype, gen. no. 4028. 6 ♂.

The Suchan specimen (quite fresh) has reduced markings, but the strigulation is extended instead.

A slender uniform species with maculate-reduced type of markings and with strongly developed costal strigulation. It rather resembles a certain type of markings of tropical species of the subgenus *Chiloides*. It is difficult to identify this species; I was not able to incorporate the present series of specimens neither in *gozmanyana,* nor in *helophaea,* and was compelled at last to separate them as a distinct species. The species is nearest related with *honesta* Meyr., but has a different sacculus.

Bactra (Bactra) alexandri spec. nov.

Fig. 34, pl. V figs. 36-38, pl. XII figs. 68-69, pl. XIII

♂ 15 mm. Head, thorax ochreous-whitish sometimes tegulae with median edge infuscated (paratype no. 3859). Abdomen light grey. Of the maculate-reduced type. Ground colour pale ochreous, marginal strigulae ochreous-tawny, becoming dark brown along the edge of corsa; first discal spot obliterate, replaced by a faint longitudinal infuscation from base almost to second discal spot, this spot irregularly semicircular; apical streak short, tawny, anteriorly edged by two brown lines; this streak hardly reaching second discal patch; interneural dark strigulae before termen; one or two similar strigulae instead of a pretornal spot; dorsal markings short, dark brown. Cilia whitish, with a dark bar opposite apex.

Hind wing whitish-ochreous, posterior two-thirds infuscated and becoming darker towards apex. Cilia whitish.

Holotype and paratype no. 3854 are identically marked (pl. V figs. 36 and 37, respectively), while paratype no. 3859 has pale grey ground colour with contrasting light ochreous-tawny markings, with second discal spot extended; costal strigulae short and dark brown; first discal spot represented by dark brown dotting. Cilia pale fuscous-ochreous, with a subbasal and a subapical fine tawny line. Hind wing darker grey.

Male genitalia (Fig. 34, pl. XIII). Tegumen and uncus as in *gozmanyana.* Socius rather large. Lateral rudiments of gnathos rather long, longer than in the preceding species of the *furfurana* group. Vinculum rather long, V-

shaped. Valva resembling that of *gozmanyana* most, but much more robust, with cucullus shorter and broader, more rounded, with costa distinctly prominent before its middle; cucullus bristles long, in a dense row, dilated into a large terminal patch. Mc series formed by several dense rows of long hairs; disc of valva also rather densely haired; space between Mc and Ms broad. Sacculus sclerotized, extremely large, spherical, swollen, making the primary incision deep; sacculus evenly covered with dense hair-like scales, their bases making the surface of sacculus punctulate; punctulate area broad, similar to that in *gozmanyana* but larger, stronger sclerotized, not narrowed, top rounded; Spc_1 cavity rather small, with a small collar; spines 3-4, strong, rather short, obtuse; bare area rather small, subapical. Ms formed by a single row of fine bristly hairs. Caulis long; aedeagus moderate.

The genitalia are intermediate between those of *gozmanyana* and those of *loeligeri*. The sacculus in the last species is distinctly more dilated and obliquely prominent, the terminal patch of spines larger, the caulis longer. Although these differences are gradual, direct comparison of the mounts, their exact drawings or their photographs shows these differences immediately and convincingly. In the same way there is a gradual difference in the other direction, viz., between *alexandri* with a large and globular sacculus at one side, and *helophaea* and *gozmanyana* with considerably less extended sacculi at the other.

♀ 14-15 mm (pl. V fig. 38). Of the vittate type. Head and thorax slightly infuscated. Fore wing with the costal third whitish-ochreous, with faint dark costal markings, remainder of wing dark fuscous. In paratype no. 3865 (rubbed), the dark suffusion has partly disappeared, the insect having the appearance of the unicolourous type.

Female genitalia (pl. XII figs. 68-69). Resembling those in *gozmanyana* but ostium much wider, lamella antevaginalis of the same shape but larger, laterally with several small folds parallel to the edge of colliculum, and with a stronger fold on each side below, diverging from the colliculum. Lamella postvaginalis as in *gozmanyana* but also very wide, inverted-trapezoidal, with concave top and intricate sides, richly covered with fine folds running above more or less parallel to edge, below descending into colliculum. Colliculum as in *gozmanyana*. Signum also similar, but larger, a basket-shaped sclerite with at the sides finely, in the middle, widely reticulated structure.

An intermediate species between *gozmanyana* and *loeligeri*; the differences are not easy to describe, being gradual, but comparison of the male genitalia immediately shows them clearly.

U.S.S.R., Amur Region, Klimoutsy, 40 km W of Svobodnyi, 27. VI. 1958 (V. Kuznetsov), 1 ♂, holotype, gen. no. 3858; all the same locality: 1 ♂,

paratype, no date, gen. no. 3859; 18. VII. 1958, 1 ♂, paratype, gen. no. 3860; 1 ♀, allotype, 30. VI. 1958, gen. no. 3861; 1 ♀, paratype, gen. no. 3865. Ussuri Region, Spasski rayon, Jakovlevka, 26. VI. 1926 (A. M. Djakonov & N. N. Filipjev), 1 ♂, paratype, gen. no. 3854. 4 ♂, 2♀.

Dedicated to one of the collectors, the late Alexandr Mikhailovich Djakonov.

Type locality, Amur Region.

Holo- and allotype in the Leningrad Museum.

Bactra (Bactra) loeligeri Diakonoff

Figs. 35-37, pl. III figs. 23, 24, pl. XV fig. 81, pl. XVI fig. 86

Bactra (*Bactra*) *loeligeri* Diakonoff 1956, Zool. Verhand., no. 29, p. 17, fig. 9 (♂, Amur, Ussuri).

The species has been described after two male specimens from the Amur and the Ussuri region. To my satisfaction I now found a third male and also a female of the species in the collection of the Leningrad Museum, consisting of over 300 specimens. Apparently *Bactra loeligeri* is an extremely rare or a very local species.

The male specimen (pl. III fig. 23) measuring 20 mm, is exactly similar to the paratype specimen (gen. no. 1890) from Ussuri. Both are of the vittate type. The ground colour is whitish, the costal markings, numerous fine strigulae, are longer and become undulating along second half of costa; a faint tawny suffusion over the base of wing; dorsum with fine strigulae; median fourth or third of wing suffused from base to apex with brown-fuscous, this colour interrupted along the upper to the lower edge of cell; the subapical streak is less developed in the present specimen than in the paratype. The second discal spot indicated by two or three dark brown dots, being the inner and the lower, or all three points, of the "V".

Hind wing pale purplish-fuscous, becoming somewhat darker towards apex and costa.

Male genitalia (Fig. 35, pl. XVI fig. 86). Tegumen is rather heavy and broader than in *helophaea*; uncus similar. Socii moderate, somewhat flattened, without sclerotized supporting ridges laterally; their ventral lobes are short and rounded, but do not meet mesially. Gnathos membraneous, a simple transverse band. Tuba analis large. Vinculum, a moderate band. Juxta strong and rather high. Anellus apparently not haired. Aedoeagus curved and rather long. Valva very characteristic, cucullus broad, top bluntly rounded, cucullus bristles and spines long and rather dense, but slender, reaching far beyond the Mc series, merging into Ms series and forming a strong patch of spines across the primary incision, between Mc and Ms. Mc series formed of long and

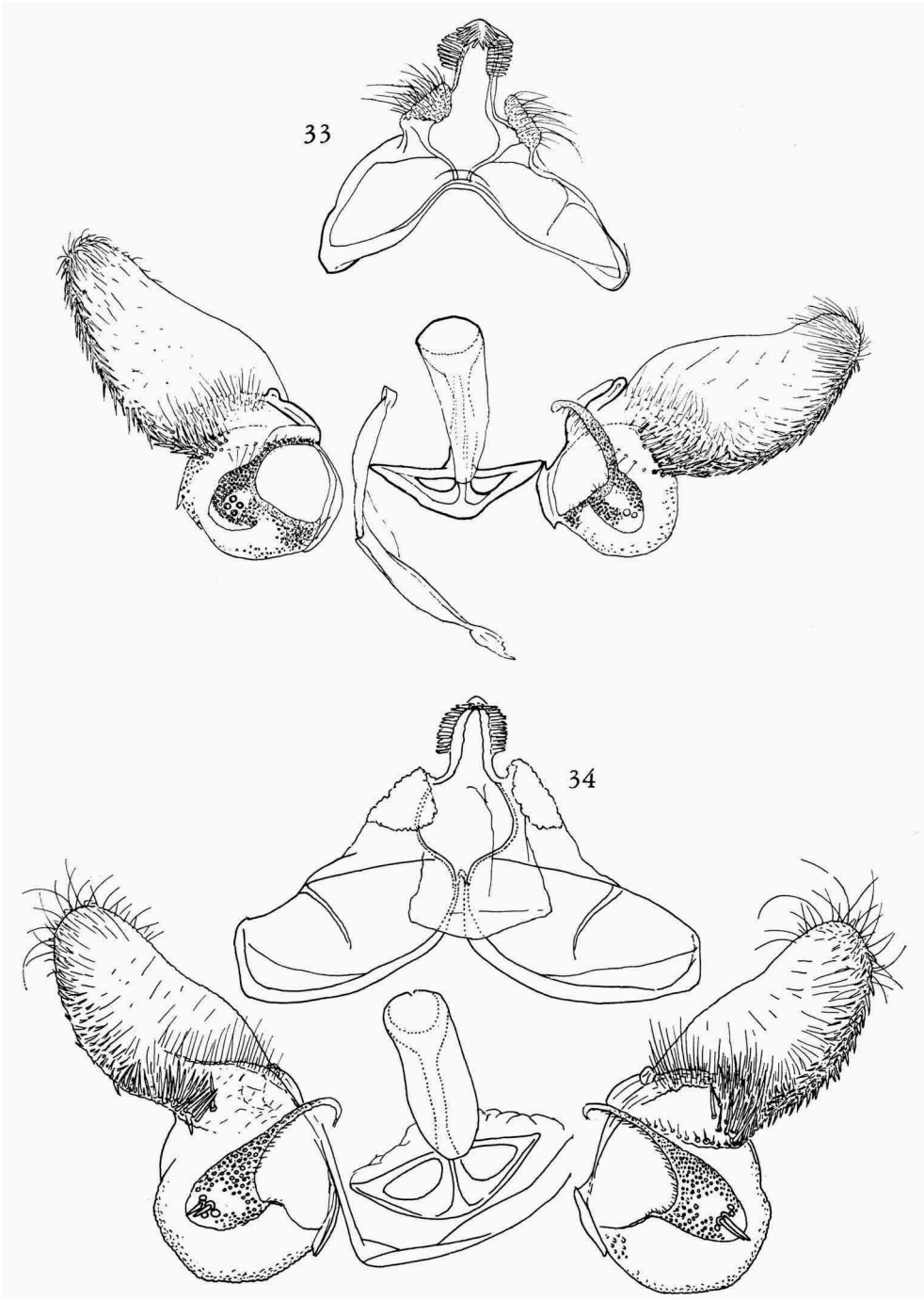
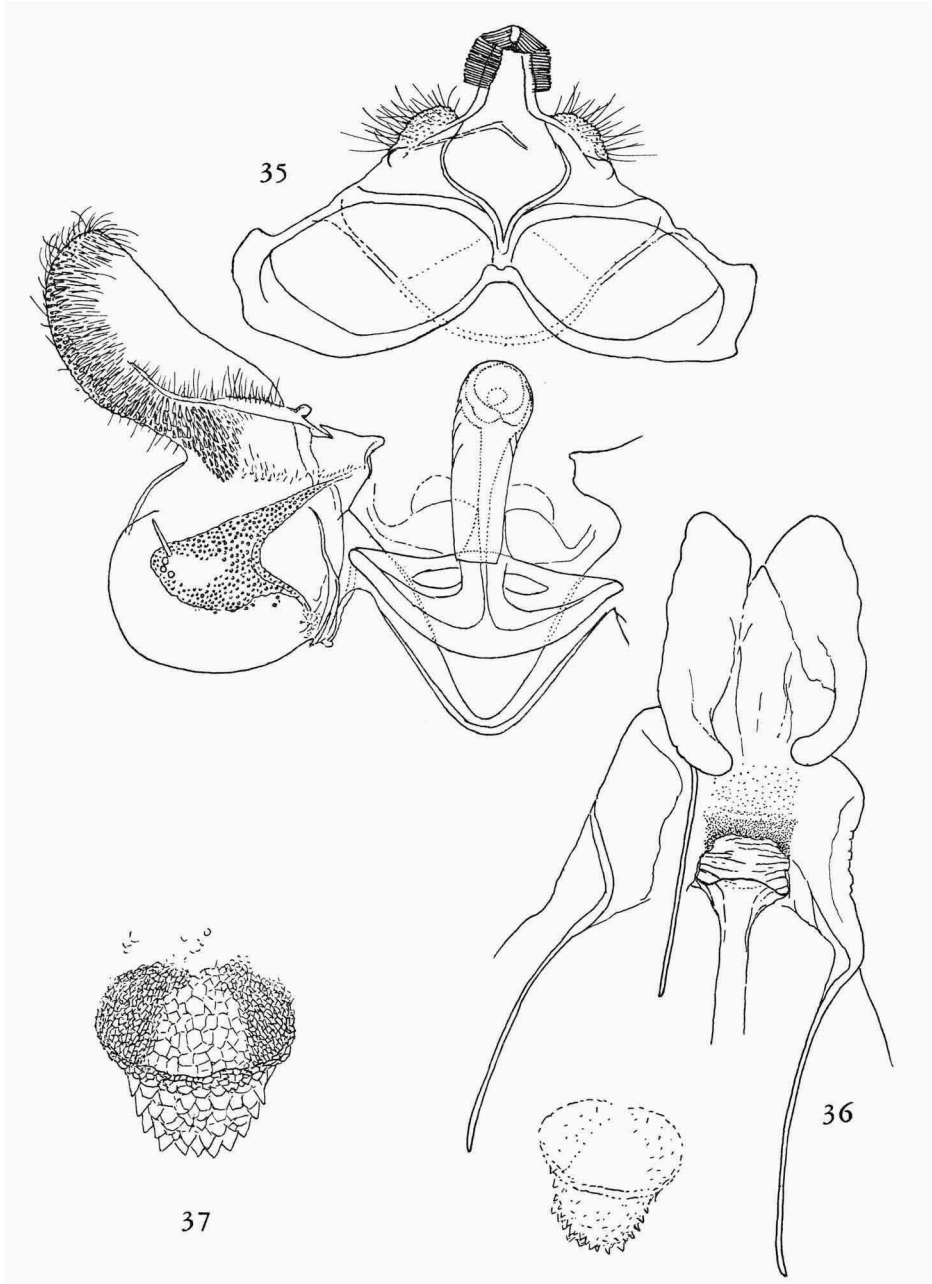


Fig. 33. *Bactra* (*B.*) *helophaea* Meyr., holotype, ♂ genitalia.
Fig. 34. *B.* (*B.*) *alexandri* spec. nov., holotype, ♂ genitalia (no. 3858).



Figs. 35-37. Genitalia of *Bactra* (*B.*) *loeligeri* Diak. Fig. 35. Male genitalia of the holotype, no. 1890 (After Diakonoff, 1956). Fig. 36. Female genitalia, neallotype, no. 4052, with signum. Fig. 37. The same, signum, more magnified.

very dense thin hairs. Sacculus very large, bulbous, more than 1½ × as broad as cucullus, evenly covered with dense hair-scales. Basal opening moderate, punctulate area long and broad, hardly narrowed apicad, apical smooth excavation large, at the extreme end with seven moderate spines. Ms series consisting of an external row of moderate spines (in the paratype there are only a few of these) and an internal, shorter row of hairs.

♀, neallotype, 18.5 mm (pl. III fig. 24), may be described as follows. Of the vittate type and very similar to the male (but greasy and therefore appearing darker). The colouring actually similar. Head, thorax, and abdomen sordid pale ochreous, moderately infuscated. Fore wing somewhat narrower, costa gently gradually curved, apex very acute, termen sinuate, very oblique. Costal markings similar to those in male. Median fascia darker, fuscous-purplish, along basal 2/3 extended downwards to dorsum, here and there with short longitudinal dark brown strigulae and a dark brown dot in apex; discal spot indicated as in male. Cilia sordid whitish-ochreous, with a pale basal and a fuscous subbasal line and a slightly infuscated tip; a bright tawny bar opposite apex, becoming fuscous on posterior half.

Hind wing rather light greyish with a distinct purple gloss. Cilia whitish.

Female genitalia (Figs. 36, 37, pl. XV fig. 81). Very similar to those of *gozmanyana*. Eighth segment rather sclerotized, produced bases of anapophyses also sclerotized. Lamella antevaginalis as in *gozmanyana*, but with a few longitudinal folds; lamella postvaginalis also similar, but with more transverse folds, converging laterally; there are distinct small vertical ridges at the sides, connecting lamella antevaginalis with lamella postvaginalis; the punctulate area of the latter situated above plicate area slightly dilated upwards and continued by fine punctulation almost to posterior edge of segment. Colliculum slender, little sclerotized, not very long. Sclerotized spiral of the receptaculum seminis present. Signum very characteristic: long-conical, longer than in any other species.

U.S.S.R. Ussuri region, Vinogradovka, 8-9. VII. 1929, "tar factory", 1 ♂, gen. no. 4051. The same locality, 5. VII. 1929, 1 ♀, neallotype, gen. no. 4052 (A. M. Djakonov & N. N. Filipjev). Both specimens also bear the label: "*Bactra lanceolana* Hw., Filipjev det." (Leningrad Museum).

The present species closes the series of the *furfurana* group, in my opinion being its most specialized member. The exaggerated sacculus in the male and the large, conical signum in the female are easily recognizable.

The species occurs together with *alexandri* and *furfurana*. Holotype, ♂, in the Berlin Museum, neallotype, ♀, in the Leningrad Museum.

References

A. Diakonoff, 1956. Records and descriptions of Microlepidoptera (8). Zool. Meded., no. 29, pp. 1-60, text figs. 1-57.

——, 1959. Further records and descriptions of *Bactra* species (Lepidoptera, Tortricidae), chiefly in Dr. H. G. Amsel collection. Bijdr. Dierk., fasc. 29, pp. 173-186, text figs. 1-18, plate.

APPENDIX

Bactra (Bactra) lacteana Caradja, status nov.

Plate XVIII

Bactra lanceolana var. *lacteana* Caradja 1916, Iris 1916, p. 62.

Bactra gozmanyana Toll 1958, Ann. Zool., vol. 17, p. 65, figs. 1, 2; t. 2 figs. 1, 5; t. 3 fig. 8. Synon. nov.

After the manuscript of the present paper was sent to the printer's, important information reached me; it may be added here.

Mr. M. I. Falkovich, of the Leningrad Museum, had an opportunity upon my request, very kindly to study the lectotype, a male, of "*Bactra lanceolana* var. *lacteana* Caradja, from Raddé [1]) and sent me a photograph of the genitalia of this obscure form. This note and the photograph are published here with his permission (Plate XVIII).

The lectotype is labelled as follows: "Raddé, Korb. 1905"; "5186, Wlsm. 1908"; "*Bactra lanceolana* Hb. teste Wlms." and "Lectotyp *Bactra lanceolana* v. *lacteana* Car. ♂, des. Popescu-Gorj".

I am not sure whether the designation of this lectotype was ever published. In any case it is legalised now.

The male genitalia plainly show that the species is the same as *Bactra gozmanyana* Toll 1958, which name has to be sunk as a synonym.

The common Palaearctic species should henceforward be called: *Bactra (Bactra) lacteana* Caradja 1916.

List of Species

alexandri 39
cyperana 21
extrema 37
festa 20
fumosana 9
furfurana 25 (31, 35)
gozmanyana 31
graminivora 21
griseana 15
helophaea 35
honesta 24
iranica, longinqua 5
kurentsovi, furfurana 27
lacteana 45
lanceolana 9
loeligeri 41
longinqua 5
mediterraneana 21
robustana 15
suspensa, lanceolana 12

1) The locality with this unusual, probably Hebrew, name is situated in southeast Siberia, west of Kharbin (48° 37′ N 130° 37′ E), where a Jewish colony is located. The type locality is omitted from the Zoological Record, perhaps because it rather sounds like the name of a collector than of a collecting locality.

EXPLANATION OF PLATES

PLATE I

Fig. 1. *B. lanceolana* Hb., ♂, gen. no. 4060 (Taganrog) "classical" maculate type. Fig. 2. The same, ♀, gen. no. 4042 (Taganrog), maculate-vittate type. Fig. 3. The same, ♂, gen. no. D 290 (Holland), reduced type. Fig. 4. The same, ♀, gen. no. 1900 (Holland), vittate type. Fig. 5. The same, ♂, gen. no. 4045 (Russia), vittate type. Fig. 6. *B. furfurana* var. *kurentsovi* nov., ♀, paratype, gen. no. 4019 (Ussuri), tending towards vittate type. Fig. 7. *B. lanceolana suspensa,* subspec. nov., ♂ holotype, gen. no. 4061 (Pamir). Fig. 9. *B. festa* Diak., ♂, holotype, gen. no. 2839 (Japan). Fig. 10. The same, ♀ allotype, gen. no. 2841 (Japan).

PLATE II

B. robustana Chr. Fig. 11. ♂, gen. no. 4076 (Taganrog), maculate type. Fig. 12, ♀, gen. no. 4111 (the same locality), maculate-unicolorous type. Fig. 13, ♂, gen. no. 2804 (Hungary), maculate type, narrow-winged. Fig. 14. ♀, gen. no. 4115 (Guberli), characteristic vittate type. Fig. 15, ♂, gen. no. 4059 (Taganrog), reduced type. Fig. 16, ♀, gen. no. 4080, (the same locality), reduced type.

PLATE III

Fig. 17. *B. graminivora* Meyr., ♂, gen. no. 4007, Ashkhabad), maculate type. Fig. 18. The same, ♀, gen. no. 2581 (Chardchui), reduced type. Fig. 19. The same, ♂, gen. no. 3842 (Daghestan), narrow-winged, maculate type. Fig. 20. The same, ♀, gen. no. 4106 (Daghestan), characteristic unicolorous type. Fig. 21. *B. furfurana* var. *kurentsovi* nov., ♂, holotype, gen. no. 4027 (Ussuri), fasciate type. Fig. 22. The same, ♀, allotype, gen. no. 4048. Fig. 23. *B. loeligeri* Diak., gen. no. 4051 (Ussuri), vittate type. Fig. 24. The same, ♀, neallotype, gen. no. 4052 (the same locality), vittate type.

PLATE IV

B. furfurana Hw. Fig. 25. ♂, gen. no. 3933 (Ternovka, Russia) broad-winged. Fig. 26. ♀, gen. no. D 548 (Holland). Fig. 27. ♀, gen. no. 3927 (Vladimir). Fig. 28. Darkly suffused ♂, gen. no. 1832 (Holland). Fig. 29. ♂, gen. no. 3936 (Ussuri). Fig. 30. ♀, gen. no. 3942 (Ternovka); tending towards maculate type. Fig. 31. ♀, gen. no. 1864 (Holland); vittate type.

PLATE V

Fig. 32. *B. gozmanyana* Toll, ♂, paratype gen. no. 2418 (Poland), reduced type. Fig. 33. The same, ♀, paratype, gen. no. 2452 (Poland) vittate type. Fig. 34. The same, ♂, gen. no. 1914 (Holland), vittate type. Fig. 35. The same, ♀,

gen. no. 1835 (Holland), vittate, narrow-winged. Fig. 36. *B. alexandri* spec. nov. ♂, holotype, gen. no. 3858, reduced type (Ussuri). Fig. 37. The same, ♂, paratype, gen. no. 3854. Fig. 38. The same, ♀ allotype, vittate type, gen. no. 3861.

PLATE VI

Figs. 39-43. *Bactra* (*B.*) *graminivora* Meyr., ♀ genitalia showing the variability of the sterigma. Fig. 39. Gen. no. 3896. Fig. 40. Gen. no. 3912. Fig. 41. Gen. no. 3882. Fig. 42. Gen. no. 3881. Fig. 43. Gen. no. 1381. Note the diverse lengths of the sculpture of the lamella postvaginalis.

PLATE VII

Figs 44-46. *Bactra* (*B.*) *furfurana* Hw., ♂ genitalia, showing variability. Fig. 44. Gen. no. 1834. Fig. 45. Gen. no. 1832. Fig. 46. Gen. no. 3933. Left valva, more magnified, at the right.

PLATE VIII

Figs. 47-50. *Bactra* (*B.*) *furfurana* Hw., genitalia. Fig. 47. ♂, gen. no. 3930, below left valva, more magnified. Fig. 48. ♂, gen. no. 3936, below left valva, more magnified. Fig. 49. ♀, gen. no. 3927, below signum. Fig. 50. ♀, gen. no. 3928, below signum.

PLATE IX

Figs. 51-57. *Bactra* (*B.*) *furfurana* Hw., female genitalia, showing variation. Fig. 51. Gen. no. 3038. Fig. 52. The same, signum. Fig. 53. Gen. no. 3937. Fig. 54. The same, signum. Fig. 55. Gen. no. 1864. Fig. 56. Gen. no. 3942, with right, signum. Fig. 57. Gen. no. D 598.

PLATE X

Figs. 58-63. Genitalia of *Bactra* (*B.*) *gozmanyana* Toll. Fig. 58. ♂, paratype, gen. no. 2418. Fig. 59. The same, left valva, more magnified. Fig. 60. ♀, paratype, gen. no. 2452. Fig. 61. The same, signum. Fig. 62. Gen. no. 1835. Fig. 63. The same, signum.

PLATE XI

Figs. 64-65. Male genitalia of *Bactra* (*B.*) *gozmanyana* Toll. Fig. 64. Gen. no. 1888, tegumen, left; valvae, below; left valva more magnified, right. Fig. 65. Gen. no. 1914, with left valva, more magnified.

PLATE XII

Fig. 66. *Bactra* (*B.*) *helophaea* Meyr., ♂, holotype, genitalia (by courtesy of the Trustees of the British Museum, Natural History). Fig. 67. *B.* (*B.*) *gozmanyana* Toll, aberrant type, with elongate cucullus. Fig. 68. *B.* (*B.*) *alexandri* spec. nov., ♀, allotype, sterigma. Fig. 69. The same, signum.

PLATE XIII

Fig. 70. *Bactra* (*B.*) ***alexandri*** spec. nov., ♂, holotype. Fig. 71. The same, left valva more magnified. Fig. 72. The same, ♂, paratype, gen. no. 3854. Fig. 73. The same, left valva, more magnified.

PLATE XIV

Figs. 73-74. *Bactra* (*B.*) *helophaea* Meyr., holotype, left and right valvae; 75-76. *B.* (*B.*) ***extrema*** spec. nov., holotype, left and right valvae, gen. no. 3852 (Vladivostok); 77. The same, paratype, gen. no. 4174 (Vladivostok), left valva.

PLATE XV

Fig. 78. Aberrant type of valva in *Bactra* (*B.*) *gozmanyana* Toll, gen. no. 4143 (Leningrad); 79. *B.* (*B.*) ***alexandri*** spec. nov., gen. no. 3860 (Amur); Fig. 80. *B.* (*B.*) ***extrema*** spec. nov., paratype, gen. no. 4172 (Okeanskaja). Fig. 81. *B.* (*B.*) *loeligeri* Diak., neallotype, bursa copulatrix with signum and collum of spermatophore; at the right of the bursa, partially sclerotized spiral of the ductus seminalis.

PLATE XVI

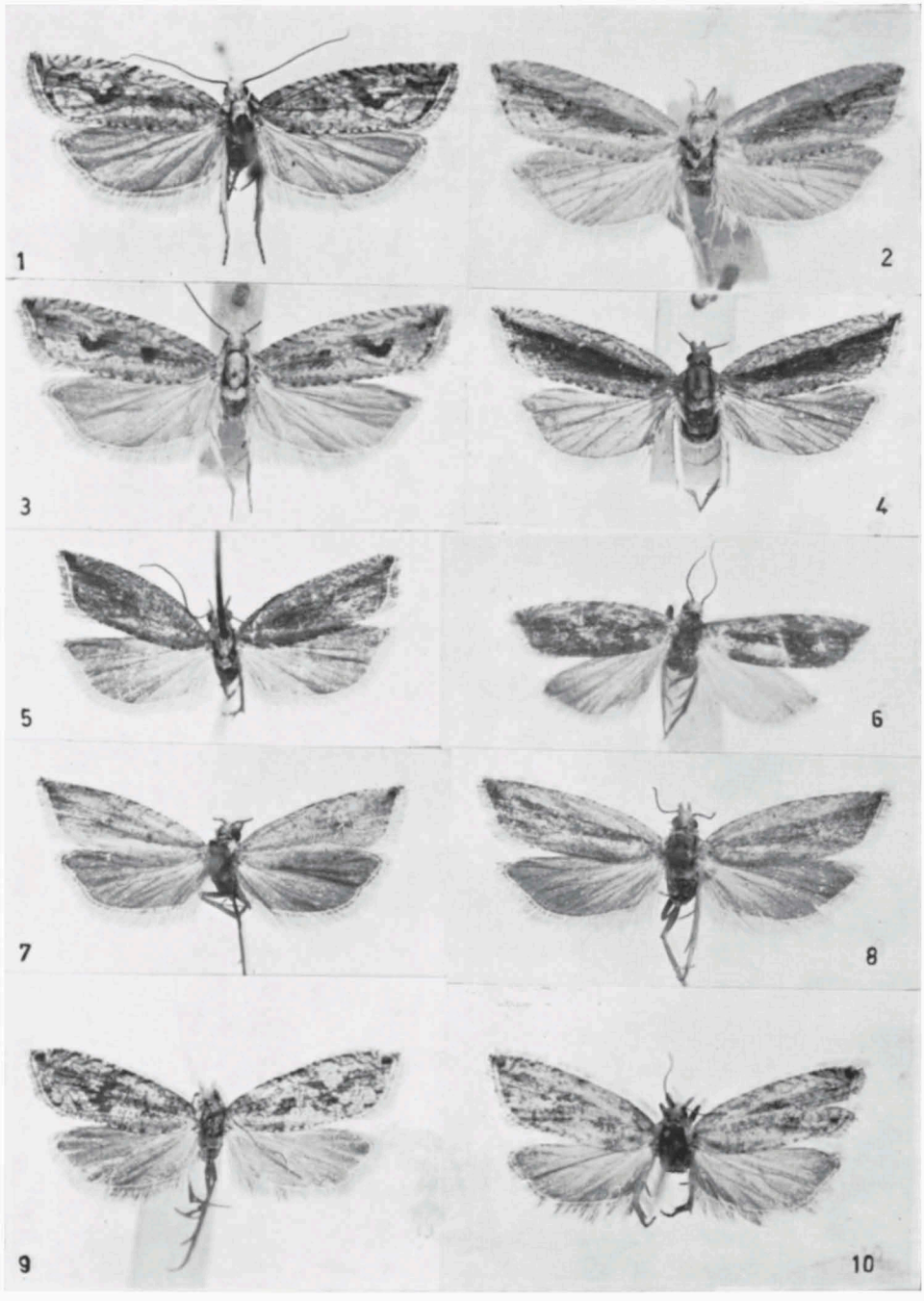
Figs. 82. *Bactra* (*B.*) ***honesta*** Meyr., ♂, gen. no. 3966 (Shillong), left valva. Figs. 83-84. *B.* (*B.*) *furfurana* var. ***kurentsovi*** nov.; 83. paratype, gen. no. 4027, right valva. 84. The same, holotype, gen. no. 2029 (Vladivostok). Fig. 85. *B.* (*B.*) ***extrema*** spec. nov., paratype, gen. no. 4173 (Ussuri), right valva, with cucullus slightly turned, somewhat aberrant specimen. Fig. 86. *B.* (*B.*) *loeligeri* Diak., ♂, gen. no. 4051 (Ussuri) right valva. (All at the same scale).

PLATE XVII

Fig. 87. *Bactra* (*Bactra*) *furfurana* var. ***kurentsovi*** nov., holotype, ♂. Fig. 88. *B.* (*B.*) ***extrema*** spec. nov., holotype, ♂. Fig. 89. *B.* (*B.*) *furfurana* Hw., ♀, gen. no. 3949, (Jakovlevka, Ussuri) fasciate type tending towards vittate type. Fig. 90. The same, ♀, gen. no. 4165 (Sebastopol, Crimea) vittate, almost unicolorous type. (3.5 ×).

PLATE XVIII

Fig. 91. *Bactra* (*B.*) *lacteana* Caradja, lectotype. Male genitalia. Photo M. I. Falkovich.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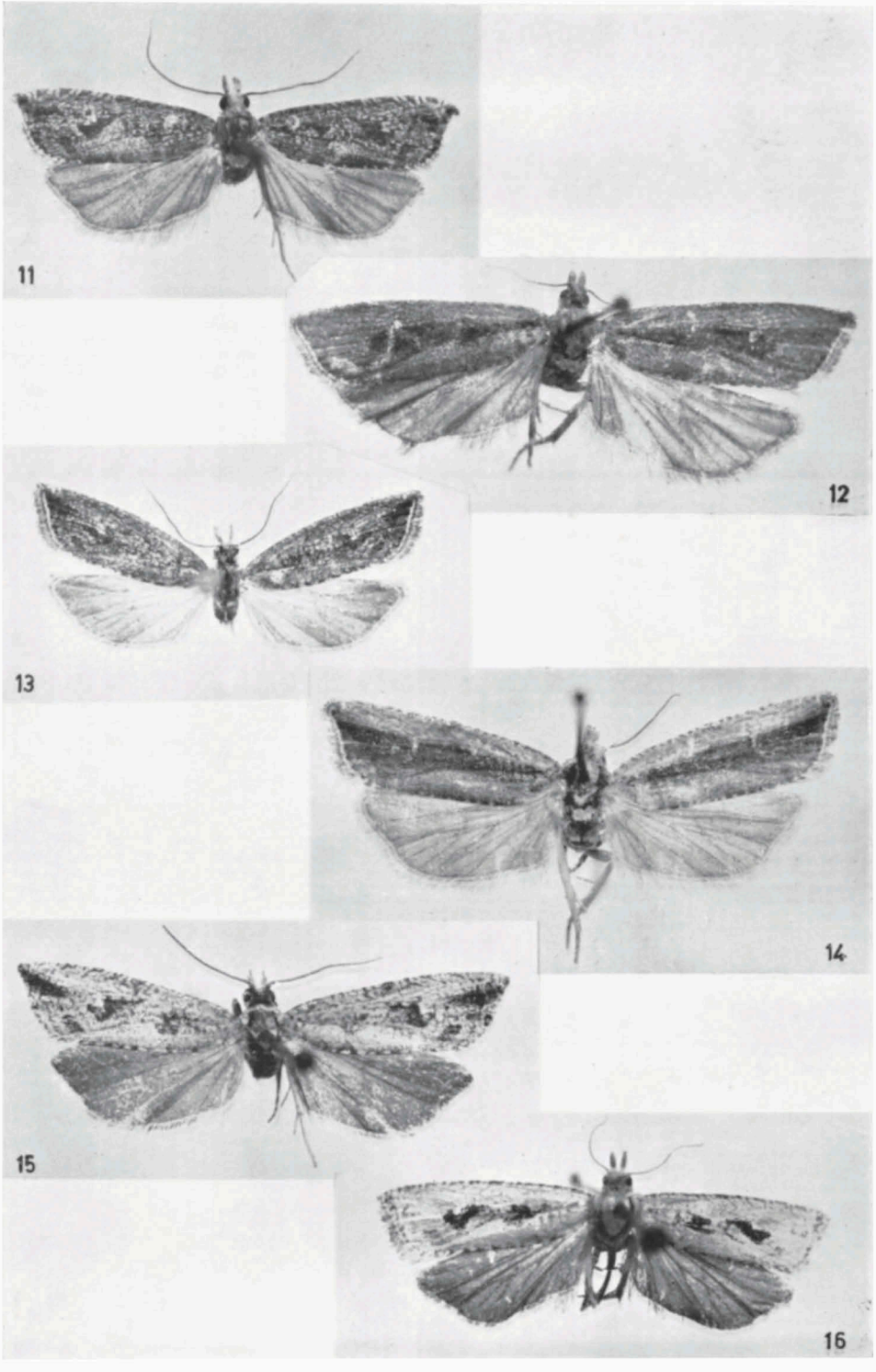
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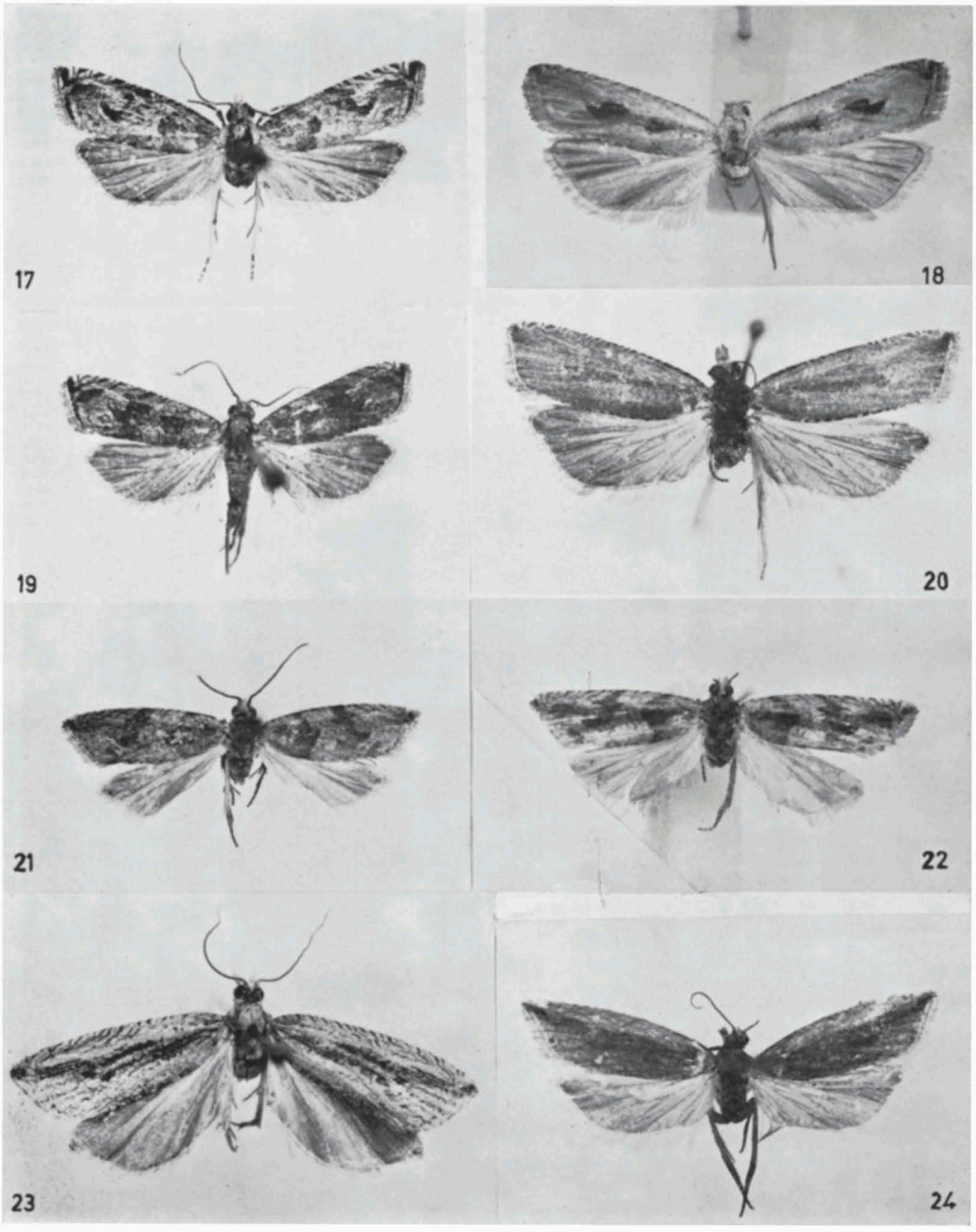
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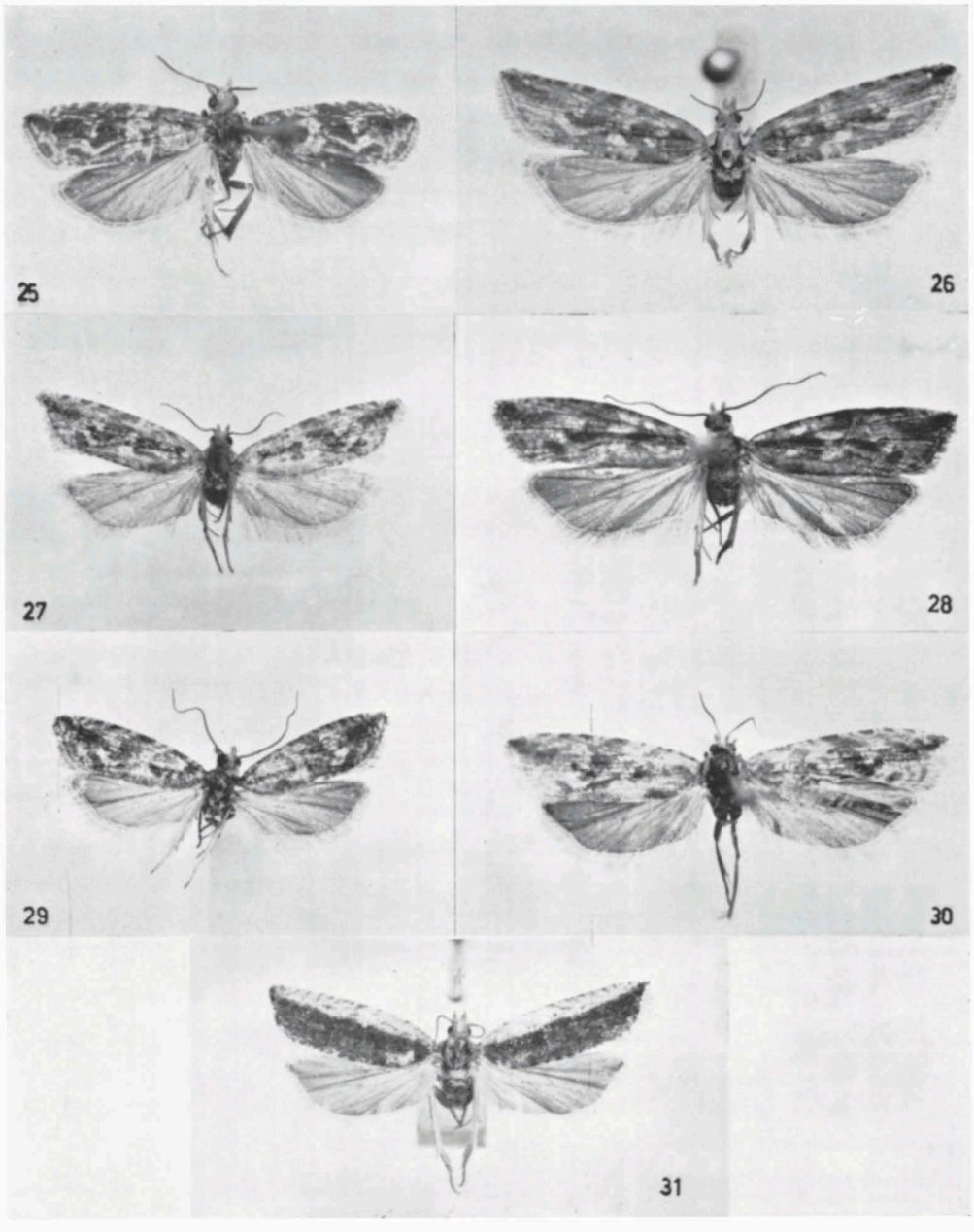
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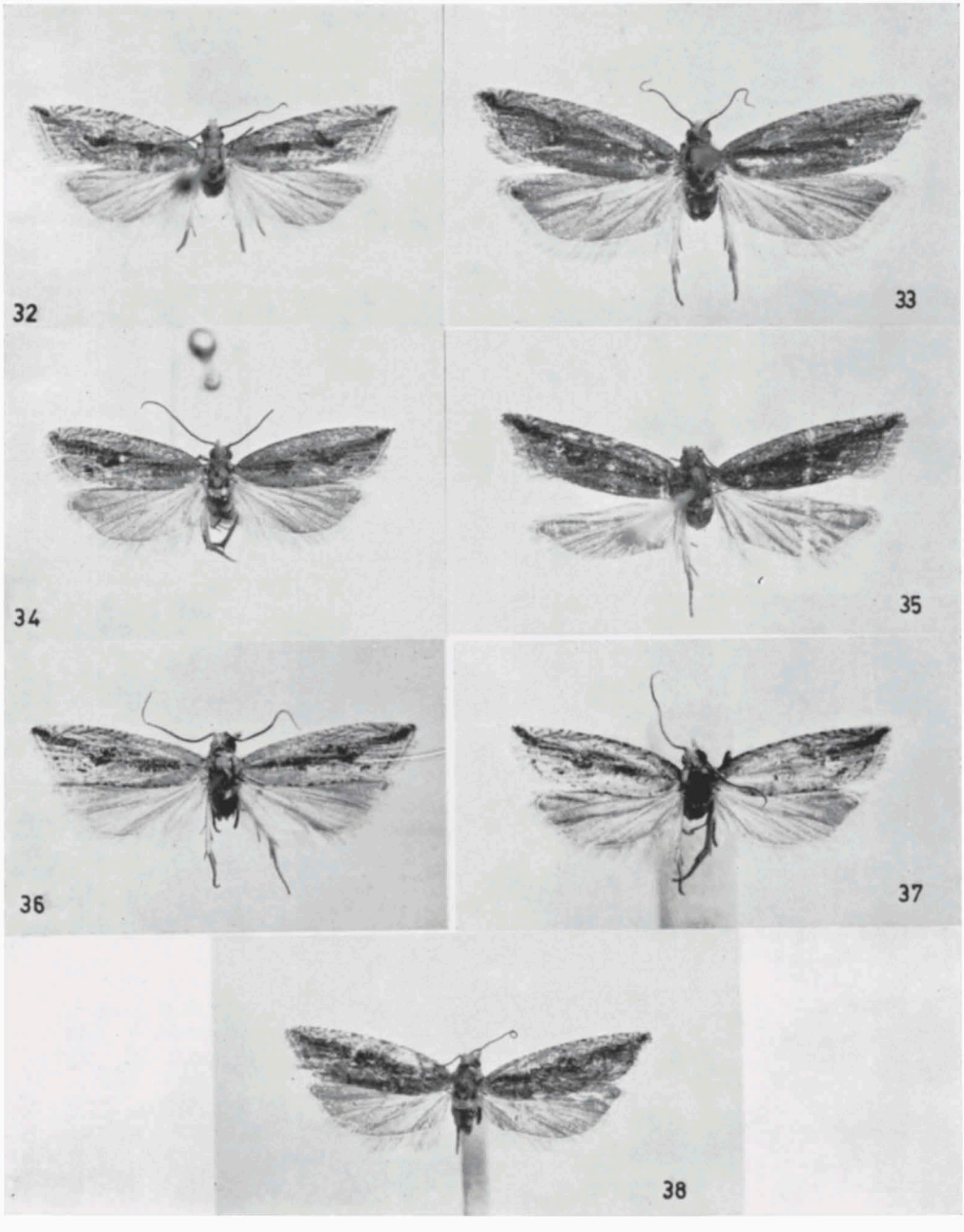
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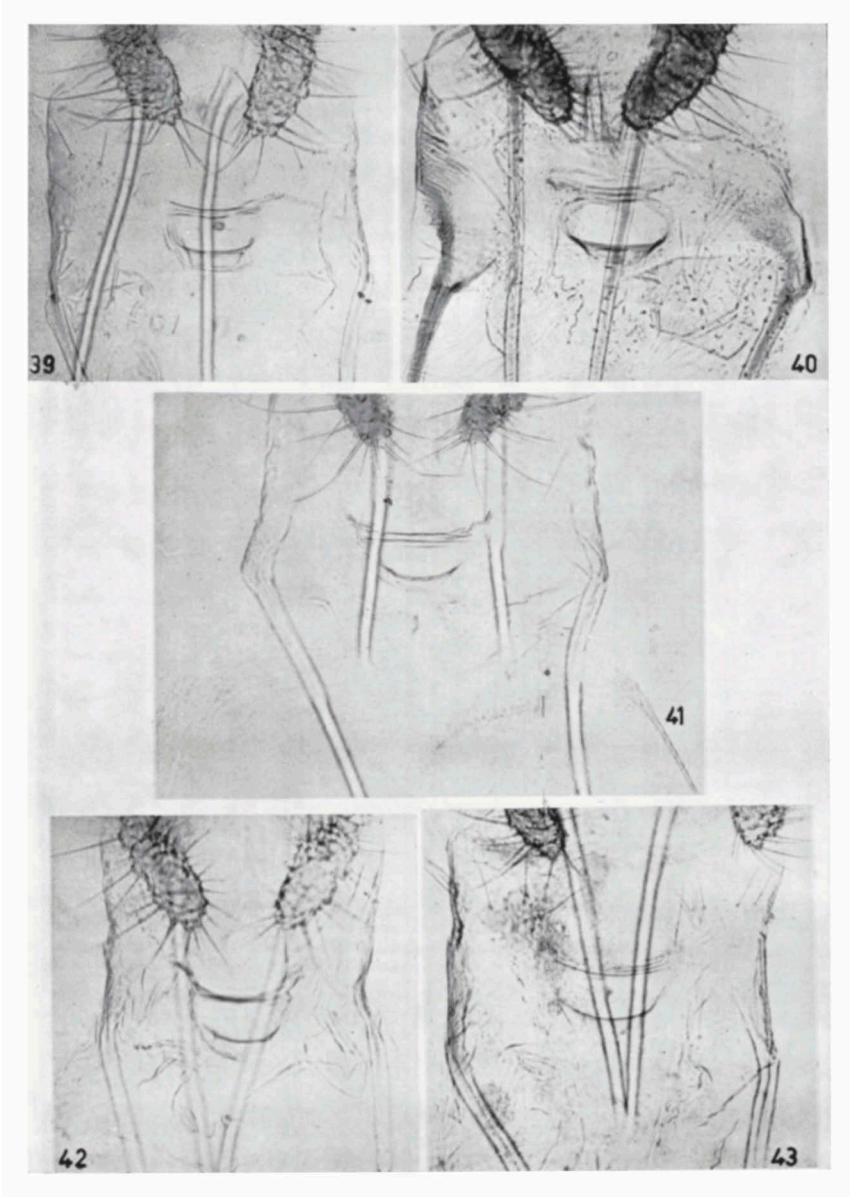
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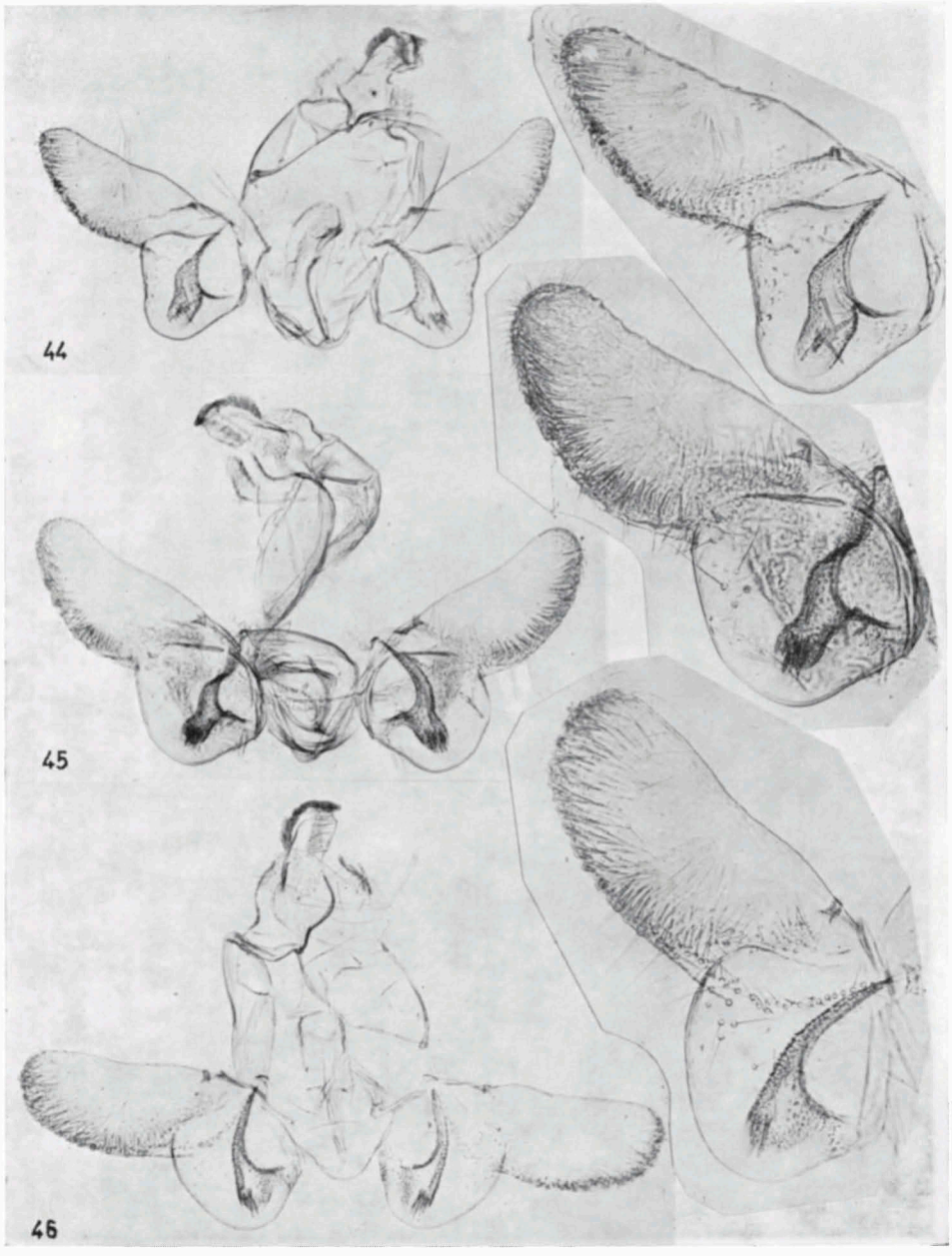
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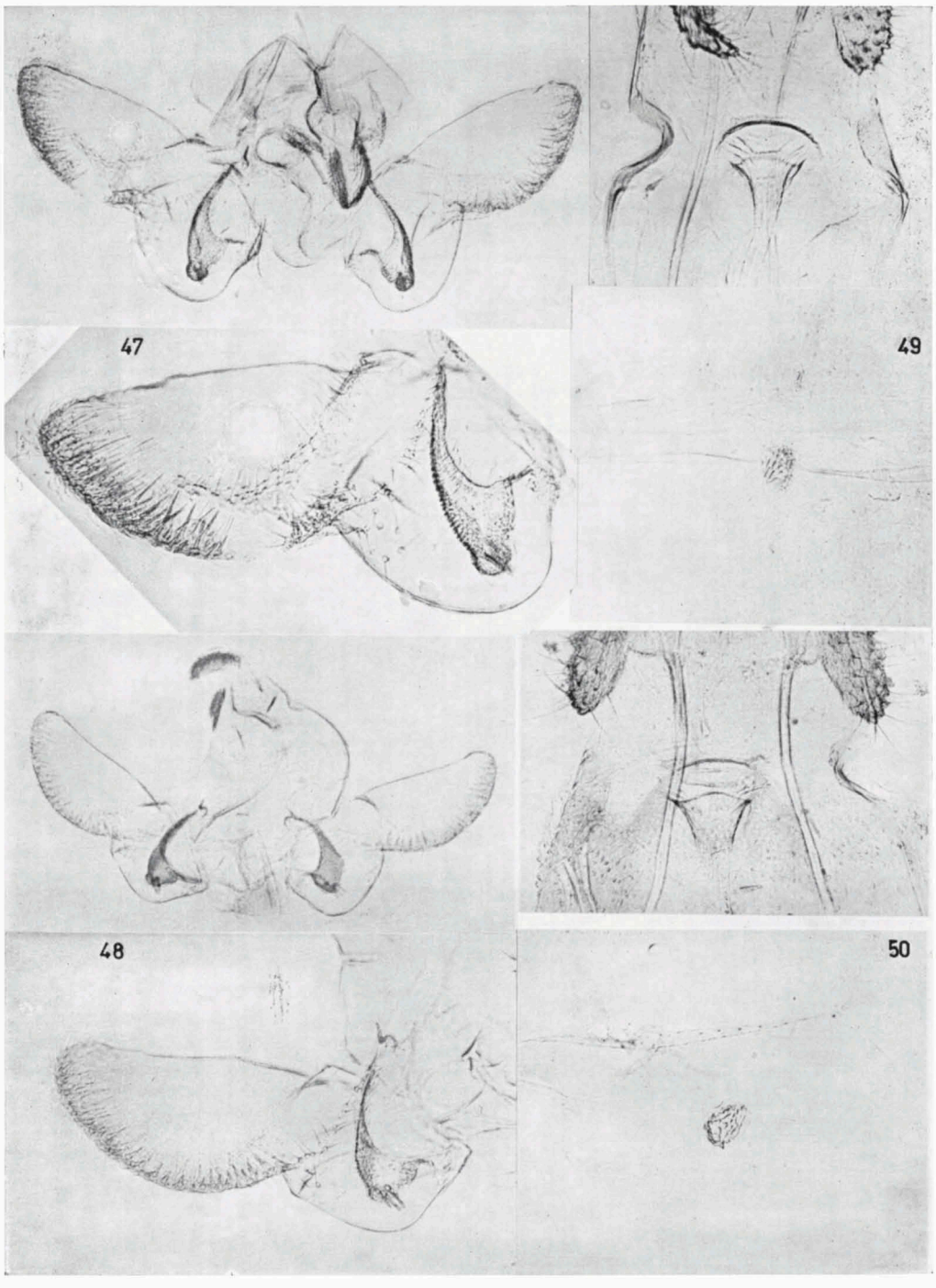
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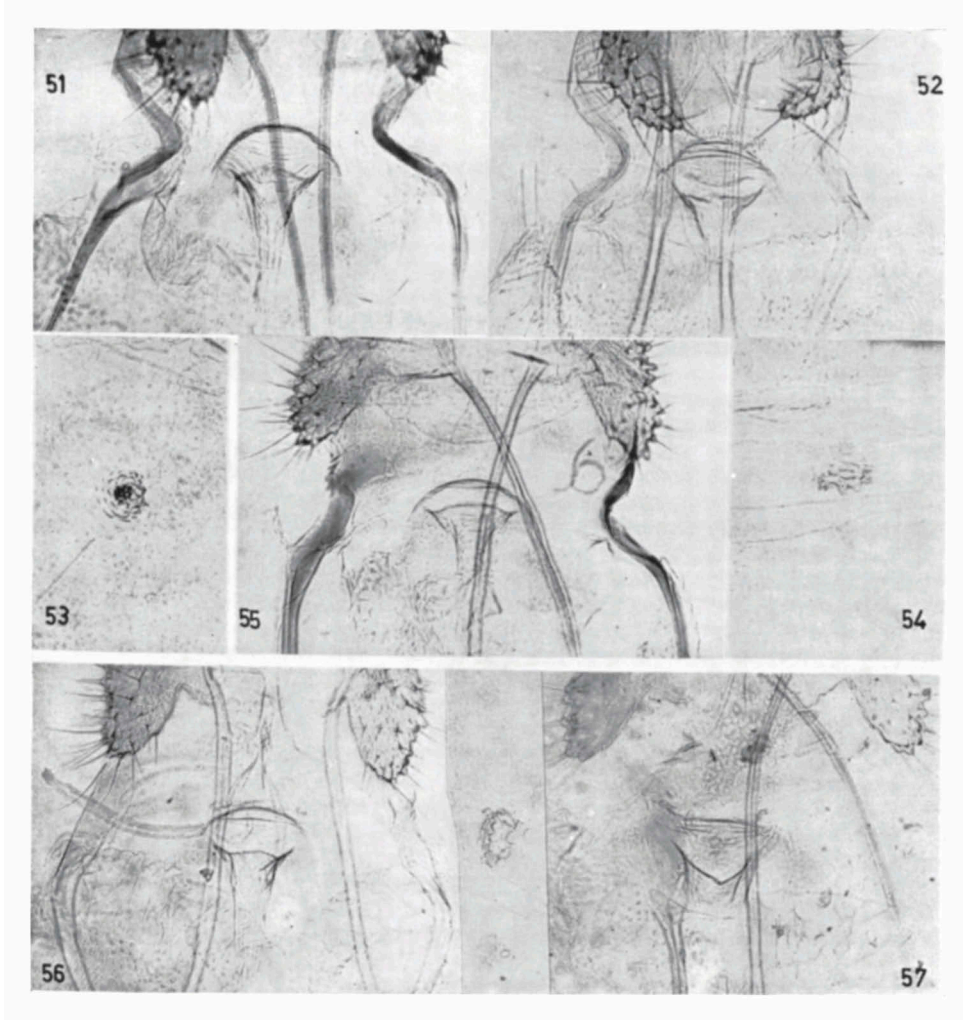
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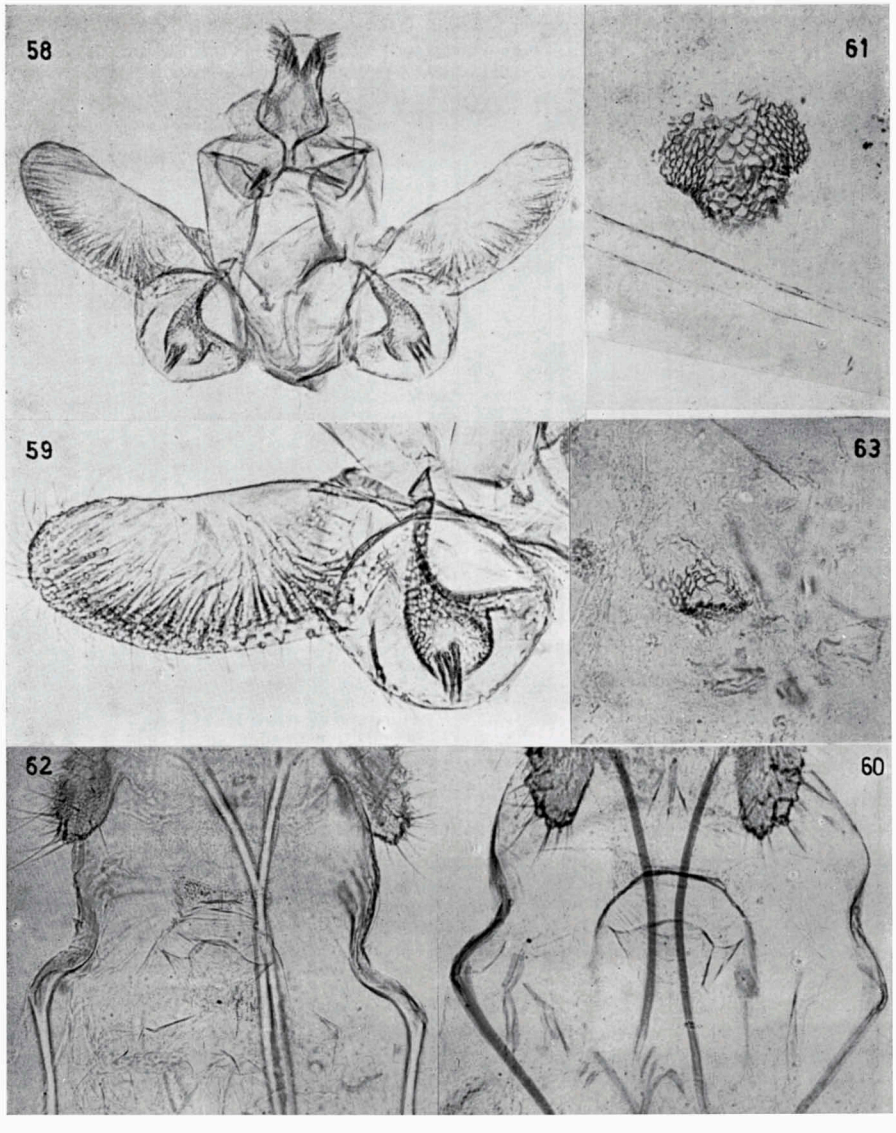
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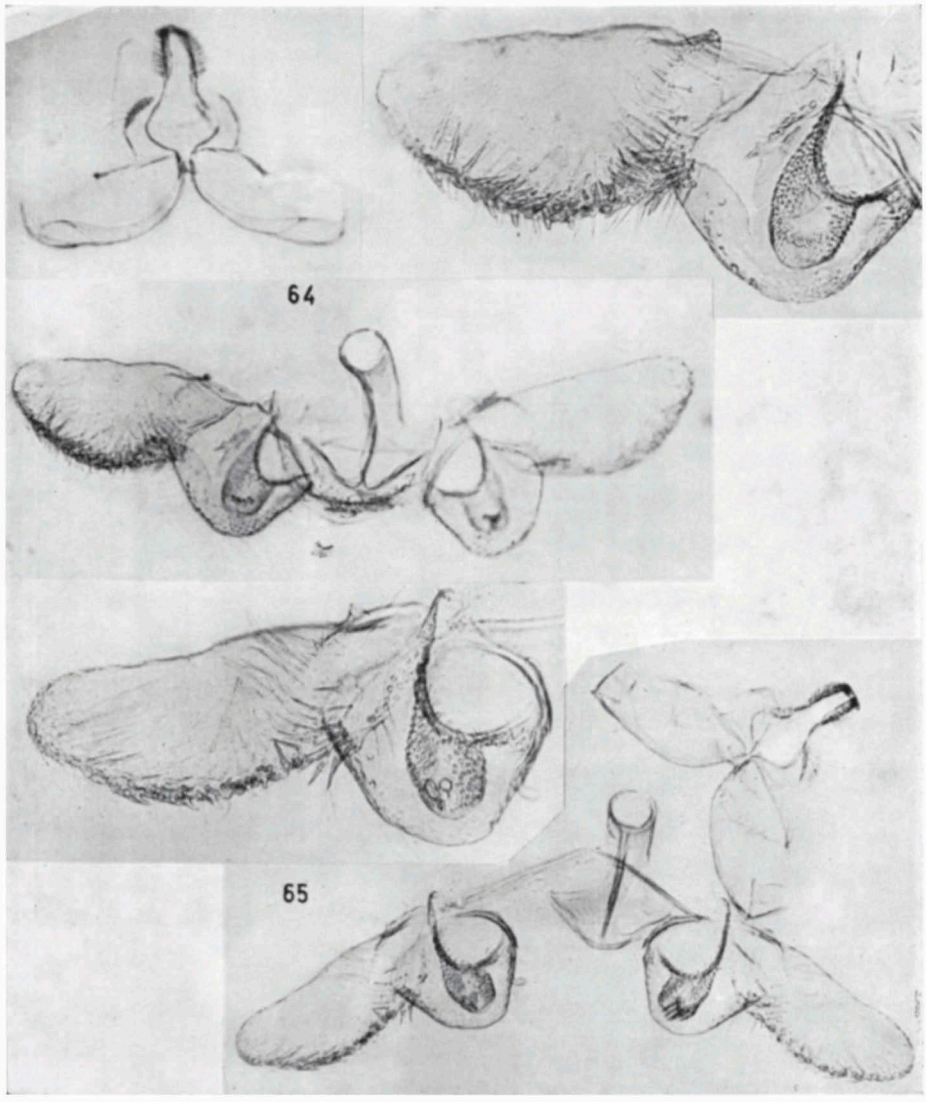
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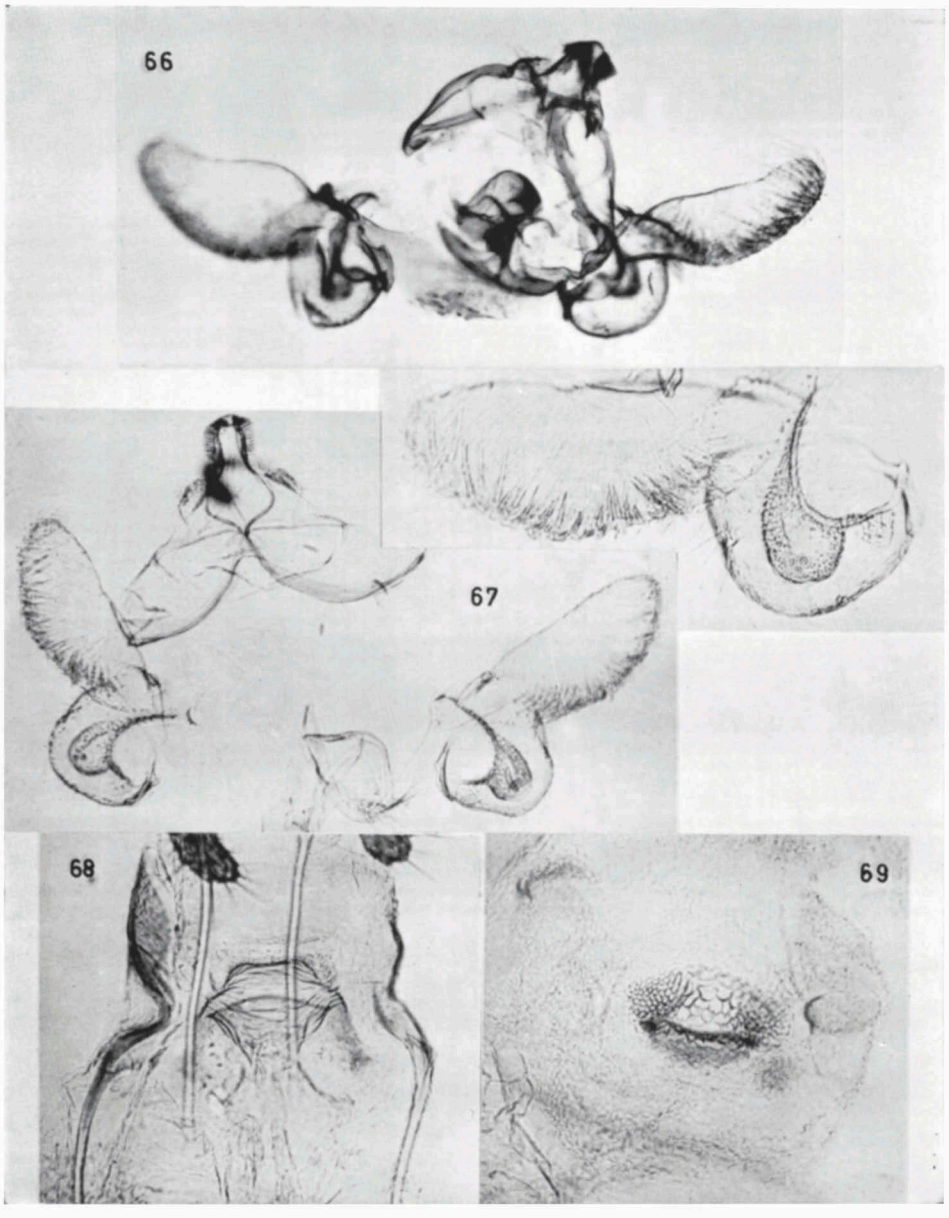
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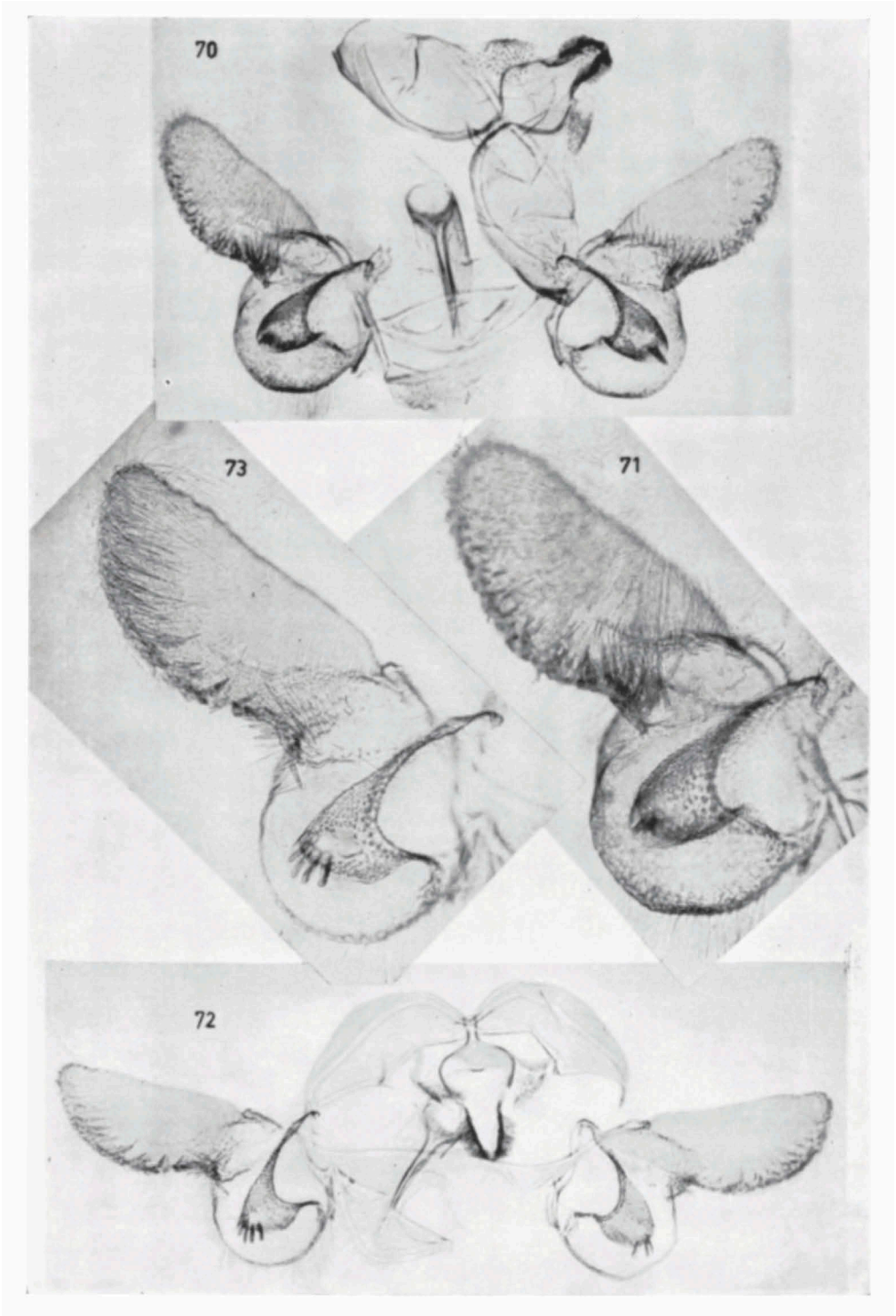
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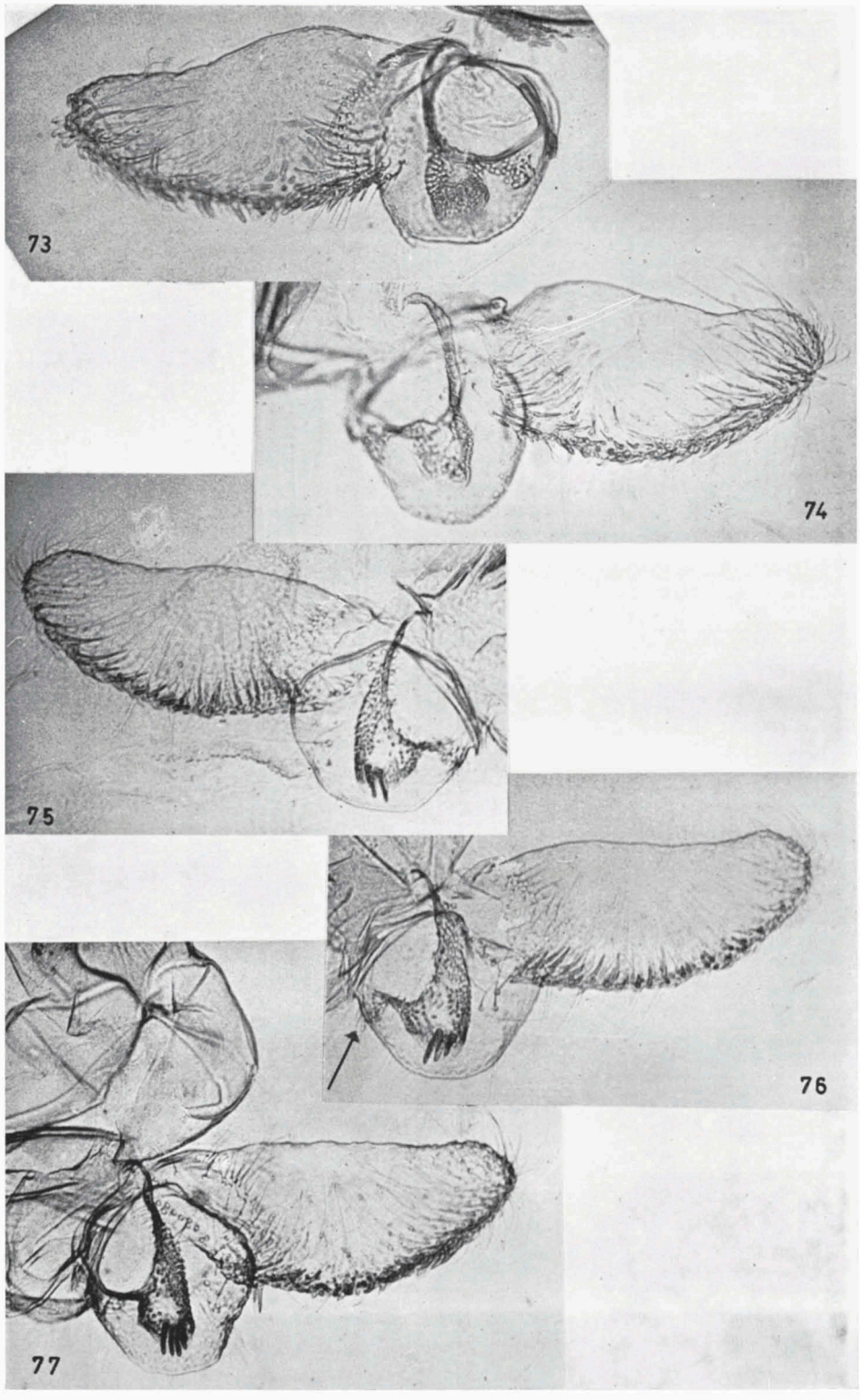
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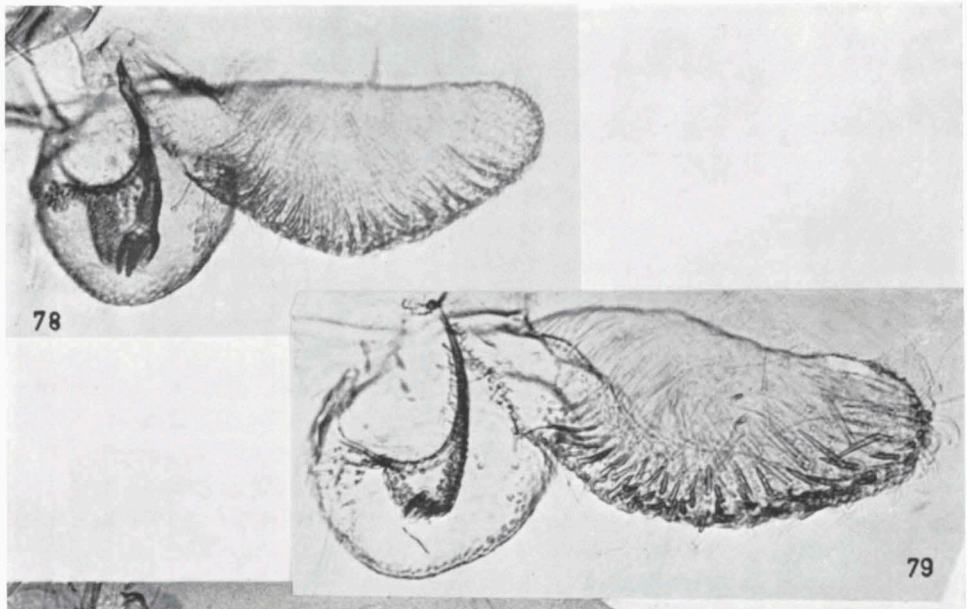
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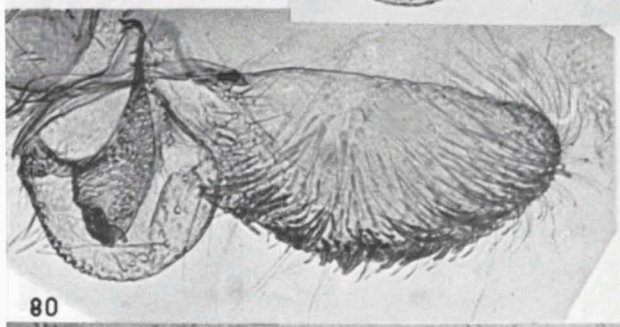
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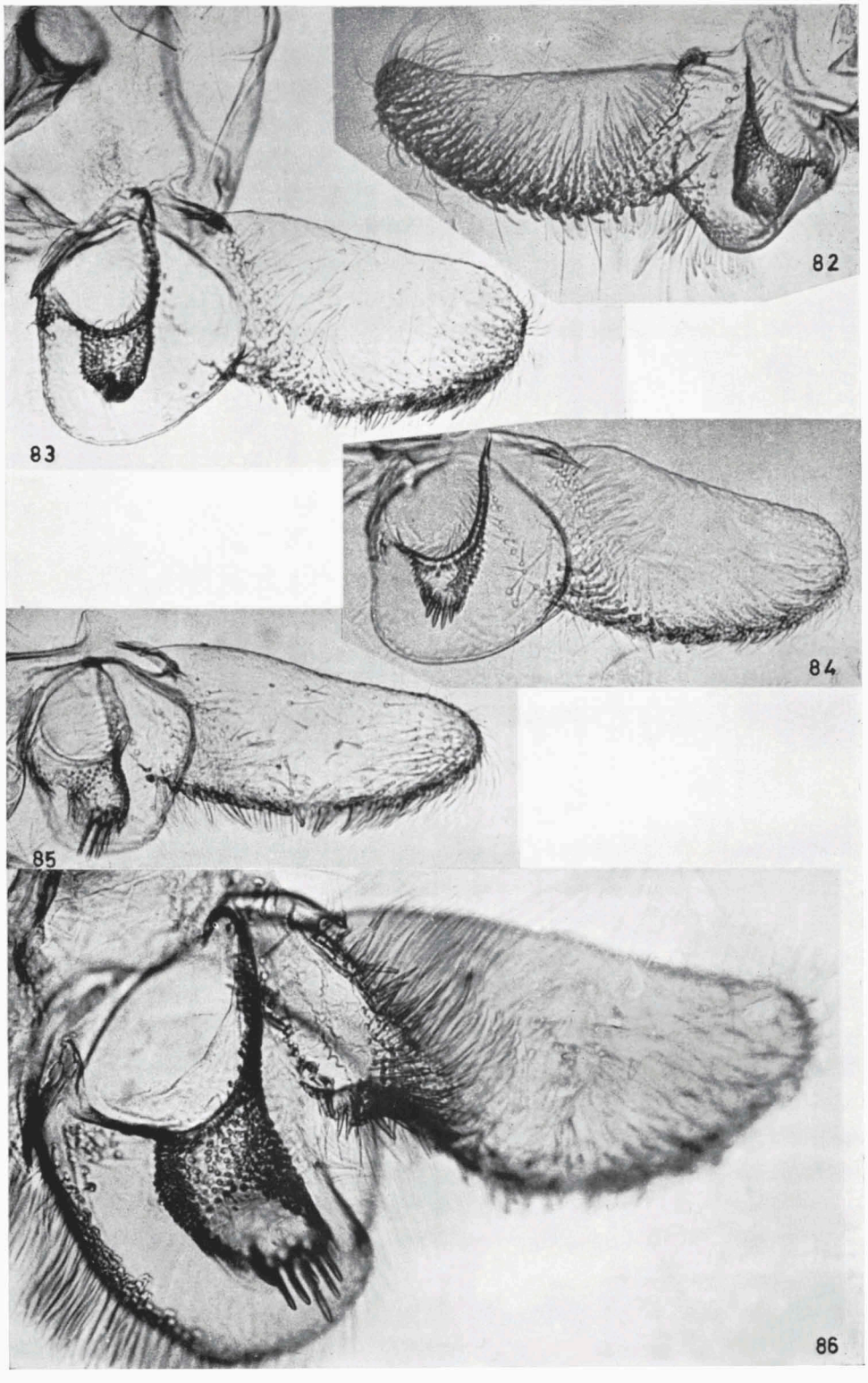
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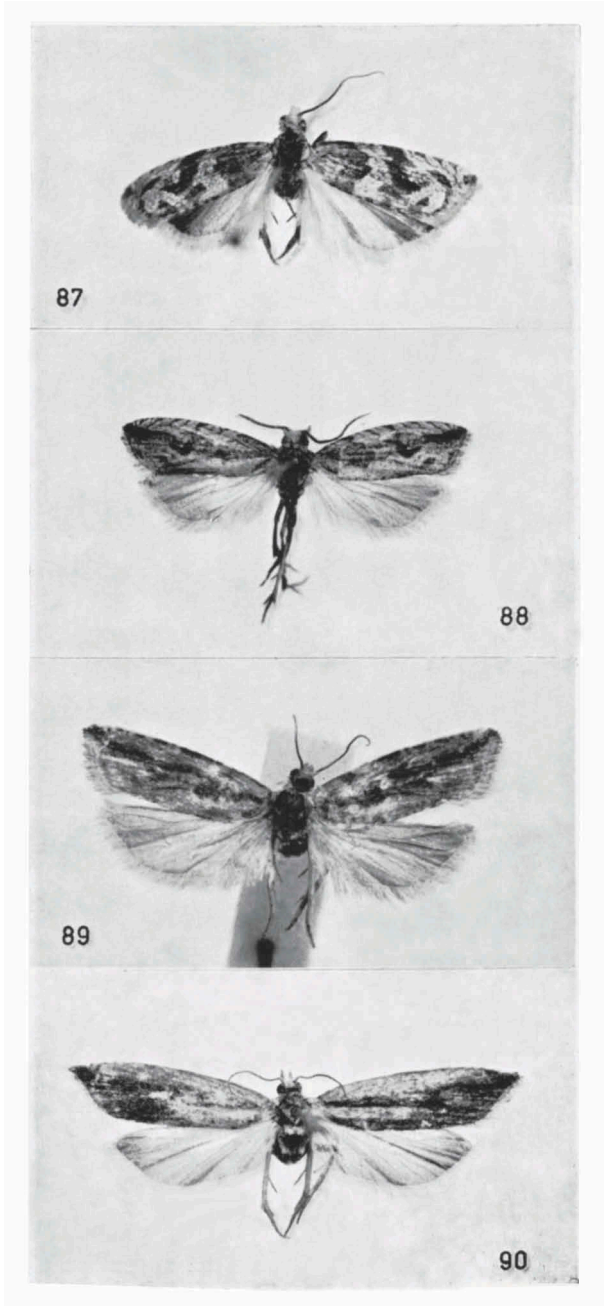
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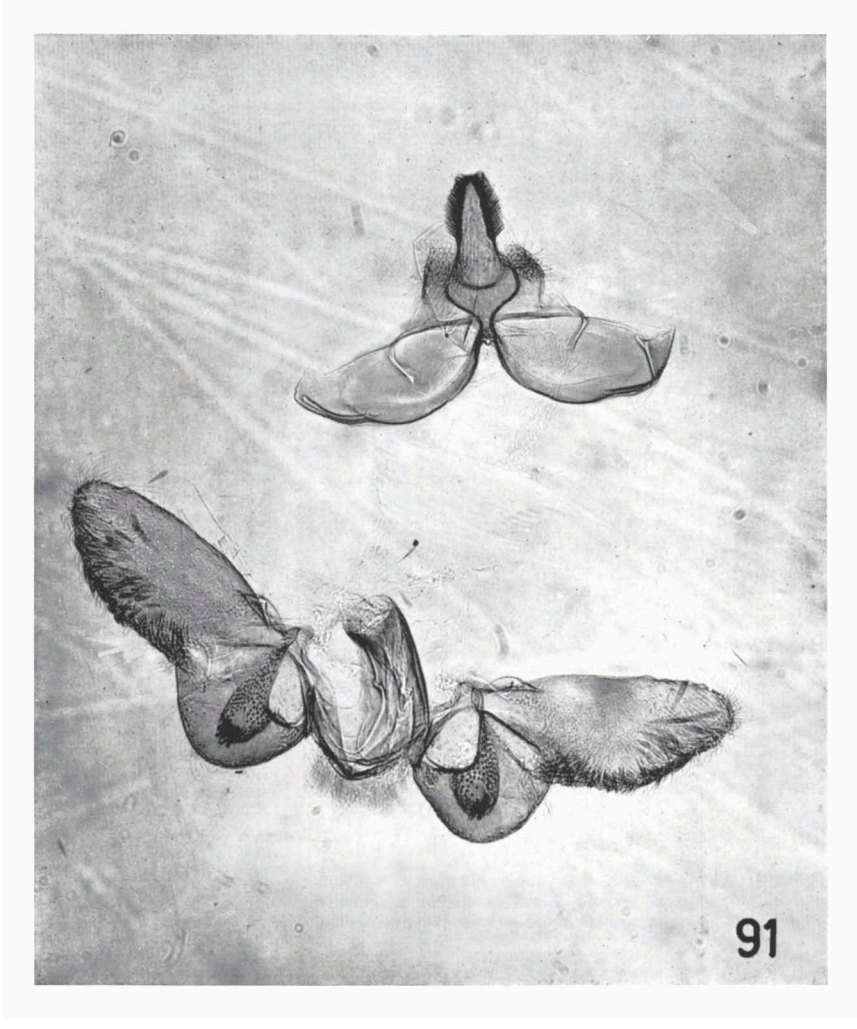
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