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Materiały do znajomości *Crambidae (Lepidoptera)*. Część XXII. O stanowisku systematycznym niektórych północno-amerykańskich gatunków z grupy rodzajowej *Crambus* F. *s. l.*

Studies on the *Crambidae* (*Lepidoptera*). Part XXII. On the systematical position of several North-American species of the generic group *Crambus* F. *s. l.*

napisał

STANISŁAW BŁESZYŃSKI

1. *Crambus lyonsellus* Haim.

(Plate I fig. 2, plate VI fig. 26, plate VIII fig. 36, 37)

Crambus lyonsellus Haimbach, 1915, Ent. News, 26, p. 324, pl. XII, fig. 9.

Judging from the external characters as the pattern and colour of primaries, as well as from the structure of the male genital armature and female genitalia, *C. lyonsellus* Haim. is a typical member of the genus *Crambus* F. *s. str.* Externally it comes near the European *C. uliginosellus* Zell., it is, however, distinct from it by the smaller size, relatively broader and more cut basal stripe of the primaries, as well as by the paler colour of the females. The relationship between both species is, however, problematical, as their male genital armatures and female genitalia show. In *C. lyonsellus* Haim. pars basalis (costal process of valva) broad basally, further on distinctly tapering and tipped in a strongly curved, small hook. Sacculus reaching two thirds of valva. It is tipped with a curved thorn which has a small, spike-like process on its inner side. Saccus

roundish. Uncus more than twice shorter than gnathos; it is covered, similarly as in *C. pascuellus* (L.), with long, strong bristles. Gnathos slender, twice curved, rounded at its tip. Aedeagus slightly curved, strongly narrowed and rounded terminally. Cornuti absent. In *C. uliginosellus* Zell. pars basalis reaching nearly to the end of the cucullus, without a hook-like tip. The process ending the sacculus distinctly bifurcated. Uncus relatively longer than in *C. lyonsellus* Haim., without long bristles occuring in that species. Gnathos less curved than in *C. lyonsellus* Haim., tipped with a small hook. Aedeagus nearly straight, terminated with a strongly sclerotized list with a thorn. A single cornutus. As the comparison of the male genital armatures of both species shows, they have several common features, as a strong pars basalis, a process ending the sacculus, and a short uncus. Judging from these facts, I placed both species near each other; the relationship between them is, however, not so strong as between *C. uliginosellus* Zell. and *C. ericellus* (Hbn.) or *C. alienellus* (Zck. et Germ.). Female genitalia of *C. lyonsellus* Haim. differ rather from those of *C. uliginosellus* Zell. In *C. lyonsellus* Haim. lamella subgenitalis forms a large, and heavily sclerotized box-like organ with a distinct incision in its outer edge. Lamella subgenitalis is fused with ostium bursae into a strongly curved organ. Ostium bursae not funnel-shaped as in *C. uliginosellus* Zell. Ductus bursae transparent, without a heavily sclerotized stripe characteristic for the species of the *C. uliginosellus* Zell. group. Bursa copulatrix with two distinct signa. It is a characteristic feature for the species of the genus *Crambus* F. *s. str.*

2. *Crambus agitatellus* Clem.

(Plate II fig. 9, plate VI fig. 27, plate VIII fig. 39)

Crambus agitatellus Clemens, 1860, Proc. Acad. Nat. Sc. Philadelphia, p. 203.

The species in question represents also a typical member of the genus *Crambus* F. *s. str.* Externally it comes rather near to *C. uliginosellus* Zell. Basal stripe of the primaries in *C. agi-*

tatellus Clem. is divided longitudinally by a yellowish stripe. That stripe in *C. uliginosellus* Zell. occurs only rarely and its colour is grey, never yellowish. In male genital armature of *C. agitatellus* Clem. pars basalis sheet-like, broad basally, tapering terminally, not separated from the valva. Cucullus small, narrow. Sacculus strongly developed, reaching end of the cucullus. Uncus somewhat shorter than gnathos, shortly hooked downwards at the tip. Gnathos tipped in a club-like thickening (similarly as in the members of the genus *Agriphila* Hbn.). Aedeagus nearly straight, with a single, curved, large cornutus. Female genitalia of a complicated structure: ostium bursae forms a long, bag-like, strongly bowed organ. It has a strong anterior notch and produced, acute corners. Ductus bursae lightly sclerotized. Bursa copulatrix with two distinct signa.

3. *Crambus alboclavellus* Zell.

(Plate VI fig. 29, plate VIII fig. 38)

Crambus alboclavellus Zeller, 1863, Chil. Cramb. Gen. Spec., p. 19.

C. alboclavellus Zell. externally comes rather near the two former species. Pattern of the primaries distinctly marked, the spot prolonging the basal stripe very distinct. Basing on the external characters, as well as on the structure of the male genital armature and female genitalia I place the species in question in the genus *Crambus* F. *s. str.* Male genital armature of *C. alboclavellus* Zell. shows a few features pointing for placing it next to *C. uliginosellus* Zell. group. Those features are: distinctly developed pars basalis and lateral process of valva. The former slightly detached from valva, distinct only by a strong sclerotization. Vinculum elongate. Uncus slightly shorter than the gnathos, the latter tipped in a club-like, rounded thickening. Aedeagus straight. No cornuti. In female genitalia lamella subgenitalis strongly fused with ostium bursae; the latter has the shape of a cup, it is notched anteriorly and placed on a short haft. Ductus bursae lightly sclerotized. Bursa copulatrix big, with two distinct signa.

4. *Crambus bidens* Zell.

(Plate I fig. 3, plate IX fig. 40)

Crambus bidens Zeller, 1872, Verh. Zool.-bot. Ges. Wien, 22, p. 535, pl. II, fig. 17.

A typical member of the genus *Crambus* F. *s. str.* Externally it comes near the former species, but can be separated easily from it by the comparing of the primaries. In *C. bidens* Zell. lacks the white spot prolonging basal stripe. Besides, in *C. bidens* Zell. occurs a white spot situated between the termen and submarginal line. In male genital armature pars basalis strongly developed as a heavily sclerotized process; it is distinctly curved downwards and rounded terminally. Sacculus tipped in a finger-like, strongly sclerotized, oblique process. Vinculum elongate. Uncus distinctly shorter than the gnathos. The latter slightly curved and rounded terminally. Aedeagus nearly straight, slender, with a single, curved cornutus. The female genitalia of *C. bidens* Zell. are unknown to me.

5. *Crambus watsonellus* Klots

(Plate VII fig. 31, plate IX fig. 41)

Crambus watsonellus Klots, 1942, Amer. Mus. Novit., 1191, p. 4, fig. 4.

Similarly as the previous species, *C. watsonellus* Klots represents a typical member of the genus *Crambus* F. *s. str.* Externally it resembles the species of *C. leachellus* (Zck. et Germ.) group. Termen of the primaries rather distinctly incised, basal stripe broad, a short silvery stripe above the end of basal stripe; the spot prolonging the last absent. In male genital armature gnathos more than twice as long as uncus. Vinculum deeply notched (in the dorso-ventral view). Judging from the figure given by K l o t s, as well as from the original description, pars basalis has a complicated structure. It consists of three elements: a basal strong spine, a sigmoid free process, and a long, strongly sclerotized list; the last is attached to the valva nearly on its whole dorsal margin and tipped in a free process provided with a few points. Aedeagus rather short, curved basally. Cornuti absent. In female genitalia lamella

subgenitalis in the shape of a large, shallow cup. Ductus bursae short, lightly sclerotized. Bursa copulatrix with two big signa.

6. *Crambus ainsliellus* Klots

Crambus ainsliellus Klots, 1942, Amer. Mus. Novit., 1191, p. 6, fig. 6.

Basing on the original description of the species in question, as well as on the figure given by Klots, I place *C. ainsliellus* Klots in the genus *Crambus* F. *s. str.* It is nearly delusively similar to *C. leachellus* (Zck. et Germ.), but differs greatly from it by the structure of male genital armature, which is rather similar to those of the species of the genus *Pediasia* Hbn. The features characteristic for the genus *Crambus* F. *s. str.* are: the series of strong dorsal spines on the uncus, distinctly developed pars basalis, as well as the notched vinculum (in dorso-ventral view). Uncus distinctly shorter than the gnathos. Pars basalis reaching the end of the cucullus, curved, tapering gradually in a pointed tip. Cucullus slender. No lateral process on the valva. Aedeagus tapering. A single, large, curved cornutus. The female of this species is unknown to me.

7. *Crambus cyrilellus* Klots

Crambus cyrilellus Klots, 1942, Amer. Mus. Novit., 1191, p. 6, fig. 7.

A typical member of the genus *Crambus* F. *s. str.* According to the original description it comes near *C. watsonellus* Klots and *C. leachellus* (Zck. et Germ.) it is, however, very distinct from them by the structure of the male genital armature. Pars basalis strongly developed, narrow, visibly shorter than in the previous species, its terminal half free and distinctly curved. Cucullus slightly arched, rather pointed. Sacculus forms a free, narrow process. Vinculum notched (in dorso-ventral view). Uncus club-like, with numerous strong, short spines. Gnathos slender, rounded terminally, somewhat longer than the uncus. Aedeagus distinctly bent basally, with a terminal, minutely spined lobe. Two long, narrow cornuti situated near each other. Female genitalia of this species are unknown to me.

8. *Crambus sargentellus* Klots

Crambus sargentellus Klots, 1942, Amer. Mus. Novit., 1191, p. 3, fig. 5.

Similarly as the previous species, *C. sargentellus* Klots represents a typical member of the genus *Crambus* F. *s. str.* I know it also only from the original description and the figure of male genital armature given by Klots. According to that description the species in question externally comes near the previous one. In male genital armature pars basalis strongly developed as a heavily sclerotized, curved process, terminating in a sharply pointed spine. Sacculus without distinct free lobe. Uncus slender, slightly curved. Gnathos short, dagger-like (similar as in the species of the *C. hortuellus* (Hbn.) group).

9. *Crambus whitmerellus* Klots

Crambus whitmerellus Klots, 1942, Amer. Mus. Novit., 1191, p. 1, fig. 1.

This species is closely related to the European *C. dumetellus* (Hbn.) and Japanese *C. hayachinensis* Okano. It was formerly considered as *C. dumetellus* (Hbn.). All these three species form a very close group. *C. whitmerellus* Klots differs from *C. dumetellus* (Hbn.) by the shorter free lobe of sacculus and lateral small spine on valva which lacks in the last species.

10. *Crambus sanfordellus* Klots

Crambus sanfordellus Klots, 1942, Amer. Mus. Novit., 1191, p. 8, fig. 8.

Judging from the original description of this species, as well as from the figure of its male genital armature, it presents a typical representative of the genus *Crambus* F. *s. str.* On the primaries occurs a basal stripe and visibly angled submarginal line, typical for the members of *Crambus* F. *s. str.* In the male genital armature pars basalis very strongly developed, as a long, curved, heavily sclerotized process, which is attached to the valva on about two thirds of its total length. Cucullus narrowing outwardly. No other process on valva, except pars basalis. Vinculum deeply notched (in dorso-ventral

view). Uncus slender, distinctly shorter than the gnathos. The latter slender, slightly arched, rounded terminally. Aedeagus narrow, tapering to a heavily sclerotized, curved spine. A single, slender, tapering cornutus. Female genitalia of the species in question are unknown to me.

11. *Crambus johnsoni* Klots

Crambus johnsoni Klots, 1942, Amer. Mus. Novit., 1191, p. 8, fig. 9.

I place the species in question in the genus *Crambus* F. *s. str.* for its external, as well as genitalic characters. According to the original description there occur a white basal stripe and distinctly angled submarginal line on the primaries. In male genital armature pars basalis very strongly developed; basal part of it fairly broad, attached to the valva and the terminal one has the shape of a narrow, free, curved process not reaching end of the cucullus. The last distinctly curved, tapering in a rounded tip. Sacculus tipped with a strong, oblique, pointed spine situated before half the length of valva. Uncus proportionately short and very slightly arched. Gnathos about twice as long as the uncus, faintly curved downwards, tapering posteriorly in a rather rounded tip. Aedeagus rather large, nearly straight, with three big cornuti with disc-shaped bases. Female genitalia of *C. johnsoni* Klats are unknown to me.

12. *Crambus albellus* Clem.

(Plate I fig. 4, plate IX fig. 42)

Crambus albellus Clemens, 1860, Proc. Acad. Nat. Hist. Philadelphia, p. 204.

This species can be distinguished easily by its very small size and light colour. A white basal stripe and a distinctly angled submarginal line on the primaries present. Such characters allow for placing *C. albellus* Clem. in the genus *Crambus* F. *s. str.* In the male genital armature gnathos dagger-like, that feature is characteristic for numerous species of the genus *Crambus* F. *s. str.* Uncus longer than gnathos, curved, terminating in a pointed tip. Pars basalis not developed. Cucullus pointed. Sacculus terminating in a heavily sclerotized, short,

beak-like process situated near the end of the valva. Aedeagus with a single, very long, slender, faintly arched cornutus.

13. *Crambus satrapellus* (Zck. et Germ.)

(Plate I fig. 1, plate IX fig. 43)

Chilo satrapellus Zincken et Germar, 1821, Magazin Entom., 4, p. 427.
Crambus aculeilellus Walker, 1863, Cat. Lep. Het., 27, p. 158.
Crambus elegantellus Walker, 1863, Cat. Lep. Het., 27, p. 179.

A typical member of the genus *Crambus* F. *s. str.* Externally it can be rather easily distinguished by its slender primaries, strongly oblique termen and silvery short stripe, situated above the end of the basal stripe; the spot prolonging basal stripe is absent. Male genital armature of very characteristic structure. Pars basalis heavily sclerotized, in the shape of a broad sheet. Sacculus heavily sclerotized, provided with an additional narrow fold and terminating with a few free processes. Cucullus very narrow, curved upwards. Saccus longer than the valva, strongly tapering in a pointed tip. Uncus broad basally, short, pointed, provided with a group of long, strong bristles. Gnathos more than twice longer than uncus, hooked at the tip, the last rounded. Female of the species in question is unknown to me.

14. *Crambus awemellus* McDunn.

(Plate I fig. 5, plate X fig. 44)

Crambus awemellus McDunnough, 1921, Canad. Entom., 53, p. 160.

A very characteristic member of the genus *Crambus* F. *s. str.* A silvery, narrow basal stripe, the spot prolonging it, and an angled submarginal line on the primaries present. A narrow silvery stripe at the costa of the primaries (similar as in *C. dumetellus* (Hbn.)) is a characteristic feature for this species. Male genital armature of a specifical structure: pars basalis heavily sclerotized, narrow, not separated from the valva, terminating in a big, free finger-like process, which extends strongly beyond the end of the cucullus. The last cut obliquely, edged with a strongly sclerotized list. Such a feature is

very rarely met in *Crambidae*. Ventral edge of valva bent in before the end of the cucullus. Sacculus does not form any process. Uncus curved downwards, rounded at the tip. Gnathos poorly developed in the shape of a rather narrow, small ring (similarly as in *Crambopsis malacellus* (Dup.)). Aedeagus straight with heavily sclerotized thorns on both sides. A single, long cornutus. Female genitalia of this species unknown to me.

15. *Crambus turbatellus* (Wlk.)

(Plate II fig. 6, plate X fig. 45)

Arequipa turbatella Walker, 1863, Cat. Lep. Het., 27, p. 196.

The systematical position of this species is rather isolated in the genus *Crambus* F. *s. str.*, as its external appearance, as well as the structure of the male genital armature show. Unfortunately the female genitalia of *C. turbatellus* (Wlk.) are unknown to me. Primaries nearly uniformly white. However, the traces of elements of the pattern typical for the species of the genus *Crambus* F. *s. str.* occur. In the male genital armature valva trapezoid, bluntly cut at the end, without any process, it is totally heavily sclerotized (except in its outer-dorsal portion). Uncus consisting of two big, finger-like lobes, bearing numerous strong, short spines on slightly less than its terminal half. Gnathos as long as the uncus, slender. A single, very thin cornutus.

16. *Crambus sperryellus* Klots

(Plate II fig. 7, plate X fig. 46)

Crambus sperryellus Klots, 1940, Bull. S. Calif. Acad. Sci., 39, p. 62.

Externally it comes rather near the next species. The typical elements of the pattern on the primaries, as a silvery basal stripe and distinctly angled submarginal line occur. In male genital armature pars basalis well bordered, but not separated from the valva, it is short, subtriangular, heavily sclerotized. Sacculus strongly developed, extending beyond the cucullus in an upwards curved, finger-like process. Sacculus bearing a longitudinal, oblique, toothed fold in its dorsal area.

Uncus distinctly shorter than the gnathos, faintly arched, normally haired, rounded at the tip. Gnathos slender, slightly arched, faintly swelled and rounded apically. Aedeagus long, curved, with a long, heavily sclerotized list on its ventral part. A single, curved cornutus. Female genitalia of the species in question are unknown to me.

17. *Crambus quinquareatus* Zell.

(Plate IV fig. 14, plate X fig. 47)

Crambus quinquareatus Zeller, 1877, Horae Ent. Ross., 13, p. 40.
Crambus extorralis Hulst, 1886, Trans. Amer. Ent. Soc., 13, p. 165.

This species externally comes near the previous one, but distinct from it by the silvery basal stripe of the primaries being longer than in *C. sperryellus* Klots. In the species in question that stripe reaching the submarginal line, whilst in *C. sperryellus* Klots it ends distinctly before submarginal line and is prolonged by an oval spot. However, although rather similar in colour and pattern, the two species are specifically perfectly distinct, as the comparison of their male genital armatures shows. In the species in question pars basalis heavily sclerotized, narrow, not separated from the valva. Sacculus longer than the cucullus, broadened terminally, tipped in two distinct spines. The toothed fold of sacculus occuring in the previous species, in the species in question is absent. Saccus broader than in *C. sperryellus* Klots. Uncus and gnathos of a similar shape as in the previous species. Aedeagus distinctly narrowed terminally, ending in a strong spine. A single, straight cornutus. Female genitalia of *C. quinquareatus* Zell. are unknown to me.

18. *Crambus occidentalis* Grote

(Plate III fig. 13, plate XI fig. 48)

Crambus occidentalis Grote, 1880, Canad. Entom., 12, p. 16.
Crambus agricolellus Dyar, 1923, Insecutor Inscit. Menstr., Washington, 11, p. 28.

A species allied to Palearctic *C. hamellus* (Thnbg.). The spot prolonging the white basal stripe of the primaries lacking,

as in *C. hamellus* (Thnbg.). In male genital armature pars basalis long, curved, not extending beyond the cucullus as in *C. hamellus* (Thnbg.). Sacculus with a distinct, free, finger-like lateral process. Saccus square as in *C. hamellus* (Thnbg.). Uncus and gnathos of a similar structure as in *C. hamellus* (Thnbg.), being, however, distinctly more slender and longer than in that species. Besides, the short spines on the uncus in *C. occidentalis* Grote occur only on the terminal part of uncus. Aedeagus basally loop-like bent. A single, long cornutus. The female genitalia of *C. occidentalis* Grote are unknown to me.

19. *Crambus leachellus* (Zck. et Germ.)

(Plate III fig. 10, plate VI fig. 28, plate XI fig. 49)

Chilo leachellus Zincken et Germar, 1818, Magazin Entom., 3, p. 114.
Crambus pulchellus Zeller, 1863, Chil. Cramb. Gen. Spec., p. 18.

A species closely allied to the former one. Externally it comes near *C. praefectellus* (Zck. et Germ.). Basal stripe of the primaries in the species in question remote from costa at the base of the wing, reaching the costa in the next species. In the male genital armature pars basalis shorter than in *C. occidentalis* Grote. Aedeagus rolled in a worm-wheel basally. Cornutus twice longer than in the previous species. In the female genitalia ostium bursae heavily sclerotized, hood-shaped; ductus bursae short, lightly sclerotized; two signa on the bursa copulatrix.

20. *Crambus praefectellus* (Zck. et Germ.)

(Plate III fig. 12, plate VI fig. 32, plate XI fig. 50)

Chilo praefectellus Zincken et Germar, 1821, Magazin Entom., 4, p. 248.
Crambus involutellus Clemens, 1860, Proc. Acad. Nat. Sc. Philadelphia, 1860, p. 203.

This species also belongs to the *C. hamellus* (Thnbg.) group. Externally very similar to the previous species it is, however, specifically perfectly distinct, as the camparison of the genitalia shows. The features characteristic for the *C. hamellus* (Thnbg.) group are: distinctly developed pars basalis, lateral process of sacculus, uncus bearing the series of short

spines, and single cornutus in the aedeagus. Pars basalis very short, free. Aedeagus less curved than in *C. occidentalis* Grote, terminating with a small, heavily sclerotized disc, provided with a spine. In the female genitalia ostium bursae strongly fused with lamella subgenitalis, funnel-shaped, with a dorsal protruding projection. Ductus bursae very long, looped, heavily sclerotized, ribbed on its surface. Bursa copulatrix pear-shaped. Two big signa.

21. *Crambus decorellus* (Zck. et Germ.)

(Plate III fig. 11, plate XI fig. 51)

Chilo decorellus Zincken et Germar, 1821, Magazin Entom. 4, p. 250
Crambus polyactinellus Zeller, 1863, Chil. Cramb. Gen. Spec., p. 25.
Crambus Goodelianus Grote, 1880, Canad. Entom. 12, p. 17.
Crambus bonusculalis Hulst, 1886, Trans. Amer. Ent. Soc., 13, p. 167.

I place this species in the genus *Crambus* F. *s. str.* Externally it resembles somewhat *C. hortuellus* (Hbn.), distinct from it by the light colour, as well as by the presence of the inner transversal fascia on the primaries. According to the peculiar structure of the male genital armature, the systematical position of the species in question is rather isolated in the genus *Crambus s. str.* In the male genital armature pars basalis strongly developed as a heavily sclerotized fold, terminating in a long, free, distinctly curved upwards, tapering process. No other process except pars basalis. Uncus straight terminally, strongly narrowed in a curved, narrow spine. Gnathos of a very characteristic shape: it is shovel-like, tapering outwardly. Aedeagus straight, tipped with a long, curved spine.

22. *Crambus laqueatellus* (Clem.)

(Plate II fig. 8, plate VI fig. 30, plate XII fig. 52)

Crambus laqueatellus Clemens, 1860, Proc. Acad. Nat. Sc. Philadelphia, 1860, p. 203.
Crambus semifusellus Walker, 1863, Cat. Het., 27, p. 159.

External characters typical for the members of the genus *Crambus* F. *s. str.* Basal stripe and angled submarginal line on

the primaries present. The male genital armature, as well as the female genitalia very specifical. They do not correspond with any species of *Crambidae*. In spite of this phenomenon, nevertheless I place the species in question in the genus *Crambus F. s. str.*, since the species of it are in many cases strongly specialized. In the male genital armature uncus and gnathos slender, of a shape similar as in the species of the genus *Catoptria* Hbn., or *Agriphila* Hbn. Uncus hooked terminally, gnathos tipped with a club-like thickening. Pars basalis not separated from valva, heavily sclerotized, rather small. Cucullus rounded. Sacculus strongly developed, with a big, triangular projection. Saccus tapering, big. Aedeagus terminated with a monstrous spine, which is longer than its total length. In female genitalia lamella subgenitalis strongly fused with ostium bursae, the last very large, long, bag-like. Only one signum on bursa copulatrix, a feature hitherto not met in the species of the genus *Crambus* F. *s. str.*

23. *Agriphila vulvivagella* (Clem.)

(Plate IV fig. 15, plate VII fig. 34, plate XII fig. 53, 55)

Crambus vulvivagellus Clemens, 1860, Proc. Acad. Nat. Sc. Philadelphia, 1860, p. 204.

Crambus auriflmbriellus Walker, 1863, Cat. Het., 27, p. 157.

Crambus chalybirostris Zeller, 1863, Chil. Cramb. Gen. Spec., p. 40.

This species represents a typical member of the genus *Agriphila* Hbn. Judging from its external characters, as well as from its male genital armature and female genitalia, it is closely allied to the European *A. culmella* (L.). Externally *A. vulvivagella* (Clem.) can be distinguished by the shape of the primaries, being in *A. culmella* (L.) relatively less slender than in the species in question. Besides, *A. vulvivagella* (Clem.) is distinctly bigger than *A. culmella* (L.). Male genital armature of *A. vulvivagella* (Clem.) nearly indistinguishable from that of *A. culmella* (L.) besides uncus and gnathos being more slender in the former species. In the female genital armature ostium bursae deep, cup-like; ductus bursae heavily sclerotized only on a short abscissa, further on strongly broadened; bursa copulatrix big, long; one round signum as in the other

species of *Agriphila* Hbn. In *A. culmella* (L.) the heavily sclerotized part of ductus bursae longer than in the species in question, and bursa copulatrix small.

24. *Agriphila ruricorella* (Zell.)

(Plate I fig. 18, plate VII fig. 33, plate XII fig. 54)

Crambus ruricorellus Zeller, 1863, Chil. Cramb. Gen. Spec., p. 40.

I place this species also in the *A. culmella* (L.) group. It can be easily distinguished from the previous species by the presence of the inner fascia on the primaries. Male genital armature similar as in numerous species of *Agriphila* Hbn. Cornuti absent. In the female genitalia ostium bursae in the shape of an elongate cup. Ductus bursae heavily sclerotized only on a short abscissa just beyond the ostium bursae. One signum on the bursa copulatrix.

25. *Agriphila costalipartella* (Dyar)

(Plate IV fig. 17, plate XIII fig. 56)

Crambus costalipartella Dyar, 1921, Insecutor Inscit. Menstr., Washington, 9, p. 66.

This species is very characteristic by the colour of its primaries, being dirty whitish and strongly darkened grey below the costa. Fringes with strong metallic shine. No transversal bands. Male genital armature rather similar to that in the previous species, can be distinguished by its pointed pars basalis. No cornuti in the aedeagus.

26. *Agriphila biothanatalis* (Hulst)

(Plate IV fig. 19, plate XIII fig. 57)

Crambus biothanatalis Hulst, 1886, Trans. Amer. Ent. Soc., 13, p. 166.
Crambus behrensellus Fernald, 1887, Ent. Amer., 3, p. 37.

A typical member of the genus *Agriphila* Hbn. Two transversal bands on the primaries. Fringes glossy. No basal stripe. Ground colour dark grey. Male genital armature typical for the genus *Agriphila* Hbn. Uncus slightlty widened

terminally. Saccus narrow. Aedeagus faintly bent, in the shape somewhat similar to that of the European *A. osseella* (Hmps.). Cornuti absent.

27. *Pediasia trisecta* (Walk.)

(Plate V fig. 21, plate VII fig. 35, plate XIII fig. 58)

Carvanca trisecta Walker, 1856, Cat. Het. 9, p. 119.
Crambus exsiccatus Zeller, 1863, Chil. Cramb. Gen. Spec. p. 37.
Crambus bilituretlus Zeller, 1874, Verh. Zool.-bot. Ges. Wien, 24, p. 7.
Crambus interminellus Walker, 1863, Cat. Het. 27, p. 156.

A species somewhat similar to some European species of the genus *Pediasia* Hbn., as *P. squalidalis* Hbn. or *P. fasceli-nella* (Hbn.). Two transversal bands on the primaries. The inner band distinctly more oblique than the outer one (a feature very characteristic for the species of the genus *Pediasia* Hbn.). Male genital armature presents a complex of characters typical for the genus *Pediasia* Hbn. Uncus hooked and pointed terminally; gnathos wide, terminating with a small hook; pars basalis as long as the cucullus, heavily sclerotized, curved, broad and attached to the valva basally, further on free, narrow, strongly pointed. An additional spine-like process on the base of pars basalis. Cucullus only slightly broader than the pars basalis; sacculus without any process; aedeagus fairly curved, with a single, tapering cornutus. In the female genitalia ostium bursae and ductus bursae lightly sclerotized. No signum on the bursa copulatrix, a feature very characteristic for the species of the genus *Pediasia* Hbn.

28. *Pediasia mutabilis* (Clem.)

(Plate V fig. 22, plate XIV fig. 60)

Crambus mutabilis Clemens, 1860, Proc. Acad. Nat. Sc. Philadelphia, p. 204.
Crambus fuscicostellus Zeller, 1863, Chil. Cramb. Gen. Spec., p. 44.

A typical member of the genus *Pediasia* Hbn. Primaries light brown, the pattern consisting of two transversal bands; inner band distinctly more oblique than the outer one. In the male genital armature pars basalis rather short, broad bas-

ally, tapering terminally in a point. An additional spine-like process at the base of pars basalis. No other process on the valva. Cucullus narrow, narrowed basally. Uncus straight, terminating in a narrow, rounded hook. Aedeagus straight, narrow, with a single cornutus. Female genitalia of the species in question are unknown to me.

29. *Pediasia dorsipunctella* (Kft.)

(Plate V fig. 20)

Crambus dorsipunctellus Kearfott, 1908, Proc. U. S. Nation. Mus., 35, p. 384.

A species rather similar to the Palearctic *P. luteella* (Den. et Schiff.). Primaries uniformly rusty ochreous, without any pattern. Male genital armature fairly similar to that of *P. trisecta* (Walk.), however, gnathos without a terminal hook. Pars basalis curved, pointed terminally, reaching nearly the end of the cucullus. Aedeagus distinctly shorter than in *P. trisecta* (Walk.), curved, with a single, rather small cornutus. Female genital armature of the species in question is unknown to me.

30. *Pediasia luteolella* (Clem.)

(Plate V fig. 23, plate XIV fig. 61)

Crambus luteolellus Clemens, 1860, Proc. Acad. Nat. Sc. Philadelphia, p. 203.
Crambus duplicatus Grote, 1880, Canad. Entom., 12, p. 79.

I place this species, as well as two next ones, in the genus *Pediasia* Hbn. rather provisionally for the lack of the cornutus in the aedeagus. However, they present several characters typical for that genus. Unfortunately the female genitalia of these species are unknown to me. The examining of females might solve this problem definitely.

Two transversal bands on the primaries, no basal stripe. Pars basalis strongly developed, terminating in two curved points. The bifurcation of pars basalis is typical for the species of the Palearctic *P. desertella* (Led.) group; I consider, however, that character as a convergent one. The species of *P. desertella* (Led.) group occur in the Mediterranean region, besides cornuti always are present in the aedeagus of those

species. Aedeagus of *P. luteolella* (Clem.) terminates with two long, free, heavily sclerotized lamella-like processes.

31. *Pediasia teterrella* (Zck. et Germ.)

(Plate V fig. 24, plate XIV fig. 62)

Chilo teterrellus Zincken et Germar, 1821, Magazin Entom., 4, p. 252.
Crambus camurellus Clemens, 1860, Proc. Acad. Nat. Sc. Philadelphia, p. 203.

Primaries dark brown, nearly without any pattern, except an indistinct submarginal line, as well as slightly visible, pale spots. Fringes on the termen with a metallic shine. In the male genital armature uncus distinctly longer than the gnathos, slightly pointed terminally. Terminal hook of the gnathos absent. Pars basalis strongly developed, curved, reaching nearly the end of the cucullus. No other process on the valva except the pars basalis. Aedeagus proportionately very short, simple.

32. *Pediasia haytiella* (Zck. et Germ.)

(Plate IV fig. 16, plate XIV fig. 63)

Chilo haytiellus Zincken et Germar, 1821, Magazin Entom., 4, p. 254.

The colour and pattern of the primaries typical for the genus *Pediasia* Hbn. Forewing light brown with two transversal lines. In the male genital armature uncus in the shape of broad, shallow cup, terminating in protruding point. Pars basalis strongly developed, slightly bent, free, slightly bordered from the valva. No other process on the valva. Aedeagus slender, obliquely cut terminally. No cornuti.

33. *Pediasia elegans* (Clem.)

(Plate V fig. 25, plate XIII fig. 59)

Crambus elegans Clemens, 1860, Proc. Acad. Nat. Sc. Philadelphia, p. 204.
Crambus terminellus Zeller, 1863, Chil. Cramb. Gen. Spec., p. 27.

Primaries whitish with two transversal lines. Submarginal line double, the inner one strongly oblique. In the male genital armature uncus slightly curved, rounded terminally. Gnathos distinctly longer than the uncus, hooked terminally. Pars

basalis heavily sclerotized, not separated from the valva, with a long, narrow, sigmoid process. No other process on the valva. Aedeagus tipped with a heavily sclerotized, narrow process. One rather big and one very small cornutus. Female genitalia are unknown to me.

34. *Pediasia browerella* (Klots)

Crambus browerellus Klots, 1942, Amer. Mus. Novit., 1191, p. 9, fig. 10.

Judging from the original description and the figure of the male genital armature given by Klots, the species in question represents a typical member of the genus *Pediasia* Hbn. Primaries brown with two transversal lines. In the male genital armature pars basalis strongly developed, heavily sclerotized, with a dorsal swelling at about its middle. The free arm of the pars basalis distinctly narrowed and twisted at about its middle, terminating in a somewhat twisted tip. Cucullus slender, distinctly longer than pars basalis. Sacculus without any process. Uncus tapering, ending in a downwards curved point. Gnathos slightly shorter than the uncus, abruptly narrowed just before tip. Aedeagus with a single, slender, pointed cornutus. Anellus broad basally, strongly narrowed terminally as in the typical species of the genus *Pediasia* Hbn. Female of this species is unknown to me.

35. *Pediasia abnaki* (Klots)

Crambus abnaki Klots, 1942, Amer. Mus. Novit., 1191, p. 11, fig. 11.

Basing on the original description of this species, as well as on the figure of the male genital armature given by Klots, I include *P. abnaki* (Klots) in the genus *Pediasia* Hbn. Primaries nearly without any pattern, veins lightly marked, submarginal line occasionally slightly marked. In the male genital armature pars basalis strongly developed, heavily sclerotized, distinctly curved, tapering in a pointed tip. A distinct additional process at the base of pars basalis. Uncus minutely hooked terminally. Gnathos shorter than the uncus, strongly

tapering in a pointed tip. Female of the species in question is unknown to me. *P. abnaki* (Klots) presents a typical representative of the genus *Pediasia* Hbn. Aedeagus strongly curved, with a single cornutus. Anellus typical for *Pediasia* Hbn.

* *
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Judging from the results of the studying of the above mentioned 35 Nearctic species of the generic group *Crambus* F. *s. l.* (i.e. 40%), the most numerous genus in the Nearctica is *Crambus* F. *s. str.*; *Pediasia* Hbn. and *Agriphila* Hbn. are rather less represented. Hitherto I have not met the members of the following genera occuring in the Palearctics: *Crambopsis* De Lattin, *Mesocrambus* Błesz., *Metacrambus* Błesz., *Thisanotia* Hbn., *Xanthocrambus* Błesz., *Chrysocrambus* Błesz. and *Calamotropha* Zell. Judging from the papers of Fernald and Klots, besides the above mentioned species, many other ones belong to the genera *Crambus s. str.*, *Pediasia* Hbn. and *Agriphila* Hbn. I have not referred them to the spoken genera, since the genitalia of those species are unknown to me. However, it seems that the intergeneric relations, regarding the number of representatives, are rather different in the Palearctic and Nearctic fauna of the spoken group of moths. The most numerous and widely spread in Palearctica genus *Catoptria* Hbn. is very poorly represented in Nearctica and occuring only in its northern districts. On the other hand, the genus *Crambus* F. *s. str.* is very widely spread in Nearctica and most numerous in that region. As I stated in my "Revision of the European species of the generic group *Crambus* F. *s. l.*" genus *Crambus* F. *s. str.* represents a very heterogeneous group of specifically mostly specialized species, being very constant in their external characters, as well as in the structure of their genitalia. The species of *Agriphila* Hbn. and *Pediasia* Hbn. are conspicuously varying in those characters. The differences between the species of *Agriphila* Hbn. are very small, similarly as in the Palearctic fauna. It seems that the intrageneric relations are rather similar in both the mentioned faunas.

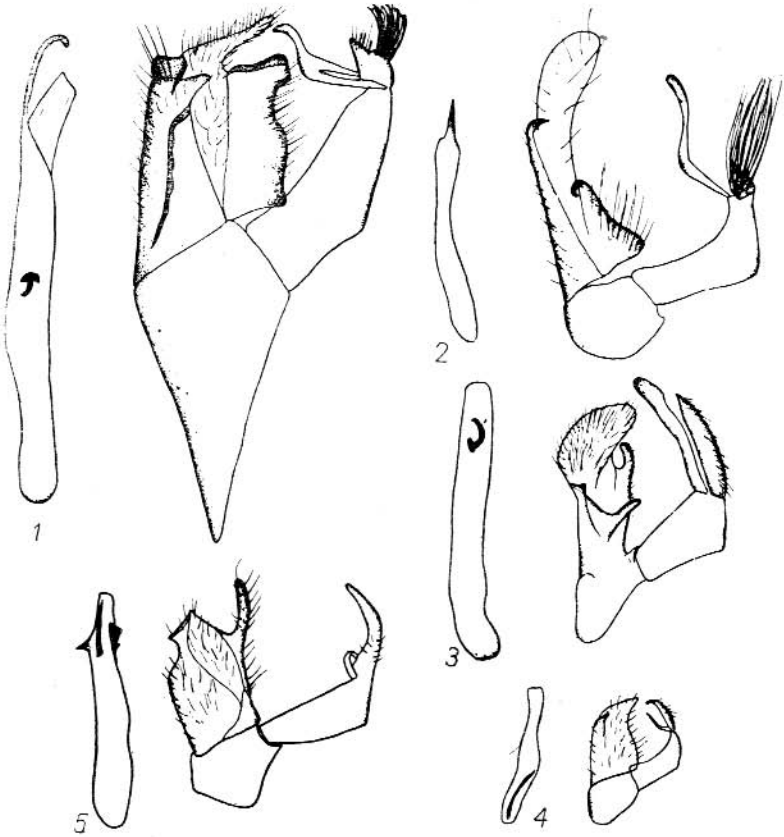
STRESZCZENIE

W niniejszej pracy zostało omówione stanowisko systematyczne 35 nearktycznych gatunków z grupy rodzajowej *Crambus* F. *s. l.*, co stanowi około 40% gatunków tej grupy występujących w Nearktyce. Na podstawie tych badań można stwierdzić, iż główny trzon omawianej grupy stanowi w Nearktyce rodzaj *Crambus F. s. str.*, następnie najliczniejszymi w gatunki są rodzaje *Pediasia* Hbn. i *Agriphila* Hbn. Dotychczas nie stwierdzono zupełnie przedstawicieli rodzajów *Crambopsis* De Lattin, *Mesocrambus* Błesz., *Metacrambus* Błesz., *Thisanotia* Hbn., *Xanthocrambus* Błesz., *Chrysocrambus* Błesz. i *Calamotropha* Zell., charakterystycznych dla Palearktyki. Według danych z literatury można sądzić, iż liczne dalsze nearktyczne gatunki omawianej grupy należy umieścić w rodzajach *Crambus* F. *s. str.*, *Pediasia* Hbn. oraz *Agriphila* Hbn., będzie to można jednak uczynić bezbłędnie tylko po zbadaniu ich aparatów kopulacyjnych. Do rodzaju *Catoptria* Hbn. prawdopodobnie należy tylko bardzo niewielka ilość gatunków nearktycznych. Już z dotychczasowych badań można sądzić, że skład ilościowy gatunków w poszczególnych rodzajach grupy rodzajowej *Crambus* F. *s. l.* w Nearktyce przedstawia się zupełnie inaczej niż w Palearktyce. W Palearktyce najliczniejszym w gatunki jest rodzaj *Catoptria* Hbn., następnie *Pediasia* Hbn. i *Agriphila* Hbn.; rodzaj *Crambus* F. *s. str.* należy umieścić na czwartym miejscu, podczas gdy w Palearktyce jest on bez wątpienia najliczniejszy w omawianej grupie. Rodzaj *Catoptria* Hbn. w Palearktyce jest rozsiedlony bardzo szeroko, podczas gdy w Nearktyce ograniczony jest jedynie do jej północnych regionów. Rodzaj *Crambus* F. *s. str.* jest w Nearktyce rozsiedlony bardzo szeroko. Stosunki wewnątrzrodzajowe *Crambus* F. *s. str.*, *Pediasia* Hbn. i *Agriphila* Hbn. są w odniesieniu do fauny Nearktyki bardzo zbliżone do stosunków istniejących w faunie Palearktyki. Gatunki rodzaju *Crambus* F. *s. str.* są bardzo silnie wyspecjalizowane i mało zmienne, zarówno pod względem cech zewnętrznych jak i budowy aparatu rozrodczego. Z drugiej strony gatunki rodzaju *Agriphila* Hbn. przedstawiają bardzo słabą specjalizację i stosunkowo dużą zmienność

osobniczą. Przemawiałoby to za hipotezą przedstawioną w „Rewizji europejskich gatunków z grupy rodzajowej *Crambus* F. *s. l.*", iż rodzaj *Crambus* F. *s. str.* jest filogenetycznie najstarszy w wymienionej grupie.

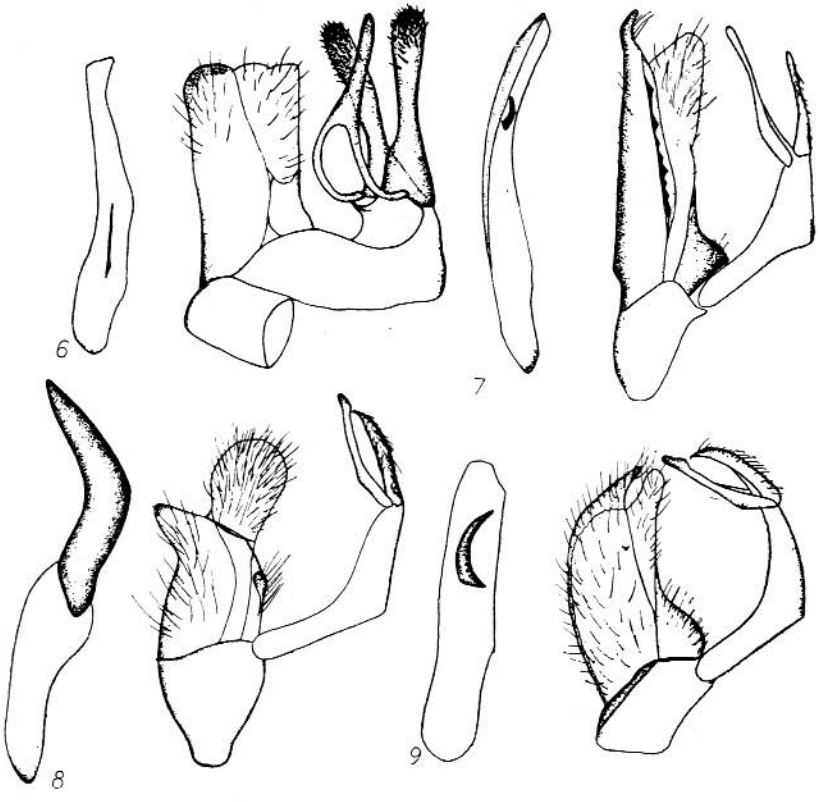
PIŚMIENNICTWO — LITERATURE

Fernald, C. H., North American *Pyralidae*, Ent. Amer., 4, 1888.
Fernald, C. H., On the date of publication of Walker's and Zeller's *Crambidae*, Ent. Amer., 5, 1889.
Fernald, C. H., The *Crambidae* of North America, Massachusetts 1896.
Klots, A. B., North American *Crambus* (*Pyralidae*). II. New Species, Amer. Mus. Nov., No. 1191, 1942.
McDunnough, J., Check List of the *Lepidoptera* of Canada and the United States of America. Part II. *Microlepidoptera*, Mem. South. Calif. Ac. Sc., 2, No. 1, 1939.
Walker, F., List of specimens of Lepidopterous insects in the collections of the British Museum. Part XXVII — *Crambites* & *Tortricites*, London 1863.
Zeller, P. C., Chilonidarum et Crambidarum genera et species, Berolinensi 1863.



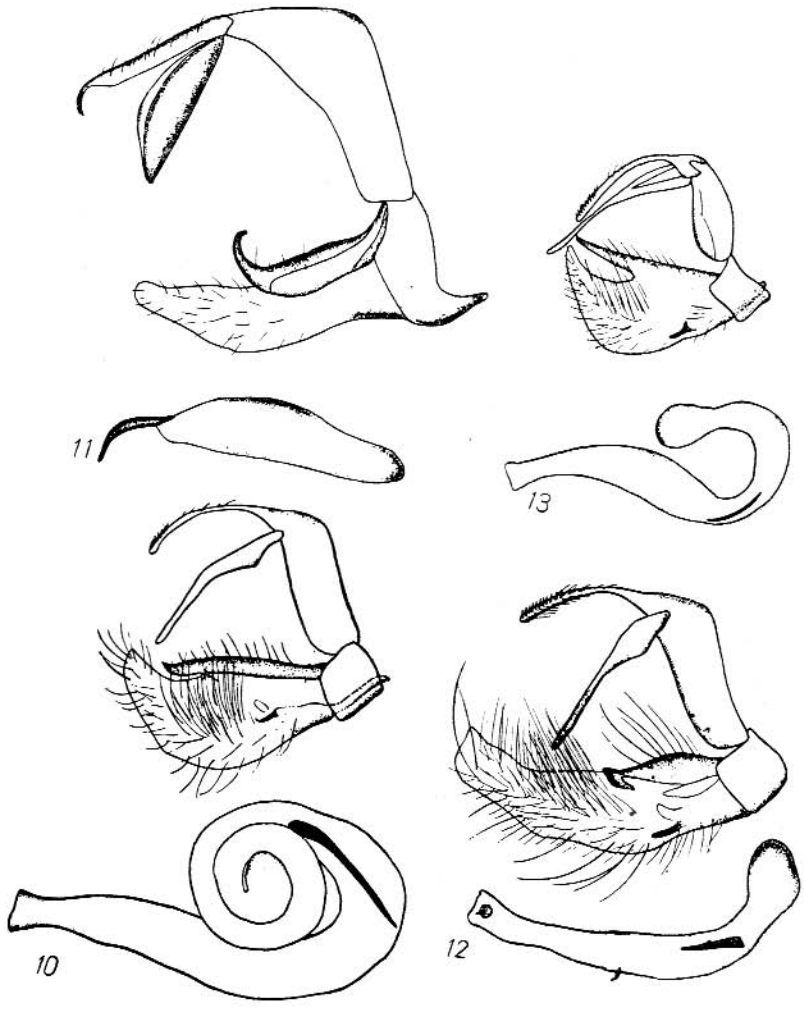
Male genital armatures

Fig. 1. *Crambus satrapellus* (Zck. et Germ.).
Fig. 2. *Crambus lyonsellus* Haim.
Fig. 3. *Crambus bidens* Zell.
Fig. 4. *Crambus albellus* Clem.
Fig. 5. *Crambus awemellus* McDunn.



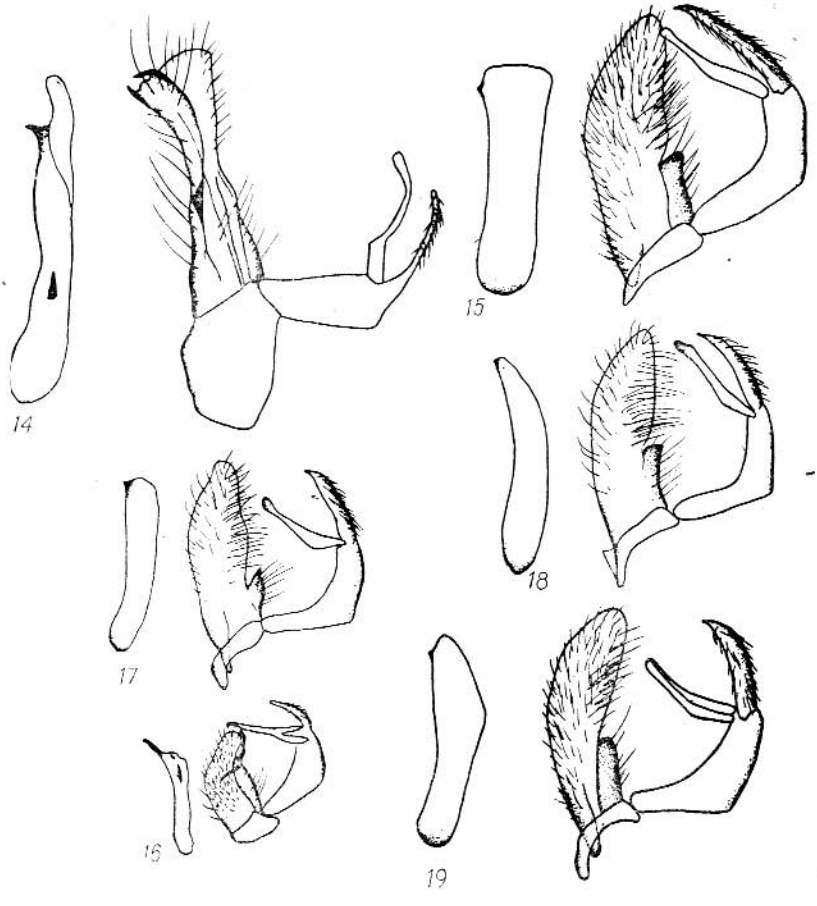
Male genital armatures

Fig. 6. *Crambus turbatellus* (Wlk.).
Fig. 7. *Crambus sperryellus* Klots.
Fig. 8. *Crambus laqueatellus* Clem.
Fig. 9. *Crambus agitatellus* Clem.



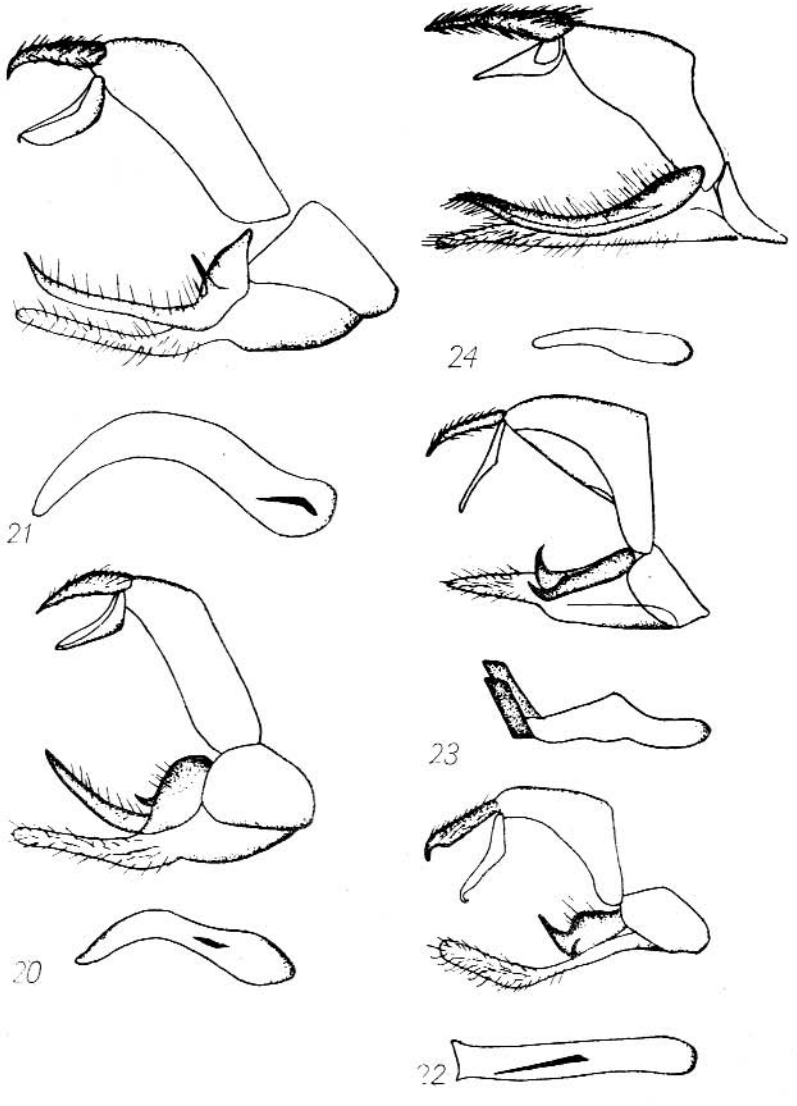
Male genital armatures

Fig. 10. *Crambus leachellus* (Zck. et Germ.).
Fig. 11. *Crambus decorellus* (Zck. et Germ.).
Fig. 12. *Crambus praefectellus* (Zck. et Germ.).
Fig. 13. *Crambus occidentalis* Grote.



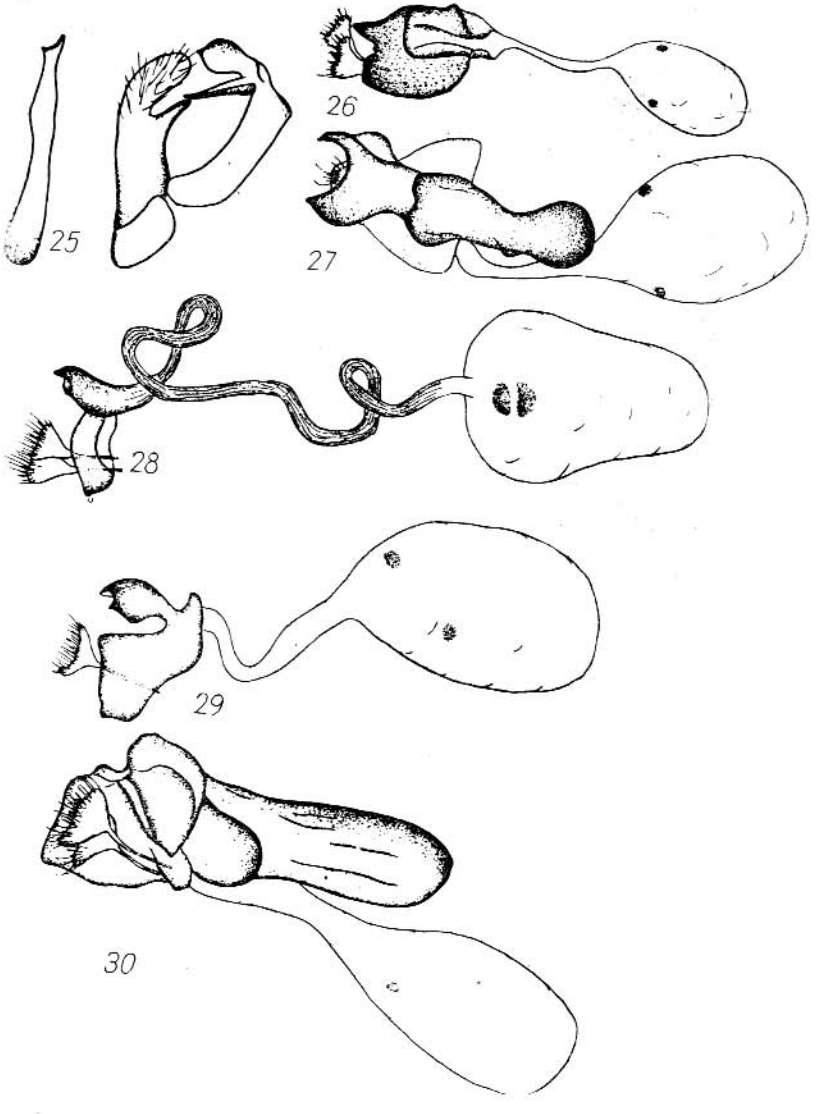
Male genital armatures

Fig. 14. *Crambus quinquareatus* Zell.
Fig. 15. *Agriphila vulvivagella* (Clem.).
Fig. 16. *Pediasia haytiella* (Zck. et Germ.).
Fig. 17. *Agriphila costalipartella* (Dyar).
Fig. 18. *Agriphila ruricorella* (Zell.).
Fig. 19. *Agriphila biothanatalis* (Hulst).



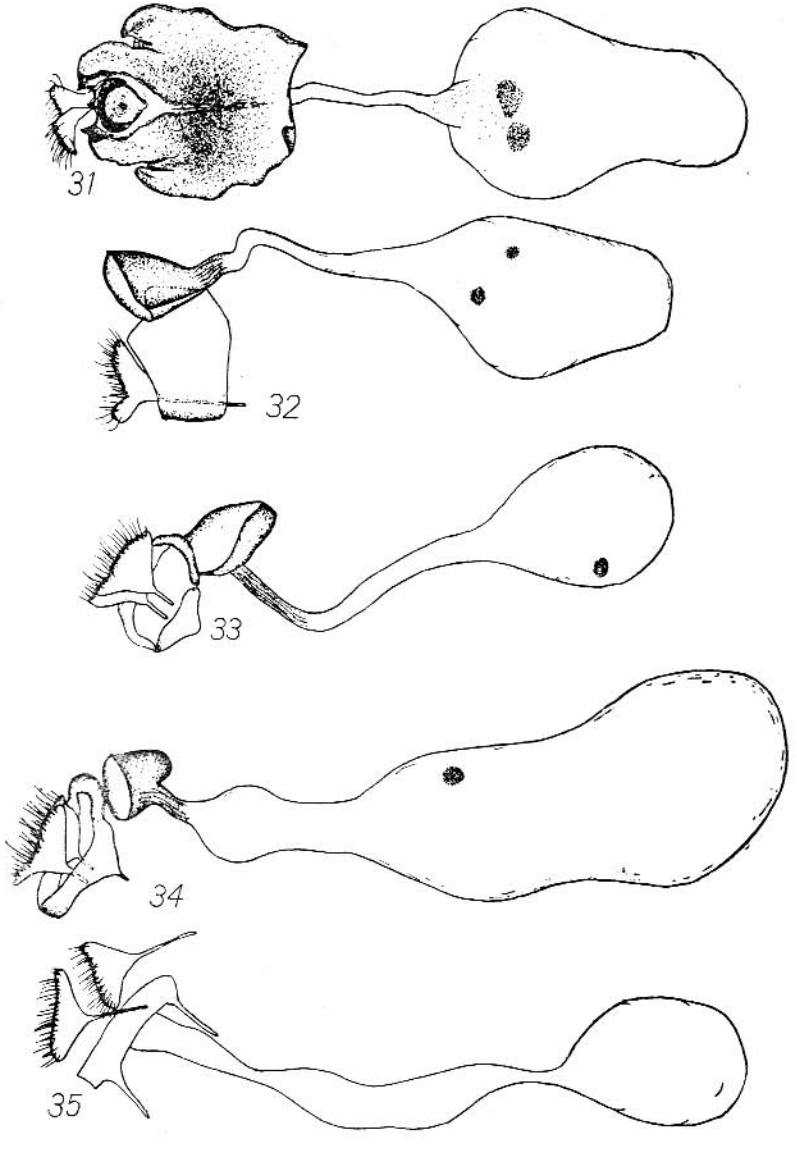
Male genital armatures

Fig. 20. *Pediasia dorsipunctella* (Kft.). Fig. 22. *Pediasia mutabilis* (Clem.).
Fig. 21. *Pediasia trisecta* (Wlk.). Fig. 23. *Pediasia luteolella* (Clem.).
Fig. 24. *Pediasia teterrella* (Zck. et Germ.).



Female genitalia

Fig. 25. *Pediasia elegans* (Clem.).
Fig. 26. *Crambus lyonsellus* Haim.
Fig. 27. *Crambus agitatellus* Clem.
Fig. 28. *Crambus leachellus* (Zck. et Germ.).
Fig. 29. *Crambus alboclavellus* Clem.
Fig. 30. *Crambus laqueatellus* Clem.



Female genitalia

Fig. 31. *Crambus watsonellus* Klots. Fig. 33. ***Agriphila ruricorella*** (Zell.).
Fig. 32. *Crambus praefectellus* (Zck. **et Germ.).** Fig. 34. ***Agriphila vulvivagella*** (Clem.).
Fig. 35. *Pediasia trisecta* (Wlk.).

EXPLANATIONS OF PLATES VIII—XIV

Plate VIII

Fig. 36. *Crambus lyonsellus* Haim. Male.
Fig. 37. *Crambus lyonsellus* Haim. Female.
Fig. 38. *Crambus alboclavellus* Zel.
Fig. 39. *Crambus agitatellus* Clem.

Plate IX

Fig. 40. *Crambus bidens* Zell.
Fig. 41. *Crambus watsonellus* Klots.
Fig. 42. *Crambus albellus* Clem.
Fig. 43. *Crambus satrapellus* (Zck. et Germ.).

Plate X

Fig. 44. *Crambus awemellus* McDunn.
Fig. 45. *Crambus turbatellus* (Wlk.).
Fig. 46. *Crambus sperryellus* Klots.
Fig. 47. *Crambus quinquarealus* Zell.

Plate XI

Fig. 48. *Crambus occidentalis* Grote.
Fig. 49. *Crambus leachellus* (Zck. et Germ.).
Fig. 50. *Crambus praefectellus* (Zck. et Germ.).
Fig. 51. *Crambus decorellus* (Zck. et Germ.).

Plate XII

Fig. 52. *Crambus laqueatellus* Clem.
Fig. 53. *Agriphila vulvivagella* (Clem.). Male.
Fig. 54. *Agriphila ruricorella* (Zell.).
Fig. 55. *Agriphila vulvivagella* (Clem.). Female.

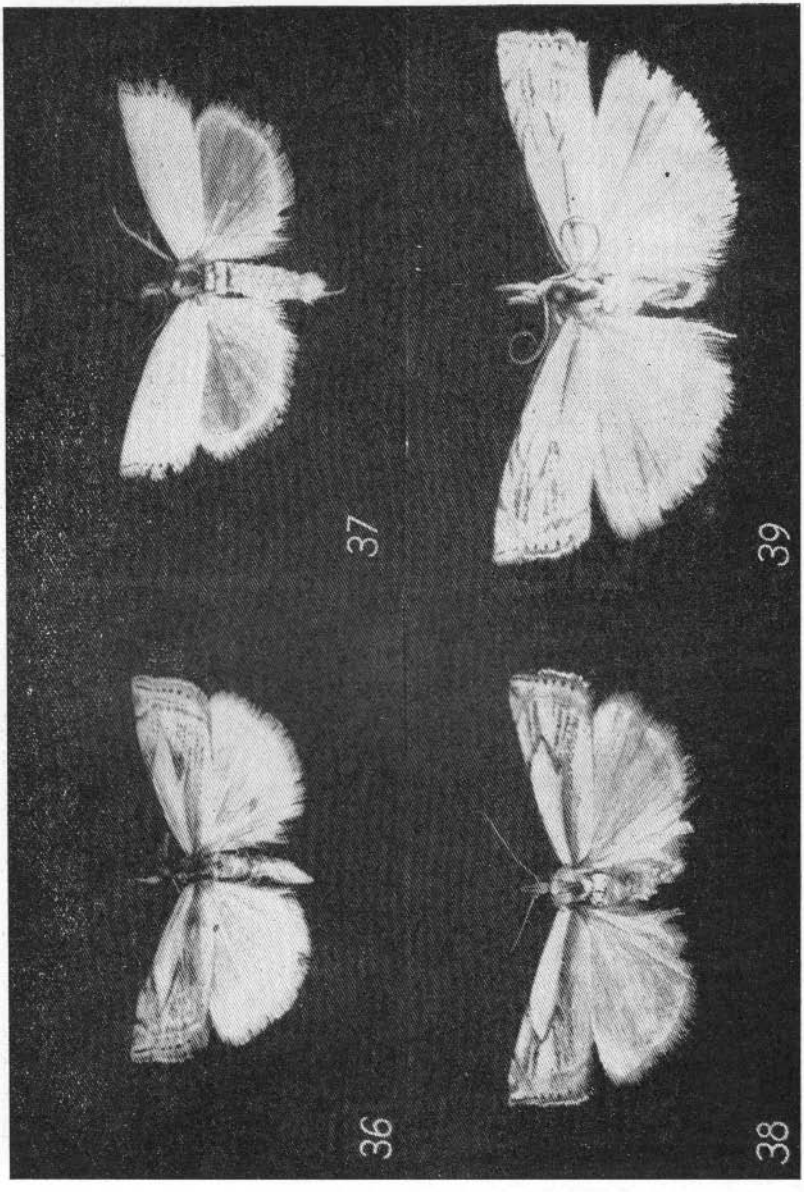
Plate XIII

Fig. 56. *Agriphila costalipartella* (Dyar).
Fig. 57. *Agriphila biothanatalis* (Hulst).
Fig. 58. *Pediasia trisecta* (Wlk.).
Fig. 59. *Pediasia elegans* (Clem.).

Plate XIV

Fig. 60. *Pediasia mutabilis* (Clem.).
Fig. 61. *Pediasia luteolella* (Clem.).
Fig. 62. *Pediasia teterrella* (Zck. et Germ.).
Fig. 63. *Pediasia haytiella* (Zck. et Germ.).

PLATE VIII



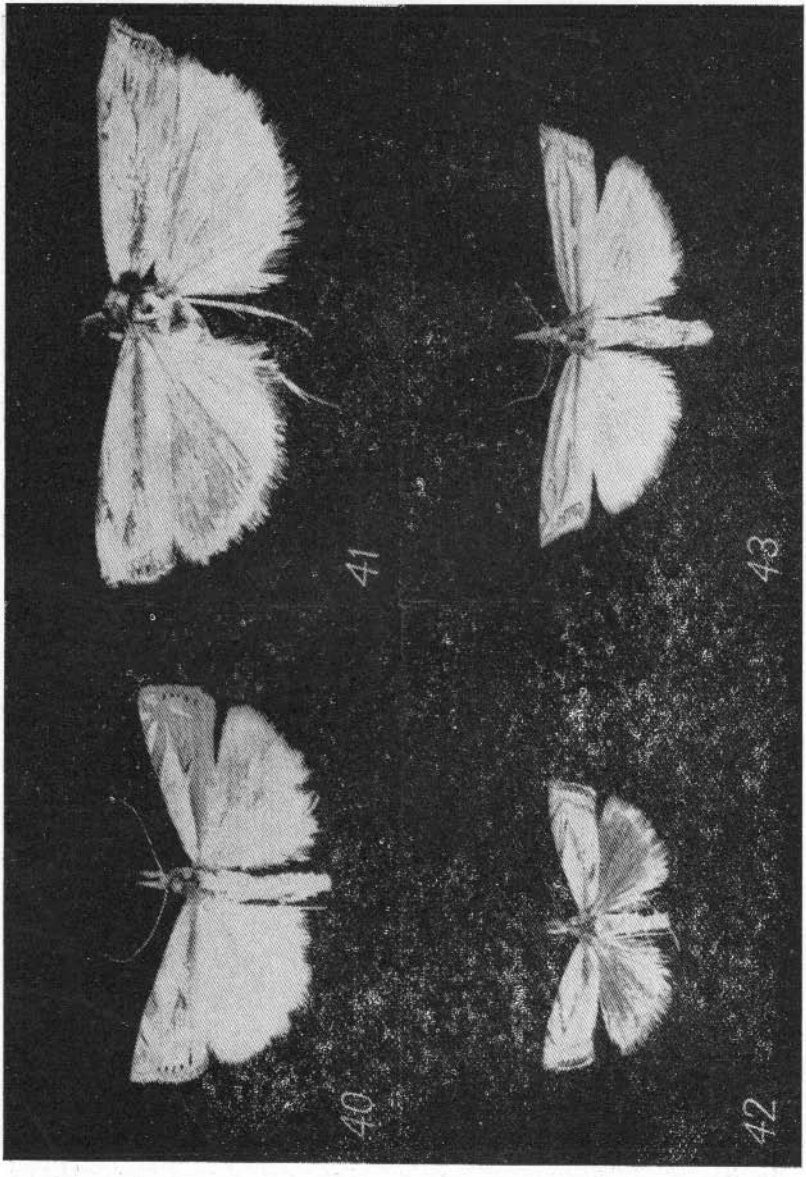

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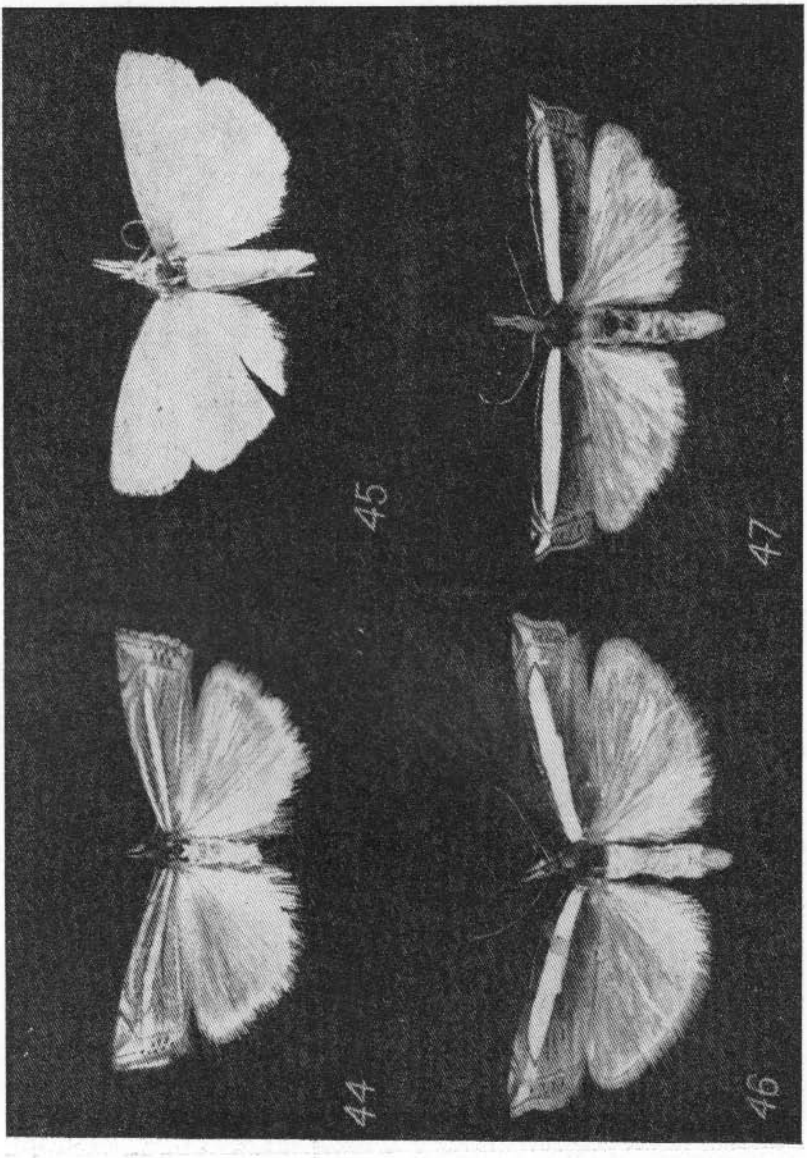
PLATE X



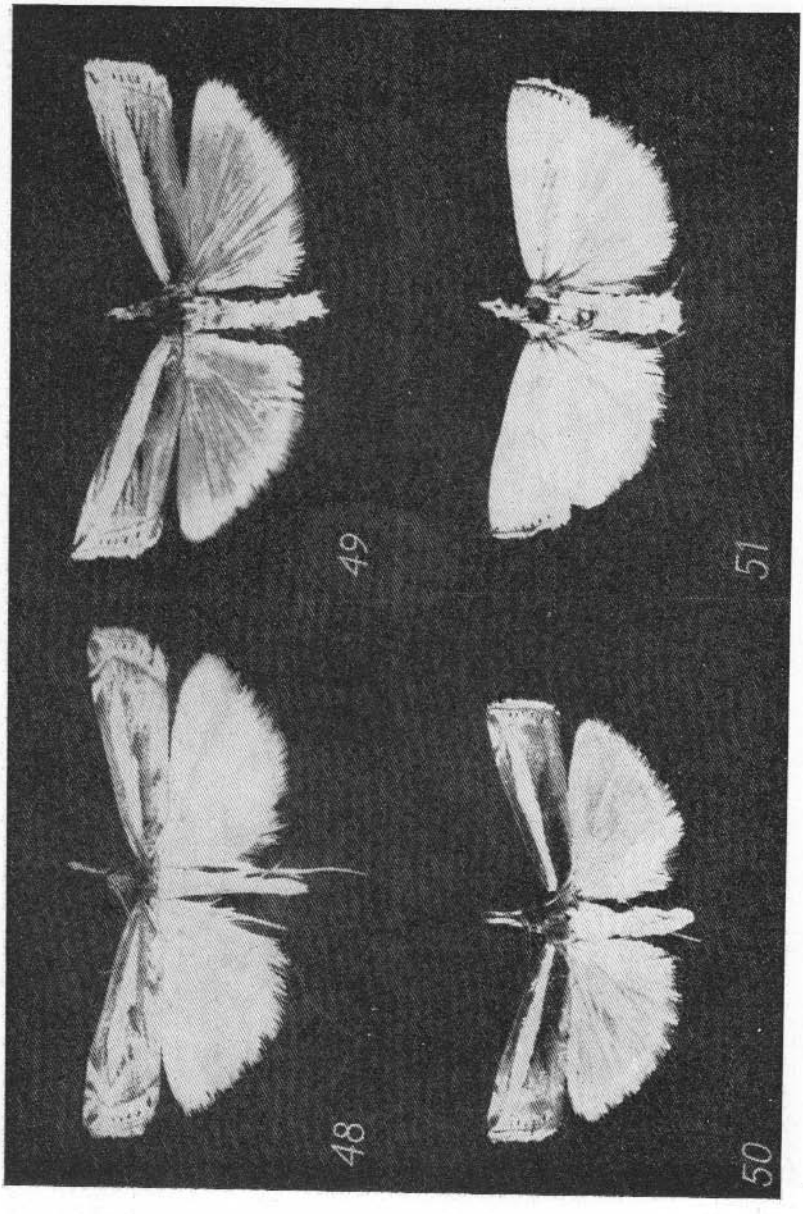

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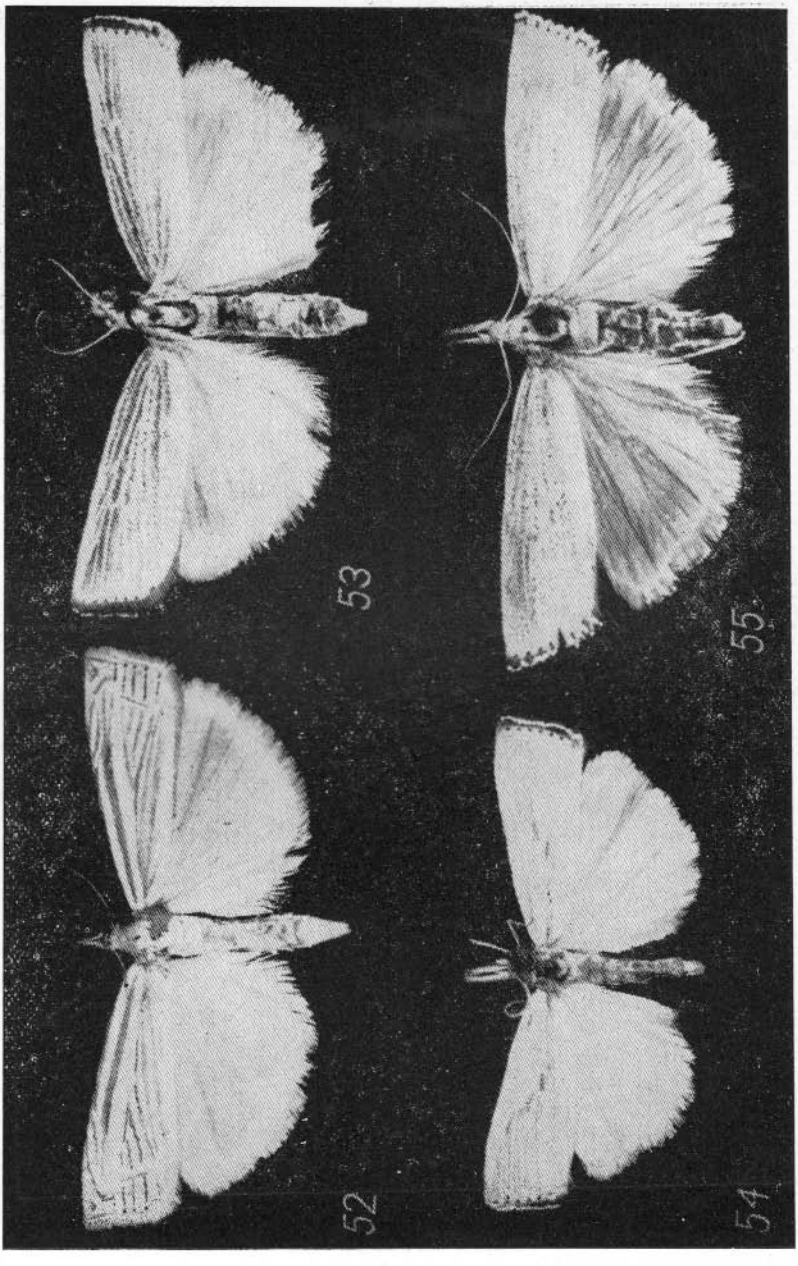
PLATE XII



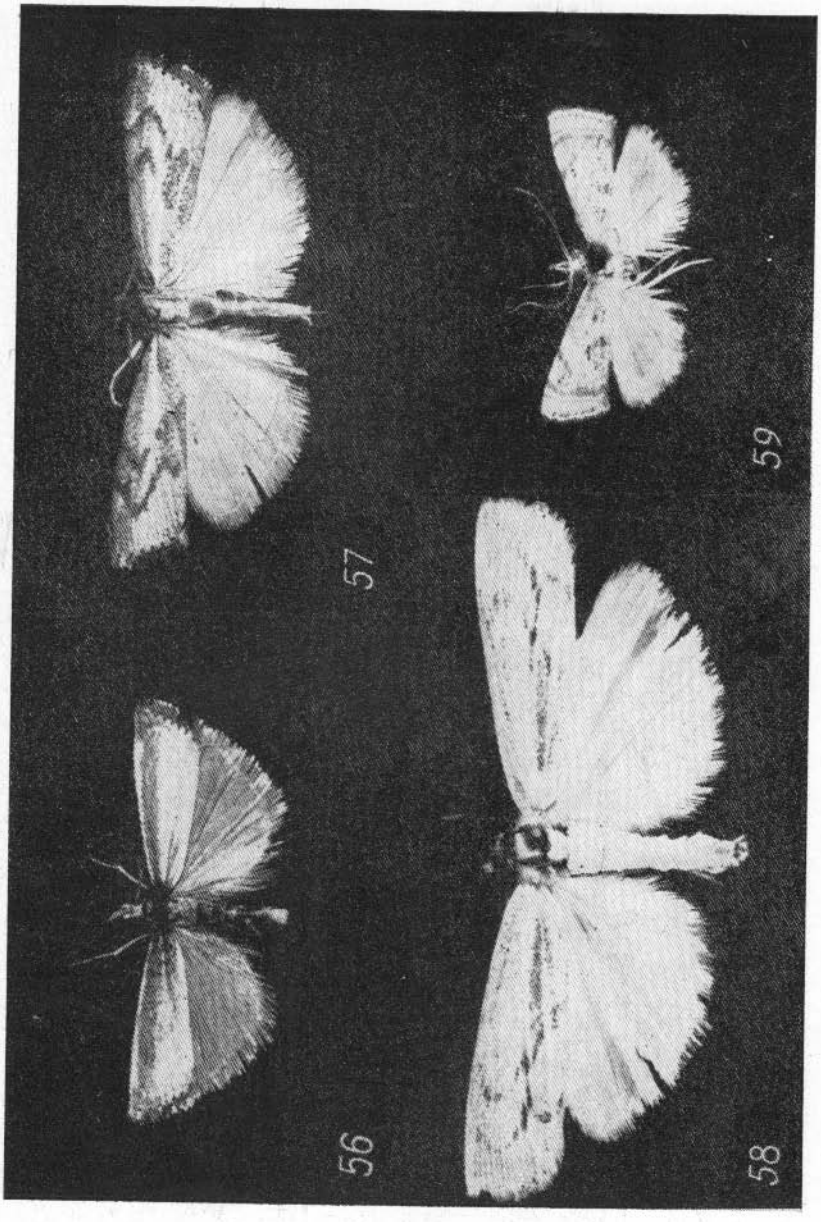

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PLATE XIV