Taxonomic studies on the Palaearctic Cuculliae (Lepidoptera, Noctuidae), Part IV.

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Abstract — Two new species – Cucullia (Pseudocopicucullia) jakesi sp. n. (Iraq) and Cucullia marci sp. n. (Mongolia) are described. The taxonomic status of Pseudocopicucullia DUMONT, 1928 and the species previously placed into this genus is analysed. With 28 figures and 2 photoplates.

1. THE PSEUDOCOPICUCULLIA PROBLEM

The division of the genus *Cucullia* s.l. began with the more detailed studies of the Nearctic species at the end of the last century and resulted in the erection of the genera *Nycterophaeta* SMITH, 1882, *Rancora* SMITH, 1892, and *Copicucullia* SMITH 1894. The main distinctive features were the presence of claw(s) on the fore tibiae and the structure of the antennae of the males.

The second important work from our point of view was the large monograph of HAMP-son (1906) in which he separated—on the basis of the structure of the antennae and the frons, the presence or absence of claw(s) on the fore tibiae and the thoracal and abdominal pubescence—the genera *Nycterophaeta*, *Copicucullia*, *Cheligalea* (nov.), *Argyromata* (nov.), *Cucullia* (including *Rancora*), *Argyrogalea* (nov.), *Opsigalea* (nov.) and *Empusada* (nov.). In his opinion the genus *Copicucullia* contains—beside some Nearctic taxa—the following species: *syrtana* MABILLE, *naruenensis* STAUDINGER (with ab. *dimorpha* STAUDINGER and ab. *eumorpha* ALPHÉRAKY) and *sublutea* GRAESER.

In the series of Seitz, Warren (1910) followed Hampson in placing the above-mentioned three Palaearctic species into the genus *Copicucullia* but he arranged the species of the genera *Argyrogalea* and *Empusada* into the genus *Cucullia*. Furthermore, he synonymized *C. scopariae* Dorfmeister with *fuchsiana* Eversmann, consequently the latter species was regarded by him as the generotype of *Cheligalea*.

DUMONT (1928) modified — using the characters of tibial spining, the structure of antennae and the abdominal pubescence — the system set up by HAMPSON and erected two new genera, *Metlaouia* (type: *oberthüri* Culot = *autumna* Chrétien) and *Pseudocopicucullia* (type: *syrtana* MABILLE). As a result of his studies, the Palaearctic and Nearctic species of "Copicucullia" were separated into two distinct genera.

DRAUDT (in SEITZ 1934) accepted the conclusions of Dumont without any comment, as well as he clarified the distinctness of *scopariae* and *fuchsiana* and restated the status of generotype of the former as well

Janse (1939) followed Hampson closely and relegated yet another African species into the genus *Copicucullia* and listed several other taxa as the members of *Empusada*.

BOURSIN (1941) considered the distinction of Argyrogalea, Cheligalea and Empusada as unacceptable and transferred the species of these genera into Cucullia, but he did not make changes in the systematic status of Argyromata and Pseudocopicucullia.

VARGA (1976) transferred the only species of *Argyromata* into the genus *Cucullia* and mentioned *dimorpha* STAUDINGER as a distinct species in the genus *Pseudocopicucullia*, referring to the (unpublished) work of BOURSIN and SHELJUZHKO.

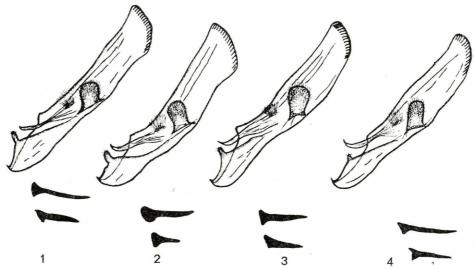


Fig. 1. Cucullia (Pseudocopicucullia) syrtana Mabille, Algeria. — Figs 2–4. Cucullia (P.) syrtana iranica Brandt: 2 = Iraq, 3 = "Cotype", Iran, 4 = Iran.

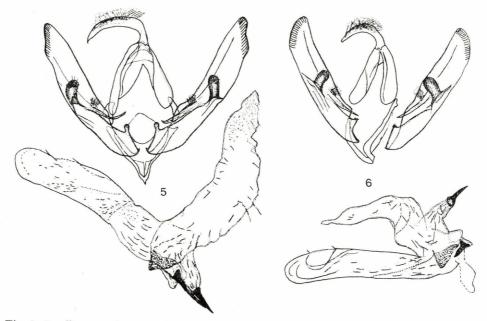


Fig. 5. Cucullia (Pseudocopicucullia) jakesi sp. n. Holotype, Iraq. — Fig. 6. Cucullia (P.) biskranæ Oberthür, Lectotype, Algeria.

In the checklist of the North American *Noctuidae*, FRANCLEMONT & TODD (1983) transferred only a single species placed previously into *Copicucullia* from this genus to *Cucullia*, keeping invariably the other North American genera of the tribe *Cuculliini*.

From the results of our studies, based principally on the genital characteristics of the species, we contend with some of the earlier statements. The most important of our results is that the eastern Palaearctic species of "Pseudocopicucullia"—naruenensis, dimorpha, eumorpha Alphéraky, bona sp. and sublutea—are evidently not closely allied with the species of the syrtana group distributed from NW Africa to Iran and Greece. The presence of claws on the fore tibiae in these groups is only a convergent phenomenon having no unambiguous phylogenetic significance. Such tibial claws, in various appearance, can also be found in some other Cucullia species belonging mostly to the scopariae-splendida lineage, but for example, also in an African species. The pectination of the antennae may also appear in different evolutionary lineages of Cucullia s.l. (see the species of Rancora or Metlaouia). The naruenensis-group represents a transitional stage between the boryphora and the duplicata-tristis groups displaying a continuous developmental line of the asymmetry of harpae. The species of these three groups have similar shape of valvae and configuration of vesica. The main common features of the female genitalia are the less sclerotized ostial ligula, the sclerotized crests of ductus bursae are restricted to the anterior part and the apex bursae has a relatively small, gelatinous appendage. The distinctive specific characteristics are rather slight in all the three groups in both the male and the female genitalia, are manifested in the shape and size of harpae, the intensity of asymmetry, the shape and width of valvae, the strength of sclerotization of the ductus bursae and the configuration of the appendage of the apex. As there are taxonomic and nomenclatorical difficulties in both the boryphora and duplicata-tristis groups, the analysis of these groups needs more detailed studies and they will discussed in a later part of the series.

The syrtana group forms a well-defined group consisting of eremic species distributed in the western Palaearctic desert and semi-desert areas, and syrtana has also been found in Greece. Since the main characteristic features of this group can separately found be in different other groups of Cucullia in the same or modified state (for example the inflated harpe is elongate and curved, relatively flat in the case of melanoglossa Berio showing an intermediate form between the other Pseudocopicucullia species and the also eremic C. absynthii Linnaeus, which has a flattened, curved harpe with similarly setose distal part; the less developed, rounded cucullus appears in several forms in the genus; the huge ostial ligula and the large sterigmae are also typical for the yellow Cucullias, etc.), but the complex of the features is unique, the separation of this group of species is justified within the genus Cucullia at a subgeneric level. It should be noted that the only known species of the genus Metlaouia, in contrary to its very different external appearance, according to the configuration of the male genitalia is closely allied to Pseudocopicucullia, but in this case the generic distinction seems to be reasonable.

Finally, it should be pointed out that some of the African species mentioned as *Empusada*—beside the others evidently belonging to *Cucullia* s. str.—have a conspicuous distal ventral processus on the valvae (digitus) (Janse 1939, Viette 1962). This structure can also be found in a primitive stage in the *dracunculi-virgaureae* group and in an extreme form in the case of *generosa* Staudinger, a very special Palaearctic member of the genus *Cucullia*. The modified, lobular clavus of the discussed "*Empusada*" species is also typical for the *prenanthis-armena* pair of species. To sum up, these species can be interpreted as members of a distinct subgenus of *Cucullia* but the name *Empusada* is inapplicable for this group since the type species of *Empusada* is the Palaearctic *lactea* Fabricius, obviously belonging to the genus *Cucullia*. Consequently the genus *Empusada* must be considered as a junior synonym of *Cucullia*.

Cucullia (Pseudocopicucullia) DUMONT, 1928, stat. n.

This subgenus can be characterized — beside the claws of the fore tibiae — by the inflated, apically densely setose harpae, the relatively short valvae with rounded, less developed cucullus, the short, apically rounded clavus and the vesica with a lamina, between the two diverticles bearing the cornuti and having small teeth. The female genitalia have a very large, more or less heart-shaped ostial appendage and well-developed sterigmae, the ductus bursae is membranous with some sclerotized crests laterally on its anterior part, the apex bursae is partly gelatinous with a small appendage.

List of species

- syrtana Mabille, 1888 (type species) syrtana iranica Brandt, 1941 — biskrana Oberthür, 1918
- jakesi sp. n.
- melanoglossa Berio, 1934
- bensi Agenjo, 1952
- capazi Agenjo, 1952

Cucullia (Pseudocopicucullia) jakesi sp. n. (Plate I: 7)

Holotype: male, "Iraq, Shibchah stone desert, 260 m, 150 kms SW of Najaf, O. Jakes lgt., 7. XI. 1978.", slide No. 1957 Ronkay. Deposited in coll. Jakes, (Brno).

Description—Alar expanse 33 mm, length of fore wing 16 mm.—Head and thorax light ochreous grey, collar striolate with brownish, grey and blackish lines, medial tuft of thorax dark grey.—Ground colour of fore wing pale ochreous grey, densely irrorated with ash-grey and with some plumbeous grey shine. Subbasal line absent, streak of submedian fold very fine, long, blackish. Antemedial line obsolescent, darker grey, strongly sinuous. Orbicular spot greyish, very slightly visible, reniform ochreous, incompletely encircled with grey and with a round brown spot at lower

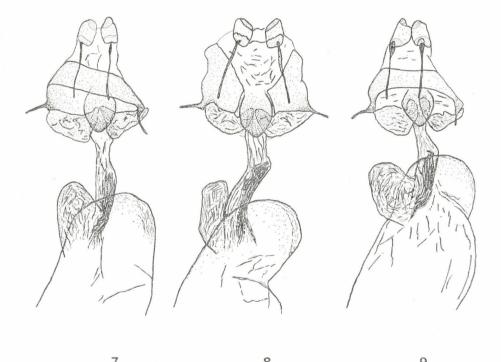


Fig. 7. Cucullia (Pseudocopicucullia) syrtana MABILLE, Algeria. — Fig. 8. Cucullia (P.) syrtana iranica BRANDT, Iraq. — Fig. 9. Cucullia (P.) sp., Iraq.

extremity of cell. Medial line absent, postmedial line obsolete, median area with a blackish brown streak between antemedial and postmedial lines at place of claviform. Subterminal line consisting of some dark brown arrowhead spots defined by light ochreous patches on inner side. Terminal line a fine, whitish line and a row of short blackish lines; terminal area with dark covering on veins. Inner half of cilia light whitish grey spotted with black lines at ends of veins, outer half dark grey. Hind wing whitish with fine greasy shine, veins covered with brown, marginal suffusion wide, dark brown. Cilia white with few darker scales on its inner margin. — Underside of wings whitish, patternless, inner area of fore wing suffused with some grey-brown, outer part of cilia brown. Hind wing nearly pure cream-white with only very few brownish scales at margins.

Male genitalia (Fig. 5): Uncus long and curved, tegumen wide, fultura inferior more or less quadrangular, vinculum short. Valvae elongate, narrow, finely arcuate. Cucullus short, apically more or less rounded, its outer edge slightly concave. Clavus short, digitiform with dilated and rounded apical part. Harpe inflated, thick and slightly curved, distally densely setose. Aedeagus short and thick, vesica consists of two tubular diverticles bearing two inequal cornuti, and a large, upturned, sac-like diverticulum. Central sclerotized lamina triangular, dentated with small teeth.

The new species is closely related to *syrtana* and *biskrana* but differs from them in some external and genital features as follows: *jakesi* has a characteristic dark streak at the place of claviform between the two transversal lines (not a prolonged arch of the post-medial line which sometimes can be observed in *syrtana*) which is absent both in the races of *syrtana* and *biskrana*. The marginal suffusion of the hind wing is more intensive and darker than in the related taxa. Comparing the configuration of the male genitalia of *jakesi* with that of *syrtana* (Figs 1–4), the former has smaller and more gracile valvae, more pointed cucullus with concave outer edge, apically dilated clavus and significantly more slender harpe, In the case of *biskrana* the uncus is shorter, the cucullus is more rounded with convex outer edge, the slavus is shorter and the harpae are thicker and more arcuate (Fig. 6).

The new species is known only from lraq, occurring sympatrically with syrtana iranica in a stone desert area.

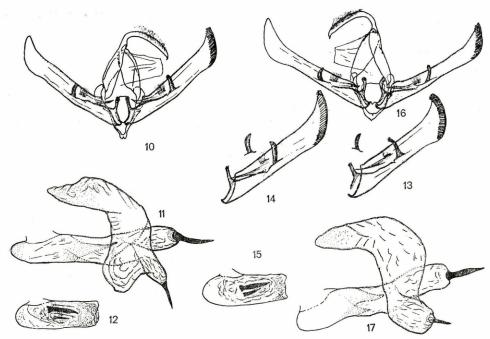
R e m a r k s — In the material from Iraq collected by O. Jakes, there is a single female specimen (Plate I: 8) which differs from the females of *syrtana iranica* in its external appearance and some characteristics of the female genitalia (Figs 7–9). As this specimen is not unambiguously conspecific with the holotype of *jakesi* — for example the dark streak of *jakesi* at the place of claviform is absent from this specimen — we desist to mention this specimen as the female of the new species.

Cucullia (Pseudocopicucullia) biskrana Oberthür, 1918 comb. n. (Et. Lep. Comp., 16, p. 167)

We had the opportunity to study the colour slides of a male syntype (a slide illustrating the upper side of the specimen, and in another the male genitalia and in the third the set of labels). This specimen is designated here as 1 e c t o t y p e: male, "Algérie Biskra Décembre 1913 Chierotti", "Cucullia Biskrana 5 Obthr.", "Ex Oberthür Coll. Brit. Mus. 1927–3." and a round label with blue margin. "SYN-TYPE". Alar expanse of the specimen is 42 mm.

2. THE SPECIES OF THE NARUENENSIS GROUP

This group of species contains four Central Asian species, three of which are very closely allied and they were considered for a long time as colour forms of one and the same species. We had the opportunity to study all the four species and further material of them, especially in the case of *dimorpha*, of which we have a long series from different places in Mongolia, originating from sandy and stone desert habitats (the type locality of *dimorpha* is Uliassutai, Mongolia). It was pointed out that these taxa represent there distinct



Figs 10–11. Cucullia eumorpha Alphéraky, Lectotype, Kashgar. — Figs 12–13. Cucullia naruenensis Staudinger, Lectotype, Naryn. — Figs 14–17. Cucullia dimorpha Staudinger. 14–15 = holotype, Uliassutai, 16–17 = Mongolia.

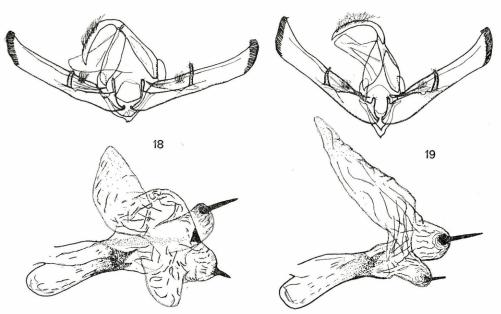


Fig. 18. Cucullia tristis Boursin, lectotype, Korla. — Fig. 19. Cucullia sp. from the boryphora-group, Turkey.

species—according to Varga (1976)—having relatively slight but constant and characteristic differences in the configuration of male genitalia, beside the conspicuously different colouration of the wings The distinctive features are as follows: the valvae of *naruenensis* (Figs 12–13) are shorter and wider than in case of the other two species, its cucullus is broader with more arcuate outer edge; the harpae are longer and narrower than those of *dimorpha* (Figs 14–17) and *eumorpha* (Figs 10–11). The latter two species have more elongate valvae; in the case of *eumorpha* the harpae slightly shorter and wider than those of *dimorpha* (in the case of the holotype of *dimorpha* (Fig. 14) the slide was strongly compressed by Boursin!) and the shorter cornutus of *eumorpha* is essentially longer.

Cucullia naruenensis Staudinger, 1879 comb. n. (Stett. ent. Z., 1879, p. 322) — The type series of naruenensis consists of some specimens from "Astrachan and der Sandregion Narün" (collected by Henke in the autumn of 1877), of which a pair from Naryn is preserved in the collection of Staudinger (Zool. Mus., Berlin). The male specimen was dissected by Boursin and labelled — unjustifiedly — as "Holotype". This specimen is designated here as 1 e c t o t y p e: male, "Naryn", "Origin.", "naruenensis Stgr.", "MB 265 Boursin".

Cucullia dimorpha Staudinger, 1896 comb. n. (Iris IX, p. 268. — *C. eumorpha* Alph. var.? *dimorpha*) — Holotype: male, "Uliassutai 94 Led.", "Origin." "var. dimorpha Stgr.", "MB 266 Boursin".

Cucullia eumorpha Alphéraky, 1893, stat. et comb. n. (Plate II: 9) (Iris VI, p. 347) — The type series consists of three males and four females from the same locality and data, one of the males was selected for designation of the 1ectotype: male, "Kashgaria, Russkiy Hr." (the second part is in Russian), "9000', VII. 1890" (these data are written on a double, green label), "Kol. Vel. Kn. Nikolaia Mikhailovicha" (in Russian). Slide No. 1747 Ronkay, deposited — with the other specimens of the type series — in coll. of the Zoological Institute, Leningrad.

Cucullia sublutea Graeser, 1892 comb. n. (Berl. ent. Z., 1892, p. 312) — Holotype: female, Kashgar, in coll. Püngeler (Zool. Mus., Berlin)

R e m a r k s — During studies on the allied *duplicata*-group we examined the types of the species more closely related to the *naruenensis* group, *C. tristis* BOURSIN, 1934. This species was described by STAUDINGER in 1899 as *C. amoena*, a junior homonym of a South American species described by PHILIPPI in 1860. In his work BOURSIN clarified this homonymy and the distinction of *duplicata* and *tristis* at a specific level, but did not designate the lectotype of the species. We separated a male specimen from the type series (two males and two females from Korla) and this specimen is designated here as lectotype:

Cucullia tristis Boursin, 1934 (Rev. franc. ent., I (2), p. 142) — Lectotype: male, "Korla", "Origin." "Cucullia tristis Boursin \bigcirc 7 nom. nov., Boursin det.", "Lectotypus Cucullia tristis Boursin, des. Ronkay, 1987". Slide No. 2072 Ronkay, deposited in coll. Staudinger (Zool. Mus., Berlin). The male genitalia is illustrated in Fig. 18.

3. DESCRIPTION OF A NEW SPECIES OF THE SCOPARIAE-SPLENDIDA GROUP

Cucullia marci sp. n. (Plate II: 11-12)

Holotype: male, "Mongolia, Bayanhongor aimak, Mts. Ih Bogd Uul, 1850 m, valley of Pitut river, 100° 13′ E, 45° 00′ N, 1987. 07. 24–26, leg. L. Peregovits, M. Hreblay, T. Stéger"; deposited in the Hungarian Natural History Museum, Budapest. — Paratypes: 5 ♂♂, 4♀♀, from same locality and data, in HNHM Budapest, G. Ronkay, P. Gyulai, M. Hreblay and Gy. Fábián. This interesting species was found in the material of the Hungarian Zoological Expedition of

1987. We dedicate it to Mr. Márton Hreblay, member of this expedition.

Description — Alar expanse 33-36 mm, length of fore wing 15-16 mm. Frons blackish, frontal prominence rounded, ochreous brown. Labial palp with some whitish grey hairs, collar grey, striolate with black and darker grey. Thorax somewhat darker, mixed with some blackish, medial part dark grey. Abdomen ochreous brown with some whitish grey hairs, especially on the last two segments, anal tuft greyish. — Ground colour of fore wing whitish grey with fine ochreous shade, irrorated with darker grey and blackish, chiefly in cell and terminal area. Subbasal line only a very short

line at costa, dark streak of submedian fold very pale or absent. Basal field pure whitish grey except at inner margin. Antemedial line dark grey, double, filled with ochreous grey, strongly sinuous. Orbicular and reniform spots incompletely encircled with light grey, filled with blackish and brown spots and patches, reniform usually defined with blackish at lower edge; other parts of cell filled with dark blackish-brown. Claviform a short streak or obsolete, medial line absent, postmedial line dark brown, diffuse, double, somewhat sharper at inner margin. Subterminal line obsolescent, lighter grey defined by greyish and brownish spots on outer side. Terminal area with a dark streak running from lower extremity of cell to subterminal line, veins finely covered with black. Tornus with a thick, short and dark, usually blackish streak, terminal line fine, ochreous with a row of strong black spots at inner side. Cilia dark grey with two fine, lighter lines. — H i n d w i n g pale greyish with some ochreous shine, cellular lunules very pale or absent, marginal suffusion wide, grey-brown; cilia pure white. Underside of fore wing patternless grey with darker irroration on outer side and with shadows of stigmata. Underside of hind wing whitish with few greyish scales, usually patternless. Colouration of females similar, only slightly darker than that of males.

Male genitalia (Fig. 23): Uncus long, tegumen high, fultura inferior a deltoide plate vinculum relatively short, V-shaped. Valvae elongate and narrow, dilated at end of sacculus, cucullus long and acute. Sacculus short, clavus very long, distally finely dilates, its apex rounded. Harpe long and slender, medially slightly constricted, apical part tapering, pointed. Aedeagus thick and moderately long, dorsal end with a sclerotized lamina. Vesica consisting of two tubular diverticles bearing long cornuti and a large curved, sac-like diverticulum. At base of a tubular diverticulum a globular appendage can be found.

Female genitalia (Fig. 27): Ovipositor short and wide, gonapophyses short, especially anterior pair. Caudal part of ductus bursae membraneous, anterior part with a sclerotized lamina

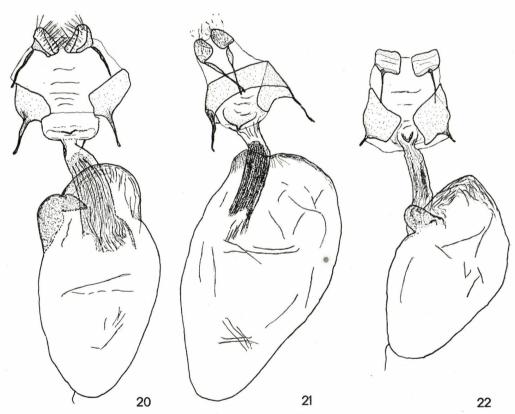


Fig. 20. Cucullia dimorpha Staudinger, Mongolia. — Fig. 21. Cucullia duplicata Staudinger, Mongolia. — Fig. 22. Cucullia sp. from the boryphora-group, Afghanistan.

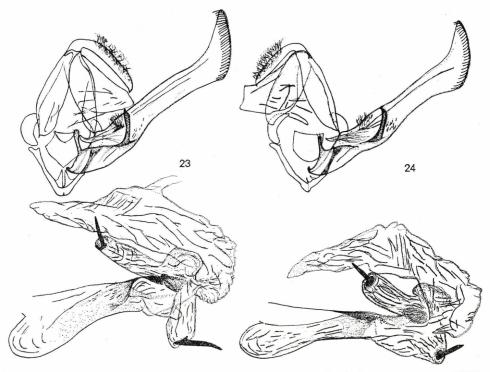


Fig. 23. Cucullia marci sp. n. Paratype, Mongolia. — Fig. 24. Cucullia fuchsiana Eversmann, USSR, Altai.

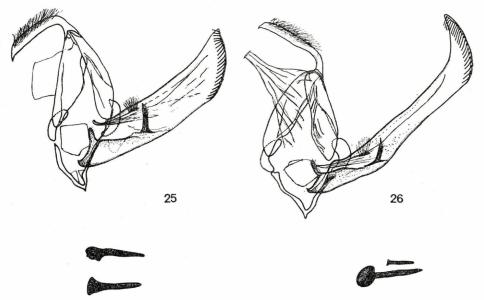


Fig. 25. Cucullia tescorum Püngeler, Mongolia. — Fig. 26. Cucullia scopariae Dorfmeister, Hungary.

and some strong crests. Apex bursae with a large and rounded, nearly circular gelatinous appendage, its edge with stronger sclerotization. Corpus bursae large, elliptical.

The new species shows an interesting duality as it resembles externally to the Asiatic specimens of absynthii (LINNAEUS, 1761) (Plate II: 13) and, surprisingly, to tescorum PÜN-GELER, 1908 (Plate II: 14); but, according to the characteristics of the genitalia of both sexes it must be placed into the scopariae-splendida group. The specific differences are as follows: the ground colour of *marci* in whitish-grey versus grey or brownish-grey in *absynthii*. Tescorum has a similar coloration of whitish-grey-blackish "mosaic" but the elements of the pattern of the two species are very different (see Plate II). The third species resembling marci, hemidiaphana Graeser, 1892 has pure white hind wing and well-marked medial line. The configuration of the male genitalia of the new species is similar in type to those of fuchsiana Eversmann, 1842 (Fig. 24) and scopariae Dorfmeister, 1853 (Fig. 26) but differs from them in its longer and stronger clavus, the different harpe and cornuti of vesica, since tescorum (Fig. 25) belongs to a distinct group far from the scopariae-splendida group. The female genitalia of *marci* is similar to that of *scopariae* (Fig. 28) but the anterior part of the ductus bursae of the former has a large and strongly sclerotized lamina and some long, sclerotized crest laterally, and the apex bursae has much larger and more circular appendage than in scopariae.

By the mentioned characteristics, the new species should be placed into the *scopariae-splendida* group near to *fuchsiana*. It is known only from the type locality, an isolated member of the Gobi Altai chain, the Mts. Ih Bogd Uul, and it occurs in the subalpine zone.

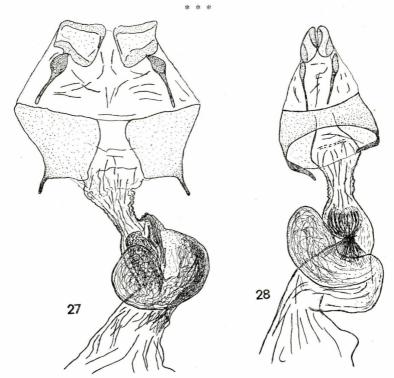


Fig. 27. Cucullia marci sp. n. Paratype, Mongolia. — Fig. 28. Cucullia scopariae Dorfmeister, Hungary.

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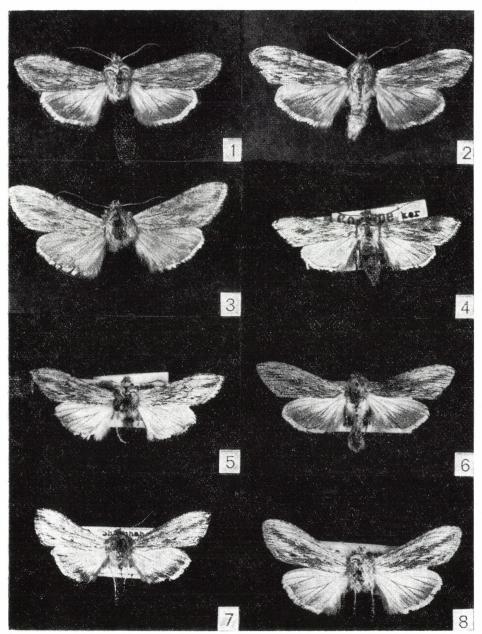
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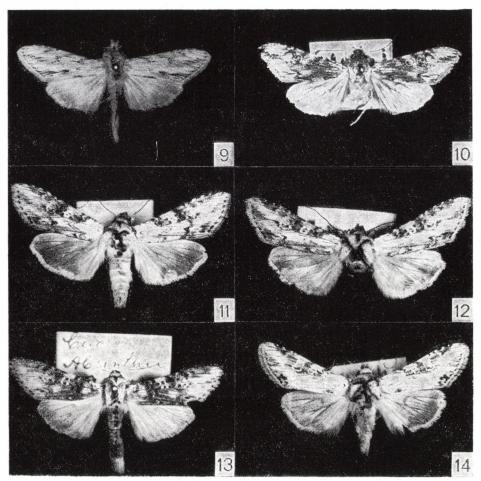
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Plate I.



1. Cucullia (Pseudocopicucullia) syrtana Mabille: Male, Algeria. — 2. Cucullia (P.) syrtana Mabille: Female, Algeria. — 3. Cucullia (P.) syrtana iranica Brandt: Male Iran, Laristan. — 4. Cucullia (P.) syrtana iranica Brandt: Male "Cotype", Iran. — 5. Cucullia (P.) syrtana iranica Brandt: Male, Iraq. — 6. Cucullia (P.) syrtana iranica Brandt: Female, Iraq. — 7. Cucullia (P.) jakesi sp. n. Holotype, Iraq. — 8. Cucullia (P.) sp.: Female, Iraq.

Plate II.



9. Cucullia eumorpha Alphéraky: Lectotype, Kashgar. — 10. Cucullia tristis Boursin: Lectotype, Korla. — 11. Cucullia marci sp. n.: Holotype, Mongolia. — 12. Cucullia marci sp. n. Paratype, Mongolia. — 13. Cucullia absynthii Linnaeus (Type of "C. absinthii v. asiatica i.l. Bang-Haas. Male, Juldus. — 14. Cucullia tescorum Püngeler: Male, Mongolia.