VERÖFFENTLICHUNGEN
der
ZOOLOGISCHEN STAATSSAMMLUNG
MÜNCHEN

Middle East Lepidoptera

XVIII.
A Review of the Genus Pericyma Herrich-Schäffer and Neighbouring Genera
(Noctuidae)

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Some new Jaspidiinae and Catocalinae mainly from the Sudan
(Noctuidae)

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Veröff. Zool. Staatssamml. München	Band. 14	S. 91—119	München, den 1. 9. 1970

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[1)] The previous article in this taxonomic series was: Geometridae, new for Turkey, discovered in 1939—42 by J. Romieux. (Mitt. der Ent. Ges. Basel, N. F./*14* J. Nov.-Dec. 1964; 151—3.)

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MIDDLE EAST LEPIDOPTERA [1])
XVIII.
A Review of the Genus Pericyma Herrich-Schäffer and neighbouring Genera and especially their Relationship as shown by their Genitalia, with a Description of a new Species from Abyssinia.

(Lep., Noctuidae)

by E. P. Wiltshire

The München Zoological Collection sent me, for determination, a year or two ago, certain **Noctuidae (Catocalinae)** fairly recently received from the following places and collectors: South Iran (W. Richter), Saudi Arabia (Diehl), Sudan, Kassala, Blue Nile and Ed Damer provinces (R. Remane).

In order to do this to my satisfaction, I was obliged to make comparative studies of material from the following collections: the British Museum of Natural History, the Swedish Museum of Natural History (Brandt collection), the Berlin Museum (types of Staudinger), the recent collections of both Klapperich and of Madame Vartian and Dr. Kasy in Afghanistan, and also the material from Afghanistan collected by Dr. H. G. Amsel and his associates, and of course my own collection and my notes made from other collections earlier, such as the Alfieri and Petroff collections, (Cairo, 1948).

It will be recalled that whereas Rothschild 1920 expressed the opinion that a number of "*Cortyta*" species were all forms of a single variable Species, Draudt-Seitz wisely preferred to continue to treat these forms as separate species and suggested that a study of the genitalia (omitted by Rothschild) might reveal the true relationships of these forms to one another.

It will be useful therefore, in the present article, which devotes itself to these and other *Cortyta* species (in the Seitzian sense) and also the *Pericyma* and *Gnamptonyx* species of the Middle East, to depict the genitalia of both sexes of all these species. It proves that they fall into natural groups doubtless of generic value. The diagnostic characters of these genera are described, and the figures illustrate them even more eloquently. Then the question how far existing generic names can apply to these natural groups will have to be discussed in order to permit a valid description of what appears to be a new species from Abyssinia sent to me by Munich. If one could continue to use the name *Cortyta* in the sense of Hampson, and Draudt-Seitz, this new species would certainly belong there. Finally notes on the distribution of all the forms, and some

other comments will be given. The article is therefore not a revision of all the genera concerned on a world-wide basis, but should serve as a first step towards it.

Where the arid Middle East borders on the more luxuriant tropical regions of India and Ethiopia a number of species occur that do not penetrate elsewhere into the Palearctic Zone. Some of these belong to the genus *Alamis* Guenée of which Berio (1954 & 1959) showed clearly the characters distinguishing it from *Pericyma*. In the material which I have been studying there have been two species in this genus, namely: —

A. umbrina Guenée including its beautiful aberrational form *albicincta* Guenée (Afghanistan); and

A. atrifusa Hampson a similarly marked and varying, but slightly smaller, moth (Sudan).

I propose to include these two species in the present review owing to the obvious affinity to *Pericyma* shewn by their genitalia.

The S. Iranian "*Pericyma*" *signata* Brandt 1939 proves to have male genitalia almost identical with those of *Moepa albidens* Walker as given in Berio (1954). The only difference seems to be that a well-developed branch (= supplementary caecum Berio) exists in the aedeagus while Berio stated that it was lacking in *albidens*. However, it seems likely that a branch was concealed in the photo used by Berio (who was unable to examine the parts in dissection); I think it likely that, if not an actual synonym of *albidens*, *P. signata* will a least prove to be a *Moepa*, provided that this continues to be considered a good genus.

Besides these three just mentioned, ten species are left, and they fall into four groups. On genitalic characters alone the two *Alamis* and probably also the *Moepa* might be included in one of these, as will be seen. The groups are as follows, and in parentheses after the genitalic characters I give those other characters which serve to diagnose the groups.

Group A.

♂. Uncus bipartite, with articulated gnathos. Tegumen, symmetrical. Valves symmetrical or assymmetrical, heavily sclerotised, linked from the costa-base ventrally by thick transtilla, not opening easily. Aedeagus, bifid.
♀. Posterior apophyses longer than anterior. Genital plate, narrow, partly encircling the ostium. Bursa, elongated, membranous, the signum taking the form of a line of spicules. Ductus, much shorter than bursa and not clearly demarcated therefrom.
(Fore-wing of ♀ not less contrasted than of ♂.)
(Second tibia of both sexes with spines.)
(Abdomen with dorsal hair-crests on first segments.)
(*Pericyma albidentaria* Freyer; *Pericyma squalens* Led.)

Sub-group: A (i). Genitalia, as in Group A, other characters : —
(Fore-tibia of ♂, broadened or swollen, often shortened, with varying scale or hair-tuft formations.)

(second tibia of ♂ without spines.)
(*Alamis umbrina* Gn.; *Alamis atrifusa* Hampson.)

Sub-group: A (ii). Genitalia of ♂, as in Group A except that valves are shorter, and equipped with tufts of long strong bristles; the aedeagus though bifid, is less curved, the extra branch more slender. Genitalia of ♀, not yet examined.

(*Moepa signata* Brandt? = *albidens* Walker).

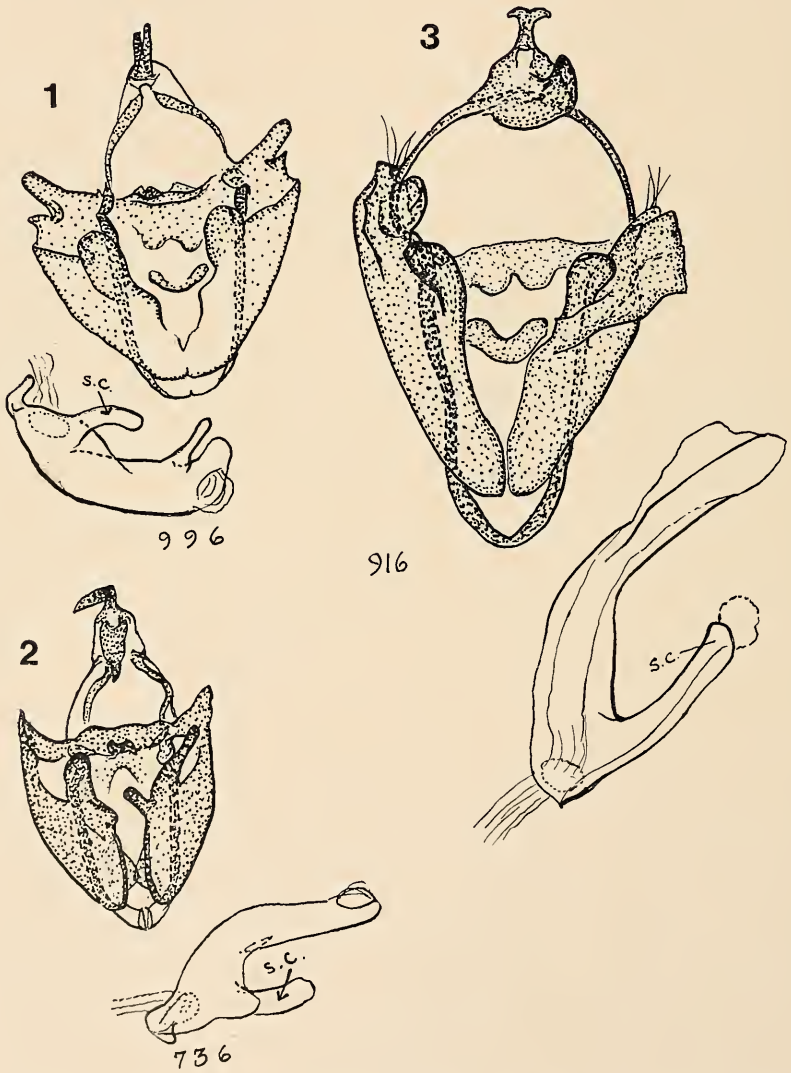

Fig. 1: Genitalia of ♂, *Pericyma albidentaria* Frr. Prep. 996, Shiraz, S. W. Iran
Fig. 2: Genitalia of ♂, *Pericyma squalens* Led. Prep. 736, Shaqlawa, N. Iraq.
Fig. 3: Genitalia of ♂, *Pericyma (Alamis, umbrina* Gn. Prep. 916, Bashgulvalley, Nuristan, Afghanistan.
S. C. = Branch (supplementary caecum, of B e r i o.)

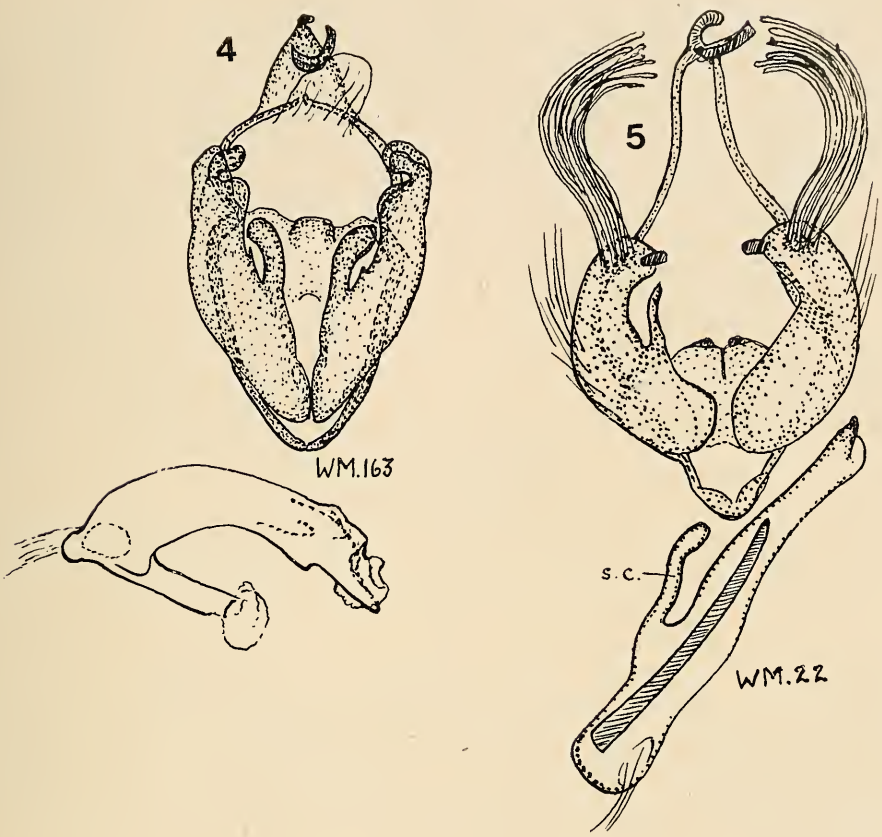

Fig. 4: Genitalia of ♂, *Pericyma (Alamis) atrifusa* Hamps., Prep. WM. 163, Wadi Medani, Sudan.

Fig. 5: Genitalia of ♂, *Pericyma (Moepa) signata* Brandt, Prep. WM. 22, Iranshahr S. Iran.

Group B.

♂. Uncus, rigid, thick short, without gnathos. Tegumen, assymmetrical, with an appendage on right side only. Valves, assymmetrical, heavily sclerotised, opening more easily than Group A. Aedeagus, not branched.
♀. Posterior apophyses much shorter than anterior. Genital plate, sclerotised, irregular, often assymmetrical. Ductus, sclerotised, wide, assymmetrical, in form of a crooked sock, well demarcated from bursa and longer than it. Bursa, globular, without signum.
(Fore-wing of ♀ similar to that of ♂.)
(Abdomen without dorsal crests).
(*Cortyta vetusta* Walker; *Cortyta acrosticta* Pung. (= *rosacea* Rebel); *Heteropalpia lilliae* Berio (= *Pericyma scandulata* Hampson nec Felder.)

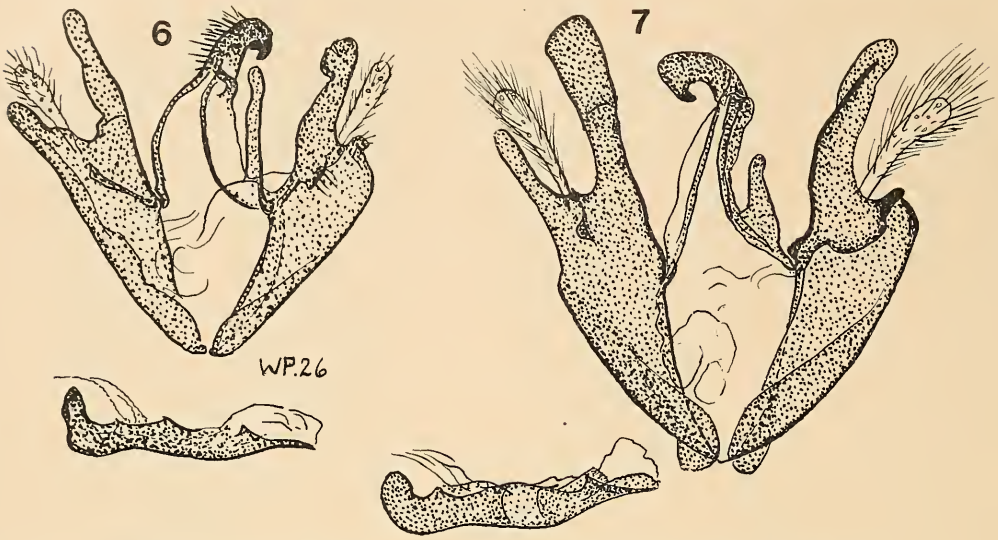

Fig. 6: Genitalia of ♂, *Heteropalpia vetusta* (Walker), Prep. WP. 26, Palestine.
Fig. 7: Genitalia of ♂, *Heteropalpia acrosticta* (Püng.), Prep. 236, Hanakiya W. Arabia.

Group C.

♂. Uncus, long-necked, thickened distally to resemble a bird's head. Tegumen symmetrical or slightly more developed on right side. Valves, assymmetrical, heavily sclerotised, with ventral and costal extensions well developed on both, though differing in detail on right from left. Aedeagus, not bifid.

♀. Genital plate, wider than long, rounded at edges. Anterior apophyses shorter but not less than half the length of posterior. Ductus, comparatively short and narrow. Fundus (anterior end) of bursa, globular and uniformly densely spinose, without other signa; posterior end variously modified, often forming a distinct appendix.

(Fore-wing of ♀ less contrasted than of ♂.)

(Abdomen without dorsal crests.)

(2nd tibia of ♂ with or without spines.)

(*Cortyta leucoptera* Hampson; *Cortyta dispar* Püngler; *Cortyta fasciolata* Warren (= *impar* Hampson = *eremochroa* Hampson.);? *Cortyta alabuensis* sp. n. described below.)

Group D.

♂. Uncus simple. Tegumen, symmetrical. Valves, heavily sclerotised, assymmetrical, opening easily, right valve more developed than left, which lacks the sclerotised costal extension. Aedeagus, not bifid, stout, curved.

♀. Genital plate, longer than wide, with straight parallel sides, and pointed corners, hinging like a flap over the ostium. Posterior apophyses

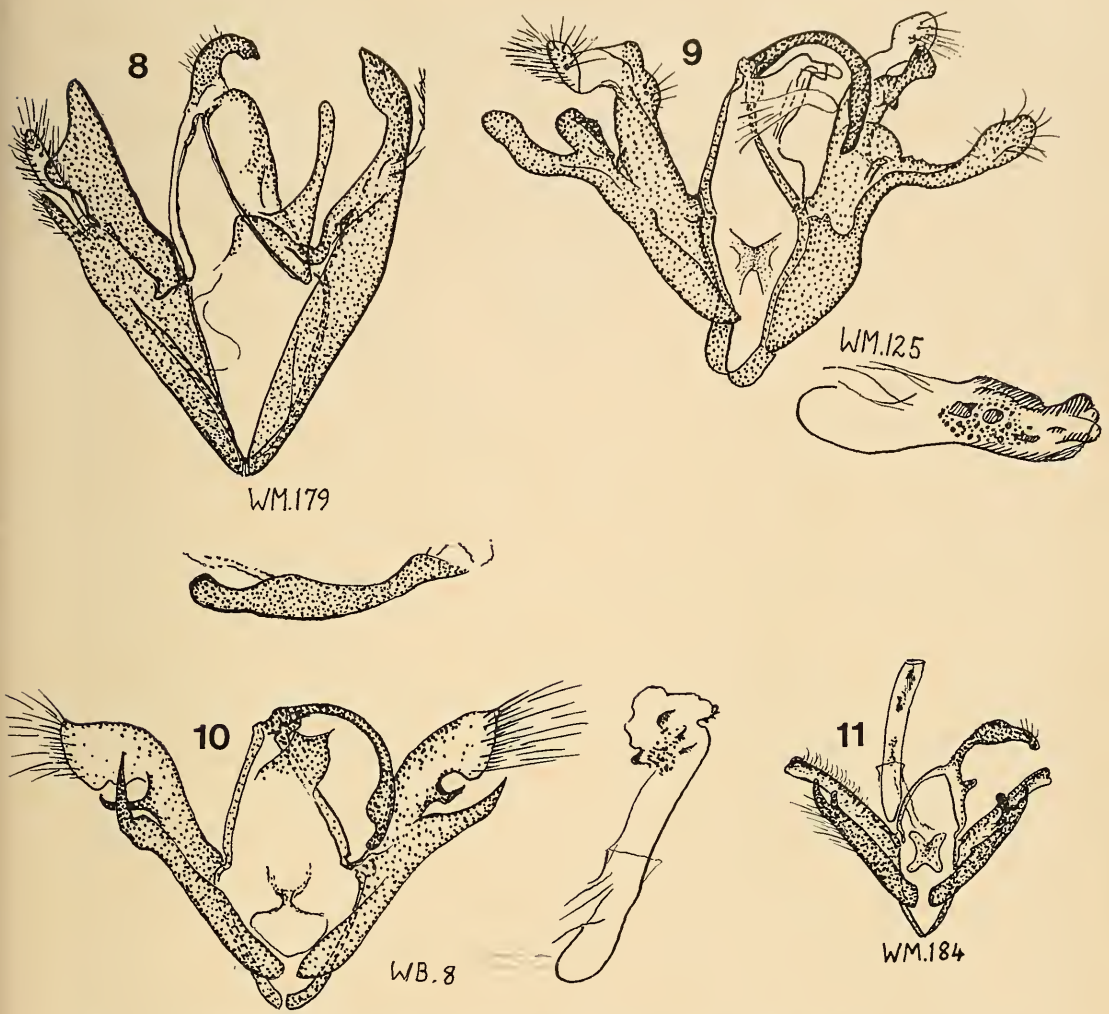

Fig. 8: Genitalia of ♂, *Heteropalpia lilliae* Berio, Prep. WM. 179, Wadi Medani, Sudan.
Fig. 9: Genitalia of ♂, *Tytroca leucoptera* Hamps., Prep. WM. 125, Riadh, Arabia.
Fig. 10: Genitalia of ♂, *Tytroca dispar* Püng., Prep. WB. 8 (TYPE) Ain Jiddi, Palestine.
Fig. 11: Genitalia of ♂, *Tytroca fasciolata* Warr., Prep. WM. 184, Riadh, Arabia.

longer than anterior. Ductus short, weak; bursa, elongated irregular in form, membranous with conspicuous signa in form of irregular patches or bands of dense spines.
(Fore-tibia with a pair of large terminal curved spines in front.)
(Abdomen without dorsal crests.)

(*Gnamptonyx vilis* Walker.)

Nomenclature of the above Groups

The type-species of *Pericyma* being *albidentaria* Freyer, the name *Pericyma* is available for Group A. Sub-groups A (i) and A (ii) may, in my

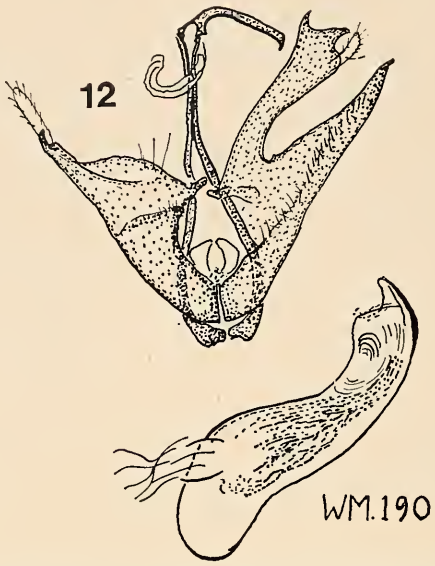

Fig. 12: Genitalia of ♂, *Gnamptonyx vilis* Wkr., Prep. WM. 190, Erkowit, Sudan.

opinion, be considered merely as sub-genera of *Pericyma,* on account of the affinity of the genitalia of both sexes, (see Figs. 1-4, ♂♂, and figs 13-16, ♀♀.)

The valid names therefore will be:

A. *Pericyma (Pericyma) albidentaria* Freyer.
Pericyma (Pericyma) squalens Led.

A. (i) *Pericyma (Alamis) umbrina* Guenée
Pericyma (Alamis) atrifusa Hampson.

A. (ii) *Pericyma (Moepa) albidens* Walker (? = *signata* Brandt).

The type species of the genus *Cortyta* is *canescens* Walker (South Africa). This species does not resemble superficially the other, more northerly, species which Hampson included with it; recently Berio (1954, 1959) investigated the ♂ *canescens* and published certain structural differences. The genus *Heteropalpia* Berio 1939 (type species *cortytoides* Berio 1939, a Tropical African species) is available for Group B. Though distinguished on legcharacters this group's male genitalia differ from those of *canescens,* which has a simple uncus, non-bifid aedeagus, complex left valve and simpler right valve, as illustrated by Berio in a new work now in the press.

The valid names therefore will be :

B. *Heteropalpia vetusta* (Walker).
Heteropalpia acrosticta (Püngler) (= *rosacea* Rebel).
Heteropalpia lilliae Berio (= *scandulata* Hampson nec Felder).

It has not been possible to discover a genuine example of "*Cortyta profesta* Christ." which Warren-Seitz described, probably inaccurately. I have examined examples, so determined, in the British Museum from

Cyprus, Turkey and Transcaucasia, which I presume Warren saw when writing his section of Seitz. They are all, in fact, conspecific with the Indian and Arabian species which Hampson and Warren rightly identified as *vetusta*. Only their greyer coloration distinguished them from these. *Cortyta profesta* f. *sacra* Stgr. (Palestine) which, Staudinger (1897) pointed out, differed in markings from *profesta*, is in fact *vetusta*,

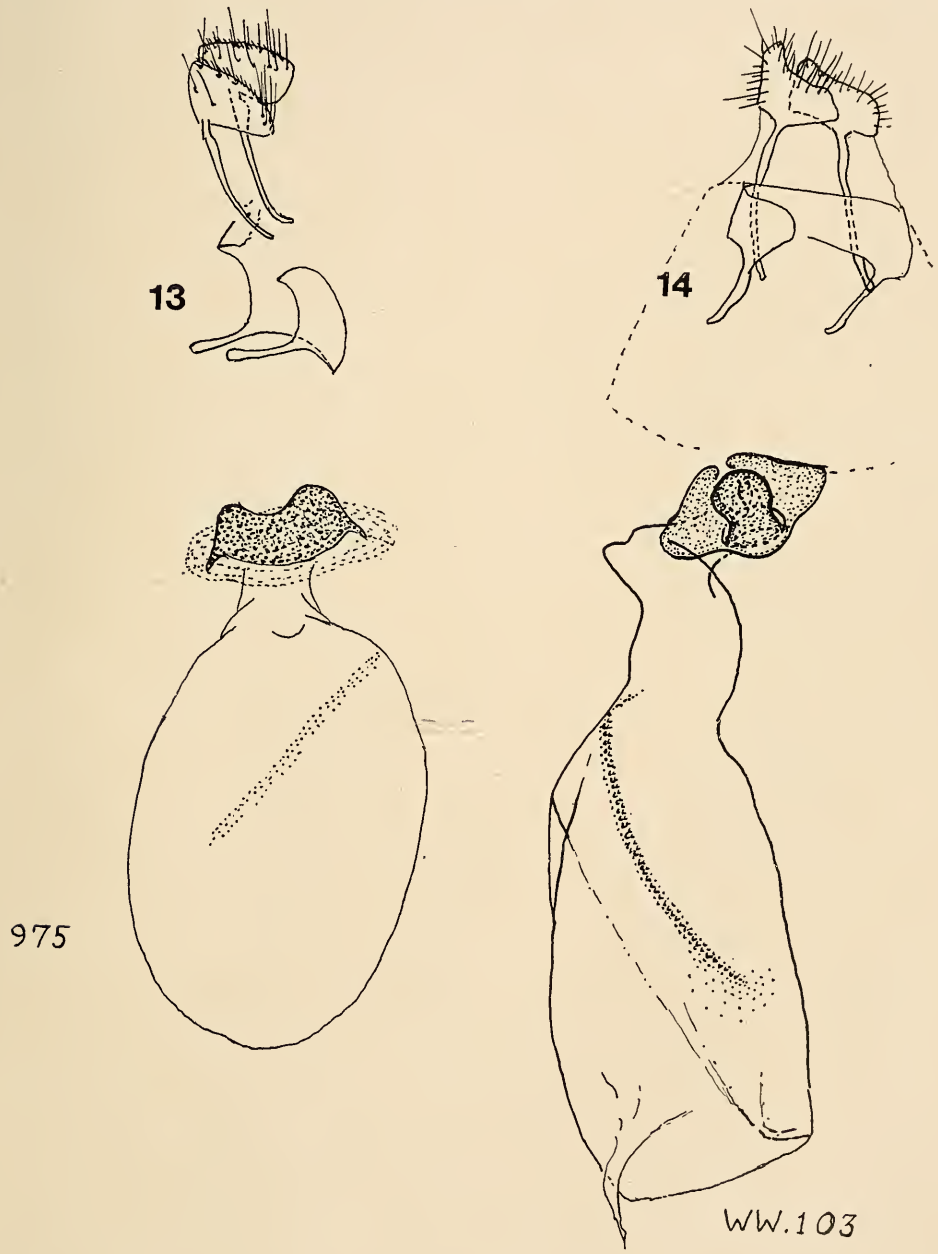

Fig. 13: Genitalia of ♀, *Pericyma albidentaria* Frr. Prep. 975, Kyrenia, Cyprus.
Fig. 14: Genitalia of ♀, *Pericyma squalens* Led., Prep. WW. 103, Vanak, Iran.

of which he had no knowledge when writing the description. The type of *profesta* (Transcaspia) not being available, and no topo-type being available either, it is impossible to say whether Christoph's species falls into Group B *(Heteropalpia)* also. It appears to be a Central Asian species not extending into the Middle East.

Warren's division of the genus into two sections, based on tibia characters, is perhaps illusory. The genus *Cortyta* however, as presented by him in Seitz, is dividable into two sections on other characters, as we have shown in dividing it into Groups B & C.

Just as the name *Cortyta* could not be used for Group B, so it cannot be used for Group C, both on leg and genitalia characters. It seems that

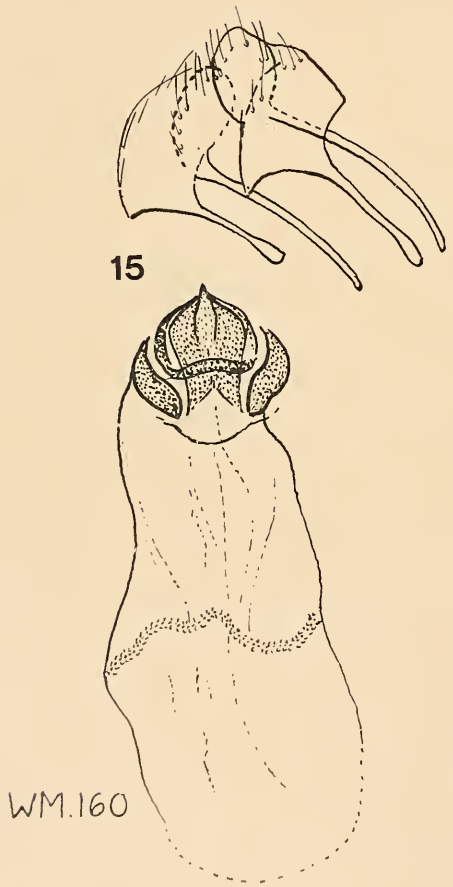

Fig. 15: Genitalia of ♀, *Pericyma (Alamis) umbrina* Gn., Prep. WM. 160, Sarobi, Afghanistan.

Fig. 16: Genitalia of ♀, *Pericamy (Alamis) atrifusa* Hamps., Prep. WM. 163, Wadi Medani, Sudan.

a new name must be found for Group C, and I suggest *Tytroca* **genus nov.**, as defined in my diagnosis of Group C above. The type species will be *Hypaetra leucoptera* 1896 (= *Cortyta leucoptera* Hampson 1913) (from Aden). I should add that the genus *Hypaetra* Guenée (type species *noctuoides* Guenée) has quite unspined legs and a different aspect, and Hampson quite rightly corrected his first diagnosis of *leucoptera* by removing it, in his 1913 work, from that genus.

The valid names therefore will be : —

C. *Tytroca leucoptera* Hampson (Typical species!)
Tytroca dispar Püngler
Tytroca fasciolata Warren (= *impar* Hampson, = *eremochroa* Hampson).
Tytroca alabuensis sp. n. (described below).

There are also a number of other African species falling into this genus, in particular *balnearia* Distant, which does not appear to penetrate the Middle East proper and is sp. bona as shown by Prep. British Mus. Noct. 4270. Dr. Berio has informed me that there are in fact a number of close species confused under the name, *balnearia*, in Africa.

"*Cortyta sabulifera* Warren" is a problematic species which probably belongs in this genus too, but I am far from sure whether it is a good spe-

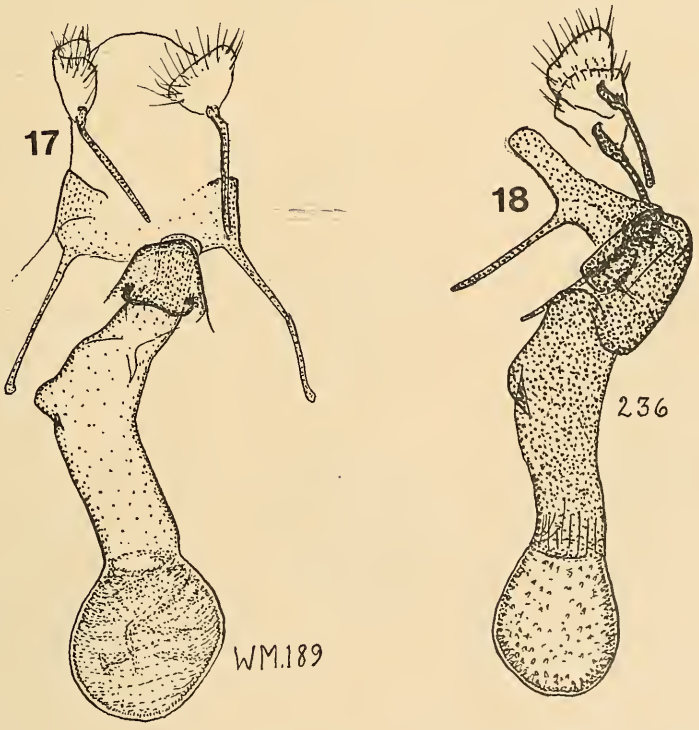

Fig. 17: Genitalia of ♀, *Heteropalpia vetusta* Wkr., Prep. WM. 189, Djiroft, Iran.
Fig. 18: Genitalia of ♀, *Heteropalpia acrosticta* Püng., Prep. 236, Mecca, Arabia.

cies. In summer 1964 I found that the type of *sabulifera* had been removed from Tring, but I could not find it in the British Museum London. One example, also labelled *sabulifera,* but not designated as a type, remained at Tring. This had a fore-wing median band as wide as that of *alabuensis* sp. n., but differed in having a whiter hind-wing, and the fore-wing with black marginal dots. There were also certain other colour differences.

Tytroca alabuensis sp. n. (Pl. IV Fig. 28)

♀ antenna, simple, brown annulated with black.

Frons, with adpressed pale brown scales.

Palp, 1st segment with large upstanding white scales; 2nd segment, pale buff, dorsally black, white below, clad with thick hairs; 3rd segment, upturned, smooth, brown.

Fore-leg, blackish brown, annulated with black; middle leg, brown and buff, with six lateral spines occupying the top $^2/_3$ of the tibia, also a pair of terminal spurs; hind-leg, brown and buff, tibia spineless, with two pairs of spurs.

Thorax, light mauve brown.

Fore-wing, mauve-grey, light or dark, with purple-brown or black parallel but wavy cross-lines, as follows: basal line, black, followed by a brown shadow line, both being only visible near the costa and median nervure; ante-median line, wider black at the costa, less dark at the hind-

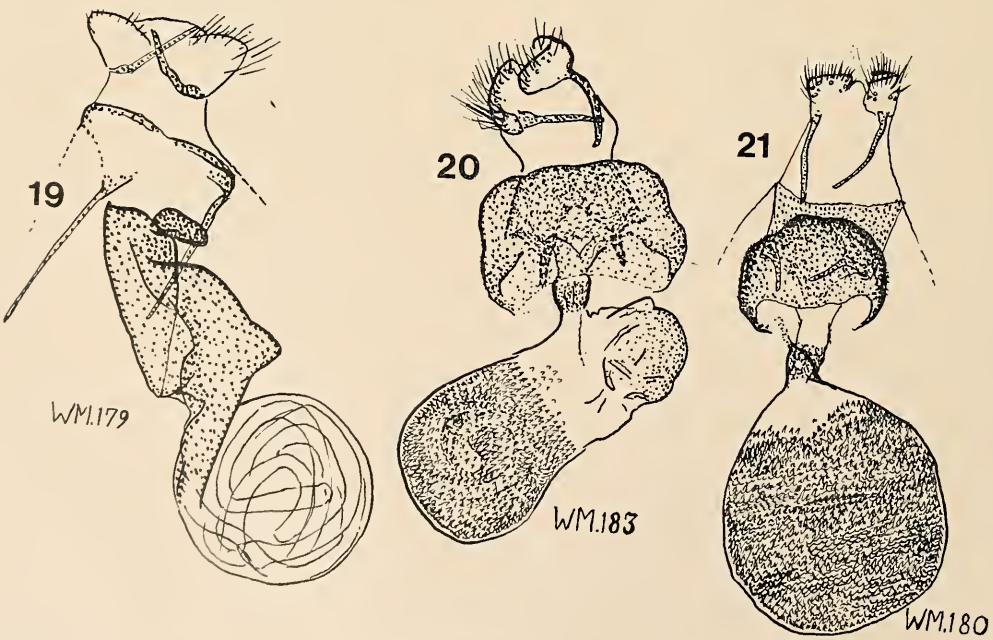

Fig. 19: Genitalia of ♀, *Heteropalpia lilliae* Berio, Prep. WM. 179, Wadi Medani, Sudan.
Fig. 20: Genitalia of ♀, *Tytroca leucoptera* Hamps., Prep. WM. 183, Riadh, Arabia.
Fig. 21: Genitalia of ♀, *Tytroca dispar* Püng., Prep. WM. 180, Erkowit, Sudan.

margin, in general fine, black and clear, and preceded by a brown shadow-line, both, angled outwards on the radial, bulging slightly out below the cell but less than in *dispar* then curving basad at the hind-margin. Orbicular stigma, a fine dark point in a rather wider paler space, and separated by three parallel brown lines from the reniform stigma. These three lines are closer together and run roughly parallel to the ante-median, but do not incline basad near the hind-margin. Reniform stigma, a dark-brown-outlined oval placed on a fourth brown line similar to the three mentioned, and followed, at a slightly greater distance, by a fifth, whose course is parallel rather to that of the postmedian than the ante-median. Post-median line, black and clear, wider black at the costa, less dark at the hind-margin, bent outward at the radial and again at the median nervures, following each nervure like a spider's web, but with two deeper inward bays below the cell, then outward-angled on nervure 1, leaving the median area of equal width at costa and hind-margin; a grey-brown shade accompanies the post-median line distally. A wide pale submarginal area is terminated by a brown reticulate line roughly parallel to the termen but looped inwards more deeply basad on nervures 2 & 3. A dark brown apical patch is roughly square in shape. The rest of the subterminal area is grey-brown. Termen, a wavy brown line. Fringes, brown.

Hind-wing, more orange-brown, slightly infuscated inside the post-median line which is represented by two pale wavy lines. There are traces of fine grey parallel lines along the anal nervure, and a grey shade between the nervures 2 & 3 proximal to the post-median line. Submarginal area,

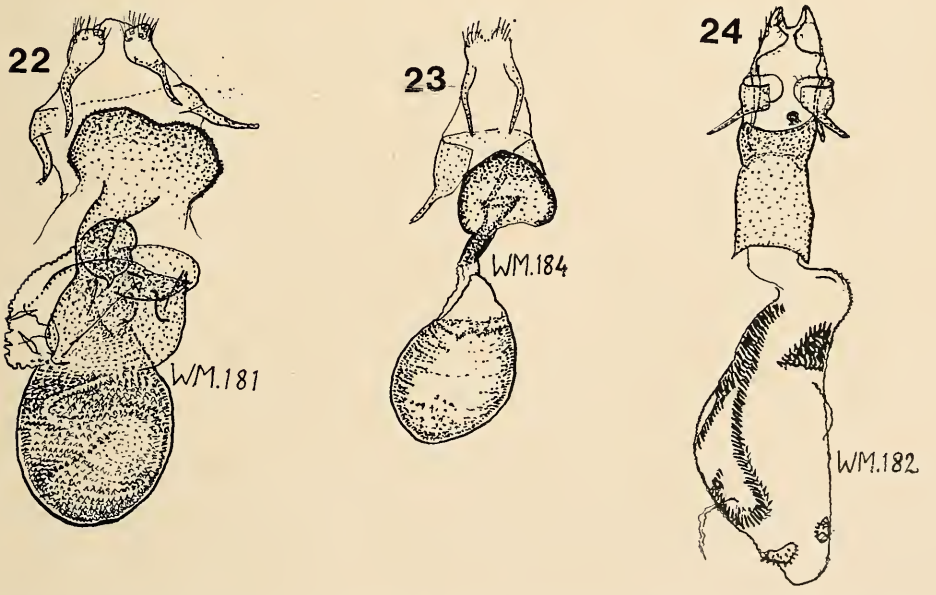

Fig. 22: Genitalia of ♀, *Tytroca alabuensis* sp. n., Prep. WM. 181, Alabu, Abyssinia.
Fig. 23: Genitalia of ♀, *Tytroca fasciolata* Warr., Prep. WM. 184, Riadh, Arabia.
Fig. 24: Genitalia of ♀, *Gnamptonyx vilis* Wkr., Prep. WM. 182, Riadh, Arabia.

plain, slightly darker brownish-orange. Termen, a wavy brown line. Fringes, pale buff.

Under-side, both wings, glossy pale orange; fore-wing, with suffused brown apical patch.

Span: 30 mm.

♀ genitalia: (see fig. 22) Genital plate, strongly sclerotised, wider than long, oblong, posterior edge twice excurved with slight concavity in centre. Ductus, strongly sclerotised, wrinkled, merging shortly in a strongly sclerotised and folded appendix or chamber wider than the bursa proper which it seems to dominate; the latter globular, uniformly spinose or spiculated inside, except at the posterior end, or neck.

Holo-type, 1 ♀, (Prep. WM. 181 ABYSSINIA, East African 1939 Expedition, Alabu, ii. 39 leg v. Saalfeld. (in coll. München).

The generic name *Gnamptonyx* Hampson is available for Group D, which consists of one widespread and variable species *vilis* Walker *(Homoptera vilis* Walker 1865). Draudt in Seitz III Supt. treated this species as a *Cortyta.* He did not think the clawed fore-tibia entitled it to separate generic status. Berio (1959) on the other hand, considering the clawed tibia as more important, removed the genus *Gnamptonyx* altogether from the phylum of *Pericyma* and *Cortyta* and associated it in a phylum with *Cerocala* and *Leucanitis.* While I do not agree with Draudt's view, and approve of Berio's retention of the genus, I see nothing in the genitalia of both sexes to denote affinity with the genera placed by Berio in the phylum of *Cerocala;* indeed, on the whole they seem related rather to the genera treated in the present article, and their biology, as far as known also points to the same relationship. (The biology is dealt with later in this article.)

The valid name is therefore:
D. *Gnamptonyx vilis* (Walker).

I have not examined any example of the 2nd species of *Gnamptonyx,* namely *G. obsoleta* Hampson (1913, p. 287, Plate CCXXXII fig. 7). It is a much smaller species than *vilis* with plain brown fore and hind wing, and was described on a single ♀ from Perim I., Red Sea. Its aspect does not suggest that it could be truely congeneric with *vilis.*

Geographical distribution of the forms here listed

The localities and countries given below are those on the labels of moths examined by me. The preparation numbers of those, the genitalia of which were investigated, are also given. Localities given in literature, where I have no reason to doubt the author, are in some cases given in brackets ( ), mainly to indicate the range, outside the Middle East, of the species. Similarly the non-occurrence of a species outside this area is also mentioned in brackets ( ), if such is the case.

The autors' names are abbreviated as follows: — A. Alfieri = AA; Dr. H. G. Amsel = A; Fred Brandt = FB; de Bros = B; Dr. F. Diehl = D; Dr. G. Ebert = E; Dr. F. Kasy & Frau Vartian = K & V; J. Klapperich = K; H. Hentsch = H; Middle East Anti-Locust Units directed by Dr. B. P. Uvarov = MEALU; Dr. R. Remane = RR; W. Richter = WR; Jutta Röhr = JR; E. P. Wiltshire = W.

P. albidentaria Frr.
AFGHANISTAN. Pol-i-chomri, (A.) (WM. 17) (♂); Herat, (A.) (WM. 17) (♀); Shindan, Kabul & Paghman Mts., (V & K); Gulbahar (J. R.) (A.); Sarobi (E), Badakhshan (H).
IRAN. N. E. Iran: Jusufabad & nr. Meshed (V & K); N. Iran, Vanak nr. Tehran (V & K); SW. Iran, Ahwaz (W), Shiraz (996) (W); S. Iran, Djiruft (W. R.).
CYPRUS. Kyrenia (W) (975).
(IRAQ. Rothschild 1921 recorded it from several localities.)
(S. RUSSIA, Sarepta, two examples mentioned in Berio 1954.)
(LIBYA. Krüger 1939 recorded "*Pericyma squalens* Led." from the Syrtis, and illustrated it in his Plate XV fig. 79; but the example seems to be *albidentaria* Freyer.)
(N. CAUCASUS, SYRIA, MESOPOTAMIA, TRANSCASPIA, FERGANA, KASHGAR, and N. AFRICA, according to Seitz.)
(PALESTINE, listed by Amsel.)
(There is no record from the Tropics, the Western Sahara, or the West of the Mediterranean basin.)

P. squalens Led.
AFGHANISTAN. Pol-i-chomri (A); Kabul (K & V).
IRAN. N. Iran: Vanak nr. Tehran (K & V); SW. Iran, Ahwaz (W); S. Iran, Djiruft (W. R.)
IRAQ. From North to South (W). (Also Rothschild 1921.)
LEBANON. Beirut (W).
EGYPT. Cairo (W); Suez Canal (W); (Sanhour, Delta, record by Andres).
(CYPRUS. Original description by Lederer; also recorded by Rebel.)
(PALESTINE). Records by Amsel & Warren-Seitz.)
(TURKEY: Cilician Taurus, recorded by Rebel.)
(There is no record from the Tropics, the Western Sahara, or the West of the Mediterranean Basin.)

P. umbrina Gn.
AFGHANISTAN. Sarobi (E) (WM. 160); Nuristan (K), K & V).
(Seitz shows this species as widespread in Tropical India)

P. atrifusa Hampson.
SUDAN. Blue Nile Province, Wadi Medani (RR) (WM. 163)
(Hampson 1913 shows this species as widespread in Tropical Afrika).

P. signata Brandt (? = *M. albidens* Walker).
IRAN. S. Iran, Iranshahr, (WR) (935). (Tchahbahar, Brandt.)

H. vetusta (Walker).
AFGHANISTAN. Registan desert, Darweshan (E).
IRAN. N. Iran, Vanak nr. Tehran (WW. 115) (K & V). S. Iran, Djiruft, (WM. 78) (WR) (WM. 189) (W. R.) S. W. Iran, Shiraz (W); Shush (WR).
BAHRAIN. (W).
IRAQ. Bagdad (W) (619). (Rothschild, 1921, as *profesta* Christ.)
LEBANON. Beirut (W).
PALESTINE. (WP. 26) (WP. 27) (P).
ARABIA. Riadh (D) (WM. 205); Asir (MEALU); Hanakiya (MEALU); Wadi Yemeniya (MEALU); Uqd, Yemen border (B).
TRANSCAUCASIA. *("profesta")* (British Museum Noct. 4269).
(DANCALIA, Gaharre, recorded by *Berio* 1935).
(INDIA. Originally described by Walker from India.)
(The last few records show this species crosses the Tropic, but there is no record from the Western Sahara or the West of the Mediterranean Basin.)

H. acrosticta Püngler.
BAHRAIN. (W).
ARABIA. Nejd, Rumaihiya (MEALU); Mecca district (MEALU) (236 & 294); Buraiman (MEALU); Asir (MEALU); Uqd, near Yemen border (B).
EGYPT. Suez Rd., (AA); Hurgada (AA); S. E. Desert, Wadi Kiraf (AA).
(SOCOTRA. The rosy form *rosacea* Rebel was described from here, and some authors have considered it a distinct species, for which I know of no justification.)
(LIBYA. Krüger records *acrosticta* from a number of places.)
(ALGERIA. Rothschild, 1920 reports *acrosticta* from Tin-Tabarik, and *rosacea* from South Oued Mya, Oued Dehin, Rharis, Aceksem, Oued Gif-Aman, Oued Tamoudat, Oued Agelil north of Ideles.)
(MOROCCO. Rungs (1942) (1945) reports it, with biological details from various localities in the Sahara, and also mentions having seen an example from the Sudan.)
(There is no recorded from Tropical Africa nor from East of the Persian Gulf.)

H. lilliae Berio
SUDAN. Blue Nile Province, Wadi Medani (RR) (WM. 179); Ed Damer, Hudeiba (RR).
(ERITREA. The species was described from Elaberet and Adua by Berio 1969).
(From Tropical Africa a long series in the British Museum all classed as *scandulata,* following Hampson, is doubtless in part this species. However, there are probably other new species closely resembling *lilliae* not yet diagnosed in Tropical Africa.

T. leucoptera Hampson.
ARABIA. Aden, Hampson's type (British Museum Noct. 4207), an extremely white example, may or may not represent a local race, the material being insufficient to decide. From elsewhere in Arabia a more sandy-coloured form prevails: — Nejd, Riadh, (WM. 125) (D). (I presume that "West Algeria" in Seitz is a mere error for "South-West Arabia". The record from Rothschild (1920) can be disregarded, as he was quite unable to distinguish the four species he was studying.)
(SOMALIA. Rothschild 1921 and Berio 1941 record this species from here. For the former, see my remarks under the following species. The latter appears to have been under Rothschild's influence at the time of writing, but there is no need to doubt that *leucoptera* could occur in Somalia, so near to its typelocality, Aden.)

(This species is found on both sides of the Tropic, but its range seems more limited than its other congeners here considered; it is not known further east than Arabia, nor further west than the costal regions of N. E. Africa.)

T. dispar Püngler.
IRAN. S. Iran, Belutschistan, Bender Tchahbahar, (FB) (WBS. 17). (W. Brandt recorded this species as inhabiting all the S. Persian localities mentioned in his 1941 work. As the Persian colonies would appear to be separated from the moth's other habitats by quite a wide area where it does not occur, I checked their identity by the genitalia. Neither in structure nor coloration do they deserve separate nomination from the typical race, which is rather surprising.)
PALESTINE. Ain Jiddi (WB. 8). I have examined the type, and illustrate its genitalia.
EGYPT. Eastern Sinai, Noucibat. (AA).
ARABIA. Western Arabia. Ashaira (MEALU). Wadi Yemeniya (MEALU). Asir, Bisha, (MEALU). Taif district (MEALU).
SUDAN. Kassala, Erkowit, (R. R.) (WM. 180). As a whole the series is smaller, paler and less varied than the typical. I propose to apply the name *puengeleri* **subsp. n.** to this form. The name, for which Warren was doubtless first responsible, was found attached to some Algerian examples at Tring, which resemble the Sudan form. I have been unable to find where, if at all, this name was published, and I suspect that it is a **nomen nudum** or manuscript name. In that case, the present description constitutes a valid description, with myself as author, and WM. 180 (20. vi. 62) the holo-type, and other Kassala, Erkowit material in coll. Munich paratypes; four paratypes remain in coll. mea and the Algerian examples at Tring become other paratypes, unless the description can be proved to have been already published.
(LIBYA. Recorded from Wadi Zarzur by Krüger.)
(ALGERIA. There can be little doubt that the species inhabits the Algerian Sahara, despite the confusion created by Rothschild's remarks.)

(MOROCCO. Rungs (1942) described subsp. *margarita* Powell & Rungs including a male form *amphiscia* from Oued Khrouf and Mader Bergat, and in 1945 recorded the same race from Rio de Oro.)
(TURKESTAN. The record by Hampson 1913 from Central Asia seems most doubtful to me. The ♀ figured might well be a different species, possibly the true *profesta* Christ.)
(SOMALIA. Rothschild mentions a series received, but it is impossible to say whether it consisted of only one or of all of the species: *leucoptera, balnearia, dispar, fasciolata,* which he mentions and lumps together as a single species.)

T. fasciolata Warren.
IRAN. Brandt (1941) recorded "*Cortyta impar* Hampson" as common in all the localities mentioned in that work in S. Iran (FB). Some of these examples, labelled: Laristan, 200 m, road between Bander Abbas and Saidabad, mid. xi. 37, ex coll. Hörhammer, are now in the Munich collection. The genitalia of both sexes (WM. 213) agree with, if slightly slightly larger than, those of the Arabian forms (WM. 184). It is a luxuriant, richly coloured and variable race, with a rosy median area, and a grey ground colour elsewhere on the forewing, doubtless possible to distinguish from the East Arabian and Sudan races; but I refrain from attempting to name it trinomially here.
ARABIA. Nejd, Riadh (D) (WM. 184); Arabia, Buraiman, (MEALU) (238 & 347); Wadi Yemeniya (MEALU); Madraqa (MEALU); Birka (MEALU); Shaq Yemeniya (MEALU); Ashaira (MEALU); Asir, Sabiya (MEALU).
SUDAN. Ed Damer, Hudeiba, 41 examples (RR). (It is interesting that in the R. R. material, all the *fasciolata* were taken in Hudeiba, while all the *dispar* at Erkowit; the former in months ii-v, the latter in vi; it is not clear to me whether the different season or perhaps a different biotope is the reason for this remarkable fact.)
(INDIA. Punjab. "*Cortyta impar*" Hampson 1913; Bombay "*Cortyta eremochroa*" Hampson 1913.)
(ALGERIA. Despite Rothschild's confusions mentioned above, there seems no doubt this species inhabits the Algerian Sahara.)
(MOROCCO. Rungs (1942) reports this species as occurring in the form *subsimilis* Warren at Mader-Bergat, Oued Khrouf and Agadir-Tissint, and in 1945 added some localities from Rio de Oro.)

G. vilis Walker.
AFGHANISTAN. Paghman Mts., 2100 m. (K & V). (WW. 105 & 109).
BAHRAIN. (W).
ARABIA. Nejd, Riadh (WM. 182) (D); West Arabia, Harrat Bogum (MEALU); Taif (MEALU) (292); Madraqa (MEALU); Najran (MEALU); (Walker described this species from Aden.)
SUDAN. Kassala Province, Erkowit (WM. 190) (R. R.); Ed Damer, Hudeiba, (R. R.) (Also Kordofan, Bara, according to Rebel & Zerny 1916.)

(INDIA. Hampson (1894) recorded this species for India when creating the genus for Walker's species.)
(SOMALIA. Mogadiscio, etc., Berio 1941.)
(DANCALIA, Geharre, Berio 1935).
(BORANA, Neghelli, Berio 1939 (ii).)
(ERITREA, Tesseni, Berio 1939.)
(JUBA. Lower Juba and Trans-juba, Berio 1938.)
(MOROCCO. Mader Bergat, Oued Rhens, Tatta, and several localities in Rio de Oro, according to Rungs 1945.)

Biology; early stages, foodplant and morphology

Knowledge of the biology of the species here reviewed is patchy. The foodplants and a few details of the morphology of the larva, according to the literature or the author's own observations, are given below.
P. albidentaria. Wiltshire, 1952, gave an illustration and other details of the foodplant and early stages. *Alhagi* (Camel-thorn). Larva, green with 3 pairs of abdominal feet and an obsolete pair on ventrite 7.
P. umbrina. Gardner, 1947, described the larva and foodplant at Dehra Dun, India. *Acacia catechu.* The larva has three pairs of abdominal feet and a very small pair on ventrite 7.
H. acrosticta. Rungs, 1942, reported the larva as feeding on *Acacia raddiana* and *Acacia gummifera,* in Morocco. There is no description.
T. fasciolata. Rungs, 1942, states the species is found in *Acacia* stands in Morocco. There is no description of the larva.
G. vilis. Rungs, 1942, reported this species as inhabiting the *Acacia* zone of Marocco, and the adult as feeding by day on the flowers of *Acacia raddiana.* There is no description.

Of the other species, I have been unable to find records of the biology.

The tribe (if so we may consider the four genera here treated) would appear to be probably oligophagous on thorny leguminous trees, bushes and dwarf shrubs, particularly *Acacia.*

The *Acacia-feeding* ecofauna was discussed in Wiltshire, 1949.

The species of whose biology nothing is recorded, such as *leucoptera* and *dispar,* are all common in deserts and steppes where the dominant feature is *Acacia.* The more northerly species (e. g. the *Pericyma* subgenus *Pericyma* species), occurring in deserts and steppes where *Acacia* cannot grow, feed on *Alhagi* and probably the *Acacia*-like *Prosopis stephaniana,* which appear to be "substitute foodplants" for *Acacia* in these colder latitudes.

There is probably a zoogeographical analogy between the *Pericyma* tribe of the Noctuidae and the genera *Chilena* and *Beralade* in the Lasiocampidae, implying a similar history.

The one species which seems occur indifferently in the more northerly steppes and the southerly Acacieta is *H. vetusta.* This species appears in the manner of a migrant. I suspect it has several foodplants, at least *Acacia, Prosopis* and *Alhagi.*

The only other species which appears in the manner of a migrant is *G. vilis*, but this penetrates less far north, apart from the interesting record from the high Paghman mountains of Afghanistan. Do these mountains contain a species of *Acacia*? Information is lacking. But it seems possible that this species has not adapted itself to feeding on *Alhagi* and *Prosopis* as presumably *H. vetusta* has.

Further biological observations are evidently required and moreover the four genera require a complete revision on a world-wide basis, including particularly the Far Eastern and African species, before one could venture confidently to suggest a possible history for the tribe.

It is hoped that the present article will provide a basis for such a revision, and will also inspire further biological investigations.

Acknowledgements

I am particularly indebted to Dr. E. Berio of Milan for his ready assistance and advice. I am also grateful to the late Leo Sheljuzhko for his very helpful attitude over several years in sending by post from München much interesting material, references, etc. To Dr. Nye of the British Museum I am grateful for the preparations he made at my request. Dr. Hannemann of Berlin very obligingly sent me a Püngler type to examine, and Dr. Hansen of Stockholm equally readily sent me some material from the Brandt collection.

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XIX.

Some new Jaspidiinae and Catocalinae mainly from the Sudan and now in the Munich Zoological Museum

Among some material, mostly taken in the Sudan by Dr. R. Remane, submitted to me for determination by the Zoologische Sammlung des Bayerischen Staates München, were the following forms apparently undescribed. Though politically part of the Middle East and therefore eligible for inclusion in this series, the parts of the Sudan from which these forms come, are, obviously Ethiopian rather than Palearctic in character. Some of them however penetrate the Palearctic Region in the Eremic zone.

At the end of the article I append a few taxonomic notes relating to other parts of the Middle East.

Sub-family: Jaspidiinae

Porphyrinia kruegeri sp. n. (Pl. V, Fig. 12, 13)

(= **Autoba gayneri** Krüger 1939 nec Rothschild).

Palp, frons, vertex, collar, thorax and abdomen, straw-ochreous.

Fore femur and tibia ochreous, fore tarsus brown, white-banded.

Mid-leg, coloured as fore-leg; tibia long, slightly thickened.

Hind-leg, straw ochreous except tarsus, which is yellow-brown and white-banded. Tibia slightly thickened with 2 pairs of spurs.

Fore-wing, straw ochreous, basad whiter than elsewhere, strongly marked with parallel, curving, olive brown bands as follows: — basal fascia, beginning at 1/3 costa, running obliquely inwards, reaching 1/4 hind-margin at right angles; two median bands defining a slightly darker median area in which a roughly rectangular black reniform stigma, containing a few paler whitish scales, is placed closer to the postmedian than the ante-median. The post-median line begins at about 3/4 costa and is in-curved below the cell; it is edged with white distally and reaches 2/3 hind-margin. Submarginal area, wale olive chreous brown, defined on the outside by a broad dark brown terminal area, the dividing line being edged white proximally and containing scattered black scales. Termen, pale brown. Fringe brown. Hind-wing, brown, with faint white lines. Termen and fringe as on fore-wing.

Under-side, both wings, straw-ochreous, more creamy on fore-wing costa, browner marginad, with post-median band black or dark brown, clearest at costa of both wings; cell-spot similarly marked, larger and linear on hind-wing. Termen and fringe, as upper-side.

Span : -15 mm.

♂ genitalia,(see fig. 1.) valve, very slim, elongated; the double harpe, characteristic of this genus, is not very prominent, the setose part being oblong, while the slender spine projects noticeably distally and in the same alignment. Aedeagus, fairly long and slim, with slender upcurved caecum and about ten very small cornuti in a row in the vesica.

Holo-TYPE ♂ & para-TYPE ♂ (Prep. WM. 195): — SUDAN, Kassala Province, Erkowit, 1000-1300 m., 21. v. 61 & 2. vii. 62 respectively, leg. Remane, in voll. München.

Allo-TYPE ♀, same data as para-type ♂.

Para-TYPE ♀, same locality as others, 28. vi. 62, Remane, in coll. Wiltshire.

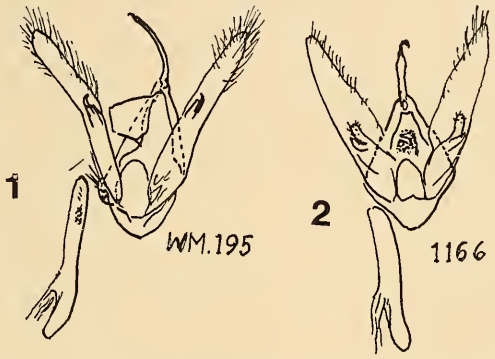


Fig. 1: *Porphyrinia kruegeri* sp. n. ♂. (WM. 195).
Fig. 2: *Autoba gayneri* Roths. ♂. (1166).

A good figure of this species appeared in Krüger, G. C., 1939, Notizie sulla fauna Sirtica occidentale: Lepidotteri. (Ann. del Mus. Libico di St. Nat. I. p. 317 ff.) but wrongly determined under the name *Autoba gayneri* Roths. Its occurrence in the Libyan Syrtis shows that it penetrates suitable habitats in the Palearctic desert zone, presumably those with *Acacia*. The genitalia of *Autoba gayneri* are illustrated in Fig. 2 for comparsion, and that moth itself was illustrated in my recent article "The Lepidoptera of Bahrain" (Journ. Bombay Nat. Hist. Soc. **61**, 1, 119 ff, Pl. 3, figs 10 & 11.)

Pseudozarba morosa sp. n. (Pl. V, Figs. 10 & 11).

This new species is congeneric with both *Apamea bipartita* H. S. (Europ. Schmett., II, p. 285, Noct. f. 175 (1845) and *Xanthoptera mesozona* Hampson, Proc. Zool. Soc., 1896, p. 261, X. f. 9. Both these species have been placed by later authors in *Eulocastra,* and Staudinger 1898 (Iris, X, p. 295, t. IV, f. 26) proposed the genus *Thalerastria* for the former, of which genus however in 1897 he made *diaphora* Stgr. the type species. In fact the name *Pseudozarba* Warren must be used for *morosa, bipartita* and *mesozona* and the many other species in this perplexing group; the type species is *opella* Swinhoe, taken at Karachi. In my 1948 work I first pointed

out the genitalia differences between this group and *Thalerastria diaphora* Stgr., but I was wrong there to follow Hampson in using the name *Xanthoptera* Guenée for the genus containing *mesozona* (= *mediana* Stgr.). The type species of *Xanopthera* Guenée 1852 is the American species *nigrofimbria* Guenée which is not congeneric. The type species of *Eulocastra* is *fasciata* Butler, an Australian moth which differs strikingly in palp-form, neuration and habitus (facies) from the other species under consideration, and illustrated in the Plate (Figs. 1-13.) It is strange that Warren in Seitz III wrote: "*Eulocastra:* neuration, normal. Type: — *E. fasciata* Butler." In the example of *fasciata* which I examined, the fore-wing neuration was not normal, for nervure 12 failed to reach the costa, 11 was absent, 10 was stalked with 8 & 9, and 7 & 6 were connate but separate from 8-10; in *Pseudozarba* neuration is normal, i. e. all veins are present, and only 8 & 9 are on a long stalk, connate with 7. The different species of *Pseudozarba* are numerous in the Tropics and a revision, based on genitalia, is awaited. The new species hereunder described is not the only one in this genus in the Sudan; *Ps. bipartita* H. S., originally described from Sicily, also flies there.

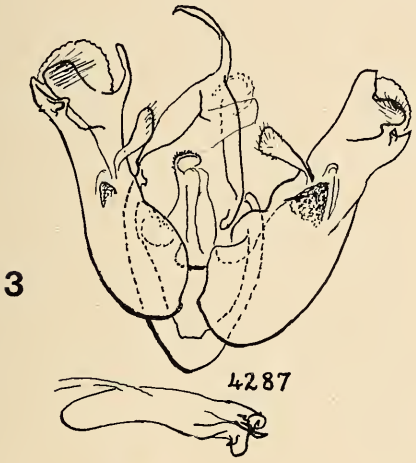
The new species can be distinguished in pattern from *bipartita* and from *mesozona* Hampson by its darker aspect, the base of the forewing being so infuscated as to approach but not quite equal the median area in darkness; in this it resembles the East African species *Ozarba cupreofascia* LeCerf (which is doubtless also to be placed in *Pseudozarba)* but differs as follows in colouring and pattern of fore-wing: in *cupreofascia* the basal and median areas are uniformly infuscated, and the distal edge of the dark area is more angular than that of *morosa;* this edge, which might also be called a black median line, is only slightly concave between the costa and the cubital nervure in *morosa* while in Le Cerf's type in the Paris Museum it is twice slightly angled, firstly inwards close to the costa, and secondly ouwards on the median nervure. *Eulocastra soudanensis* Rebel & Zerny 1916, to judge from the excellent coloured plate in the original description, differs from both in having a paler fore-wing base and a much darker submarginal area, the pale brown post-median area being much narrower.

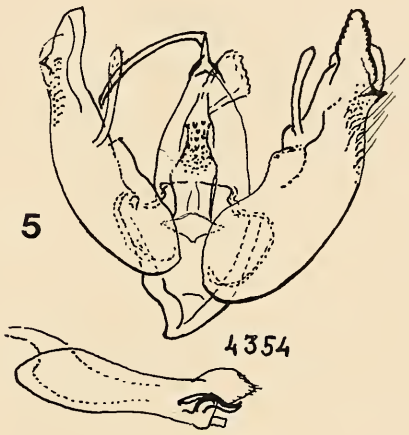
Span: 16-18 mm., not differing from *mesozona* or *bipartita.*

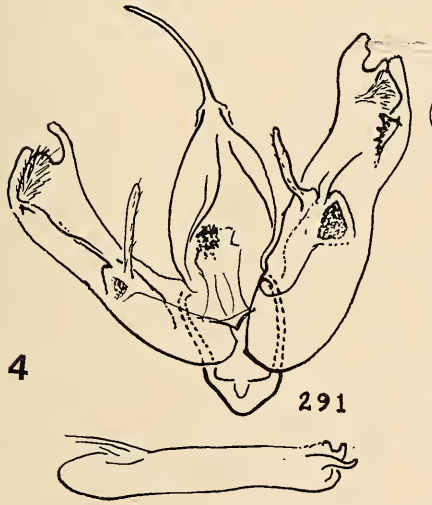
Genitalia of ♂: more like those of *mesozona* (illustrated in my 1948 work referred to, fig. 40, p. 267 and again illustrated here) than those of *bipartita,* which lack the sclerotised costal processes near the valve-tip characterising most other *Pseudozarba* species and thus approach the *Ozarba* valve form; the new species may however be distinguished from *mesozona* by the formation of these costal processes: in *mesozona* both of them stand out far from the valve-tips like crooked fingers, while in the new species only that of the left valve does so; that on the right valve is not dorsally directed but keeps close to the valve tip, being short and thick. In *morosa,* also, the two fibulae which replace the harpes in the middle of the valves, are shorter and stouter than those of *mesozona.* There are also other differences in the valves which cannot be described briefly in words but which

are quickly apparent in a drawing; I give figures of the ♂♀ genitalia of these three species (Figs. 3-5, 7-9).

Genitalia of ♀: — posterior and anterior apophyses of about equal length, ovipositor lobes normal; 8th sternite widely sclerotised. The characteristic ostium lacks the long sclerotised lateral band-like borders found in the other species here studied. Genital plate, like a wide shallow purse, more convex proximally than distally. Ductus bursae, sclerotised irregularly close to the ostium and with a small sclerotised bulb next to the ostium, but becoming weaker and narrower proximally as it approaches the bursa. Bursa, only slightly longer than ductus, membronous, pear-shaped, wrinkled with parallel folds minutely pitted, with a long linear signum ventrally and a shorter similar signum dorsally; the former consists of about four,







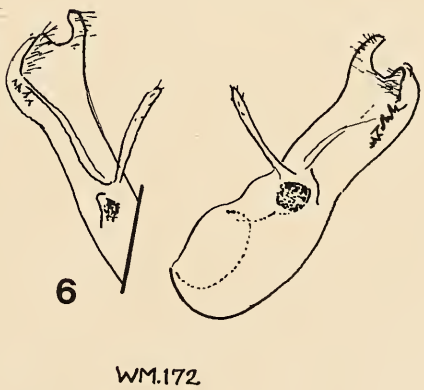


Fig. 3: *Pseudozarba morosa* sp. n. ♂. (BMN. 4287).
Fig. 4: *Pseudozorba mesozona* (Hamps). ♂. (291) (Buraiman, W. Arabia).
Fig. 5: *Pseudozarba bipartita* (HS.) ♂. (WM. 194) (Sicily).
Fig. 6: *Pseudozarba* sp. ♂. (WM. 172) (Sarobi, Afghanistan).

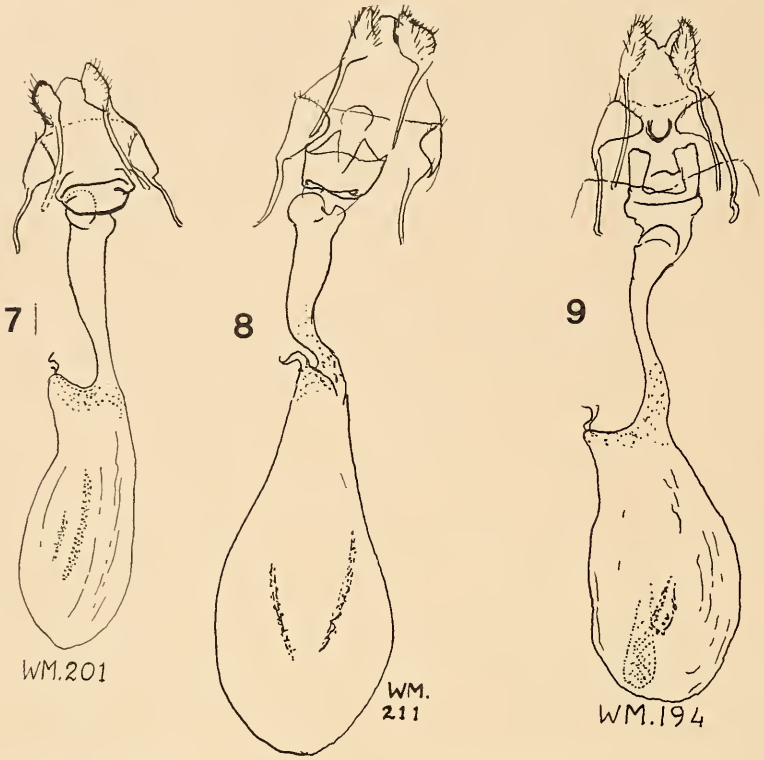


Fig. 7: *Pseudozarba morosa* sp. n. ♀. (WM. 201) (Hudeiba, Sudan).
Fig. 8: *Pseudozarba mesozona* (Hamps.) ♀. (WM. 211) (S. Iran).
Fig. 9: *Pseudozarba bipartita* (HS.) ♀. (WM. 194) Sicily).

the latter about three parallel lines of minute spicules; the longer one is about half the length of the bursa. The bursa also has a shoulder-like cervix on one side of the entrance of the ductus, from which the ductus seminalis takes off, and this part is pitted but no less transparent than the rest of the bursa. On the whole the bursa is very similar to that the congeneres; the differences are rather to be found in the ostium and Ductus bursae.

Holo- and allo-type, ♂♀, (Pr. WM. 201) SUDAN, Ed Damer, Hudeiba, 16. & 15. viii. 62, leg. R. Remane coll. Zool. Mus. München.

Para-type: 1 ♀, Pr. WM. 201 (L), SUDAN, Blue Nile Province, Wad Medani, 2. viii. 62, leg. R. Remane, and 1 ♀, same data as holo-type, both in coll. Zool. Mus. München. Also 1 ♂, Pr. 1300, SUDAN, Wad Medani, 2. vii. 62, leg. Remane, in coll. mea. Also 1 ♂, (Pr. BM. Nocct. 4287) N. Nigeria, Zungeru, 29. iv. 1911, leg. Scott-Macfie, in Brit. Museum.

Other Pseudozarba species in the Middle East

The present article diagnoses three species, of which *morosa* appears not to be Palearctic. If one includes Afghanistan in the Palearctic Middle East, as is correct, there are at least two other species represented in the collection of the Zoological Museum Munich. Unfortunately it has proved impossible to determine these pending a revision of the Indian forms near *opella* Swinhoe.

One of these two has male genitalia very close to those of *mesozona*. Fig. 6 illustrates the differences. The other is a more reddish form. Both forms fly at Sarobi.

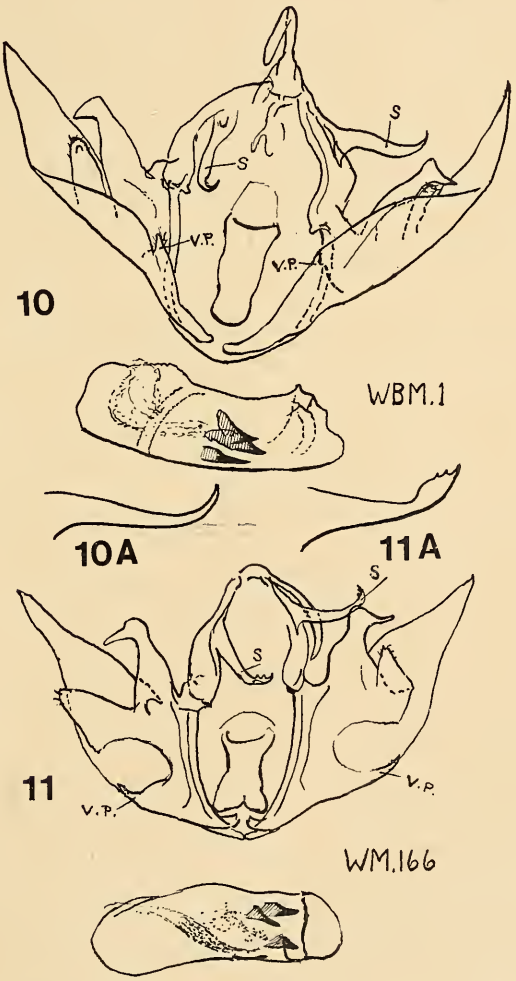


Fig. 10: *Grammodes euclidioides* Gn. ♂. (WBM. 1.) (Orange River Colony).
Fig. 10a: ditto, enlarged detail of Socius (S).
Fig. 11: *Grammodes euclidioides postfumida* subsp. n. ♂. (Holotype) (WM. 166) (Sudan).
Fig. 11a: ditto, enlarged detail of Socius (S).

Sub-family: Catocalinae

Grammodes euclidioides Gn. **postfumida** subsp. n. (Pl. V, Fig. 14)

The typical form, widespread in South and Central Africa, has orange-yellow hind-wings, of a lighter tone than the fore-wing, but this new form is slightly smaller and has smoky dull hind-wings, of similar tone to the fore-wing. As the male genitalia differ slightly, it cannot be considered an individual colour-form, and is best introduced as a subspecies, though admittedly the material is scanty.

Span: 23-24 mm.

The ♂ genitalia (Fig. 11) are very close to those of *euclidioides* Gn. but the socii tips (S) have three slight terminal hooks instead of tapering smoothly as in the typical form, and the sacculus-extension or ventral projection of the valve (VP) is longer and more pointed In one figure (Fig. 10) the ventral border of the valve of *euclidioides* is folded over which makes comparsion more difficult.

Holo-type, ♂, (Prep. WM. 166), SUDAN, Blue Nile Province, Wad Medani, 3. viii. 62, leg. R. Remane, in coll. Z. M. München.

Another specimen in coll. Z. M. München: Tanganyika, Ulougwe, Manjara-See, 16. XI. 59, leg. J. Popp.

Miscellaneous Notes

I have the following observations to make on the valuable article of F. Heydemann, A. Schulte & R. Remane "Beitrag zur Lepidopteren-Fauna des Irak" (Mitt. der Münch. Ent. Ges. J. 53, 1963).

I note that Dr. Heydemann considers that the name *tanitalis* Rebel should apply to the *Rivula* forms inhabiting Iraq, and also that it is *bona species*. Previously I had considered the small forms from Egypt, Cyprus, Iraq, Western Iran and Bahrain as a single subspecies of *sericealis* Scop. and I gave the latter name in my publications without adding a subspecific name. If Rebel's name is now to be used in a species sense, it should be noted that this smaller "species" has the range I have just indicated and is not confined to Iraq. Rebel's description does not apply too well to these forms viewed as a whole, but as I have now distinguished a slight difference in the female genitalia between them and European *sericealis*, I incline to think Dr. Heydemann may be right.

Catamecia jordana Staudinger was not omitted from my book as stated by the above authors, but appeared as 348a *Catamecia minima* Swinhoe. The synonymy of *jordana* was published by me in Bull. Soc. Fouad Ent. XXXIII, pp. 288-9 (i. e. in Part 2 of my work: "The Lepidoptera of the Kingdom of Egypt" (1949.)

Additions to the Egyptian Fauna

It may also be of interest to mention the following additions to the Macro-Lepidoptera of Egypt; all were taken by me during a brief stay at Ismailia, in the Canal Zone, Lower Egypt between March and May 1952.

Family: Noctuidae.

Mythimna languida Stgr. (previously known from Palestine, Algeria and Iraq.)
Sesamia wiltshirei Rungs 1965, published in the Moroccan paper: "Al Awamia" in that year.
Thermesia arefacta Swinhoe (previously known from Palestine, Iraq and Sind; here apparently at its westernmost limit.)

Family: Geometridae.

Scopula decolor Stgr. (det. Reisser) (described from Algeria).

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Wiltshire, E. P., 1948: The Lepidoptera of the Kingdom of Egypt Pt. 1. (Bull. Soc. Fouad. Ent. **32.**)

ACKNOWLEDGEMENTS

I must again express my gratitude to Messrs. Berio, Sheljuzhko, Nye and other helpers mentioned in the preceding article.

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Plates I-V

Explanation of Plate I

Fig. 1—2: *Pericyma (Alamis) umbrina* Gn.
1. ♀. Mus. München (Genit.-Präp. WM. 160).
2. ♂. f. *albicincta* Gn. Afghanistan: Sarobi

Fig. 3—4: *Pericyma (Alamis) atrifusa* Hmps.
3. ♂. (Genit-Präp. WM. 163).
4. ♀. do. Sudan, Blue Nile Prov., Wad. Medani.

Fig. 5—7: *Pericyma (Moepa) signata* Brdt. (? = *albidens* Wkr.)
5. ♂, 6. ♀. Iran m., Belutchistan: Iranshar.
7. ♀. ab Iran m. or.: Djiroft, Anbar-Abad.

Fig. 8: *Heteropalpia vetusta* Wkr. ♀.
Iran: Khuzistan, Shush.

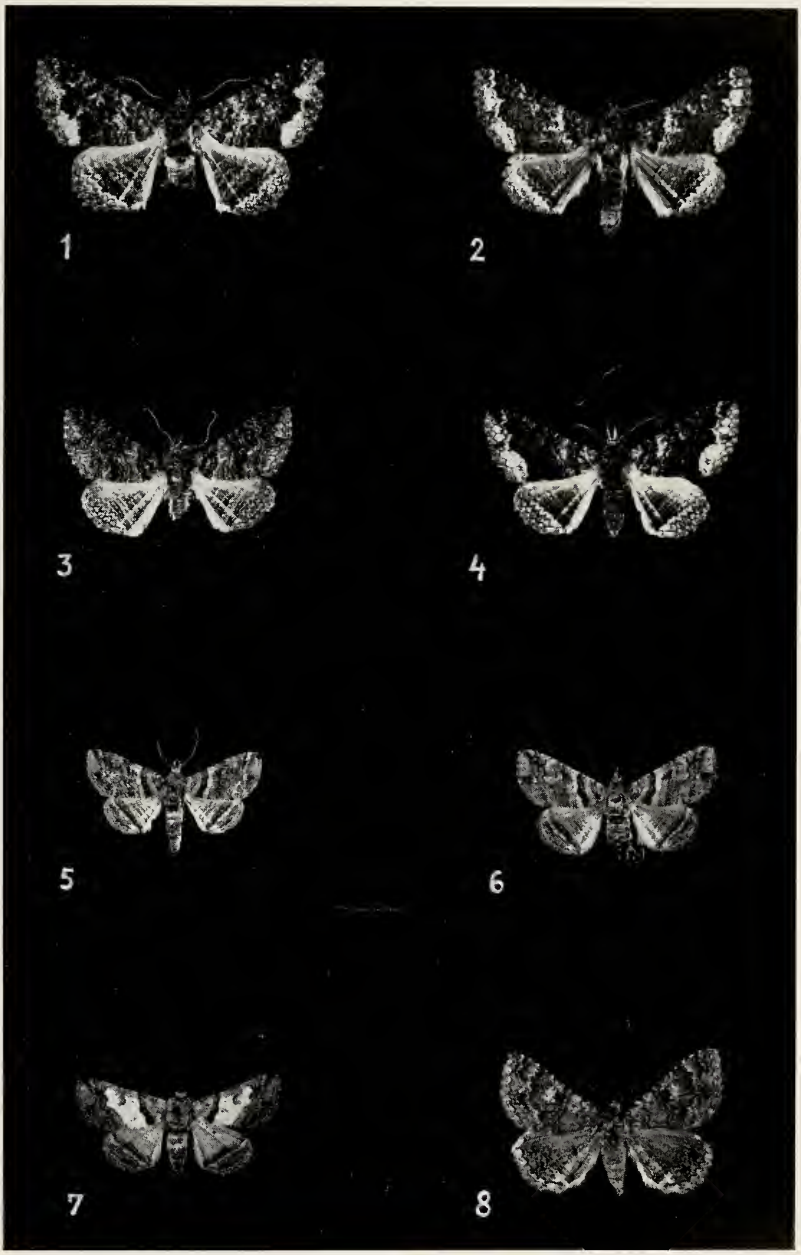
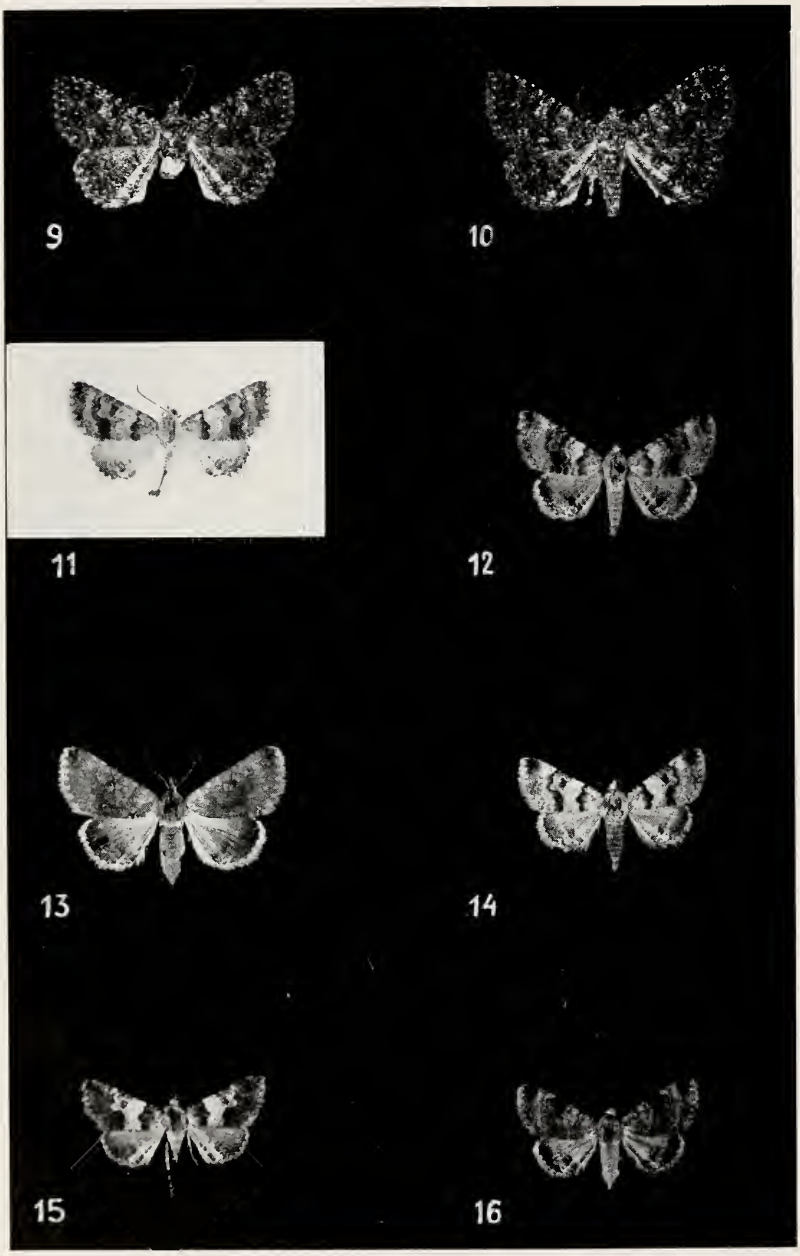


Plate II



Explanation of Plate II

Fig. 9—10: *Heteropalpia lilliae* Berio
9. ♂ (Genit-Präp. WM. 179).
10. ♀. Sudan: Blue Nile Prov., Wad Medani.

Fig. 11—13: *Tytroca dispar* Pgl.
11. ♂. Typus. Genit.-Präp. WB. 8 Coll P ü n g e l e r , Mus. Berlin. Palaestina: Ain Jiddi.
12. ♂, 13., ♀. Iran, Laristan, Straße Bender-Abbas-Sardabad: Serdze.

Fig. 14—16: *Tytroca dispar* Pgl. *puengeleri* subsp. nov.
14—15. ♂♂ (Nr. 15 Genit. Präp. WM. 207), 16. ♀. Sudan s. or.: Erkowit.

Explanation of Plate III

Fig. 17—22: *Tytroca fasciolata* Warr.
17., 18. Saudi-Arabia: El Riad. 17. ♂, 18. ♀ (Genit.-Präp. WM. 184).
19., 22. Sudan, El Damer: Hudeiba. 19., 20. ♂♂, 21., 22. ♀♀

Fig. 23—24: *Tytroca fasciolata* Warr. ssp.
♂♂ (Genit.-Präp. WM 213), Iran, Laristan, Straße Bender-Abbas-Sardabad: Serdze.

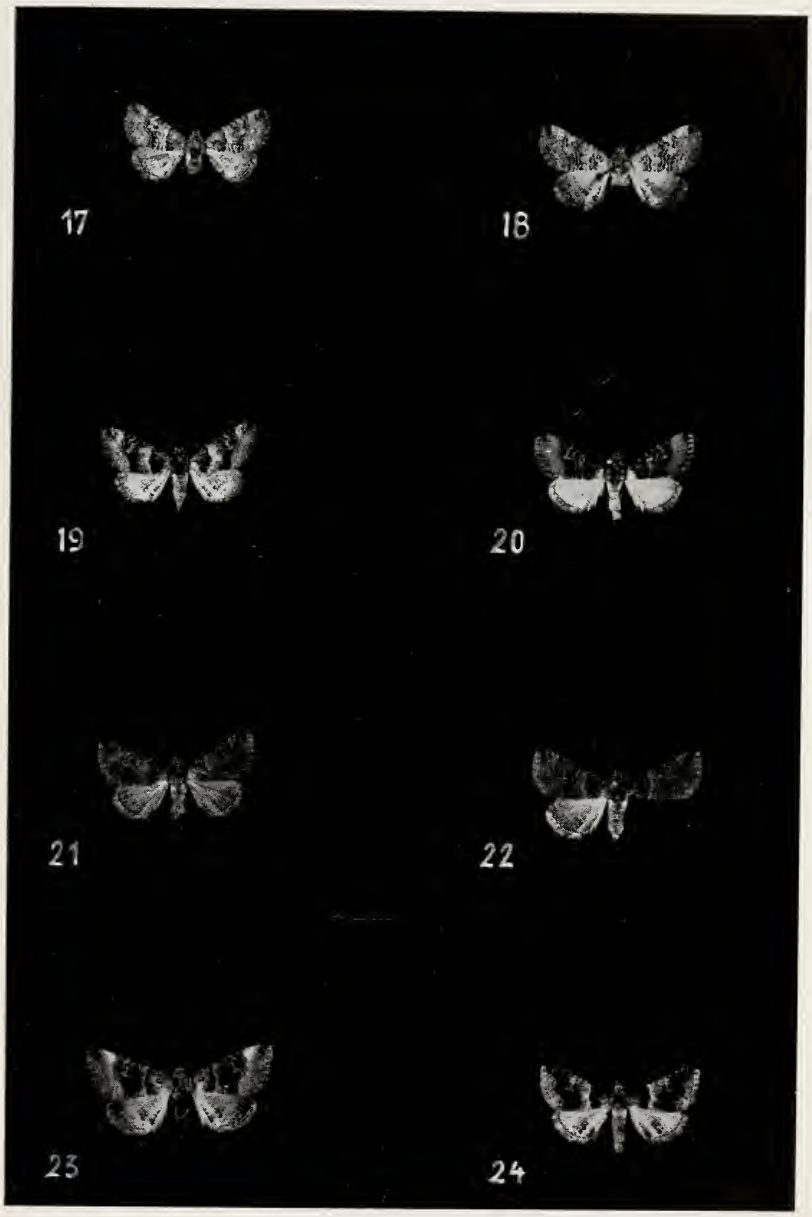
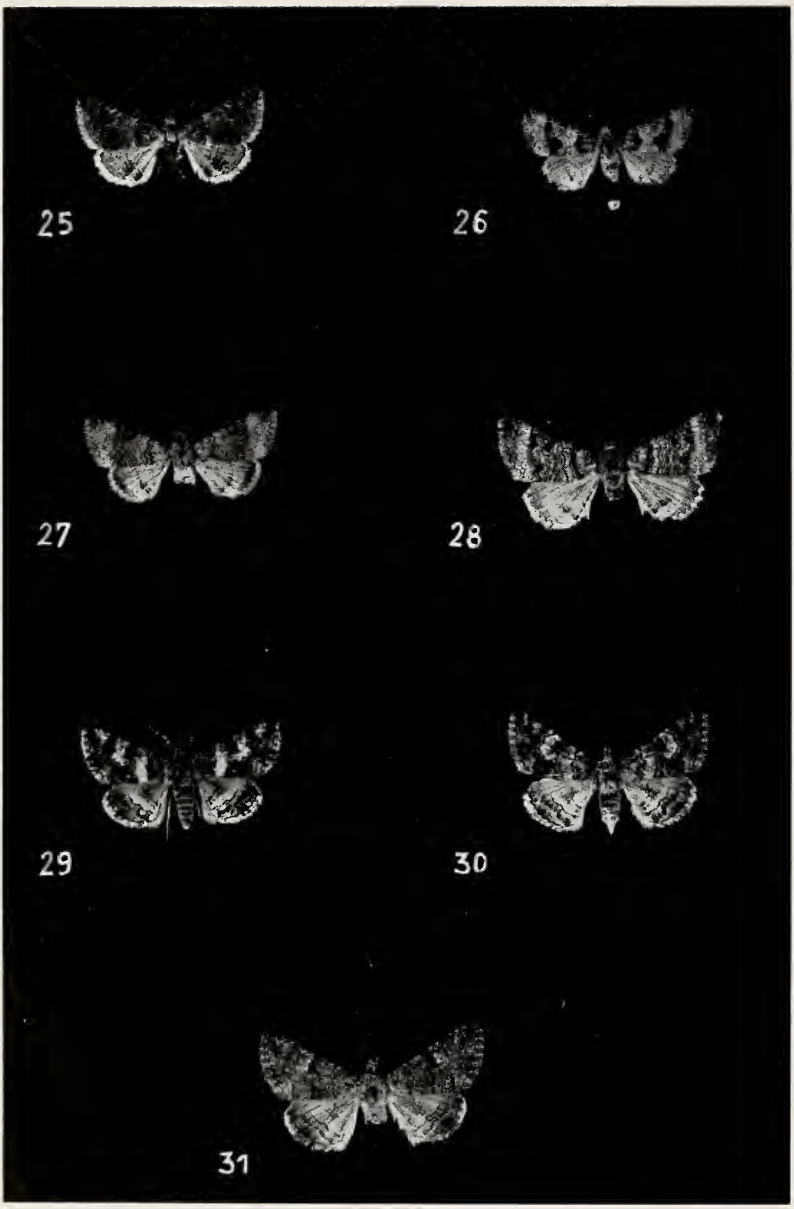


Plate IV



Explanation of Plate IV

Fig. 25: *Tytroca fasciolata* Warr. ssp.
♀. Iran, Laristan, Straße Bender-Abbas-Sardabad: Serdze.

Fig. 26—27: *Tytroca leucoptera* Hmps.
26. ♂, 27. ♀. (Genit.-Präp. ♀ 183). Saudi-Arabia, El Riad.

Fig. 28: *Tytroca alabuensis* spec. nov.
Holotyp. ♀ (Genit.-Präp. WM. 181)
Abyssinia: Alabu, Febr. 1939. E. v. S a a l f e l d leg.

Fig. 29—31: *Gnamptonyx vilis* Wkr.
29. ♂, 30, 31. ♀♀ (31 Genit.-Präp. WM. 182 ♀) Arabia, El Riad.

Soweit nicht anders bemerkt, befinden sich alle abgebildeten Tiere in der Zoologischen Staatssammlung in München.

Explanation of Plate V

Fig. 1: „*Eulocastra*" *mediana* Stgr. Type ♀ (Präp. WB 9), Jordan, Mus. Berlin
Fig. 2: „*Eulocastra*" *mediana* Stgr. Type ♂ (Präp. WB 9), Jordan, Mus. Berlin
Fig. 3: *Pseudozarba mesozona* (Hamps.) (= *mediana* Stgr.), (Präp. WM. 211), Iran, Baloutchistan, Bender Tchahbahar, 2. 28, leg. F. Brandt
Fig. 4: *Pseudozarba mesozona* (Hamps.) (= *mediana* Stgr.). Iran, Baloutchistan, Bender Tschahbahar, 2. 38, leg. F. Brandt
Fig. 5: *Pseudozarba bipartita* H. Sch. ♀ (Präp. WM. 194) Sicilia, Casteldaccia 19. 8.
Fig. 6: *Pseudozarba bipartita* H. Sch. ♂ Sicilia, Casteldaccia 12. 9.
Fig. 7: *Pseudozarba bipartita* H. Sch. ♂ Tunis Umg., El. Gouina 9. 8. 60 leg. K. T. Müller
Fig. 8: *Pseudozarba bipartita* H. Sch. ♀ Tunis Umg., El Gouina 11. 8. 60 leg. K. T. Müller
Fig. 9: *Pseudozarba bipartita* H. Sch. ♂ (Präp. WM. 197) Sudan, Ed Damer, Hudeiba 31. 7. 62 leg. R. Remane
Fig. 10: *Pseudozarba morosa* sp. n. ♂ Holotypus (Präp. WM. 201) Sudan, Ed. Damer, Hudeiba 16. 8. 62 leg. R. Remane
Fig. 11: *Pseudozarba morosa* sp. n. ♀ Allotypus (Präp. WM. 201) Sudan, Ed Damer, Hudeiba 15. 8. 62 leg. R. Remane
Fig. 12: *Porphyrinia kruegeri* sp. n. ♂ Holotypus Sudan sept. or., Kassala Prov., Erkowit, 1000—1300 m, 21. 6. 61 leg. R. Remane
Fig. 13: *Porphygrinia kruegeri* sp. n. ♀ Allotypus Sudan sept. or., Kassala Prov. Erkowit, 1000—1300 m 2. 7. 62 leg. R. Remane
Fig. 14: *Grammodes euclidioides postfumida* ssp. n. ♂ (Präp. WM. 166) Holotypus, Sudan, Blue Nile Province, Wad Medani, 3. 8. 62, leg. R. Remane.