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Remarks on the genera *Przhevalskiana* Grunin and *Crivellia* Grunin (Diptera: Oestridae)*

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In 1948, Grunin described a new Warble Fly from the 3rd larval stage, found in skin-boils of the Chiru or Orongo Antelope [*Pantholops hodgsonii* (Abel)]. He named it *Hypoderma (Przhevalskiana) orongonis* n. sp., n. subgen. A year later, he raised this new subgenus to generic rank, mainly because of the armature of the pseudocephalon, which above the mouth-dots (rudimentary mouth-hooks) bears two groups of relatively large, pointed spines (Fig. 2).

In 1950, Grunin added his new species *P. aenigmatica*, which parasitizes the Mongolian Gazelle [*Gazella gutturosa* (Pallas)] to this genus. It is also known only from the 3rd larval stage.

In 1956, Grunin founded the genus *Crivellia* for *Hypoderma corinnae* Crivelli, which was known in the 3rd larval stage as well as the imago from the Dorcas Gazelle [*Gazella dorcas* (Linnaeus)] in Northern Africa, and which he had discovered also in the Goitred Gazelle [*Gazella subgutturosa* (Güldenstaedt)] in Central Asia. The generic separation of this species from *Hypoderma* is fully justified from features in the imago as well as the 3rd instar larva.

In his recent book on the Hypodermatinae, Grunin (1962) also placed Brauer's *Hypoderma silenus* in the genus *Crivellia* and synonymized with it *H. aegagri* Brauer (= *aeratum* Austen) and *H. crossii* Patton.

The question of the synonymy of these three species will be discussed below.

Firstly it is necessary to investigate whether these two genera should be kept as distinct units. I have not seen specimens of *P. orongonis* and *P. aenigmatica*, but Grunin published drawings (figs. 1 and 2) showing the frontal view of the pseudocephalon plus the 3rd segment, the ventral armature of the 5th segment and the posterior peritremes. We have made corresponding drawings (figs. 3—6) of *C. corinnae*, *C. aegagri*, *C. crossii* and of larvae ex *Gazella dorcas* (Linnaeus), which I consider to represent *C. silenus* (= *gazellae* Gedoelst).

These drawings reveal that *P. aenigmatica* and *C. aegagri* demonstrate the two extremes of a row, showing a continuous decrease in the size of the spines. In *P. aenigmatica*, the spines on the pseudocephalon and the 3rd segment are large and strongly pointed, in *P. aegagri* they are completely reduced on the pseudocephalon and relatively small on the 3rd segment. In *P. orongonis*, these spines are smaller than in *P. aenigmatica* and similar to those in *C. corinnae*, which evidently shows a closer relationship to *P. orongonis* than to *C. silenus*. A further feature, showing a close relationship of the *Przhevalskiana* species with *C. corinnae*, lies in the armature of the posterior body-segments, which are provided with only one anterior row of almost regularly arranged, large, scale-like spines. In *C. crossii*, *C. silenus* and *C. aegagri*, the denticles on the pseudocephalon are completely reduced, and the anterior armature of the body-segments consists of smaller, but irregularly arranged and partly doubled spines.

* Herrn Professor Dr. Erwin Lindner zum 75. Geburtstag.

Should the six species be distributed between two genera, the features of the 3rd instar larvae rather indicate the transfer of *C. corinnae* to *Przhevalskiana* sensu Grunin than to the *silenus* group. Fortunately we know the imago of *C. corinnae,* which is very similar to the *silenus* group. This fact possibly induced Grunin to unite them in one genus.

It is to be hoped that the Russian scientists will succeed sometime in rearing the adults of *P. aenigmatica* and *P. orongonis,* which will probably show a congeneric relationship to *C. corinnae.* This is, of course, only an hypothesis. The generic diagnosis of *Przhevalskiana* is based on the 3rd larval stage, and a comparison with the larval features of *Crivellia* shows little justification for keeping them in two distinct genera. *Crivellia* should therefore be treated as a synonym of *Przhevalskiana* (nov. syn.).

In his book mentioned above, Grunin has lumped the three species *C. silenus, C. aegagri* and *C. crossii.* I cannot follow him in this respect. Austen (1931), Patton (1936) and Van Emden (1950) detected differentiating features in the imagines which seem to have specific value. Mr. H. Oldroyd, who was kind enough once more to compare the few adult flies of these species, which are kept in the British Museum, informed me by letter that he is convinced of their distinctiveness.

The distribution and biological data also favour keeping these three forms as distinct species. *P. crossii* was described by Patton (1922) from Northern India, and Soni (1939—1942) again studied the morphology and life history of this species, which develops in the domestic goat and occasionally also in sheep. *P. aegagri* is so far known only from Crete and Cyprus, where it parasitizes the Wild Goat (*Capra hircus aegagrus* Erxleben), the domestic form, and sometimes sheep. *P. silenus* was based on the adult alone, and specimens have been caught in Spain, Sicily, Dalmatia, Syria and Anatolia. I have referred to *P. silenus* larvae which were extracted from the skin of gazelles [*Gazella dorcas* (Linnaeus) and *G. granti* Brooke] in Kenya, Somaliland and Libya (Zumpt 1961). These wild animals perhaps represent the original hosts of *P. silenus,* whereas nowadays goats and occasionally also sheep may have replaced them in certain areas.

Grunin (1962) records *P. silenus* from Central Asia, where it is found mainly in domestic goats. The biological data he gives differ from Soni's observations on *P. crossii* in India. On the other hand, Grunin's drawing of the anterior view of the 3rd instar larva resembles *P. crossii* more than the other two species. It therefore remains an open question with which form Grunin was dealing in Central Asia.

Grunin was probably induced by the great similarity of the 3rd larval stages of these species to assume their conspecificity, and indeed, the features given in the following key for the larvae may overlap and be variable. However, such an insufficiency of larval characters is also known from other groups of oestrids, for instance in *Strobiloestrus* Brauer of the Ethiopian region (see Zumpt 1961).

Key to the 3rd instar larvae of *Przhevalskiana* s. lat.

1 (6) Pseudocephalon above the mouth-dots (rudimentary mouth-hooks) with large, pointed teeth arranged in a crescent, close together and medially more or less separated by a gap. The ventral surface of the 5th body segment with large, scale-like denticles forming a single, almost straight row 2

2 (5) The set of teeth above the mouth-dots is composed of large teeth only 3

3 (4) Teeth above the mouth-dots, and those surrounding the pseudocephalon, strongly pointed. *P. aenigmatica* Grunin

4 (3) Teeth above the mouth-dots weakly pointed or blunt, and flattened and more scale-like in appearance. *P. corinnae* (Crivelli)

5 (2) The set of teeth above the mouth-dots consists of both big and small ones. *P. orongonis* Grunin

6 (1) Pseudocephalon above the mouth-dots with only a few, small, rudimentary teeth, or these are completely absent. Ventral surface of 5th body-segment with smaller denticles, which are arranged in an irregular, more or less double row 7

7 (10) Area above the mouth-dots with a few small denticles 8

8 (9) Teeth above the mouth-dots small, but still quite distinct, and arranged in a single, medially interrupted row. *P. crossii* (Patton)

9 (8) Teeth above the mouth-dots few and extremely small, quite irregularly placed, and highly reduced. *P. silenus* (Brauer)

10 (7) Area above the mouth-dots without teeth. *P. aegagri* (Brauer)

Summary

Referring to GRUNIN's (1962) recent book on the Hypodermatinae, the author pleads for a unification of the genera *Przhevalskiana* Grunin (1948) and *Crivellia* Grunin (1956). He opposes, however, the lumping of the three species *P. silenus* (Brauer), *P. aegagri* (Brauer) and *P. crossii* (Patton) and wants to keep them as distinct species.

Zusammenfassung

Verfasser bezieht sich auf das im Jahre 1962 von GRUNIN veröffentlichte Buch über die Hypodermatinae und tritt für eine Zusammenziehung der Gattungen *Przhevalskiana* Grunin (1948) und *Crivellia* Grunin (1956) ein. Auf der anderen Seite ist er jedoch der Ansicht, daß die von GRUNIN zusammengezogenen Arten *P. silenus* (Brauer), *P. aegagri* (Brauer) und *P. crossii* (Patton) als gute Arten beibehalten werden sollten.

Acknowledgements

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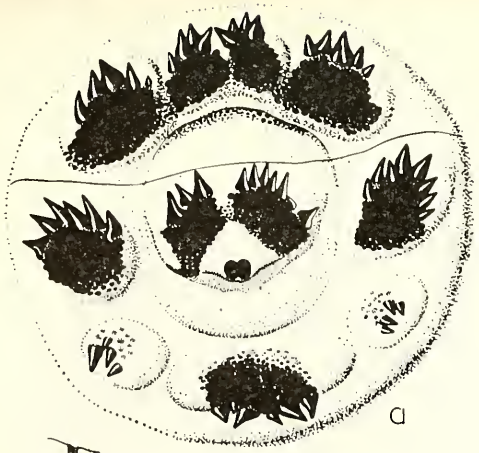

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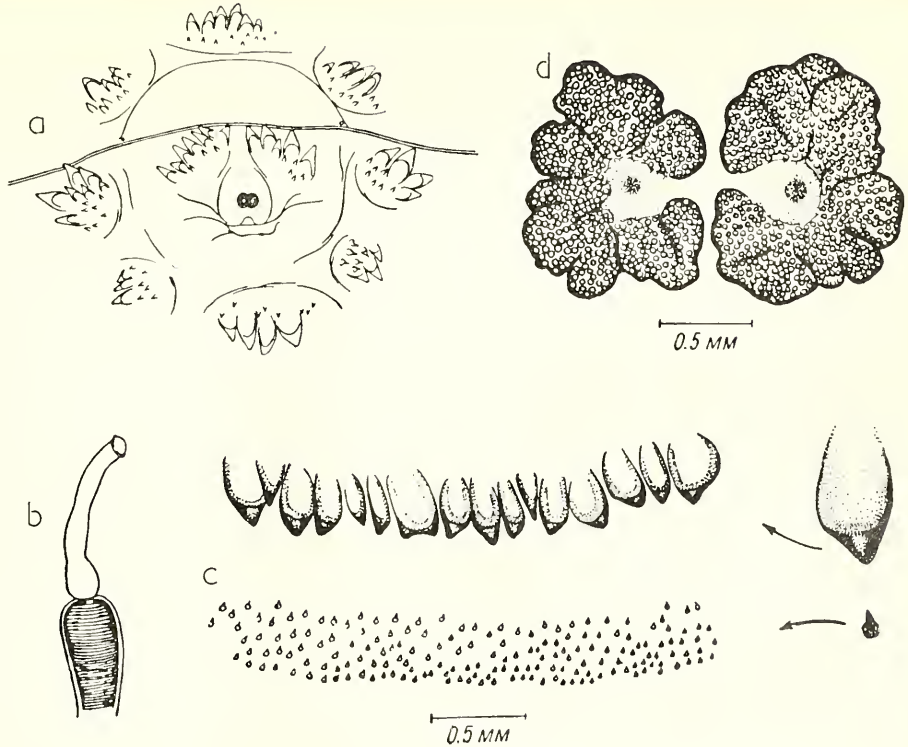

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Fig. 1. *Przhevalskiana aenigmatica* Grunin. Frontal view (a), anterior spiracular tube (b) and posterior peritremes (c) of 3rd larval stage (after Grunin).
Fig. 2. *Przhevalskiana orongonis* Grunin. Frontal view (a), anterior spiracular tube (b), ventral spinulation of 5th segment (c) and posterior peritremes (d) of 3rd larval stage (after Grunin).

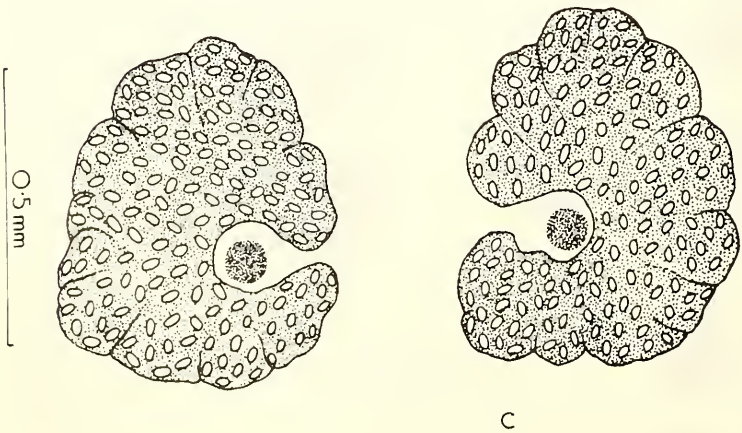

Fig. 3.
Przhevalskiana corinnae (Crivelli).
Frontal view (a), ventral spinulation of 5th segment (b) and posterior peritremes (c) of third larval stage (original).

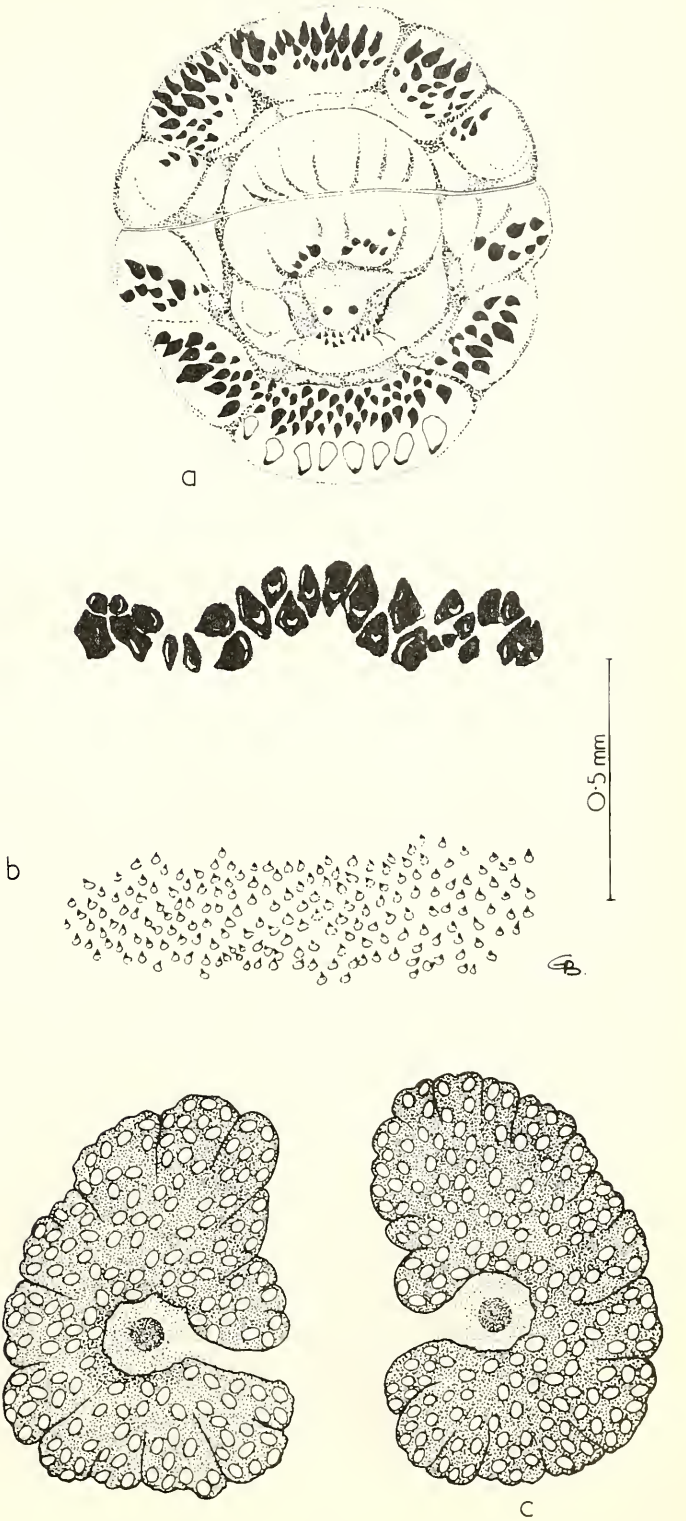

Fig. 4.
Przhevalskiana crossii (Patton).
Frontal view (a),
ventral spinulation of 5th segment (b)
and posterior peritremes (c)
of 3rd larval stage (original).

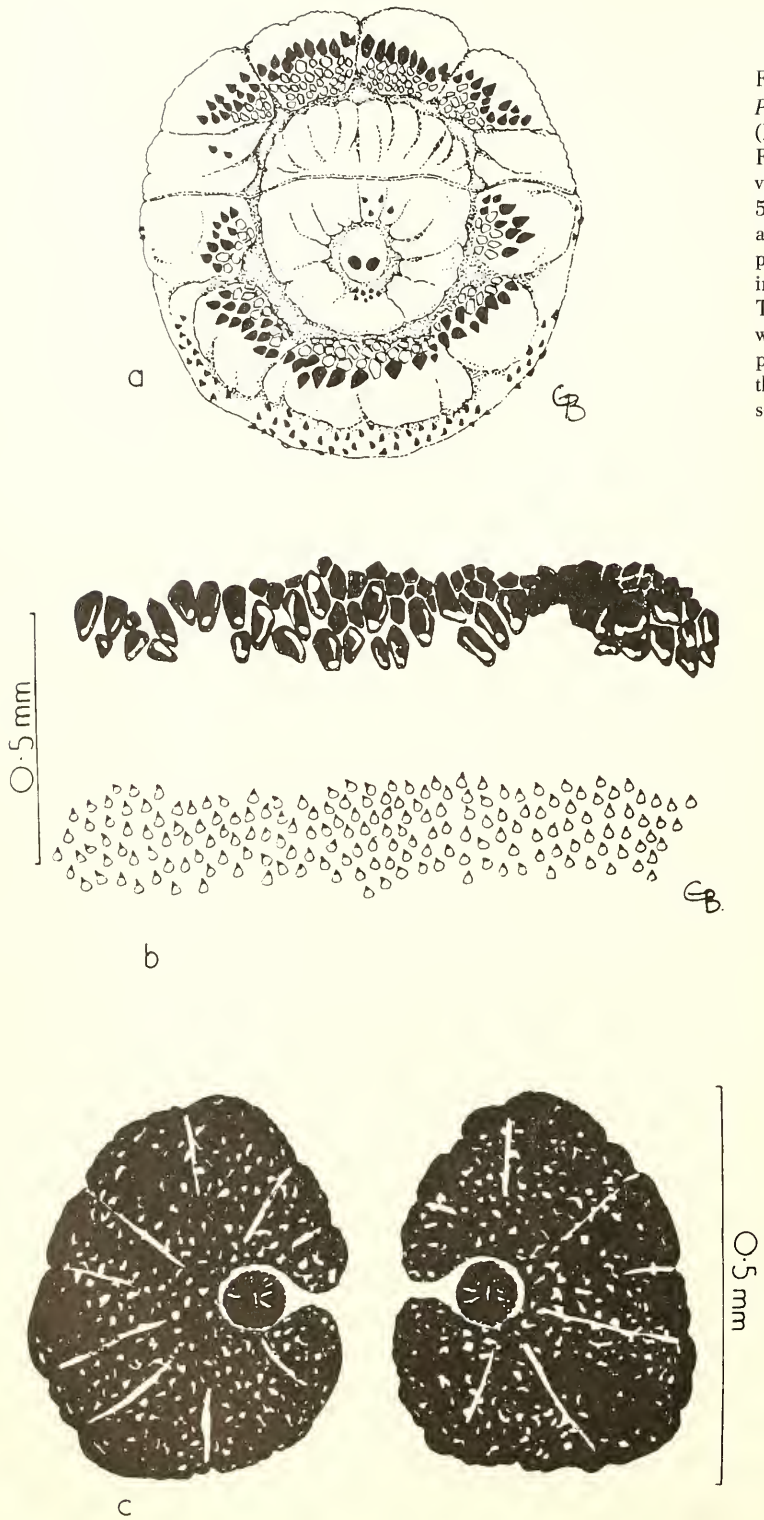

Fig. 5.
Przhevalskiana silenus (Brauer).
Frontal view (a), ventral spinulation of 5th segment (b) and posterior peritremes (c) of 3rd instar larva.
The model specimen was mature and the peritremes are therefore heavily sclerotized (original).

Fig. 6.
Przhevalskiana aegagri (Brauer).
Frontal view (a),
ventral spinulation of 5th segment (b)
and posterior peritremes (c)
of 3rd larval stage (original).