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THE STRUCTURE OF THE *GLANS PENIS* IN *NEOMYS* KAUP, 1929 AS A TAXONOMIC CHARACTER

BUDOWA *GLANS PENIS* U RODZAJU *NEOMYS* KAUP, 1929, JAKO CECHA TAKSONONICZNA

The structure of the male copulatory organ was studied by many authors in different species of rodents (Tullberg, 1899; Bittera, 1918; Vinogradov, 1925; Ognev, 1940, 1950; Hooper & Hart, 1962; Hooper & Musser, 1964, and others) as well as in the *Insectivora* (Stroganov, 1957; Vinogradov, 1958). The authors mentioned above and many other investigators utilized this character as a complementary and even in some ceses, a decisive (Vinogradov, 1925) taxonomic criterion. The recent papers of Hooper and his co-workers indicate the possibility of explaining the phylogenetic relations in some groups of rodents on the basis of the structure of the glans penis.

In the latest years the structure of the glans penis in the *Insectivora* has more and more frequently been taken into consideration as a diagnostic character, particularly so in the group as perplexing as the *Soricidae*. Not all species are known well in this respect now. Stroganov (1957) described the structure of the male copulatory organ in a number of different species of the *Soricidae*. This, however, does not make the list of known forms complete. Besides, the descriptions and drawings of Stroganov (l.c.), e.g. those for the genus *Crocidura* Wagler, 1832, are inconsistent with the more exhaustive data cf Vinogradov (1958).

The monograph of Strogonov (l.c.) comprises also the description and drawings, both not very accurate, of the glans penis of *Neomys fodiens* (Pennant, 1771). These should be completed with a few more details. In addition, the European investigators may be interested in the structure of this organ in the related species: *N. anomalus* Cabrera, 1907.

The present note is based on the observations of the male copulatory organs in 20—30 juvenile and sexually mature specimens of either of the two above-mentioned species of the genus *Neomys*. The material for study was derived from the Białowieża National Park and is kept in the collections of the Mammals Research Institute at Białowieża.

In both these species the penis is normally bent so that the distal part is directed caudally. In the further description I shall deal with the penis in the unbent position with its glans directed towards the front of the body.

The penis of *Neomys fodiens* is relatively (e.g., as compared with that of *S. araneus*) short and thick. The glans is a dorsoventrally flattened and pointless elipsoid. In the material fixed in alcohol the length of the glans is 7.5—8.5 mm and its maximum width 4.0—4.5 mm [1]).

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[1]) These measurements as well as all the others given in this note should be taken as approximate. They may depend largely upon the degree of erection of the penis at the time of death of the animal. It happens many a time that dead shrews brought to the laboratory have their penises thrust out, which indicates at least partial erection.

Fleshy folds develop at the sides of the glans and extend over its ventral side (Fig. 1 a). In the normal state they do not touch each other. The margins of the folds are tattered and form short digitations adhering to each other in one row and in the medial portion in two rows. On the ventral side, towards the rear of the glans, the folds join, while in the anterior portion they do not embrace the whole glans. The cranialmost portion of the glans projects beyond the retreating orifice of the *canalis urogenitalis secund.* and is surounded on the sides by flat processes folded at the base and widening in the anterior portion (Fig. 1 c). The inner side of these processes is cut with two furrows. These pro-

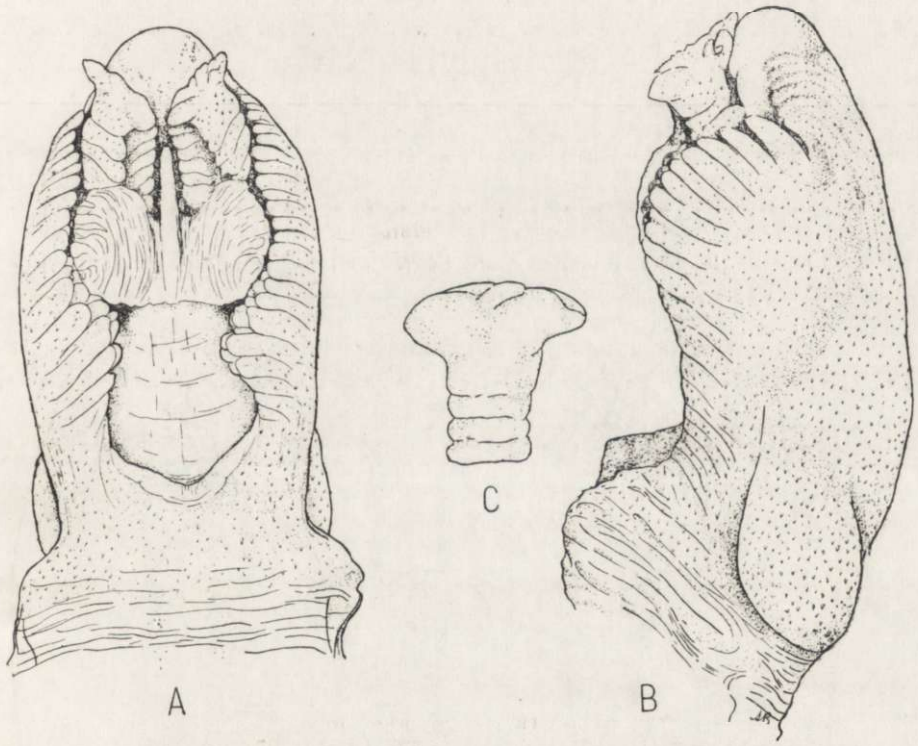

Fig. 1. Glans penis of *N. fodiens*. a — lateral view; b — ventral view; c — anterior processes.

cesses cover also the orifice of the *canalis urogenitalis secund.* Posteriorly to the *orifictum urethrae ext.* are three lobular processes, one in the sagittal plane and two oval ones laterally in the dorsoventral plane (Fig. 1 b). In the normal condition the dorsal surface of the glans and the surfaces of the lateral folds are slightly wrinkled and, except for the triangular posterior area, covered with fine horny spines. Laterally, on the upper side in the posterior portion of the glans are two small lobular processes of a rounded shape.

All the details described are visible in juveniles (Fig. 2). The measurements of the glans are naturally remarkably smaller (length — 2.5—4.0 mm, width — 1.5—2.5 mm). The glans is more flattened and the lateral folds are not developed

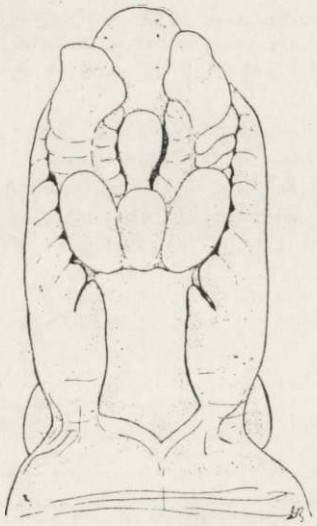

Fig. 2. Glans penis of a juvenile male of *N. fodiens*. Denotations as in Fig. 1.

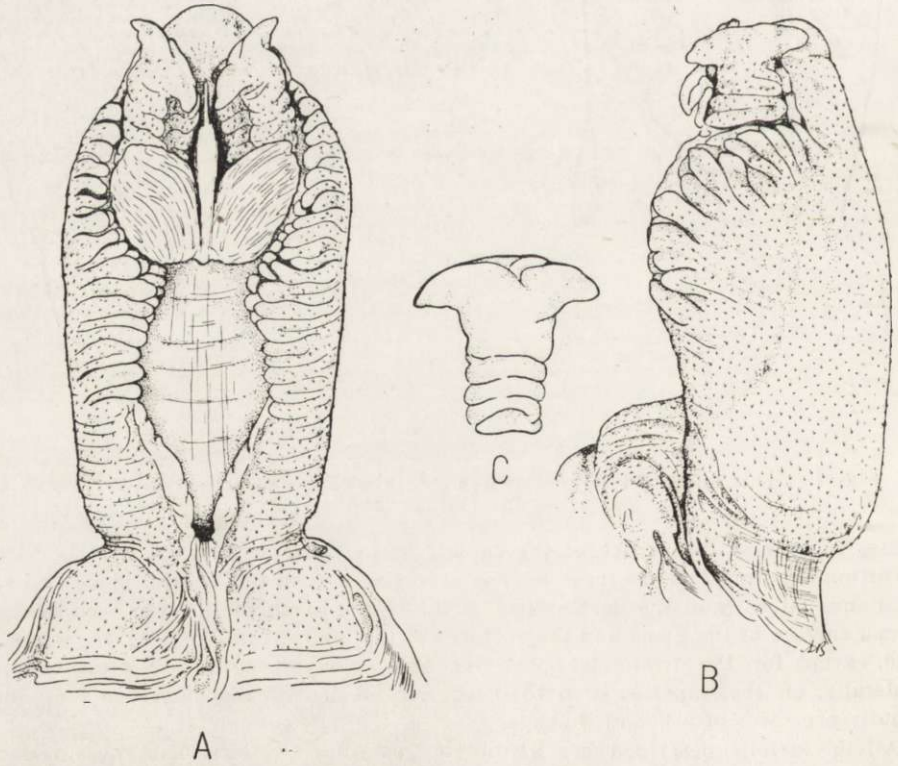

Fig. 3. Glans penis of *N. anomalus*. Sexually mature specimen. Denotations as in Fig. 1.

so well as in adults, they are small and thin and do not extend over the ventral side of the glans. The measurements and the numbers of folds of the processes surrounding the orifice of the *canalis urogenitalis secund.* are also smaller.

The structure of the glans penis in *N. anomalus* is, as a rule, similar to that in *N. fodiens*. Some fundamental differences may, however, be seen between these two species. The measurements of the glans penis much resemble those in *N. fodiens*. The length of the glans ranges between 7.0 and 8.0 mm and the maximum width between 4.0 and 5.0 mm. The shape of the glans is more cylindrical. The lateral folds, which join on the ventral side, form a more acute indentation than in *N. fodiens*. The fine horny spines covering the surface of the glans extend over a part of the prepuce on the ventral side. There are no posterolateral ear-like processes in *N. anomalus*. The processes surrounding the *orificium urethrae ext.* are more anchor-like, i.e., they ramify both dorsal and ventral (Fig. 3 c).

The foregoing differences in the morphological structure of the penis among water shrews and especially the presence or lack of the posterolateral processes are well visible even in juvenile males. They can make a good complementery diagnostic character, permitting the quick distinction of these two species of the genus *Neomys*.

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NEUE DATEN ÜBER DIE GATTUNG *NEOMYS* KAUP (1829) IN DER RUMÄNISCHEN VOLKSREPUBLIK

NOWE DANE O RODZAJU *NEOMYS* KAUP (1829) Z RUMUNII

Die Vertreter der Gattung *Neomys* gehören zu den am wenigsten erforschten Säugetieren der R. V. R.

Über die Verbreitung der Art *Neomys fodiens* Pennant (1771) in Rumänien sind einige Daten in den Arbeiten von Matschie (1901), Miller (1912), Paszlavszky (1918), Calinescu (1931), Ellerman (1952) enthalten.

Die Anwesenheit der Art *Neomys anomalus* Cabrera (1907) in Rumänien