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ADDITIONAL TRIANGLE ON M^2 IN *MICROTUS NIVALIS* (MARTINS, 1842)

WIELOPĘTLOWOŚĆ ZĘBA M^2 U *MICROTUS NIVALIS* (MARTINS, 1842)

The considerable variations in the structure of certain molars in voles often leads to occurrence of forms defined by the term anomalies (Rörig & Börner, 1905; Ognev, 1950; Reichstein & Reise, 1965; Ruprecht, 1967 *et al.).* A classic example of such variations is the M^2 in *Microtus arvalis* (Pallas, 1779) and *Microtus agrestis* (Linnaeus, 1761). In certain individuals of *M. arvalis* this tooth exhibits a tendency to formation of a fourth triangle of enamel, resulting in a similarity to the *agrestis* type. Some individuals of *M. agrestis,* on the other hand, exhibit the reverse tendencies (Rörig & Börner, 1905; Schaefer, 1935; Reichsten & Reise, 1965 and others). Cases are known of similar occurrence of an additional triangle of enamel from the aboral end of M^2 also in *Microtus socialis* Pallas, 1773 (Schaefer, 1935). Variations of this kind often make it difficult to identify either fossil or contemporary material (Dienske, 1969), and therefore all deviations in the structure of teeth in voles should be recorded.

A individual of *M. nivalis* was found among skull material of this species in the collection of the Mammals Research Institute, Polish Academy of Sciences, at Białowieża, which had been correctly identified on the basis of external descriptive and measurement characters as originating from the Tatra Mountains (no. coll. 51821, ♂ ad), caught on 4.7.1961 in the Hala Gąsienicowa (Gąsienicowa Alp) near Czarny Staw (Black Pool) at an altitude of 1620 m above sea level. The vole in question had an M^2 on both sides, exhibiting and additional fourth triangle of enamel c, which was clearly separate from the third triangle (Fig. 1; V_4). All the other cranial characters of this individual, in particular the lines of muscle insertions on *os parietale* and the prominent *bullae tympanici,* are characteristic of *M. nivalis.*

Examination was made of the whole of the *M. nivalis* material, numbering about 60 skulls, originating from two Polish Tatra populations — near the Morskie Oko Lake (49°12'N, 20°05'E) and the Gąsienicowa

Alp (49°14′N, 20°01′E). It was found that M^2 with formation of triangle c to a lesser or greater degree occurred either on one side only, or both sides, in 18.3% of the voles examined (Table 1). In addition the intermediate type of M^2 (variants: $V_1 — V_3$ — Fig. 1) occurred in two populations and a distinct *agrestis*, type only in the *M. nivalis* population from the Gąsienicowa Alp (7.4%). Sex ratio for the skulls of voles distinguished by non-typical structure of M^2 was 4 : 1 for the population from the Morskie Oko area, and 1 : 1 for that from the Gąsienicowa Alp.

These facts would appear to form evidence of the hereditary origin of this far-reaching variation in the structure of M^2 in two isolated populations of *M. nivalis*. In the lowland populations of *M. oeconomus*,

Table 1

Variations in the structure of M^2 in *M. nivalis* in two study populations.

Population	Normal		Intermediate		*agrestis* type		Total
	n	%	n	%	n	%	
Morskie Oko	28	84.8	5	15.2	—	—	33
Hala Gąsienicowa	21	77.8	4	14.8	2	7.4	27

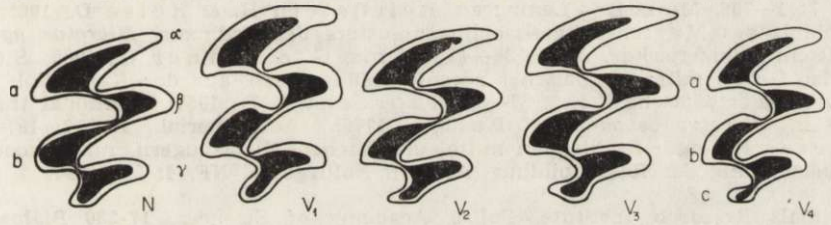

Fig. 1. Variations of the formations of the chewing surface of M^2 in *Microtus nivalis*.

isolated to a slight degree only narrowing of the triangle of enamel *b* occurred in only a small percentage of individuals (Ruprecht, 1967) whereas some populations of voles inhabiting islands have been described on the strength of their odontological characters as separate subspecies, *e.g.*, *M. agrestis exul* Miller, 1908.

In Schaefer's opinion (1935) some vole populations may have been affected by a given type of tooth anomaly. This view is confirmed by the results obtained by Winge (1908), who found M^2 of the *agrestis* type in 95% of the individuals from a population of *M. arvalis* from the Copenhagen area (cited after Dehnel 1946).

I know of no cases of an additional triangle of enamel in M^2 in *M. nivalis* from the aboral side in the literature to which I had access. Mention was only made of the fact that in this species this tooth exhibits

tendencies to secondary formation of an isthmus in the triangle of enamel *b* situated on the lingual side (Kowalski, 1957). Ruprecht (1967) has described a similar variant in *Microtus oeconomus* (Pallas, 1776). The variation in the structure of M^2 described here for *M. nivalis* may therefore be regarded as one more manifestation of variations in the teeth of this species.

It would not therefore appear to be correct to define similar cases of individual variation in the teeth of voles by the term anomaly (Schaefer, 1935; Dehnel, 1947 and others), particularly as it is difficult to establish a dividing line between typical and »abnormal« formation of the teeth for certain populations. Usually there are a large number of intermediate forms, as in the case described here and in other voles (Ruprecht, 1967). It would seem that when forms deviating from the normal occur numerously they may be treated as a manifestation of population variation.

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TRAP RESPONSE IN *PEROMYSCUS POLIONOTUS**

REAKCJA NA PUŁAPKĘ U *PEROMYSCUS POLIONOTUS* *

Trappability of small mammals is dependent upon the probabality of encountering a trap and the probability of entering the trap when encountered (Smith *et al.*, 1974). Trap response of small mammals

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