between the points of introduction and the Centre seems worth mentioning.

The described cases appear to represent the directional, migration to the point of destination and may indicate the existence of »home instinct« in the European hare.

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Received, September 10, 1966.

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A BANK VOLE *CLETHRIONOMYS GLAREOLUS* (SCHREBER, 1780) OF EXTREME NON-AGOUTI PHENOTYPE.

NORNICA RUDA, *CLETHRIONOMYS GLAREOLUS* (SCHREBER, 1780) O FENOTYPIE EXTREME NON-AGOUTI.

A melanistic specimen of the bank vole, *Clethrionomys glareolus* (Schreb.) was caught in the Niepołomicka Forest near Cracov. The animal was uniformly black; its coat colour corresponded to the phenotype of homozygous extreme non-agouti (a^e/a^e) laboratory mice.

A melanistic individual of the bank vole, *Clethrionomys glareolus* (Schreber, 1780) was caught in October 1966 while trapping small rodents on the edge of Niepołomicka Forest, near the village of Ispina (50°07′N. lat. — 20°23′E. long.). It was an adult male in autumn molting. The animal had the following body dimensions: weight — 18.2 g, body length — 94 mm, tail length — 41 mm and hind foot length — 17.5 mm.

The bank vole has an agouti type coat colour similar to the majority of wild rodents. The bottom part of every hair is black and the upper part is lighter, namely dark red on the dorsum and dull yellow on the ventrum. All hair of the above described animal were black from the tip to the bottom and consequently the coat colour was solid deep black. The coat on the dorsum was slightly more glossy than on the ventrum, probably due to the larger number of guard hair and not to the differences in pigmentation. The coat colour of this specimen corresponded to No. 15 of the Ostwald (1923) colour scale. The skin of a melanistic bank vole is compared with the skin of a typically coloured bank vole in Fig. 1.

The coat colour of the described melanistic bank vole does not differ

from the coloration of laboratory mice (*Mus musculus* Linnaeus, 1758) homozygous with respect to the extreme non-agouti gene (a^e). Extreme non-agouti is one of several (at least eight) alleles of the Agouti series. It is completely recessive to all other alleles at this locus and therefore only homozygous (a^e/a^e) individuals exhibit extreme non-agouti phenotype. These animals have exclusively solid black hair even in the areas where the so called »black« (non-agouti a/a) mice have some yellow hair, i.e. in and behind the ears, around the nipples, in the anal and genital region.

The coat colour mutations were described in several vole species (cf. Reichstein & Kulicke, 1958; Humiński, 1963). Melanistic specimens of the bank vole were reported from Czechoslovakia (Hanák, 1957). Many wild rodent mutations are homologous to those of laboratory mice with respect to the phenotypic effects, dominance and linkage relations (Reichstein, 1957; Foster, 1965). Consequently, it seems reasonable to assume that the described melanistic bank vole

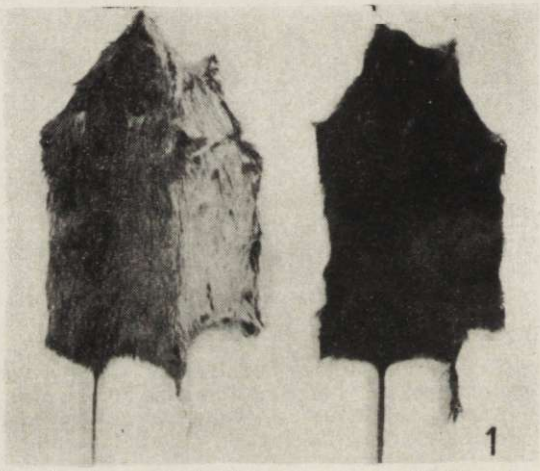

Fig. 1. The skin of a bank vole of extreme non-agouti phenotype (right) compared with the skin of a typically coloured bank vole (left).

had a recessive mutation in homozygous state at the agouti locus, homologous to extreme non-agouti. It would indicate that there may be many heterozygotes $a^e/-$ in the population of bank voles in the Niepołomicka Forest and more totally black homozygotes can appear.

It is difficult to asses whether the individual in question corresponds genotypically to the melanistic forms described from different localities. Hanák (1957) described »totally melanistic« bank voles but on the photograph in his paper the ears of the melanistic animals are lighter than the coat. This would indicate a mutation homologous to non-agouti (a) and not extreme non-agouti (a^e). Reichstein (1957) indicated that the specimen he caught was completely black including the snout, the feet and the ventrum but classified it as analogous to the mutation »a«, i.e. non-agouti. His data concerning the inheritance of described character indicate only that observed colour was due to a recessive mutation of one gene.

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THE INFLUENCE OF CROWDED POPULATION STIMULI ON THE DEVELOPMENT OF REPRODUCTIVE ORGANS IN THE COMMON VOLE

WPŁYW BODŹCÓW ZAGĘSZCZONEJ POPULACJI NA ROZWÓJ ORGANÓW ROZRODCZYCH U NORNIKA ZWYCZAJNEGO

It was demonstrated that the presence of crowded sexually active voles somewhat inhibits the development of spermatogenesis in young individuals. The degree of gonadal development and function in experimental and control voles is given.

In our colony of common voles (*Microtus arvalis* Pallas, 1779) it was noted that young animals, placed in close proximity of cages with sexually active individuals usually start breeding slightly later than the young kept in separate quarters. These observations seemed to indicate that sexual maturation of voles may be somewhat influenced by a complex of stimuli provided by sexually active individuals.

In an attempt to explain this phenomenon the following experiment was done between 30 June and 10 August 1960. One hundred and twelve young (10 to 11 days old) voles from 19 litters were divided into two groups: experimental and control. Half of each litter was assigned to the experimental group (59 animals) and half to the control group (53 animals). The cages with the experimental voles were placed adjacent to cages with specially crowded sexually active voles. The control animals were placed in different building and serviced by another keeper. The size of the cages and the number of animals per cage were the same in both groups. The diet was identical and the animals were fed at the same time.

Some animals of both groups were sacrified after 10 days, others after 20 days and the remainder after 40 days (Tables 1 and 2). After sacrificing the animal the gonads were removed, weighed and fixed in Bouin's solution. Subsequently they were embedded in parafin, sectioned at 10 μ, and stained with Ehrlich hematoxylin and eosin.

In group 1 (10 days) no differences were observed in the degree of gonadal development between experimental and control animals. Similarly no differences were detected in group 2 (20 days). After 40 days (group 3) the degree of ovarian development was the same in the ex-