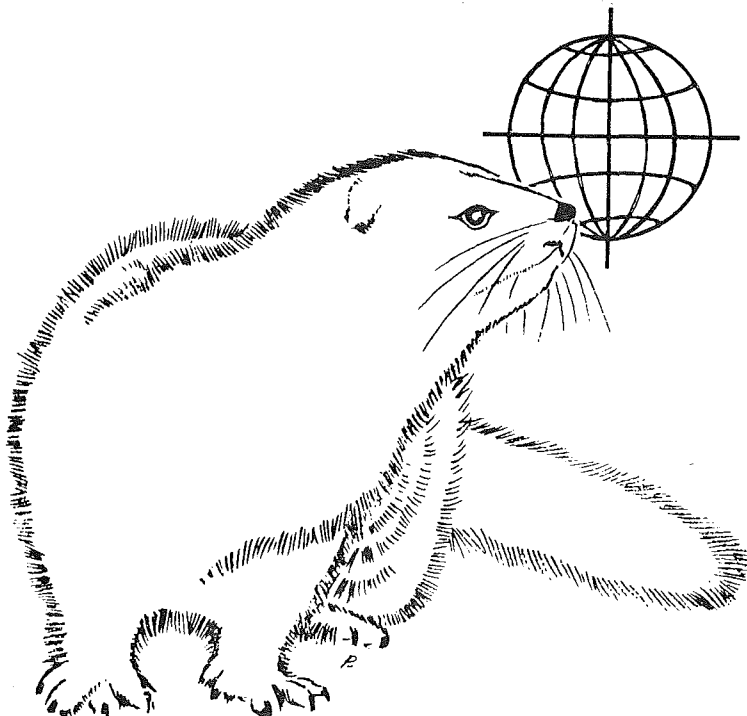


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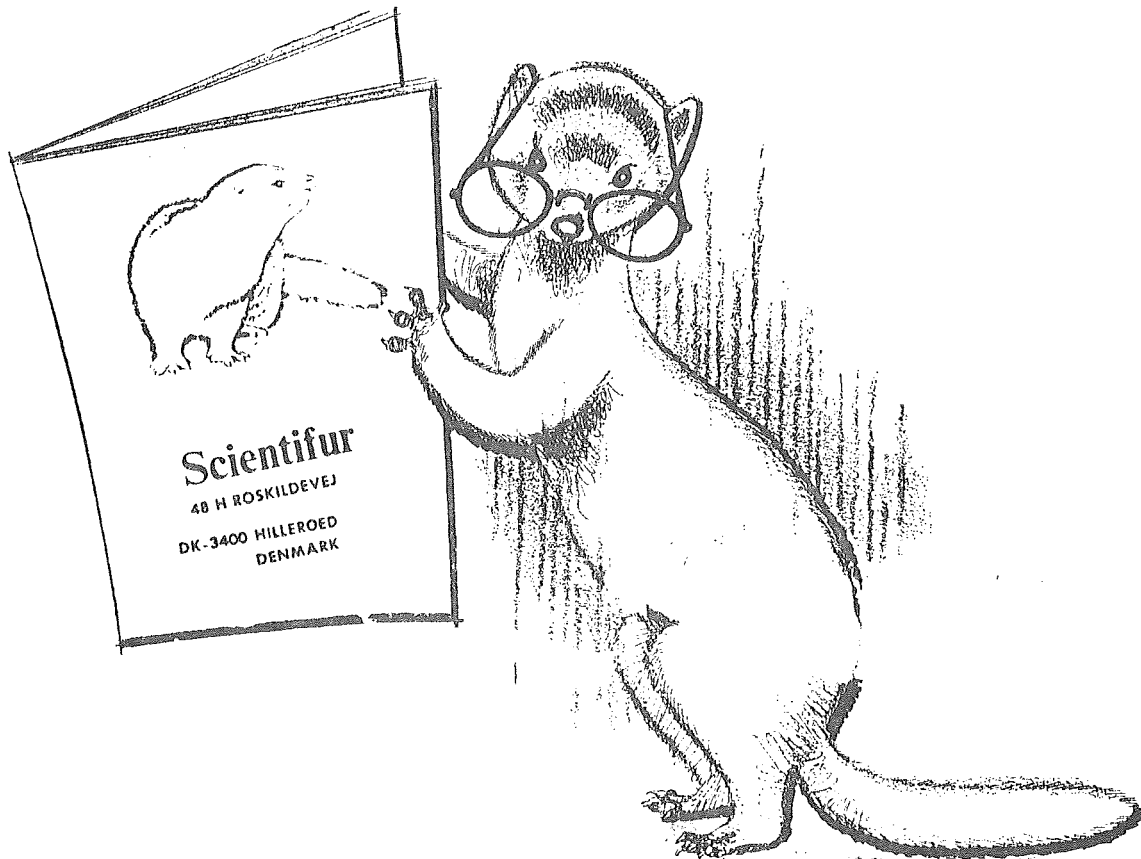
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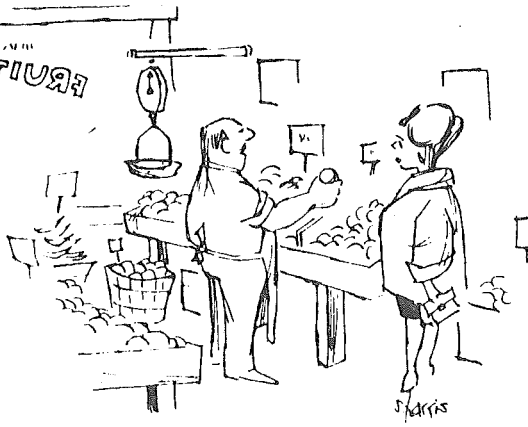
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LETTER TO THE EDITOR.

An Expert

An authority is defined as a person
who knows no more than you do but
who has it better organized and shows
slides.





"Don't worry about insecticides. The radioactivity neutralizes them."

N O T E S

SCIENTIFUR, VOL. 6, NO. 1, 1982.

We want to thank a lot of our readers and contributors for Christmas and New Year greetings. It is always inspiring with two-way communication.

We are sorry that we are not able to send the mentioned Index for the first 5 Volumes of SCIENTIFUR as planned first in this year. The reason is both because of the difficulties in getting the Index made and that the price has been rising in proportion to what our preliminary investigations had told us. In the meantime, we are working on the problem, and we are sure that it will be solved.

Further you will see a SCIENTIFUR CODE below every abstract or report. These codes are created to give a more precise grouping of the material in the Index.

The codes stand for:

Codes for subjects published in SCIENTIFUR.

Main division	code	Sub. division		
		Mink	Foxes	Other fur bearing animals
Distribution/Ecology	1	M	F	0
Anatomy/Morphology	2	M	F	0
Fysiology/Biochemistry	3	M	F	0
Genetics/Breeding	4	M	F	0
Reproduction	5	M	F	0
Nutrition	6	M	F	0
Feedstuffs	7	M	F	0

Main division	Sub. division			
Key word	code	Mink	Foxes	Other fur bearing animals
Feed Microbiology and Toxicology	8	M	F	0
Diseases and Parasitism	9	M	F	0
Environment	10	M	F	0
Behaviour	11	M	F	0
Farming/Management	12	M	F	0
Statistical Information/ Production	13	M	F	0
Miscellaneous	14	M	F	0

It is planned that the Index will consist of 3 parts:

1. Main Subject Index containing Title, author and subject number.
2. Key word Index containing all descriptive words from the title arranged alphabetically.
3. Author Index arranged alphabetically.

With such an Index it should be very easy to use SCIENTIFUR as basic source in several cases.

For easier registration and search SCIENTIFUR from Vol. 6 will be supplied with continuous paginating within each Volume.

All of our readers now have received the Invoice for 1982 concerning Volume 6. We thank these who already have arranged the payment - and it is the main part of our subscribers. We hope that the rest of you will arrange the payment as soon as possible, because our time is not calculated for complications in the economical area.

As you will realize after reading of this issue of SCIENTIFUR it contains very few Scandinavian contributions. It is our hope that our Scandinavian colleagues will remember SCIENTIFUR with abstracts in English - also of reports published in Scandinavian languages.

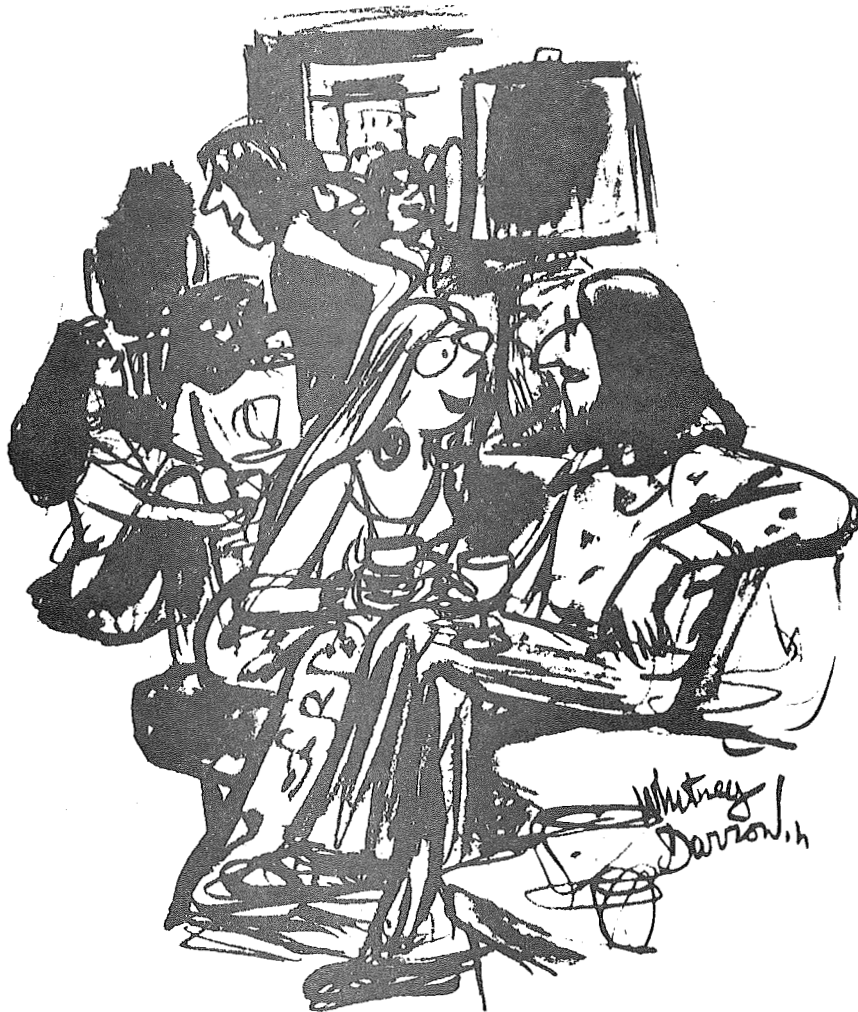
With the best hopes in all respects

Yours



Gunnar Jørgensen

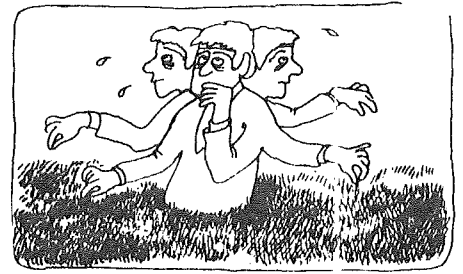
Editor



*"Would I be getting too intimate if I ask
who does your indexing?"*

MULTIDISCIPLINARY

ORIGINAL REPORT.



LABORATORY ESTIMATION OF FUR VALUE OF THE SKINS OF NUTRIAS OF WHITE AND BLACK VARIETES.

Stanislaw Niedzwiadek, Inst. of Zootechnics, Dept. of Small Animal Breeding, 32-083 Balice near Kraków, Poland.

In the last years in Poland a rapid development of keeping and breeding of nutrias can be observed. Although the basic variety of nutria, the standard, has a valuable hair cover but its colour does not satisfy the clients who prefer other colourful varieties. Among them, the white non-albinic and the black are being reared. However, the number of skins which they produce is not big enough despite that they make a very attractive and appreciated raw material for the industry.

The aim of this work was to estimate the fur value of skins obtained from the white and black varieties on the basis of the carried out laboratory evaluation of physical features considered to be diagnostic.

Material and methods.

The material for investigations consisted of the skins obtained from the nutrias belonging to the white non-albinic and the black varieties. The animals were raised in the bath system /yards with pools/. The nutrias were killed in winter at the age of about 8 months. The skins were taken off by means of sack system /without cutting/. After an initial treatment the skins were dried on special blocks according to the requirements of the Polish norm. 20 skins from every colourful variety underwent the laboratory evaluation, with equal numbers of males and females.

Following physical features were investigated:

1. weight of raw and dressed skin,
2. area of raw and dressed skin,
3. weight of 1 dm² of skin,
4. length of skin,

5. compactness of hair cover /complex feature including elasticity, density and mass of hair cover/,
6. thickness of down and cover hairs,
7. length of down and cover hairs,
8. density of hair cover.

The features of the hair cover /items 5–8/ were investigated in 7 topographical parts of the skin /drawing 1/. The measurements of the physical features were carried out on the basis of a methodic elaborated by Kazowski and Kawińska /1960/ for this kind of skins.

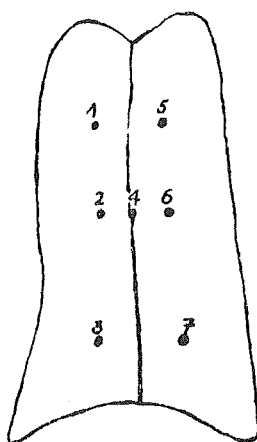


Fig. 1. Place of taking the samples of the nutria skin
 Samples 1, 2, 3 – ventral part
 Sample 4 – lateral part
 Samples 5, 6, 7 – dorsal part.

The dressing of the skins was performed in the fur factory in Kraków, according to the routine methodology.

Results.

The measurements of the physical traits of raw skins for both colourful varieties, together with the statistical characteristics, are shown in the table 1. In the investigated material, no statistically significant

Table 1. Parameters of raw nutria skins.

Parameters	White skins			Black skins		
	\bar{x}	s	V%	\bar{x}	s	V%
Weight of skin, g	192.5	30.0	15.6	179.0	31.9	17.8
Area of skin, dm ²	18.2	3.7	20.3	16.7	3.3	19.8
Weight of 1 dm ² skin g	10.7	1.6	14.9	10.8	1.1	10.2
Length of skin, cm	71.6	3.8	5.3	68.0	4.3	6.3

differences concerning the sex of experimental animals were found. In connection with it, the results obtained for investigated parameters were tabulated together for both sex.

The skins of the white variety were heavier, longer and possessed the bigger area than those of the black variety. Simultaneously, the weights of 1 dm² of the skin were similar /10.7 and 10.8 g respectively/. The same traits measured for the dressed skins /table 2/ were lower in the black variety by about 15 per cent in weight, by about

Table 2. Parameters of dressed nutria skins.

Parameters	White skins			Black skins		
	\bar{x}	s	V%	\bar{x}	s	V%
Weight of skin, g	163.0	27.4	16.8	153.0	26.3	17.2
Area of skin, dm ²	14.3	2.1	14.7	13.2	2.3	17.4
Weight of 1 dm ² skin g	11.4	0.8	7.0	11.6	1.1	9.5
Length of skin, cm	49.5	3.6	7.3	45.3	3.6	7.9

21 per cent in area, and by about 32 per cent in length. At the same time, the weight of 1 dm² of the skin black variety was higher by 6.5 per cent and was as high as 11.4 - 11.6 g.

The measurements of the compactness of the hair cover taken in 7 topographical parts of the dressed skin as well as average values for the sum of observations taken by means of a SGM apparatus are presented in the table 3.

Table 3. Compactness of the hair cover, mm.

Skins	Samples							ΣSGM	s	V _n ^o
	1	2	3	4	5	6	7			
White	6.70	6.58	5.45	6.57	3.90	4.78	4.64	38.77	8.2	21.1
Black	6.46	6.27	5.27	5.31	3.01	3.94	3.97	34.27	7.9	21.8

The compactness of the cover of black nutrias in all topographical parts of the skin was lower than in analogical parts of the skins of white nutrias. Therefore, the SGM sum for the covers of white nutrias gave higher value - 38.77 mm than for the black ones - 34.27 mm. The difference between both varieties is statistically significant.

The measured traits of the hair cover, comprising different topographical parts and two types of hairs /down and cover hairs/ are pre-

sented in the tables 4-6.

Table 4. Thickness of hair cover, microns.

Samples	Skins							
	White				Black			
	Down hairs		Cover hairs		Down hairs		Cover hairs	
	\bar{x}	V%	\bar{x}	V%	\bar{x}	V%	\bar{x}	V%
1	11.3	17.3	87.8	45.2	12.1	12.5	88.9	49.1
2	11.8	12.5	87.6	39.9	11.8	18.0	94.7	45.7
3	11.9	17.9	90.9	45.9	12.0	18.1	93.9	45.9
4	12.3	17.8	105.8	44.1	11.9	17.6	96.9	43.4
5	12.3	16.3	109.3	46.9	12.3	16.4	103.8	48.4
6	12.6	16.7	123.6	43.6	12.0	18.1	105.9	46.3
7	12.7	17.3	126.2	42.5	12.6	16.3	108.2	48.1
Average of skin	12.1	17.4	104.4	42.6	12.1	17.1	99.0	46.7

The thickness of down hairs, depending on the topographical part, varied from 11.5 to 12.7 microns for the white variety and from 11.8 to 12.6 microns for the black variety. At the same time, the thickness of cover hairs for both varieties fluctuated between 87.6 and 126.0 microns. However, the skins of the white variety in the samples 5-7 has slightly thicker cover hairs /see table 4/. The average thickness of hairs from the whole cover amounted to 104 microns for the white variety and 99 microns for the black one.

The length of down hairs for both colourful varieties ranged between 9.0 and 19.5 mm. Higher values were observed in the samples 4-7. Similarly, the samples from 4- to 7 had also longest cover hairs. The equalization of this feature was on the same level in both colourful varieties /table 5/.

Table 5. Length of hair cover, mm.

Samples	Skins							
	White				Black			
	Down hairs		Cover hairs		Down hairs		Cover hairs	
	\bar{x}	V%	\bar{x}	V%	\bar{x}	V%	\bar{x}	V%
1	9.0	15.5	21.0	10.9	10.0	14.7	24.2	18.5
2	12.1	15.0	24.2	8.7	13.3	18.5	26.1	8.4
3	9.2	12.2	24.1	17.1	10.6	14.1	21.2	20.6
4	15.0	16.7	37.3	16.2	16.5	21.8	34.6	13.8
5	18.0	15.6	35.1	15.7	17.5	13.1	33.6	18.9
6	19.1	14.7	46.7	19.1	19.5	13.3	40.2	9.2
7	14.2	12.1	46.3	17.1	17.5	14.9	38.5	11.9
Average of skin	13.5	14.8	33.5	12.4	15.1	15.8	30.4	13.3

The average length of the down hairs was higher in the black variety whereas the skins of the white variety had longer cover hairs. Nevertheless, the differences in the length of down and cover hairs between the two varieties are statistically non-significant.

The densities of down and cover hairs calculated per 1 cm² of skin of both varieties are presented in the table 6. There, it can be seen that in the samples from 1 to 4 the higher density of down hairs takes place. The calculated average density of down hair for the white covers is as high as 13 497 hairs while for the covers from the black variety - 11 896 hairs. The differences, however, is statistically non-significant. As for particular topographical parts, though, the diversity in hair density is not so high. In cover hairs, the observed

Table 6. Hair density per 1 cm² of skin area.

Samples	S k i n s											
	White						Black					
	Down hairs			Cover hairs			Down hairs			Cover hairs		
\bar{x}	s	V%	\bar{x}	s	V%	\bar{x}	s	V%	\bar{x}	s	V%	
1	24750	1987	8.02	294	65	21.97	20570	8806	42.80	283	88	31.25
2	18447	4214	22.84	259	53	20.47	16760	5451	32.51	258	77	29.90
3	14580	4664	31.22	227	48	21.33	14201	4238	29.84	223	72	32.53
4	11807	4991	42.27	190	54	28.74	9498	3534	37.21	190	70	37.07
5	8231	3705	45.01	242	73	30.04	7421	3654	49.24	192	62	32.47
6	9282	2727	29.37	261	60	23.36	8100	2698	33.30	251	77	30.93
7	7224	2337	35.05	186	52	27.81	6729	2511	37.37	185	68	36.84
Average of skin	13467	2132	15.91	237	31	13.08	11896	2703	22.72	226	47	20.92

difference between both varieties is small and the average number of cover hairs per 1 cm² amounts to 237 in the white variety and to 226 in the black variety. The higher equalization of the density of down and cover hairs, considering the whole skin, takes place in the white nutrias and accounts for: V = 15.91 and 13.08 per cent respectively.

Discussion.

The white, non-albinic nutrias are considered to be a dominant variety. Their hair colour results from a heterozygous composition /Hh/. The skins of white nutrias are precious as a raw material for the fur industry, especially from the point of view of refinement processes /Bettin 1973/. However, it can be said that the breeding of white nutrias requires higher expenditure of labour and the cages have to be kept very clean /Herman 1970/.

The black nutrias are classified to the recessive varieties. Their colour of hair is a result of homozygous composition - aa /Scheelje 1978/. The furs of black nutrias possess is general a hue of dark brown with the good structure of hair cover /Spletsteser 1979/. In the natural state they make a precious raw material for the fur industry.

The investigated covers of white nutrias had a little higher area and weight of raw skin as compared with the black nutrias.

At the same time, the weight of 1 dm² of the skin was the same for both varieties.

After dressing, the above mentioned traits showed similar values for both investigated varieties. With respect to the raw skin, the area and weight of the skins decreased which is believed to be typical in the routine dressing of the nutria skins /Ptak 1970/. Nevertheless, the weight of 1 dm² of skin increased which is an evidence of the higher furvalue of the skin /Woźniakiewicz 1953/.

The measurements of compactness of the hair cover showed an analogical order of values for the particular topographical parts of the skin. The skin from the black variety had lower values, especially in the samples 4-7, that is in the dorsal part. It testifies of a weaker hair cover of the black nutrias in this very part. It is expressed by the combined SGM value, averaging in the black nutrias 34.27 mm and in the white ones - 38.77 mm.

The thickness of the down hairs for both varieties was on the same level and in a good accordance with the data given by Kopański /1965/ and Woźniakiewicz /1953/. Somewhat lower values than those mentioned by both authors showed the data of cover hairs - of the thickness. When comparing the both investigated varieties it should be mentioned that in the black variety the lower values occur in the dorsal part.

The length of down and cover hairs is tightly connected with the topographical part of the skin. Longer hairs, especially cover hairs, occur in the white variety. It has been confirmed by the calculated average length of cover hairs, accounting for 33.5 mm in the white variety and 30.4 mm in the black one. As to the down hairs, the situation is reverse because the length of down hairs in all parts of the skin is higher in the black variety. The average equalization of the hair length for both types of hairs is similar for the two varieties /V = 12.4 and 13.3 respectively/.

The density of the hair cover is one of important traits influencing the value of the skin. The hair density shows great variations in particular topographical parts of the skin of the two colourful varieties. The ventral part has higher hair density than the dorsal part. Similar correlation between the hair density and the topographical part of the skin have been mentioned by Cerevitinov /1958/, Kaszowski and Kawińska /1960/ and Ptak /1972/. In the accessible literature there are no data about the hair density in nutrias belonging to the white and black varieties. When comparing the average hair density of both varieties with that of the standard variety, it can be said that the hair density in dorsal and ventral part lies within the limits given by Kopański /1965/ and Ocetkiewicz and others /1972/.

Summarizing, on the basis of obtained results, the following characteristic of quality of skins and hair covers of nutrias belonging to the white non-albinic and black varieties can be presented.

A. The White non-albinic variety.

The skins from nutrias killed at the age of 8 months have the area of 18.2 dm² and length of 71.6 cm. The weight of dried skin amounts to 192 g and the weight of 1 dm² - 10.7 g.

After dressing, the area of the skin decreases to 14.3 dm² and weight of the whole skin to 163 g, whereas the weight of 1 dm² rises to 11.4 g. The compactness of the hair cover, measured in 7 topographical parts, amounts to 38.77 mm. The thickness of down hairs in separate parts of the skin ranges between 11.5 and 12.7 microns, and in cover hairs from 87.6 to 126.2 microns, respectively. Simultaneously, the length of down hairs fluctuates between 9 and 19 mm, and in cover hairs between 21 and 46.3 mm. The density of down hairs in the ventral part of the skin varies between 11 800 and 24 750 hairs per 1 cm², while in the dorsal part the corresponding limiting values are 7 220 and 9 280 hairs per 1 cm² respectively. The average density of down hairs, taking the skin as a whole, accounts for 13 460 hairs per 1 cm² of the skin. For the cover hairs it is 237 hairs per 1 cm².

B. The Black variety.

The area of the raw skin from nutrias killed at the age of 8 months amounts to 16.7 dm² and its length - 68 cm. The weight of the dried

skin is as high as 179 g, the weight of 1 dm² - 10.8 g and the whole area - 13.2 dm². After dressing, the whole area of the skin is 13.2 dm², the whole weight - 153 g and the weight of 1 dm² - 11.6 g. The compactness of the hair cover amounts to 34.27 mm. The thickness of down hairs varies between 11.8 and 12.6 microns and in the case of cover hairs - between 88.9 and 108.2 microns. The length of down hairs fluctuates between 10 and 19.5 mm and in cover hairs - between 21.2 and 40.2 mm. The density of down hairs in the ventral part varies between 9 490 and 20 570 hairs per 1 cm² of the skin. In the dorsal part, on the other hand, the density ranges from 6 720 to 8 100 hairs per 1 cm² of the skin. Conclusively the average density of down hairs amounts to 11 890 per 1 cm² and as to cover hairs - 226 per 1 cm² of the skin.

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SCIENTIFUR code: 2-0.



CLINICAL OCULAR FINDINGS IN A COLONY OF CHINCHILLAS
(CHINCHILLA LANIGER).

Robert L. Peiffer, Philip T. Johnson, Dept. of Ophthalmology and Pathology, School of Medicine, University of North Carolina, Chapel Hill, North Carolina 27514, USA.

Examination of 14 aged chinchillas revealed a shallow orbit, a rudimentary nictitating membrane, a large cornea, a densely pigmented iris with a vertical slit pupil, and an anangiotic fundus with variable vascularization of the optic disc. Mean intraocular pressure was 18.5 - 5.75 standard deviation mmHg. Bilateral posterior cortical cataracts and asteroid hyalosis were observed in 2 animals.

SCIENTIFUR code: 2-0.

Laboratory Animals, 1980, 14, 331-335.

1 table, 7 figs., 21 references.

In English with summaries in English and German.

Authors' summary.

COMPARATIVE ANATOMICAL STUDIES ON THE MAMMALIAN LUNG.

Shoichi Nakakuki, Inst. of Anatomy, Faculty of Agriculture, Tokyo University of Agriculture and Technology, (Tokyo Nôkô Univ.) Fuchu, Tokyo, Japan.

The New Interpretation of the Bronchial Tree

Table 1. The comparison between the N. A. J. and the author's new interpretation of bronchial ramification of human lung

Sides	Left lung		Right lung	
	Nomina Anatomica Japonica	Author's new interpretation	Nomina Anatomica Japonica	Author's new interpretation
Upper lobe			B ¹ , B ² , B ³	D ₁ -1
Middle lobe	B ¹⁰ , B ² , B ⁴ , B ⁵ So-called upper lobe	L ₁	B ⁶ , B ⁷	L ₁
Accessory lobe	B ⁷	V ₁ , usually unrecognized	B ⁷	V ₁
	B ⁸	D ₂	B ⁸	D ₂
	B ⁹	L ₂	B ⁹	L ₂
	B ⁴	D ₃	B ⁴	D ₃
Lower lobe	B ⁹	L ₃	B ⁹	L ₃
	B ¹⁰ (dorsal branch)	D ₄	B ¹⁰ (dorsal branch)	D ₄
	B ¹⁰ (lateral branch)	L ₄	B ¹⁰ (lateral branch)	L ₄
	B ¹⁰ (medial branch)	The terminal portion of left bronchus (D ₅)	B ¹⁰ (medial branch)	The terminal portion of right bronchus (D ₅)

The various bronchial trees can be understood well by the new interpretation as follows:

- 1) The animals, which have the upper (D₁-1), middle (L₁) and lower lobes on both lungs are few, including the horse and tupai. But two examples out of 30 Guinea pigs had the same type, in which the left upper lobe bronchiole was small.
- 2) The right lung has the upper lobe bronchiole (D₁-1), while the left lung has no upper lobe bronchiole, but the well developed middle lobe bronchiole (L₁). This group includes the kangaroo, flying fox, lorris, crab-eating monkey, black mangabey, m.m. dog, cat, fox, mink, Japanese mink, rat, hamster, rabbit and guinea pig etc.
- 3) The upper lobes are entirely absent in both sides, while the middle lobe bronchiole (L₁) makes a well development. This group includes the capybara. Five cases out of 30 Guinea pigs had the same type.
- 4) The right lung has the upper lobe bronchiole (D₁-1). The left lung has no upper nor middle lobe bronchiole, having only the lower lobe bronchiole. The example is the mole.

Explanation of Figures

Figs. 1-51 are of ventral aspect.
 Figs. 52-54 and Figs. 56-59 are of dorsal aspect
 Fig. 55 is of lateral aspect.
 D: dorsal bronchiole system.
 L: lateral bronchiole system.
 V: ventral bronchiole system.
 M: medial bronchiole system.
 (D₁)I: upper lobe bronchiole I.
 II: upper lobe bronchiole II.
 III: upper lobe bronchiole III.
 L₁: middle lobe bronchiole.
 V₁: accessory lobe bronchiole.
 The remaining bronchioles constitute the lower lobe.

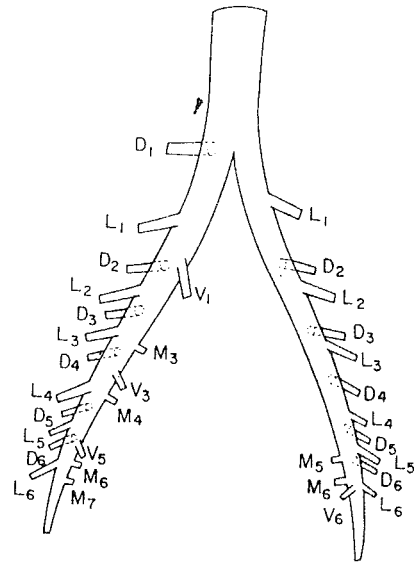


Fig. 36. Fox.

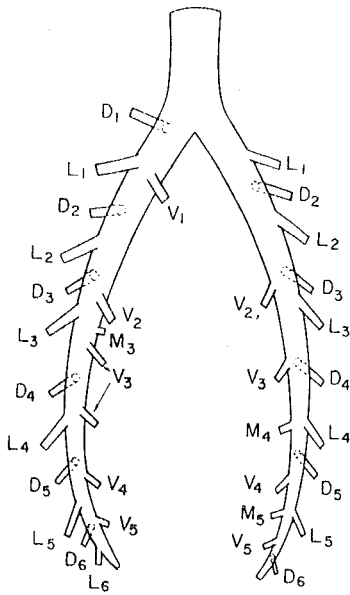


Fig. 35. Raccoon-dog

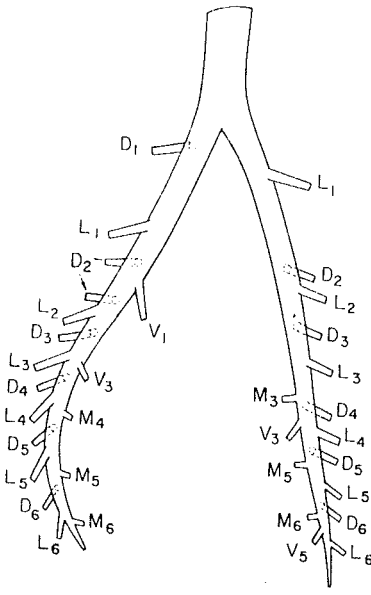


Fig. 39. Mink

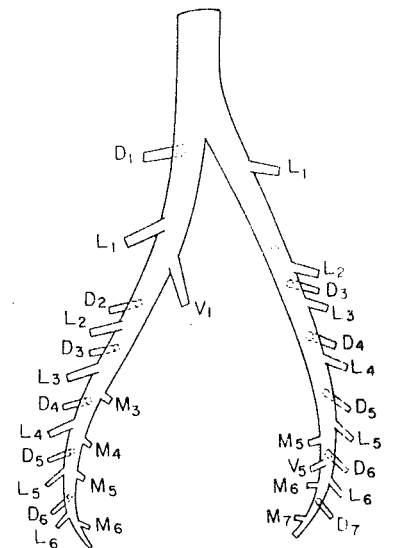


Fig. 38. Japanese mink

To help surgeons, anatomical terms have been allotted to each part of the segmental bronchus of the human lung. The author investigated their ramifications by injecting cellulose acetate solution into the bronchial trees of 766 sets of lungs from 26 species of mammals. This painstaking work appears to have been well done and, to ana-

tomists and zoologists, the paper will be valuable. The poor English makes for difficult reading and some amusing mistakes but, in this type of paper, the line drawings - which are plentiful and good - matter more than the text.

SCIENTIFUR code: 2-M-F-0.

Bull. of the Faculty of Agric., Tokyo Univ. of Agric. and Techn.
No. 21, 74 pp, 1980.

Degree thesis of the Kyoto University, Dept. of Science, Inst. of Zool.
21 references. CAB-abstract.

STUDIES ON THE ANATOMY OF LUNG IN DOMESTICATED MINK.

(Studiul anatomic al pulmonului la nurca de crescatorie).

C. Lisovschi-Cheleseanu, M. Miclea, Cornelia Duca, Inst. Agronomic,
Cluj-Napoca, Romania.

Lung topography, shape and conformation from 40 minks (*Mustela vison*) reared in Gilau-Cluj mink farm were studied.

The lungs were conical with two lobes for the left lung (one apical and onediafragmatic) and four lobes for the right lung (apical cardiac, diafragmatic and intermediate ones). The lobes were completely separated and they belonged to the main bronchi and to the main corresponding vessels and nerves.

The pulmonary vessels and nerves were very much like those known in dogs.

The domesticated mink has a multilobular lung with completely separated lobes, each of them having specific shapes and sizes.

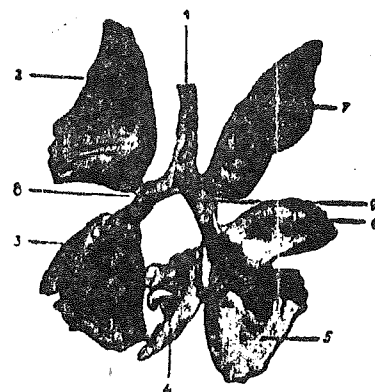
SCIENTIFUR code: 2-M.

Veterinarybulletin Vol. 51, no. 4583.

1 table, 5 figs., 5 references.

In Romanian with English summary.

Authors' summary.



**ADRENOCORTICAL STRUCTURE OF THE DOMESTICATED SILVER FOX
VULPES FULVUS DURING POSTNATAL ONTOGENESIS.**

N.D. Lutsenko, L.N. Trut, L.N. Ivanova, Inst. of Cytology and Genetics
Acad. of Sci. in USSR, Siberian Branch, Novosibirsk, USSR.

The adrenal cortex was studied in relatively wild and domesticated male and female silver foxes (*Vulpes fulvus*) at different stages of development (1-7 days; 1, 2, and 8 months). It was shown that domestication is accompanied by profound morphological changes in the adrenal cortex, indicative of decreased fascicular and increased reticular zone activity. The differences observed during the first days of postnatal life became more pronounced during later developmental stages.

SCIENTIFUR code: 2-5-F.

Journ. of Evolutionary Biochemistry and Physiology, Vol.- 16 (5)
353-358.

2 tables, 2 figs., 7 references.

In English.

Authors' abstract.

**SECRETION AND SECRETORY TISSUES OF THE ANAL SAC
OF THE MINK, MUSTELA VISON.**

V.E. Sokolov, E.S. Albone, P.F. Flood, P.F. Heap, M.Z. Kagan,
V.S. Vasilieva, V.V. Roznov, E.P. Zinkevich, Lab. of Morphology
and Ecology of Higher Vertebrates, Inst. of Evolutionary Anim.
Morphology and Ecology, USSR Academy of Sciences, Moscow,
USSR.

The sulfur-rich anal sac secretion of the mink, *Mustela vison*, consisted of immiscible lipid (1.7% sulfur) and aqueous (0.7% sulfur) phases. Light and electron microscopy revealed secretory tissue of two types, sebaceous (holocrine) and apocrine. A major input of sulfur into the sac appeared to be associated with glycoprotein granules present in the apical portions of the apocrine cells as X-ray energy probe microanalysis showed these to contain relatively high levels of sulfur. The lipid of the secretion, presumed to be largely of se-

baceous origin, consisted mainly of wax monoesters, while the aqueous phase contained volatile fatty acids, ammonia, and amines, including putrescine (1,4-diaminobutane). The identity of the major headspace volatiles was confirmed by NMR, MS, and Raney nickel desulfuration as being 2,2-dimethylthiacyclobutane and 3,3-dimethyl-1,2-dithiacyclopentane. These compounds were not detected by GC-MS in the headspace volatiles of the anal sac secretions of eight other mustelid species examined. Other sulfur compounds detected included isomeric dimethylthiacyclobutanes, a number of disulfides and 3-methyl- but 3-enyl methyl sulfide (isopentenyl methyl sulfide). The significance of these findings is discussed.

SCIENTIFUR code: 2-3-M.

Journ. of Chemical Ecology, Vol.6, NO.4, 1980.

3 tables, 3 figs., 28 references.

Authors' abstract.

**MORPHOFUNCTIONAL CHARACTERISTICS OF THE HYPOTHALAMO-
HYPOPHYSIAL NEUROSECRETORY AND GONAL SYSTEMS IN
THE AUTUMN AND SPRING IN MINK (*LUTREOLA VISON* SCHREB.).**

**МОРФОФУНКЦИОНАЛЬНАЯ ХАРАКТЕРИСТИКА
ГИПОТАЛАМО-ГИПОФИЗАРНОЙ НЕЙРОСЕКРЕТОРНОЙ
И ПОЛОВОЙ СИСТЕМ В ОСЕННИЙ И ВЕСЕННИЙ ПЕРИОДЫ
У НОРОК (*LUTREOLA VISON* SCHREB.)**

M.N. Yurisova, D.V. Klotchkov, Z.N. Yurlova, N.V. Akimova,

A cytomorphological analysis of the peptidergic Gonoripositive hypothalamo-hypophysial neurosecretory system (HHNS) of male minks was carried out. A marked seasonal differences in function of HHNS was found. The activity of HHNS was reduced in autumn and increased in spring. The most manifested differences were observed in the supraoptic nuclei and in median eminence. The seasonal increase and reduction of HHNS function corresponded with periods of maximal (spring) and minimal (autumn) sexual activity.

SCIENTIFUR code: 2-3-M.

Izvestiia Sibirskogo Otdeleniia Akademii Nauk SSSR, Novosibirsk. No.5, Apr. 1980, 77-84.

4 figs., 14 ref. In Russian, Eng. abstract. Authors' abstract.

PROPORTIONS OF BODY STRUCTURE IN POLAR FOX IN
FARM SPLAWIE NEAR POZNANAŃ.

(Proporcje budowy ciała lisów polarnych w
populacji Fermy Splawie).

Jerzy Gedymin, Ryszard Cholewa, Acad. of Agric., Inst. of Animal
Breeding and Production Technology, ul. Wolyńska 33, 60-637
Poznań 31, Poland.

In the polar fox farm Splawie, in 75 males and 150 females 1-year
old the following measurements were taken: 1) length of head, 2)
width of head and cheeks, 3) circumference of head, 4) breast girth,
5) length of trunk, 6) total length. Measurements were taken at
the beginning of January. The indices of head length and of compact-
ness were calculated. The foxes of the investigated population had
very compact structure, the index for males being 73.5% and for fe-
males 71,5%. Mean live weight was higher than typical one in polar
fox in Poland.

Sexual dimorphism was observed in larger dimensions by 3 to 13% and
higher live weight by 24.6% in males. The proportions of the body
did not much differ, both indices were higher in males by 2-3%.
The comparison of the coefficients of correlation among traits indica-
ted that the females were more uniform in body shape than males.

SCIENTIFUR code: 2-4-F.

Poznańskie Towarzystwo Przyjaciół Nauk Wydział Nauk Rolniczych
i Leśnych Prace Komisji Nauk rolniczych i Komisji Nauk Leśnych,
TOM XLV - 1978, 67-71.

2 tables, 7 references.

In Polish with subtitles and summary in English.

Authors' summary.



GENETICS AND PHENOGENETICS OF HORMONAL CHARACTERISTICS
IN ANIMALS.

VII. RELATIONSHIPS BETWEEN BRAIN SEROTONIN AND HYPOPHALAMO-
PITUITARY-ADRENAL AXIS IN EMOTIONAL STRESS IN DOMESTICATED
AND NON-DOMESTICATED SILVER FOXES.

ГЕНЕТИКА И ФЕНОГЕНЕТИКА ГОРМОНАЛЬНЫХ
ХАРАКТЕРИСТИК ЖИВОТНЫХ
СООБЩЕНИЕ VII. КОРРЕЛЯТИВНАЯ ВЗАИМОСВЯЗЬ МЕЖДУ СЕРОТОНИННОМ
МОЗГА И ГИПОТАЛАМО-ГИПОФИЗАРНО-НАДПОЧЕЧНИКОВОЙ СИСТЕМОЙ
В УСЛОВИЯХ ЭМОЦИОНАЛЬНОГО СТРЕССА У ДОМЕСТИЦИРУЕМЫХ
И НЕДОМЕСТИЦИРУЕМЫХ СЕРЕБРИСТО-ЧЕРНЫХ ЛИСИЦ

Н. К. ПОЦОВА, Н. Н. ВОИТЕНКО, С. И. ПАВЛОВА, Л. Н. ТРУТ,
Е. В. НАУМЕНКО, Д. К. БЕЛЯЕВ

N.K. Popova, N.N. Voitenko, S.I. Pavlova, L.N. Trut, E.V. Naumenko,
D.K. Belyaev, Inst. of Cytology and Genetics, Academy of Sciences
of the USSR, Siberian Division, Novosibirsk, USSR.

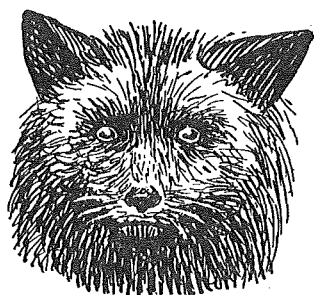
Two groups of silver foxes, selected according their behaviour with respect to man and non-selected ones, were exposed to restriction-induced stress. It was found that changes in the level of brain serotonin and its main metabolite, 5-hydroxyindolacetic acid, and elevation of plasma corticosteroids concentration in domesticated (tame) silver foxes were much less pronounced than in non-domesticated (non-tame) animals. Positive relationship between type of behaviour, brain serotonin metabolism and pituitary-adrenal axis response to stress was observed. It is suggested that such correlative pattern as changed pituitary-adrenal axis responses in domesticated animals may be due to changes in metabolism of controlling this axis brain transmitter serotonin.

SCIENTIFUR code: 3-4-11-F.

Genetika, XVI, 10, 1980, 1857-1864.

4 tables, 16 references.

In Russian with English summary.



Authors' summary.

**STUDIES ON GENETIC POLYMORPHISM OF PLASMA PROTEINS
IN DOMESTIC ANIMALS.**

R. Kumar Juneja, Dept. of Anim. Breeding and Genetics, Fac. of Agric.
Swedish Univ. of Agric. Sciences, Uppsala, Sweden.

This thesis, comprising thirteen studies, describes some new plasma protein polymorphisms in eight species of domestic animals studied. The plasma or serum samples were analyzed by horizontal polyacrylamide gel electrophoresis and by two-dimensional agarose-polyacrylamide gel electrophoresis. These methods were developed for large scale analysis of plasma samples. The details of these methods were given in two of the studies.

Genetic polymorphism of α^1 -protease inhibitors was described in horse, sheep, cattle, mink and dog. The polymorphic pre-albumin (Pa) of pig (as described in the literature) was identified as an α^1 -protease inhibitor. Evidence was provided for the existence of two closely linked α^1 -protease inhibitors in horse.

Genetic polymorphism of vitamin D binding protein was described in horse and in chicken. The polymorphic post-albumin (Pa) of cattle, (as described in the literature) was identified as vitamin D binding protein.

Close genetic linkage was demonstrated between horse plasma albumin and Gc (vitamin D binding protein). As close linkage between human plasma albumin and Gc had also been reported earlier (described in literature), the chromosome segment in question had been conserved during evolution.

Genetic polymorphism was also described for some as yet unidentified plasma proteins namely cattle post-transferrin-2 (Ptf-2), horse post-albumin (Pa), sheep post-transferrin (Ptb), rabbit post albumin (Pa), dog post-albumin (Pa), and chicken pre-transferrin (Prt).

SCIENTIFUR code: 3-4-M-0.

Thesis. 1981. ISBN 91-576-0883-0.

GENETIC POLYMORPHISM OF AN α^1 -PROTEASE INHIBITOR
IN MINK PLASMA.

R. Kumar Juneja, Lars G. Lundin, Bo Gahne, Dept. of Animal Breeding and Genetics, Swedish University of Agricultural Sciences, Uppsala, Sweden.

Two-dimensional electrophoretic analysis of mink (*Mustela vison* Schreber) plasma proteins was done by a first-dimension separation in agarose gel (pH 8.6), followed by a second dimension in horizontal polyacrylamide gel (pH 9.0). Two α^1 -globulins, designated Pi-1 and Pi-2, and another protein, designated Pi-3 were found to inhibit the esterolytic activity of bovine trypsin and bovine chymotrypsin. The Pi-1 segregation analysis in limited family data supported the hypothesis that the three Pi-1 types observed were controlled by two codominant, autosomal alleles. Each of the Pi-1 homozygote types showed one strong, broad fraction while the Pi-1 heterozygote type had two fractions. The electrophoretic mobility and patterns of Pi-1 indicated that this protein was most probably identical to the polymorphic post albumin (Pa) in mink plasma, reported by Saison in 1968.

SCIENTIFUR code: 3-4-M.

Hereditas, 94, 249-252, 1981.

3 figs., 9 references.

Authors' summary.

EFFECT OF LIGHT REGIMES ON ONTOGENESIS OF ENDOCRINE FUNCTION
OF GONADS AND ADRENALS IN FEMALE SILVER FOXES (*VULPES VULPES*)
OF TWO GENETICALLY DETERMINED BEHAVIORAL TYPES.

N.S. Logvinenko, P.M. Krass, L.N. Trut, L.N. Ivanova, D.K. Belyaev,
Lab. of Physiological Genetics, Inst. of Cytology and Genetics,
Siberian Div., Academy of Sciences of the USSR, Novosibirsk.

Additional illumination of animals unselected for domesticated behavioral traits led to an earlier increase in the estradiol level of the blood and higher production of this hormone by the gonads during puberty. For animals selected for domesticated behavioral traits subjection to artificial light regimes had no significant effect on the estradiol-producing activity of the ovaries. Additional illumination

of females of this behavioral type, however, led to enhancement of the progesterone-producing function of the adrenals during sexual maturation. Thus, selection of silver foxes for domesticated behavior leads to a change in the sensitivity of the hormonal function of the ovaries and adrenals to the environmental photoperiodic factor.

SCIENTIFUR code: 3-4-5-10-B-F.

Zhurnal Evolyutsionnoi Biokhimii i Fiziologii, 16 (2), 143-147.
1980.

1 table, 10 references.

In English.

Authors' abstract.

INFLUENCE OF DRY CLEANING ON THE COLOUR OF FUR IN MINK.

(Wplyw czyszczenia chemicznego na barwe futra norek).

Irena Narucka, Danuta Lukomska, Z. Zakladu Genetyki i Podstaw Hodowli Zsifzaf Instytutu Hodowli i Technologii Produkcji Zwuerzecej, Poland.

The photolorimeter Momcolor was used when investigating the influence of dry cleaning of fur on the colour of Royal Pastel mink fur. The authors found a significant increase in lightness index and a decrease in the indices of hue and saturation. As higher lightness index causes a better perception of the colour, dry cleaning of fur before evaluation is advisable in the case of mink of light variety.

SCIENTIFUR code: 12-M.

Zootechnika (Poland), Vol. 180, no.1, 1980.

3 tables, 2 references.

In Polish with subtitles in English and summaries in English and Russian.

Authors' summary.

THE NUTRIA (MYOCASTOR COYPUS).

(Nutria eller sumpbaever (Myocastor coypus)).

Liisa Täng, Finnish Fur Breeders Association, Box 5, SF 01601 Vanda 60,
Finland.

Although attempts to farm nutria in Finland in the 1930's and 1940's were not very successful, the interest in these animals has been renewed recently. Details are given of reproductive performance, feeding, management, pelt characters, colour and meat quality, and economic aspects are considered.



SCIENTIFUR code: 14-0.

Finsk Pälstidskrift, 15,3, 131-134, 1981.

4 photos.

In Swedish.

CAB-abstract.

**INSTINCTIVE PREDATORY BEHAVIOUR OF MUSTELIDS
(MUSTELA PUTORIUS F. FURO, MUSTELA VISON F. DOM.)
MODIFIED BY BENZODIAZEPINE DERIVATIVES.**

Raimund Apfelbach, Inst. for Biologie III, Universität Tübingen,
74 Tübingen, Fed.Rep.Germany.

The predatory behaviour of the ferret and of the mink consists mainly of instinctive behavioral patterns that are elicited by simple external stimuli. An important stimulus is size of the prey: the time needed to catch and kill defensive prey depends on the size of the prey in relation to that of the predator. Benzodiazepine derivatives like chlordiazepoxide or lorazepam affect the prey catching of both species significantly. Drugged animals (2 mg/kg orally) need less time to overpower their prey. The experiments indicate that low concentrations of benzpodiazepine derivatives disinhibit mustelids when hunting relatively large prey.

SCIENTIFUR code: 11-M-0.

Pharmac. Biochem, Behav., 14, suppl. 1, 43-46. 1981.

2 tables, 1 figs., 16 references.

Author's summary.

**FOOD COMPOSITION OF THE RACCOON DOG
NYCTEREUTES PROCYONOIDES GRAY, 1834 IN FINLAND.**

P. Viro, H. Mikkola, Dept. of Zoology, Univeristy of Oulu, SF-90100
Oulu 10, Finland.

Studied the diet of the raccoon dog *Nyctereutes procyonoides* Gray, 1834 in central and south-eastern part of Finland in 1957-1978.

The composition of the diet, based on macroscopic examination of 45 stomachs, is presented both in frequencies of occurrence and in absolute numbers of different food items. The food mainly consisted of small mammals (in 64.3% of the stomachs), plants (60,7%) and amphibians (50.0%) during the snowless period of the year. In winter carcasses (92.9%), small mammals (50.0%) and plants (42.9%) were the most important.

In finland, the north-western corner of its present distribution area, the raccoon dog has adapted considerably to living on slaughtering wastes and carcasses especially during the winter. Competition for food between the raccoon dog and the badger (*Meles meles*) is eased by the omnivorous character of both species and by dietary differences.

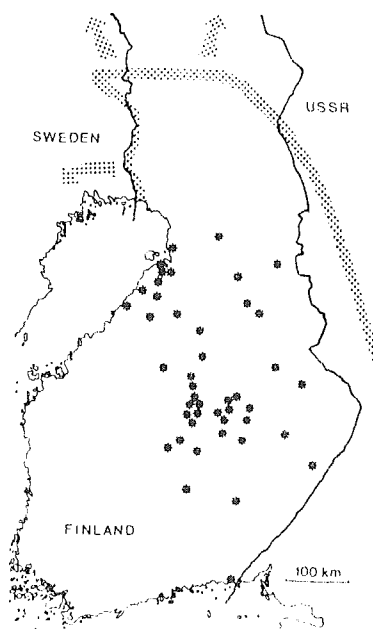


Fig. 1. Distribution of the raccoon dog in Finland since 1875 and trapping sites of the specimens studied.

SCIENTIFUR code: 1-6-0.

Zeitschrift f. Säugetierkunde, 46 (1981) 1, 20-26.

2 tables, 1 fig., 24 references.

In English with abstracts in English and German.

Authors' abstract.

FORAGING COST AND MEAL PATTERNS IN FERRETS.

Lynn W. Kaufman, Dept. of Medical Neurosciences, Walter Reed Army Inst. of Research, Walter Reed Army Medical Center, Washington, DC 20012, USA.

The response of ferrets to changes in the cost of obtaining food was studied by systematically increasing the number of responses necessary to gain access to a feeder. The results obtained were consistent with an ecological analysis of feeding. As cost increased, meal frequency declined and meal size increased. These changes in feeding allowed the ferret to obtain sufficient food intake to maintain growth, while conserving total time and energy spent procuring food.

SCIENTIFUR code: 1-0.

Physiology & Behavior, Vol. 25, 139-141.

2 figs., 20 references.

Author's abstract.

OPTIMAL FORAGING IN AN AMPHIBIOUS MAMMAL.

I. THE AQUALUNG EFFECT.

Nigel Dunstone, Raymond J. O'Connor, Dept. of Extra-Mural Studies and Dept. of Zoology, University of Durham, Durham.

The marginal value theorem of Charnov is extended to a simple model covering the case of mammalian carnivores hunting underwater, in which situation their total search time and pursuit effort is constrained by the limited oxygen capacity of their lungs. In the mink *Mustela vison*

hunting rudd in an experimental tank the duration of dives, of giving-up times, and of the pursuit phase of underwater hunts, as well as the frequency of dives, were consistent with the usual marginal value predictions. Giving-up times were also essentially constant within bouts, as expected. An interaction between foraging economics and oxygen reserves derived from the extended model was confirmed experimentally.

SCIENTIFUR code: 1-M.

Anim. Behav. 1979, 27, 1182-1194.

5 tables, 6 figs., 32 references.

Authors' abstract.

THE WEASEL *MUSTELA NIVALIS* AND ITS PREY IN AN ENGLISH WOODLAND.

Carolyn M. King, 3 Waerenga Rd., Eastbourne, New Zealand.

(1) In a 27 ha deciduous woodland at Wytham, near Oxford, 344 samples (scats) were collected from live-trapped weasels, principally from September 1968 to March 1970. The home ranges and fleas of these weasels were described previously (King 1975, 1976).

(2) In 215 samples containing wild-caught prey, 245 vertebrate items were identified: fifty-one birds or eggs; one rabbit; one mole; and 192 small rodents (including eighty-nine bank voles (*Clethrionomys glareolus*), forty field voles (*Microtus agrestis*), and thirty-four wood mice (*Apodemus sylvaticus*). The ages of the prey, and the species of the birds eaten, were unknown.

(3) The most marked feature of the seasonal variation in the prey taken was the large number of eggs eaten in spring.

(4) The differences in diet between six individual male weasels reflected differences in the habitats of their home ranges.

(5) The density of bank voles and wood mice together varied from twenty-one to thirty-nine individuals per ha from September 1968 to October 1969. During this time the weasels were estimated to have

eaten an average of 8–10% per month of the total populations of each species. Lagomorphs were rare in the wood; insectivores were common but almost never eaten,

(6) Seasonal and local variations in the survival of wood mice bore no relationship to the distribution of resident weasels.

(7) Predation by weasels usually accounted for only a small proportion of the wood mice and bank voles disappearing from the study area.

(8) Weasels ate bank voles and wood mice in approximate proportion to their availability. Relatively more bank voles were taken in winter, when more weasels were present, because of differences between bank voles and wood mice in their preference for cover, and reactions to being hunted. The difference might have been biologically significant, although statistically insignificant.

(9) The ecological efficiency of the rodent-weasels food chain averaged 0.6%.

(10) The size of the territory occupied by weasels seems to be related to the density of prey rather than to, e.g., the hunting skill of the owner.

(11) Predation by weasels appeared to have no observable effect on the density or survival of small rodents in Marley Wood, but its effect on tits (*Paridae*) nesting in boxes is greater, for reasons discussed.

(12) Weasels and tawny owls, the two principal resident predators in Marley Wood, are complementary in their hunting strategies, prey selection, and life-history tactics, but their common food resource is not renewed rapidly enough for them to avoid exploitation competition altogether. Weasels are more active by day than by night in Marley Wood, possibly because they are vulnerable to predation by owls.

SCIENTIFUR code: 1-0.

Journ. of Anim. Ecology, 1980, 49, 127–159.

7 tables, 6 figs., 80 references.

Author's summary.

THE DECLINE OF THE OTTER *LUTRA LUTRA* L. IN BRITAIN:
AN ANALYSIS OF HUNTING RECORDS AND DISCUSSION OF CAUSES.

P.R.F. Chanin, D.J. Jefferies, Dept. of Extra Mural Studies, University of Exeter, Gandy Street, Exeter, England.

The records of one pack of Otter Hounds hunting in southwest England are examined for the period 1907 to 1971 as well as the records of all packs active in Britain between 1950 and 1976. The hunting success per unit effort varies from year to year depending on changes in hunting conditions but longer term changes can also be identified. The hunting success of the Culmstock Otter Hounds (hunting in parts of south-west England) increased steadily from 1907 to 1956 but in most of England and south Wales the success rate of the hunts declined rapidly after 1957. There was also a decline in success in northern England and southern Scotland but to a lesser extent, while in north Wales and Eire, there is no evidence for a decline.

These changes are considered to reflect changes in otter populations but the extent of the decline in hunting success (to between 37% and 55% of previous levels in the southern hunts) is probably less than the actual decline in otter numbers. There are no signs of a recovery in the population but indications of a continuing decline up to 1976.

The reason for the increasing population in the first half of the century in south-west England is probably the decrease in persecution since the nineteenth century. A variety of causes for the crash in the late 1950s are considered and the factor most likely to be responsible is the introduction of the dieldring group of insecticides in 1956. Use of these compounds has been increasingly restricted since 1963 and the possible reasons for the failure of the otter population to recover are listed but no firm conclusions can be drawn as yet.

SCIENTIFUR code: 1-6-0.

Biological Journ. of Linnean Society, 10, 305-328. Sept. 1978.

4 tables, 8 figs., 53 references.

Authors' summary.

THE DIET OF THE OTTER AND ITS RELATIONS WITH
THE FERAL MINK IN TWO AREAS OF SOUTHWEST ENGLAND.

Paul Chanin, Dept. Extra Mural Studies, Univ. of Exeter, 5 Walsingham
Place, Truro, Cornwall, England.

The results of analysing otter spraints from an eutrophic lake and an oligotrophic stream are described and compared with the results of a study of the mink's diet in the same areas. Differences between the otter's diets in the two areas are explained in terms of availability, and seasonal variation can be linked with changes in fish activity and behaviour. The mink takes a smaller proportion of fish in its diet than the otter, but there is considerable overlap and the mink takes most species of fish eaten by the otter. On the lake, some differences in fish and bird predation can be detected and these may be connected with differences in the hunting behaviour of the predators. Food is abundant in this area and competition for it unlikely. On the river, the pattern of predation of fish by the two species is almost identical, the biomass of fish is low and waterside birds absent, conditions which could lead to competition.

SCIENTIFUR code: 1-6-0.

Acta Theriologica, Vol. 26, 5, 83-95, 1981.

2 tables, 3 figs., 19 references.

In English with summaries in English and Polish.

Author's summary.



MORPHOLOGICAL PROPERTIES OF MINK'S BRAIN.

D. Drekić, O. Jablan-Pantić, Z. Miladinović, Inst. of Morphology and Physiology, Faculty of Vet. Med., Belgrade, Yugoslavia.

The cerebrum of the mink is almost triangular in shape. The frontal pole of the hemispheres is narrow, compressed bilaterally, while the occipital pole is blunt. Deep sulci cruciati which are longer and deeper than in dogs is characteristic of the dorsal side of the cerebrum. On the lateral side, sulcus rhinalis has a lateral position and its caudal part together with sulcus sylvii comprises an angle of 45°. Marginal sulci and gyri are not differentiated in the mink, which represents a difference in the appearance of mink brain when compared to the dog. The ventral side is characterized by well developed olfactory bulbs and tracts and piriform lobe. The lobus piriformis is elongated, its oral part is broader than the aboral, and its medial border is concave. The pyramids are convex prominent, rounded and bundled. The shape, size and relationship of the cerebellum is similar to that in the dog. Lobus paramedianus and ansiformis are well developed, while the parafloccular ventral limb is more developed than in the dog. Mediosagittal and transversal sections clearly show, in addition to the ventricles, parts of the basal nuclei, especially corpus striatum, as well as a well developed thalamus and hypothalamus.

SCIENTIFUR code: 2-M.

Folia Morphologica, Vol. XXIX, 1981, No.2. 128-130.

7 references.

In English.

Authors' abstract.





DESTABILIZING SELECTION AS A FACTOR IN DOMESTICATION.

D.K. Belyaev, Inst. of Cytology and Genetics of the USSR, Academy of Sciences, Siberian Branch, Novosibirsk 90,m USSR.

It is rightly believed that the domestication of animals, whose history does not count more than 15 thousand years, is one of the greatest biological experiments. The main result of domestication has been an enormous increase in the rate and range of variability of the domesticated species. Domestic animals differ from their wild ancestors, and from each other, much more than do some species and even genera. The history of evolution does not reveal any similar variability developing within such a short period of time. These observations have made some scientists doubt the applicability of the laws of Darwinian evolution to the process of domestication.

Different species of domestic animals, although belonging to remote systematic groups (not only genera or families, but even orders), nevertheless exhibit a homologous variability with respect to many phenotypic features. N.I. Vavilov, who was the first to formulate the principle of homologous variability, attributed a great general biological significance to it. Under the conditions of domestication, this principle manifests itself with a special clarity. In particular, all domestic animals have lost their strict seasonal patterns of reproduction and moulting and tend to reproduce at any time of the year. This phenomenon is difficult to explain, because the heritability of the traits characteristic of the seasonal rhythm of activity of wild animals is practically zero. Under domestication, fertility has greatly increased, and many new morphological and physiological characters have appeared, which are similar (homologous) in different systematic groups and some of which have a dominant mode of inheritance.

Examples from foxes:

Table I. Analysis of crosses between the animals with extra-seasonal (October–November) sexual activity

Type of cross	Total no. daughters	Percentage of daughters with extra-seasonal sexual activity	Percentage of daughters without extra-seasonal sexual activity
♀♀ × ♂♂	53	32	68
♀♀ × ♂♂	34	28	72
♀♀ × ♂♂	13	15	85
♀♀ × ♂♂	35	9	91

♀♀ - females with extra-seasonal activity
 ♀♀ - females without extra-seasonal activity
 ♂♂ - males whose mothers had extra-seasonal activity
 ♂♂ - males whose mothers had no extra-seasonal activity

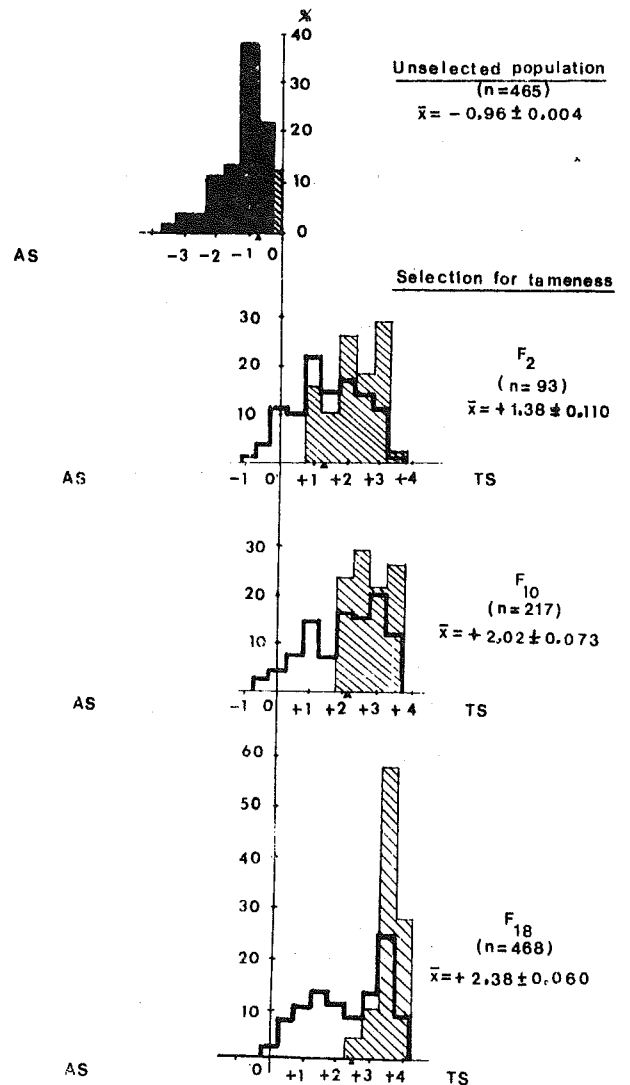


FIGURE 1-- The distribution of foxes of different generations of selection for tameability according to scores achieved on behavior tests. The top histogram shows the distribution of the nonselected population. The hatched area signifies the initial population used for selection. In the following histograms the distribution of the F₂, F₁₀, and F₁₈ generations is outlined by a solid line. The hatched area signifies the distribution of only that part of the generation that was used for further selection for tameability. The arrow shows the mean point of behavior either of the whole control population (top histograms) or of the whole progeny of the F₂, F₁₀, F₁₈ generations. (AS = aggressive score; TS = tameability score.)

More examples from the domestication of foxes are given in two tables and 7 figures.

SCIENTIFUR code: 4-M-F.

Journ. of Heredity, 70, 301–308, 1979.

19 references.

Abstract: K. Christensen.

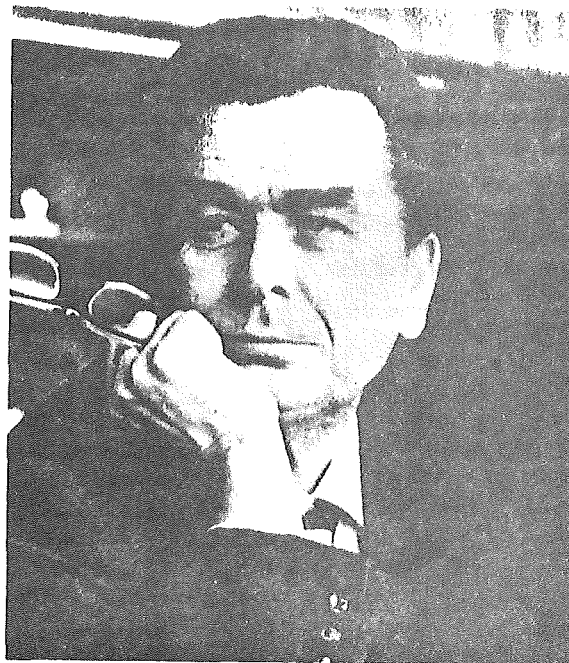
DMITRY K. BELYAEV was born in 1917 into the family of a clergyman in the village of Protasovo in the Kostroma region of the USSR, 350 km north of Moscow. He spent his early childhood in Protasovo, then went to Moscow where he completed his secondary school education. In 1939 he graduated from the zootechnical faculty of the Ivanovo Agricultural Institute and started his work in the Department of Genetics and Selection of the Laboratory of Fur-Bearing Animal Breeding in Moscow. His training in genetics and in the theory of selection was guided by Professors A.I. Panin and B.N. Vasin.

Dr. Belyaev served in the Second World War during the years 1941–1945, first as a soldier and then as an officer of the Soviet Army. At the end of 1945 he returned to his work in the Laboratory and in 1946 he was awarded the Ph.D. degree.

In 1958 Dr. Belyaev moved from Moscow to Novosibirsk, when the Siberian Branch of the USSR Academy of Sciences was organized. In 1958–1959 he was the Head of the Department of Animal Genetics at the Institute of Cytology and Genetics, and in 1960 became the Director of this institute, the position he presently holds. In 1964 he was elected a corresponding member and in 1972 a permanent member of the USSR Academy of Sciences. In 1975 he became a Vice President of the Siberian Branch of the USSR Academy of Sciences. Since 1968, he has been the Chairman of the Scientific Council on the Problems of Genetics and Breeding of the USSR Academy of Sciences.

Dr. Belyaev's work has been mainly in genetics and in the theory and practice of animal breeding. Some of his research also has focused on the role of photoperiodism in the regulation of the functions of mammals, including moulting and fur formation, embryonic diapause, and embryonic mortality.

He is married and has three sons.



He served as Secretary General of the XIV International Congress of Genetics held in Moscow in 1978, and is currently President of the International Genetics Federation.

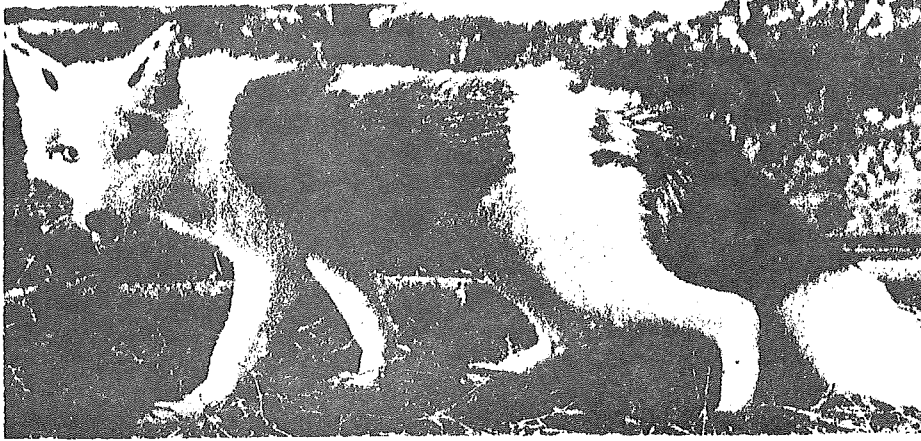
The Journal of Heredity 70:301–308. 1979.

INHERITED ACTIVATION–INACTIVATION OF THE STAR GENE IN FOXES.

D.K. Belyaev, A.O. Ruvinsky, L.N. Trut, Inst. of Cytology and Genetics of the Siberian Dept. of the Academy of Sciences USSR, Novosibirsk 90, USSR.

A frequency of more than 10^{-2} of the de novo arisal of piebald spotting (star) was established in silver-black foxes selected for domestic behaviour. The star phenotype is determined by the autosomal semi-dominant gene S. Ten genealogical groups of foxes, in which star arose independently, were analyzed. Of these, the star character is determined by S alleles in at least seven groups. The S gene is located in a linkage group other than the earlier described W (Georgian white) locus. The star gene is incompletely penetrant, but its penetrance is significantly higher in offspring from tame mothers than from aggressive ones, or when S is received from a heterozygous vixen (Ss). There was a notable shortage of homozygous (SS) offspring from Ss X Ss crosses, which cannot be adequately explained

by selective embryonic mortality, differential zygotic and gametic death, or transgression of homozygous and heterozygous phenotypes. Some foxes, proven carriers of a homozygous (SS) genotype, showed the phenotype and mode of inheritance characteristic of heterozygotes (Ss). Presumably, the mechanism responsible for these observations is a heritable functional activation-inactivation of the star gene. Some implications of this concept in terms of destabilizing selection are discussed.



SCIENTIFUR code: 4-F.

Journ. of Heredity, 72, 267-274, 1981.

6 figs., 9 tables, 15 references.

In English.

Authors' abstract.

**G- AND C-BANDING PATTERNS OF THE CHROMOSOMES AND
THE DNA CONTENT IN MARTES ZIBELLINA.
G- И C-ОКРАСКА ХРОМОСОМ
И КОЛИЧЕСТВО ДНК У СОБОЛЯ**

A.S. Grafodatskij, Ju. G. Ternovskaja, D.V. Ternovskij, S.I. Radzhabli,
Inst. of Cytology and Genetics, Dept. of the Academy of Sciences
USSR, 630090, Novosibirsk 90, USSR.

The chromosomes of sable, *Martes Zibellina*, were studied by G- and C-banding analysis and compared with the chromosomes of previously investigated species of Mustelidae. A relatively low amount of heterochromatin in the sable karyotype correlates with the lowest nuclear DNA content in all so far studied representatives of Mustelidae.

SCIENTIFUR code:4-3-0.

Cytology and Genetics, USSR, no.6, 483-486.

2 figs., 6 references.

In Russian with summary in English.

Authors' summary.

COMPARATIVE CYTOGENETICS OF THREE CANIDS SPECIES
(CARNIVORA, CANIDAE).

I. CHROMOSOMAL REARRANGEMENTS IN KARYOTYPE EVOLUTION.

СРАВНИТЕЛЬНАЯ ЦИТОГЕНЕТИКА ТРЕХ ВИДОВ СОБАЧЬИХ
(CARNIVORA, CANIDAE)
СООБЩЕНИЕ I. СТРУКТУРНЫЕ ПЕРЕСТРОЙКИ ХРОМОСОМ
В ЭВОЛЮЦИИ КАРИОТИПА

A.S. Graphodatsky, Radjabli, S.I., Inst. of Cytology and Genetics,
Academy of Sciences of the USSR, Siberian Division, 630090,
Novosibirsk 90, USSR.

The G-binding patterns in chromosomes of dog, fox, arctic fox and fox/
arctic fox hybrids have been studied. The karyotype of the common
ancestor is identical or very similar to that of dog. The karyotypes
of fox and arctic fox could be derived from that of dog by chromoso-
mal tandem and centric fusions. Additional arms in some arctic fox
chromosomes have been shown. The karyotype evolution in the Cani-
dae proceeded from species with larger number of acrocentrics to those
with larger number of biarmed chromosomes.

SCIENTIFUR code: 4-3-0.

Genetika, Vol. 17, No.8, 1981, 1497-1503.

2 figs., 15 references.

In Russian with English summary.

Authors' summary.

COMPARATIVE CYTOGENETICS OF THREE CANIDS SPECIES
(CARNIVORA, CANIDAE).

II. DISTRIBUTION OF C-HETEROCHROMATIN.

СРАВНИТЕЛЬНАЯ ЦИТОГЕНЕТИКА ТРЕХ ВИДОВ СОБАЧЬИХ
(CARNIVORA, CANIDAE)
СООБЩЕНИЕ II. РАСПРЕДЕЛЕНИЕ В КАРИОТИПАХ
С-ГЕТЕРОХРОМАТИНА

A.S. Graphodatsky, Radjabli, S.I., Inst. of Cytology and Genetics,
Academy of Sciences of the USSR, Siberian Division, 630090
Novosibirsk 90, USSR.

The distribution of constitutive heterochromatin (C-banding) in the
genomes of three species of Canidae (dog, arctic fox and fox)
and of hybrids between fox and arctic fox has been studied. The minimal
amount of heterochromatin was detected in the karyotypes of dog and

fox. In the B-chromosomes of foxes C-geterochromatin is basent. Ten pairs of biarmed chromosomes of arctic fox have an additional completely heterochromatic arm.

SCIENTIFUR code:4-3-0.

Genetika, 17, 8, 1981, 1504-1507.

2 figs., 19 references.

In Russian with English summary.

Authors' summary.

GENETIC AND EVOLUTION PROBLEMS OF STRESS AND STRESSABILITY.

НЕКОТОРЫЕ ГЕНЕТИКО-ЭВОЛЮЦИОННЫЕ ПРОБЛЕМЫ
СТРЕССА И СТРЕССИРУЕМОСТИ

D.K. Belyaev, Inst. of Cytology and Genetics of the Siberian Dept.
of the Academy of Sciences USSR, Novosibirsk 90, USSR.

The results of experimental studies on the role of stress in the genetic differentiation of populations and in the determination of the selection vector in them under the influence of the stress agents are presented. The experiments were carried out in various lines of mice, wild rats and silver foxes. It was found that the emergence of a new stressing agent in the animal environment which under conditions of animal domestication is represented by man gives rise to a new selection vector for stress resistance. Under sufficient pressure of this selection it results in the genetic differentiation of the populations and species and, most important, to a sharp increase of variability and farm production occurring due to the fact that selection under these conditions acquires a destabilizing nature, that is, becomes destabilizing selection.

SCIENTIFUR code: 4-3-11-F.

Vestnik Akademii Meditsinskikh Nauk SSR, 7, 9-14, 1979.

In Russian with summary in English.

Author's abstract.

CHANGEABILITY OF SEX RATIO IN PROGENY OF UNIPAROUS AND MULTIPAROUS ANIMALS.

К ВОПРОСУ ОБ ИЗМЕНЧИВОСТИ ПОЛОВОГО СОСТАВА
В ПРИПЛОДАХ ОДНОПЛОДНЫХ И МНОГОПЛОДНЫХ ЖИВОТНЫХ

I.P. Petrenko, Ye. M. Vladimirskaia, A.V. Gerasimtchuk,

The type of sex ratio in cattle and mink progeny was studied. All

the classes of alternative combinations in sex ratio correlated with binomial distribution variances, the variations in different progeny sexes up to the progeny of one sex only and all the alternations of progeny sexes show the regular combinative nature of X and Y sex chromosomes on population level.

SCIENTIFUR code:4-5-M. Sel. Istsokkhozyaistvennaya Biologiya, 15 (3) 415-420, 1980.
4 tables, 14 references.

In Russian with English summary. Authors' summary.

INVESTIGATIONS ON INHERITANCE AND SELECTION FOR COAT TRAITS IN SHADOW ARCTIC FOX.

(Badania nad dziedziczeniem i selekcja cech odmiany
cienistej lisa polarnego).

Ryszard Cholewa, Jerzy Gedymin, Acad. of Agriculture, Inst. of Animal Breeding and Production Technology, ul. Wolyńska 33, 60-637 Poznań 31, Poland.

In 255 Shadow Arctic foxes the authors evaluated coat morphological and structural traits as well as pigmentation. Most of the evaluation were made with laboratory methods, measuring the hair samples from the back, only colour intensity and distribution of pigmented hair on the trunk and face were estimated visually.

The structural and morphological traits were less differentiated ($V=3.0-19.0\%$) than the colour traits ($V=30.0-114.0\%$). In the animals of both sexes the coat structure and hair length were similar, while the females distinguished by more intense pigmentation of guard hair. The pigmentation traits of overhair appeared to be positively correlated.

The highest heritability values ($h^2 > 0.5$) were found in colour traits while in structural and morphological traits they were very low (h^2 from -0.7 to 0.2). Hence the authors concluded that selection for pigmentation in Shadow Arctic fox should results in a considerable breeding progress.

SCIENTIFUR code: 4-2-F.

Poznanskie Towarzystwo Przyjaciół Nauk, Wydział Nauk rolniczych i Lesnych, Prace Komisji Nauk Rolniczych i Komisji Nauk Lesnych, XLIX - 1980, 33-41.

4 tables, 8 references.

In Polish with subtitles and summary in English.

Authors' summary.

MODEL OF COLLECTING PRODUCTION DATA AND OF UTILIZING
THEM IN BREEDING WORK ON ARCTIC FOX POPULATION.

(Opracowanie modelu zbierania danych o użytkowości i ich
wykorzystaniu do pracy hodowlanej w populacji lisa polarnego).

Irena Narucka, Bolesław Zuk, Jerzy Gedymin, Acad. of Agric., Inst.
of Animal Breeding and Production Technology, ul. Wolyńska
33, 60-637 Poznań 31, Poland.

The lack of breeding progress in coat traits in Arctic fox population
was considered by the authors to be a result of inefficient methods
of selection based only on phenotypic evaluation of the individuals.
Hence they attempted to change the hitherto used methods, basing
them on the estimation of the breeding value.

For the Arctic fox large farms they developed the program of a selec-
tion index based on the evaluation of individuals and on the mean
values of half sibs, as well as programs of line and unrelated ma-
tings and a breeding documentation adjusted to these programs.

SCIENTIFUR code: 4-13-F.

Poznanskie Towarzystwo Przyjaciół Nauk, Wydział Nauk Rolniczych
i Lesnych, Prace Komisji Nauk Rolniczych i Komisji Nauk Lesnych,
XLIX 1980, 203-212.

6 tables, 2 references.

In Polish with English subtitles and summary.

Authors' summary.

CONNECTION BETWEEN DATE OF BIRTH AND LICENCE EVALUATION
OF ARCTIC FOX.

(Związek między terminem urodzenia a-wycena licencyjna
lisa polarnego).

Irena Narucka, Bolesław Zuk, Acad. of Agric., Inst. of Animal Breed-
ing and Production Technology, ul. Wolyńska 33, 60-637
Poznań 31, Poland.

Estimating of the productive value of arctic fox is carried out in

our country following the "Standard for evaluating exterior". It seems, however, that in this Standard there is a considerable error because the state of physiological maturity of the traits is not taken into consideration.

SCIENTIFUR code: 4-12-F.

Roczniki Akademii rolniczej w Poznaniu, CXX 1980, 121-125.

2 tables, 4 references.

In Polish with English subtitles, and summaries in English and Russian.

Authors' summary.

GENETIC COEFFICIENTS OF REPRODUCTION IN ARCTIC FOX FEMALES.

(Parametry genetyczne reprodukcji samic lisa polarnego
(*Alopex Lagopus L.*)).

Irena Narucka, Boleslaw Zuk, Inst. of Animal Breeding and Production Technology, ul. Wolyńska 33, 60-637 Poznań 31, Poland.

In a population of arctic fox the coefficients of heritability and repeatability were calculated as well as genetic and phenotypic correlations for the following traits: date of birth, numbers of born and of weaned whelps.

SCIENTIFUR code: 4-5-F.

Zootechnika (Poland) 120, 115-119, 1980.

3 tables, 3 references.

Authors' summary.

In Polish with English subtitles and summaries in English and Russian.

Odziedziczalność cech
Heritability of Traits

Cechy Traits	h^2	$V(h^2)$
1 - Termin wykotu Date whelped	0,121	0,073
2 - Liczba urodzonych No of birth	0,171	0,071
3 - Liczba odchowanych No of weaned	0,139	0,069

VALUES OF INDICES OF INHERITANCE OF EXTERIOR FEATURES
AND EFFECTIVITY OF BREEDING WORK IN A FARM OF BLUE POLAR FOX.

(Wartość wskaźników dziedziczenia cech pokrojowych, a efektywność pracy hodowlanej w stadzie lisów polarnych niebieskich).

Ryszard Cholewa, Acad. of Agric., Inst. of Animal Breeding and Production Technology, ul. Wolyńska 33, 60-637 Poznań 31, Poland.

In a farm of polar fox the selection was carried out for such exterior features as size of the animal, colour purity, coat density and hair length, without taking into consideration heritability of these features. The author attempted to find what was the relation of h^2 coefficient with the improvement of the tested features in the successive years in this farm. The means of licence evaluations from the years 1970-1973 were compared with the values of heritability coefficients calculated for these features.

The influence of the coefficients concerning animal size, coat density and hair length on the changes in scoring in successive years was rather low but it was very distinct in coat colour.

SCIENTIFUR code: 4-2-12-F.

Roczniki Akademii Rolniczej w Poznaniu, CI, 1978, 39-43.

2 tables, 3 references.

Author's summary.

In Polish with subtitles in English. Summaries in English and Russian.

DEVELOPMENT OF THE SIZE OF SCANDINAVIAN DARK STANDARD
(SCANBLACK) AND PASTEL MINK PELTS DURING THE LAST 10 YEARS.

(Størrelsesutvikling for skandinaviske Scanblack og Pastel
minkskinn i siste 10-årsperiode.)

Nils K. Gjerde, Norwegian Fur Breeder's Association, Økern tongvei
13, Oslo 5, Norway.

In 1979-80, in Norway, Finland, Denmark, and Sweden, the percentage

of large pelts among those produced from Scanblack male male averaged 43, 48, 55, and 65 percent resp. vs. 28, 45, 28 and 37 percent in 1971-72, and the percentage of large pelts from scanblack female female averaged 37, 47, 48 and 55 vs. 15, 25, 21 and 30. In the 4 countries, the percentage of large pelts from Pastel male male averaged 55, 56, 53 and 66 resp. In 1979-80 vs. 42, 46, 30 and 43. in 1971-72, and that from Pastel female female averaged 47, 42, 48 and 49 vs. 23, 19, 22 and 30. Data are presented in graphs.

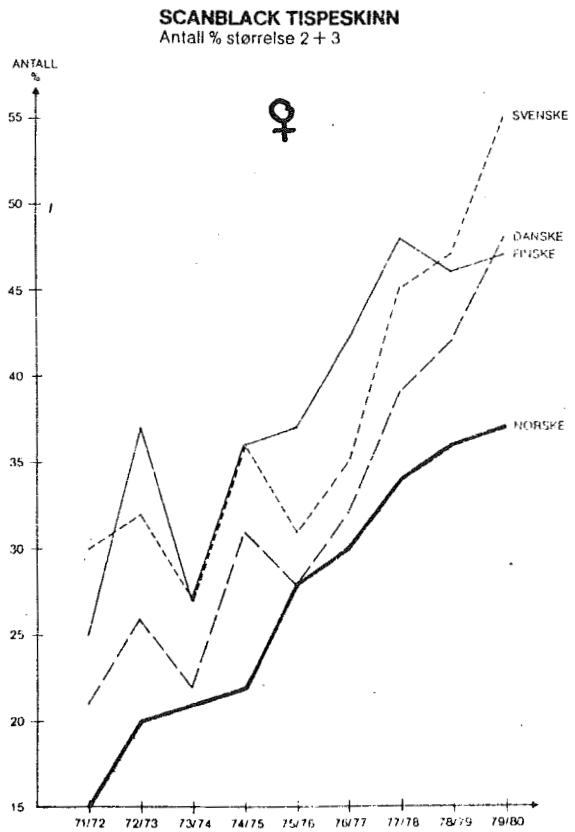
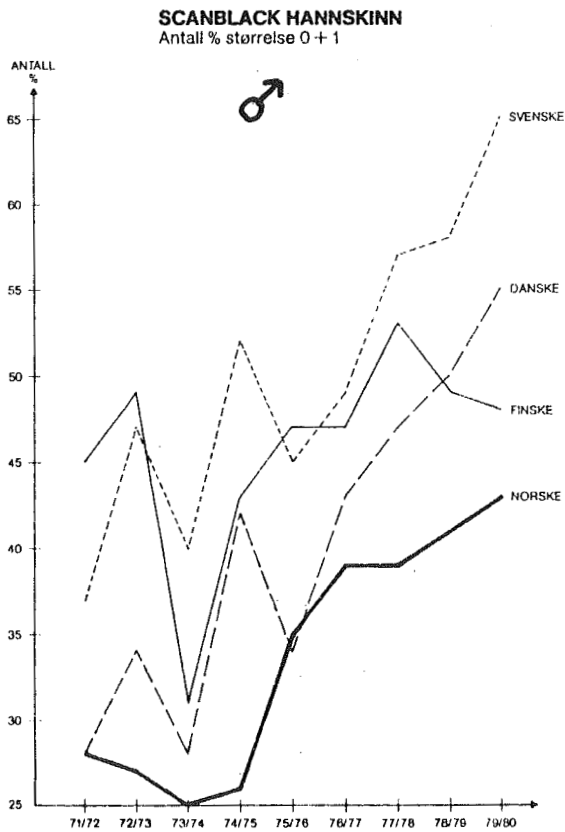
SCIENTIFUR code: 13-M.

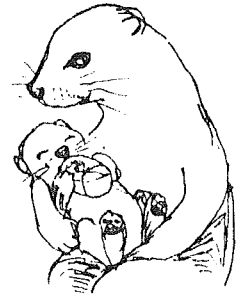
Norsk Pelsdyrblad, 55 (4), 133-135. 1981.

2 tables, 4 figs.

In Norwegian.

CAB-abstract.



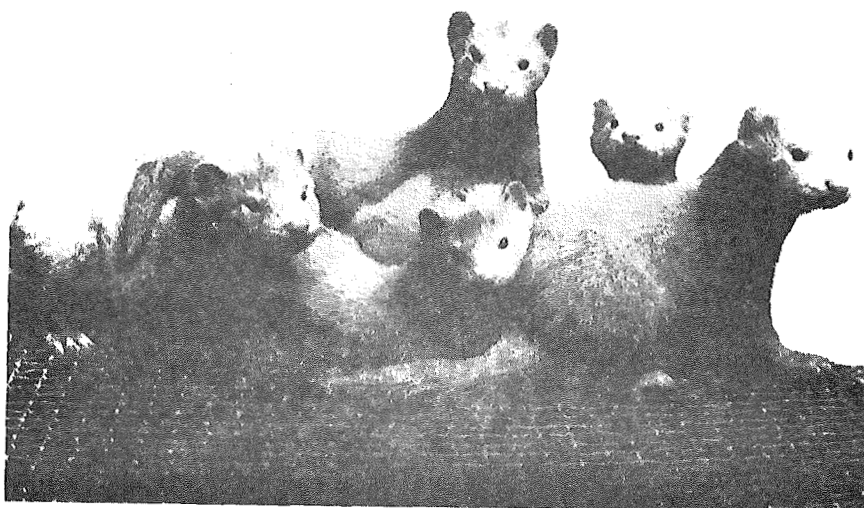
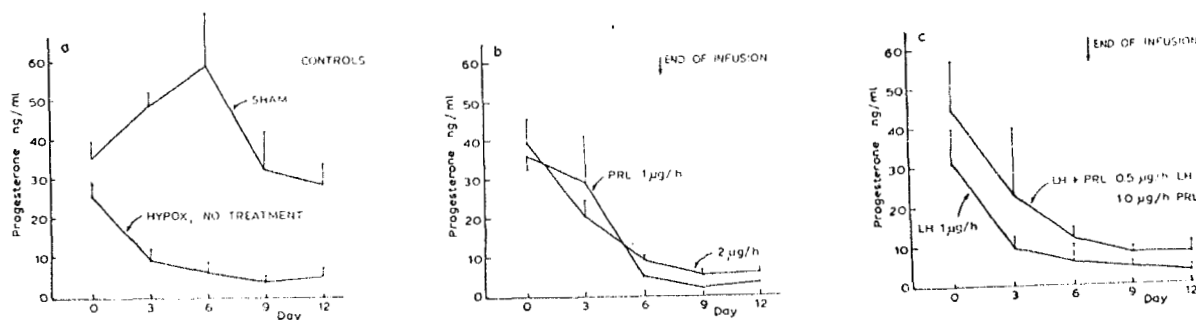


REPRODUCTION

LUTEAL FUNCTION IN MINK: THE EFFECT OF HYPOPHYSECTOMY AFTER THE PREIMPLANTATION RISE IN PROGESTERONE.

Bruce D. Murphy , William D. Humphrey, Shirley L. Shepstone, Dept. of Biology, University of Saskatchewan, Saskatoon, Saskatchewan, Canada S7N 0W0.

Pearl variety mink bred twice between March 4 and 20 were hypophysectomized or sham hypophysectomized between April 4 and 10, after the preimplantation rise in progesterone. Four groups of hypophysectomized females each received one of the following treatments in the form of minipump (Alza) infusion for 170 h of: prolactin (PRL) 1 $\mu\text{g}/\text{h}$, 2 $\mu\text{g}/\text{h}$, luteinizing hormone (LH) 1 $\mu\text{g}/\text{h}$ or LH 0.5 $\mu\text{g}/\text{h}$ with PRL 1 $\mu\text{g}/\text{h}$. One group of hypophysectomized mink and the sham hypophysectomized mink received no further treatment. Blood samples were taken from all animals at the time of surgery (day 0) and day 3, 6, and 9. Hypophysectomized mink were killed by exsanguination and blood samples were taken from sham treated animals. Plasma progesterone was quantitated by radioimmunoassay. The mean level of progesterone increased in sham treated mink at day 6 and remained high through day 12. Mean progesterone declined significantly by day 3 in all hypophysectomized mink. At day 3, two subgroups were present in terms of luteal response: in animals receiving PRL 1 $\mu\text{g}/\text{h}$, 2 $\mu\text{g}/\text{h}$ or PRL + LH, progesterone levels were significantly greater than animals receiving no infusion or LH alone. Plasma progesterone levels declined and were statistically homogenous in all hypophysectomized mink by day 6. Sham treated mink produced normal litters. Embryos degenerated in all hypophysectomized mink. It was concluded that the pituitary is necessary for support of the postimplantation corpus luteum and for the completion of gestation. PRL but not LH temporarily ameliorated the decline in progesterone induced by hypophysectomy. LH together with PRL was no more effective than PRL alone. The results suggest that PRL is an important luteotropin in mink.



SCIENTIFUR code: 3-5-M.

Animal Reproduction Science, 3, 1980, 225-232.

1 fig., 15 references.

Authors' abstract.

STUDY ON THE INFLUENCE OF CONFORMATION AND LIVE WEIGHT ON FERTILITY IN ARCTIC FOX.

(Wpływ budowy i masy ciała na płodność lisów polarnych).

Ryszard Cholewa, Acad. of Agric., Inst. of Animal Breeding and Production Technology, ul. Wolyńska 33, 60-637 Poznań 31, Poland.

In the period preceding the reproduction season, i.e. in the middle of January the author measured the chest girth, length of trunk and live weight in 179 animals (111 females and 68 males). The obtained figures were enlisted according to increasing values of these traits and then compared in vixens with the numbers of born and weaned whelps and with the percentages of losses before weaning, while in foxes with the number of services. The correlation coefficients were calculated.

There were differences in chest girth and in its relation with trunk length among the groups of females which aborted, whelped and those which were not fertilized. The vixens with smallest chest girth gave highest numbers of born and weaned progeny. The mean values of the remaining traits appeared to be most favourable for reproduction. In males usually with increasing body dimensions and weight the number of services diminished, the exception being length of trunk as longer foxes had more services. Among the investigated traits the live weight had most distinct influence on fecundity and losses of offspring. With increasing live weight in vixens their fecundity decreased and losses of whelps increased. The correlation coefficients, low but sometimes significant, negative were found between the chest girth and live weight of females and the number of weaned whelps.

SCIENTIFUR code: 2-5-F.

Poznańskie Towarzystwo Przyjaciół Nauk, Wydział Nauk Rolniczych i Leśnych, Prace Komisji Nauk Rolniczych i Komisji Nauk Leśnych, XLIX - 1980, 25-32.

3 tables, 5 references,

Author's summary.

In Polish with subtitles and summary in English.

INFLUENCES OF DATE OF BIRTH AND OF NUMBER OF PUPPIES IN A LITTER ON LENGTH OF TRUNK IN POLAR FOX.

(Wpływ terminu urodzeń i liczebności miotu na długość
tulowia lisów polarnych).

Ryszard Cholewa, Acad. of Agric., Inst. of Animal Breeding and Production Technology, ul. Wolyńska 33, 60-637 Poznań 31, Poland

Data from the licences in 1973 and 1974 concerning trunk length of 2239 polar foxes were compared with their dates of birth. Simultaneously 2993 animals born in the years 1971, 1973, and 1974 were investigated for finding the influence of the number of puppies in a litter on the length of trunk. The results were grouped according to dates of birth at 3-day intervals and according to litter size.

The influences of both investigated environmental factors appeared to be rather slight as concerns the length of trunk in mature animals. It was found, however, that polar foxes born in April had longer trunks than those born in May, and those from smaller litters (less than 10 puppies) were longer than animals from more numerous litters.

SCIENTIFUR code:2-5-F.

Roczniki Akademii rolniczej w Poznaniu, CI 2978, 45-50.

2 tables, 7 figs.

Author's summary.

In Polish with subtitles in English. Summaries in English and Russian.

DURATION OF COPULATION AND FERTILITY IN THE MINK MUSTELA VISON.

C.E. Adams, A.A. Rietveld, A.R.C. Inst of Animal Physiology, Animal
Research Station, 307 Huntingdon Road, Cambridge CB3 0JQ,
England.

In mink, restricting the duration of copulation (≤ 6 min) results in reduced fertility, either due to too few spermatozoa being ejaculated or defective sperm transport. The objective of the present work was to determine the effect on fertility of prolonging mating using a sterile male.

When copulation was restricted to 5 min, only 3/14 mink whelped, and in 2 of the 3 cases the litter size was well below normal. The use of a vasectomized male, either before or after the intact male, caused a significant increase both in whelp rate (21/24) and litter size. The beneficial effect of the vasectomized male was still present after 4 hr.

It is concluded that in short matings, defective sperm transport is the major factor limiting fertility and that the duration of coitus affects the efficiency of sperm transport.

SCIENTIFUR code: 5-M.

Theriogenology, May 1981, Vol. 15, no.5.

1 table, 6 references,

Authors' abstract.

**IRON CONTENT AND TOTAL IRON BINDING ABILITY OF BLOOD PLASMA
AND PROTEINS OF BLOOD SERUM IN FEMALE POLAR FOXES DURING
THE PERIODS OF PREGNANCY AND LACTATION.**

H. Bieguszewski, B. Stanislawska, O.M. Lorek, Dept. of Anim. Physiol.
and Anatomy Academy of Technology and Agriculture, 85-084
Bydgoszcz, ul. Hanki Sawickiej 28, Poland.

The investigations were carried out on 25 clinically healthy female polar foxes. The animals were divided into two groups. The first group /10 animals/ were treated intramuscularly with 1 ml of Ferrodex per animal in 1st and 4th weeks of pregnancy and in 2nd and 4th weeks after weaning of pups. The second groups /15 animals/ were treated with the physiological fluid during the same periods. Blood was taken for testing seven times: 1st - 14th day of pregnancy, 2nd - 28th day of pregnancy, 3rd - 42nd day of pregnancy, 4th - 55-15th day of lactation, 5th - 19-29th day of lactation, 6th - 33-43rd day of lactation, 7th - 4 weeks after weaning.

The statistically substantial fall of iron level in blood plasma of foxes in the second half of pregnancy period and throughout the lactation period was stated. Iron content in the blood plasma was the highest 4 weeks after weaning of pups and it was superior to the values stated during pregnancy and lactation period. the fall of the plasma iron level in pregnant and lactating foxes was not stopped by two injections of Ferrodex in the first half of pregnancy period. The plasma ability to bind iron did not change during the pregnancy and nursing periods with the exception of 2nd group females during 2nd week of pregnancy. The dynamics of changes in total protein level and protein fractions in blood serum was in both groups similar.

SCIENTIFUR code: 3-5-F.

Polish Physiological Society,
Abstracts of the XV congress, Bialystok 24-26 IX 1981.

THE DURATION OF LACTATION IN FERAL COYPUS
(MYOCASTOR COYPUS).

L.M. Gosling, Coypu Research Laboratory, Ministry of Agriculture,
Fisheries and Food, Jupiter Road, Norwich, Norfolk, England.

The frequency of consecutive reproductive stages in a post mortem sample of 423 lactating coypus was used to estimate the mean post partum interval ($\overline{D_{pp}}$) and the mean duration of lactation (D_l). The estimated required a number of assumptions but the most important involved the validity of making time specific inferences from an "age" series. Variation statistics could not be calculated using conventional techniques and the jackknife method of estimation was used to obtain variances of the means and 95% confidence intervals. $\overline{D_{pp}}$ was estimated as 2.1 ± 0.8 weeks. Some observations of retrapped wild animals showed that some animals conceived at an oestrus which occurred within a day or two of parturition. D_l was estimated in four different ways, three of which were quite closely related: these averaged 8.4 ± 1.0 weeks. But the fourth estimate, which is equally valid, was 7.0 weeks. A weighted average of the four estimates was 7.7 weeks with 95% confidence limits of c. ± 1.0 . The average suckling period of five captive females was 10.9 weeks. The most likely interpretation of the 42% difference between this value and the estimate for wild females is attenuation as a result of a reduced nutrient intake in the feral population. $\overline{D_l}$ is substantially longer than predicted from an expression relating maternal weight to D_l in other mammals. This may be part of a maternal care strategy and centres on protection of space, and possibly of a food supply for milk production, rather on defence of the young.

SCIENTIFUR code: 3-5-0.

J. Zool. Lond. 1980, 191, 461-474.

1 table, 3 figs., 21 references.

Author's summary.





FISH GUTS AS FEED FOR MINK IN THE BREEDING PERIOD.

(Fiskeslo som fôr til mink i avlsperioden).

Anders Skrede, Dept. of Poultry and Fur Animal Science, Agricultural University of Norway, Box 17, 1432 Ås- NLH, Norway.

On the basis of chemical composition and digestibility, fish guts are recommended as an excellent source of protein for mink. The hygiene quality of the feed was sometimes a problem, but this was overcome by freezing, production of fish meal, preservation in acid, or production of de-fatted silage. Fish guts were particularly suited to preservation in acid. The ash content was relatively low. A 1.5 percent solution of formic acid and propionic acid was suitable for long-term storage, but stronger solutions should not be used. The high content of fat (47 percent of available energy) in some fish-gut feeds did not appear to be detrimental to breeding results or weight increments. Acid-preserved ensiled fish guts seemed to have some detrimental effect on the growth of mink pups of 3 to 6 weeks of age, but this was attributed to the high acidity rather than to the feed itself.

SCIENTIFUR code: 7-5-M.

Norsk Pelsdyrblad, 54 (11), 568-570, 1980.

3 tables.

CAB-abstract.

In Norwegian.

Anders Skrede,



FURTHER RESULTS ON KRILL IN FEEDS FOR MINK.

(Weitere ergebnisse der nerzfütterung mit krill).

J. Oehlenschläger, Inst. für Biochemie und Technologie, Hamburg,
Ger. Fed. Rep.

Three groups of 500 young mink (groups 1-3), 70 adult mink (group 4) and 2650 control mink (including 2000 young mink, (group 5) were fed on the following diets, group 1, 5 percent raw krill, 5 percent fish meal, 5 percent blood, 65 percent poultry feed, 20 percent mixed cereal (consisting of potato silage: mixed meal, 3:2), group 2, 15 percent, 5 percent, 5 percent, 55 percent and 20 percent, respectively, group 3, 25 percent, 5 percent, 5 percent, 45 percent and 20 percent, respectively, group 4, 75 percent raw krill and 10 percent cereal (without potato silage), group 5, 5 percent fish meal, 5 percent blood, 30 percent poultry feed, 20 percent cereal and with 40 percent fish and fish meal replacing the raw krill in group 4. Group 3 had the greatest gains and group 1 the least, after 2-3 weeks. Feed intake by group 4 was 20-25 percent less than that of group 5, Thiamine and iron deficiency were not observed before December. The mean weight of the males after feeding for 6 months (groups 1, 2 and 3) or 4 months (group 4) were 1994, 2186, 2311, 2621 and 2114 g (groups 1-5, respectively). Further studies with 1006 mink were made to assess the efficiency of krill meal. A diet of 10 percent krill meal, 70 percent poultry feed, 12 percent potato silage and 8 percent mixed meal supplemented with vitamins was found to be suitable. Mean bodyweight of mink before pelting was 2214 g and pelt quality was not affected by diet.

SCIENTIFUR code: 7-M.

Nutr. Abs. (8), Vol.51, 5180.

3 tables, 3 references.

CAB-abstract.

In German.

VITAMIN K³ (MENADIONE) AND RELATED QUINONES, LIKE
TUMOR-PROMOTING PHORBOL ESTERS, ALTER THE AFFINITY
OF EPIDERMAL GROWTH FACTOR FOR ITS MEMBRANE RECEPTORS.

Mohammed Shoyab, George J. Todaro, Lab. of Viral Carcinogenesis,
Natl. Cancer Inst., Natl. Inst. of Health, Bethesda, Maryland
20205, USA.

The effects of vitamin K³, quinones, fat-soluble vitamins, and various naturally occurring and synthetic compounds on the binding of ¹²⁵I-epidermal growth factor (EGF) to mink lung cells or murine 3T3 cells in culture were studied. Vitamin K³, but not other fat-soluble vitamins, markedly inhibits the binding of ¹²⁵I-labeled EGF to treated cells, but does not affect the binding of insulin, concanavalin A, α -2-macroglobulin, and murine leukemia virus glycoprotein, gp70, to their membrane receptors. The binding of multiplication stimulating activity to treated cells is also reduced to some extent. Vitamin K³ alters the affinity of the receptors for EGF without changing the total number of available receptors per cell. Vitamin K³ modulation of EGF-receptor interaction is a temperature- and time-dependent phenomenon. EGF-receptor interaction is also significantly modulated by 1,4-naphthoquinone, 1,4-benzoquinone, and phenanthrenequinone but not by other quinones of anthracyclic antibiotics.

SCIENTIFUR code: 3-6-9-M.

The Journ. of Biological Chemistry, 255, 18, 8735-8739, 1980.

2 tables, 3 figs., 38 references.

Authors' summary.

AMINO ACID DEPOSITION IN MINK DURING THE GROWTH PERIOD.

N. Glem-Hansen, N. Enggaard Hansen, Natl. Inst. of Animal Science,
Fur Bearing Animals, Trollesminde, 48 H, Roskildevej, DK
3400 Hilleroed, Denmark.

Sixteen male and 16 female kits fed a typical Danish mink diet were investigated for their content of nitrogen and amino acids at seven stages throughout the growth period.

For all the amino acids except cystine the accumulated curves were fairly similar to the curves for nitrogen accumulation. The time of moulting the summer coat was reflected by a reduced increase or even a moderate decrease in the content of amino acids in the animals during this period. While the accumulation curves for cystine more or less followed the curves for nitrogen during the initial part of the growth period until the kits were 12 weeks of age, the increase in cystine was found to be smaller than the increase in nitrogen from 12 to 20 weeks of age, but very much greater during the period from 20 to 32 weeks of age.

The curvilinearity of the content of cystine agrees very well with previous results from experiments to determine the requirements for sulphur containing amino acids during the growth period. The demand for sulphur amino acids in that experiment was found to be considerably higher in the period from 20 to 24 weeks of age than in the periods before and after this time.

From the content of cystine, methionine, and nitrogen in hair and hairless body and in the total body at slaughter, the contents of nitrogen accumulated in hair and body, respectively, were calculated. The curves for accumulation showed that the relationship between nitrogen retained in hair and carcass changed dramatically during the growth period. During the period of intensive growth from 10–17 weeks of age 10–12% of the accumulated nitrogen was retained in hair, while this figure was 60–62% during the period from 17 weeks of age until pelting at 32 weeks of age.

SCIENTIFUR code: 3–6–M.

Acta Agric. Scand. 31, 1981, 410–414.

4 tables, 3 figs., 11 references.

Authors' summary.

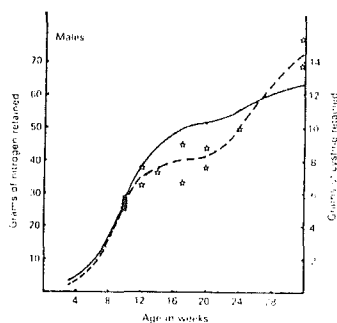


Fig. 1a. Total amounts of nitrogen (—) and cystine (---) in males of standard type during the growth period.

INFLUENCE OF APPLICATION SLAUGHTERHOUSE BLOOD CONSERVED
WITH SODIUM BENZOATE AND SULPHURIC ACID ON MORPHOLOGICAL
INDICES AND LEVEL OF GLUCOSE IN SKUNK-FERRETS.

(Wpływ dodatku do karmy krwi konserwowanej benzoanem sodu
i kwasem siarkowym na wskaźniki morfologiczne układu
czerwonokrwinkowego i poziom glukozy we krwi tchòrzofretek).

Henryk Bieguszewski, Jolanta Golata, Wojciech Rewers, Roman Szymeczko,
Dept. of Anim. Physiol. and Anatomy Academy of Technolgy
and Agriculture, 85-084 Bydgoszcz, ul. Hanki Sawickiej 28,
Poland.

Investigated influence of application conserved blood for feeding skunk-
ferrets on some physiological blood indices.

The experiment was started in July and finished in December 1977.
There was examined blood of 36 males of skunk-ferrets in age 5-
6-, 7-months.

Investigations show increase in the haemoglobin content, haematocrit
value, number of erythrocytes, reticulocytes and level of glucose in
blood of skunk-ferrets fed with the ration in which 50% meat and
fish fodder changed with blood conserved with sodium benzoate and
sulphuric acid.

SCIENTIFUR code: 2-3-6-0.

Bydgoskie Towarzystwo Naukowe, B, 1980, 29.

1 table, 22 references.

Authors' summary.

In Polish with English subtitles. Summaries in English and Russian.

CHEMICAL COMPOSITION OF CHINCHILLA MILK.

(Skład chemiczny mleka szynszyli).

Joanna Gromadzka,

For 28 chinchillas, the volume of milk produced 2 hour after partur-
ition, as a response to an injection of 2 IU oxytocin, averaged 1.5
ml/teat. Protein concentration averaged 64 g/kg milk on the 1st day

of lactation, and 80 g/kg on the 10th day. Fat concentration averaged 156 g/kg milk on the 1st day, 108 g/kg on the 5th day and 125 g/kg on the 10th day. Lactose concentration remained constant at 17 g/kg.

SCIENTIFUR code: 3-5-6-0.

Hodowca Drobnego Inwentarza, 26, 1, 18-19, 1978.

1 fig., 1 reference.

In Polish.

CAB-abstract.

AN INVESTIGATION INTO SOME PHYSIOLOGICAL RATIOS OF
POLAR FOXES' BLOOD FED ON FEED RATIONS WITH THE ADDITION
OF MEAT AND FISH PRESERVED BY FORMALDEHYDE.

(Badania nad niektórymi wskaźnikami fizjologicznymi krwi lisów
polarnych żywionych dawkami pokarmowymi z dodat -
kiem karmy miesno-rybnej konserwowanej formaldehydem).

Henryk Bieguszewski, Romuald Rajs, Barbara Stanisławska, Tomasz
Gniewkowski, Dept. of Anim. Physiol. and Anatomy Academy of Techn.
and Agric., 85-084 Bydgoszcz, ul. Hanki Sawickiej 28, Poland.

There was conducted blood examination of 48 polar foxes at the age
of 16, 20, and 24 weeks. The animals were divided into 3 groups.

Group I- control supplied with a standard fodder drench 60% of which
were of animal source.

Group II-experimental were fed on a drench in which 30% of fresh
or frozen meat and fish was replaced by meat and fish fodder preser-
ved by formaldehyde.

Group III-experimental received a drench in which 60% of meat and
fish fodder was replaced by fodder preserved by formaldehyde.

SCIENTIFUR code: 3-6-7-F.

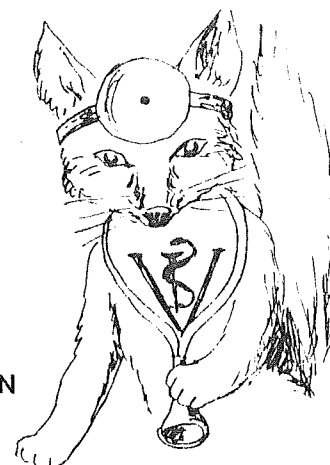
Akademia Techniczno-Rolnicza IM. Jana i Jędrzeja Sniadeckich w Byd-
goszczy, Zeszyty Naukowe nr. 84, Aootchnika, 6, 1981, 17-27.

1 table, 18 references.

Authors' summary.

In Polish with English subtitles. Summaries in English and Russian.

VETERINARY



HAEMATOLOGICAL AND BIOCHEMICAL-CLINICAL INDICES IN
POLECAT-FERRET UNDER DIFFERENT PHYSIOLOGICAL AND
PATHOLOGICAL CIRCUMSTANCES.

I. COMPARATIVE STUDIES OF THE HAEMATOLOGICAL PICTURES
IN PREGNANT, LACTATING AND NON-PREGNANT FEMALES.

(Hämatologische und biochemisch-klinische Kennwerte beim
Iltis-Frettchen unter wechselnden physiologischen oder pathologischen
Bedingungen. 1. Vergleichende Verlaufsuntersuchungen zu
Hämogrammen gravider, laktierender und nichtträchtiger Fähen.)

R. Zeissler, U.D. Wenzel, W. Schicketanz, Margit Sachse, Rat des
Kreises Auerbach, Bahnhofstrasse 12, DDR-9700 Auerbach.

17 haematogram parameters were determined at intervals of 10 days over a period of three months from blood samples obtained from eleven gravid or lactating polecat ferrets and from 12 non-gravid controls through amputation of the extreme ends of nails. Results were processed statistically and represented graphically.

Conclusions were drawn from the results as follows:

- Variations in the state of blood due to gravidity and lactation are, as a rule, noncharacteristic. Therefore they cannot be expected to provide a means for early recognition of gravidity by laboratory diagnosis.
- The characteristic values checked show great individual variability due to excitation presumably resulting from the blood-sampling procedure, which makes the technique inadequate for finding answers to specific questions of breeding.
- Manner and frequency of blood sampling under the conditions of the experiment did not have any diagnostically significant influence on the health of the subjects and on the haematological components tested.

SCIENTIFUR code:3-4-5-0.

Z. Versuchtierk. 23, 244-254, 1981.

12 figs., 16 references.

Authors' summary.

In German with English summary.

ANAESTHESIA OF THE RANCH MINK (*MUSTELA VISON*)
AND FERRET (*MUSTELA PUTORIUS FURO*).

C.E. Adams, ARC Inst. of Animal Physiology, Animal Res. Station,
307 Huntingdon Road, Cambridge.

The following is an account of my own experience of the anaesthesia of mink and ferrets, gained over a period of six years during the course of investigations requiring a laparotomy. The observations are based on a total of 72 ranch mink, including the following varieties, hedlund, pastel, pearl and standard, and more than 20 ferrets. All of the animals, except for three male mink, were sexually mature females, aged one or two years. The mink were treated during the breeding season in March, or in May, and the ferrets in April-May.

Halothane (Fluothane, ICI) was delivered via a paediatric mask, either in nitrous oxide-Oxygen (1:1) (Entonox, British Oxygen Co.) or oxygen, by means of an anesthetic machine fitted with either a Boyle Trilene or Fluothane vaporiser (BOC). During induction the Fluothane vaporiser lever setting was fully open (position 11) and for maintenance it was closed slightly (position 9); a similar procedure was followed with the Trilene vaporiser. Gas flows of 1.5 to 2.0 litres per minute and 0.5 to 1.0 litres per minute respectively were used for induction and maintenance. The induction phase required to be very carefully monitored, especially when using nitrous oxide-oxygen. With that system respiratory failure occurred in a few cases, most conspicuously among mink which had struggled; 2 (8 percent) such animals died after failing to respond to artificial respiration. For that reason, nitrous oxide-oxygen was replaced by oxygen and as a result no further losses were recorded. Having experienced personnel to catch and handle the mink also facilitated anaesthesia and probably contributed to its success. Ferrets, which are much easier to handle than mink, tolerated the halothane and nitrous oxide-oxygen well.

Using halothane, induction was rapid, taking only one to two minutes and the depth of anaesthesia, once induced, was easily controlled, thereby facilitating surgery. Recovery was also rapid, occurring

within two to three minutes of withdrawal. In these respects, halothane offers distinct advantages over pentobarbitone sodium. No complications arose postoperatively and the animals continued to thrive; several maintained to term pregnancies initiated by surgical insemination. Enders' (1952) observation that the mink is an excellent subject for experimental surgery was confirmed.

SCIENTIFUR code: 14-M.

The Veterinary Record, November 1979, 105, 21, 492.

13 references.

Author's summary.

ACCIDENTS DUE TO SMALL CARNIVORES ANESTHESIA.

NOTE 2. RESPIRATORY ACCIDENTS.

(Accidents liés l'anesthésie des petits carnivores.

Note 2: Les accidents respiratoires).

J.P. Genevois, A. Cazieux, A. Autefage, Pathologie Chirurgicale,
Ecole Natl. Vet. de Toulouse, 23, chemin des Capelles,
F-31076 Toulouse Cedex, France.

The authors describe four varieties of respiratory accidents due to anesthesia: apnea - laryngeal spasm - respiratory tract hindrance - ill-deglutition.

They precise their characters and indicate the prevention and the treatment.

SCIENTIFUR code: 14-O.

Revue Méd. vét. 1981, 132, 6, 449-452.

4 references.

Authors' abstract.

In French with summaries in English, German and Spanish.



ALEUTIAN DISEASE OF MINK AS A MODEL OF AN IMMUNE
COMPLEX DISEASE.

IMMUNOPATHOGENESIS OF VARIOUS FORMS OF GLOMERULONEPHRITIS.

(Die Aleutenkrankheit des Nerzes als Modell einer Immunkomplex-
erkrankung. Immunpathogenese verschiedener
Glomerulonephritisformen).

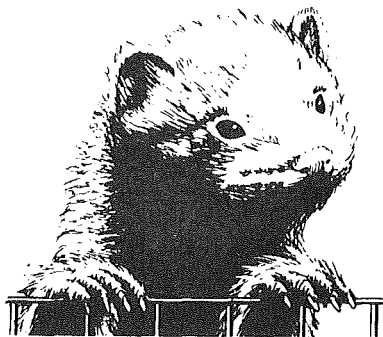
Reiner Müller-Peddinghaus, Kali-Chemie Pharma, Expt. Pathology,
Hans-Böckler-Allee 20, D-3000 Hannover 1, Fed. Rep. Ger.

Mink of various colours were experimentally infected with aleutian disease virus in either tissue homogenate or various cell cultures. Naturally infected mink were also studied. Aleutian disease was most severe in mink infected with virus in fetal mink kidney cells. Severity of glomerulonephritis (GN) was correlated with hypergammaglobulinaemia, serum IGG, virus antibody titres, amount of immune complexes in serum, amount of IGG deposited in glomerules, splenomegaly and liver lesions. Types of GN, in decreasing order of severity were: exudative, mesangial-proliferative, mesangial-sclerotic and membranous. It is concluded that histomorphological classification of GN, as well as the serological values and urine protein analysis serve as suitable diagnostic methods for studying the course of aleutian disease in individual animals with reference to pathogenesis and prognosis.

SCIENTIFUR code: 9-M.

Habilitationsschrift, Tierärztliche Hochschule, Hannover. 291 pages.

94 figs, 30 tables, 212 references. CAB-abstract.



ALEUTIAN DISEASE OF MINK.

David D. Porter, Austin E. Larsen, Helen G. Porter, Dept. of Path.
UCLA School of Medicine, Los Angeles, California.

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I. Introduction.

Aleutian disease (AD) is a common and economically important chronic or persistent virus infection of mink. The disease was first recognized in ranch-raised mink of the Aleutian genotype (Hartsough and Gorham, 1956), but it was subsequently found that all genetic types of mink could develop AD (Porter and Larsen, 1964). The immunologic and immunopathologic consequences are the most severe known in any persistent viral infection. The responsible virus (ADV) is a parvovirus that is naturally temperature-sensitive in its replication when isolated from affected mink and appears to replicate

in macrophages *in vivo*. Although the virus replicates relatively rapidly *in vivo*, no lesions attributable to the infection are noted for about a month, by which time there is an antiviral antibody response of considerable magnitude and hypergammaglobulinemia develops. The γ -globulin may reach levels as high as 11 gm/100 ml late in the disease, and in some animals the heterogeneity of this increased amount of IgG becomes restricted. Aleutian disease virus circulates as infectious antigen-antibody complexes in persistently infected mink. Smaller complexes are deposited in the glomeruli and arteries and cause severe and frequently fatal inflammatory lesions. Both the host genotype and the viral genotype influence the severity of AD. Whereas immunosuppressive therapy can block the development of lesions, immunization with killed virus vaccine prior to live virus challenge increases the severity of disease.

This review will emphasize the immunologic and immunopathologic aspects of AD.

SCIENTIFUR code: 9-M.

Advances in Immunology, Vol. 29, 261-286.

14 figs., 118 references.

Contents and Authors
Introduction.

CONTACT INFECTION OF MINK WITH INFLUENZA A VIRUSES OF AVIAN AND MAMMALIAN ORIGIN.

K. Yagyū, R. Yanagawa, Y. Matsuura, H. Noda. Dept. of Hygiene and Microbiology, Fac. of Vet. Medicine, Hokkaido University, Sapporo, 060, Kita 18 Nishi 9, Kita-ku, Japan.

Avian influenza A virus Hav7N2 was transmitted to mink by contact. Other avian influenza A viruses, Hav4Nav1 and Hav6Nav5, were not transmitted, and human, swine and equine influenza A viruses were transmitted to mink by a similar contact.

SCIENTIFUR code: 9-M.

Archives of Virology, 68, 143-145, 1981.

1 table, 9 references.

Authors' summary.

EXPERIMENTAL INFECTION OF MINK WITH INFLUENZA A VIRUSES.

Y. Matsuura, * R. Yanagawa, H. Noda, * Dept. of Hygiene and Microbiology, Faculty of Veterinary Medicine, Hokkaido University, Kita 18 - Nishi 9, Kita-ku, Sapporo 060, Japan.

Mink were found to be susceptible to the intranasal inoculation of human, swine, equine and avian influenza A viruses. The viruses were recovered until the 7th post inoculation (p.i.) day from the respiratory tract. The inoculated mink showed antibody response against these viruses. Contact infection in mink with A/Kumamoto/22/77 (H3N2) was possible.

SCIENTIFUR code: 9-M.

Archives of Virology, 62, 71-76, 1979.

2 tables, 1 fig. 14 references.

Authors' summary.

STUDIES OF INFLUENZA VIRUS INFECTION IN NEWBORN FERRETS.

Madeleine H. Collie, D.I. Rushton, C. Sweet, H. Smith, Dept. of Microbiology, Univ. of Birmingham, Birmingham B15 2TT.

The occurrence of excess infant deaths during influenza epidemics (Dauer and Serfling, 1961; Wynne Griffith et al., 1972) suggests that influenza plays a greater role in infant death and severe illness than is generally recognised (Nelson et al. 1975; Paisley et al. 1978). Although children are highly susceptible to influenza infection, their symptoms may be milder than in the adult (Douglas, 1975). However, convulsions, croup and pneumonia also occur (Brocklebank et al. 1972; Naude et al. 1974, Spence, Brodie and Masson, 1975, Laraya-Cuasay et al. 1977, Paisley et al. 1978). The pathology of influenza in infants has rarely been reported, and then usually in cases complicated by other disease processes (Louria et al. 1959); by contrast, the finding in adult man (Hers and Mulder, 1961) and in the adult ferret (Francis and Stuart-Harris, 1938) have been well described.

Influenza in the healthy adult ferret is a transient, non-fatal illness, similar to that occurring in the vast majority of human adults (Toms et al., 1976). This similarity of clinical and pathological responses in man and ferret, and the recognition of fatal infection in the fetal ferret (Collie et al., 1978) stimulated the present investigation into the susceptibility of the newborn ferret to influenza.

SCIENTIFUR code:9-0.

J. Med. Microbiol., Vol. 13, 1980, 561-571.

5 tables, 8 figs., 30 references. Authors' summary.

**EXPERIMENTAL OTITIS MEDIA AFTER NASAL INOCULATION OF
STREPTOCOCCUS PNEUMONIAE AND INFLUENZA A VIRUS
IN CHINCHILLAS.**

G. Scott Giebink, Ilze K. Berzins, Stephen C. Marker,
Gerald Schiffman, Dept. of Pediatrics, University of Minnesota School
of Medicine, Minneapolis, Minnesota 55455, USA

Otitis media developed in 67% of chinchillas inoculated intranasally with type 7 streptococcus pneumoniae and influenza A virus. Only 4% of chinchillas inoculated with influenza alone and 21% of chinchillas inoculated with *S. pneumoniae* alone developed otitis media. Among the chinchillas that developed otitis media after inoculation with both pneumococcus and influenza. 73% of the affected ears contained effusion, and 27% of the affected ears showed tympanic membrane inflammation without middle ear effusion obtained on paracentesis. Although a majority of the ears with effusion yielded *S. pneumoniae* on culture, one-third of the effusions were sterile for aerobic bacteria. This model resembles conditions accompanying otitis media in humans and suggests that respiratory viral infection contributes significantly to the pathogenesis of acute otitis media.

SCIENTIFUR code: 9-0.

Infection and Immunity, Nov. 1980, 445-450.

3 tables, 3 figs., 23 references. Authors' summary.

**COMMON OCCURRENCE OF URETHRAL CYSTS IN OLDER FEMALE
RANCH MINK.**

W.J. Hadlow, R.E. Race, Rocky Mountain Laboratory, Hamilton, MT
59840, USA.

Cysts were found often in the proximal urethra of female sapphire and pastel mink, *Mustela vison*, examined at necropsy during studies on slow viral disease. Their prevalence, the same in both color phases, was age-dependent. They occurred in less than 2% of females under 2 years old but in more than 60% of those over 7 years old. The cysts varied from ovoid vesicles 3 to 4 mm long to multi-ocular masses 10 to 15 mm across that greatly distended the proximal urethra and sometimes occluded it. Small cysts were not accompanied by clinical signs, but large ones often caused persistent urinary incontinence and occasionally, urine retention. The cysts contained fluid that varied from water-clear to dull yellow. They arose by expansion of small urethral glands normally present in female mink and destroyed much of the urethral wall by pressure atrophy. Although the cysts became larger and more prevalent as the mink aged, the stimulus that caused them to form was not apparent. They appear to have no counterpart in other animals.

SCIENTIFUR code: 9-M.

Vet. Pathol. 18, 599-607, 1981.

1 table, 13 figs. 23 references.

Authors' abstract.

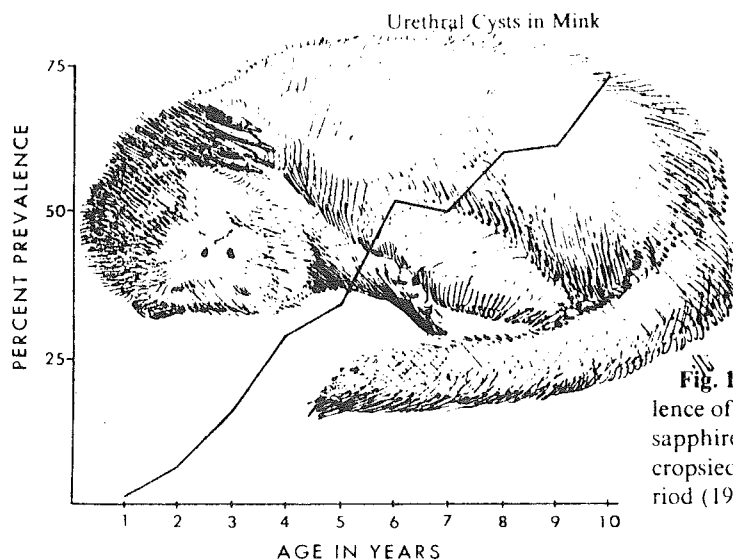


Fig. 1: Age-related prevalence of urethral cysts in female sapphire and pastel mink necropsied during eight-year period (1971-1978).

HEMIVERTEBRA.

George A. Padgett, Norm W. Rantanen, J.E. Alexander, Dept. of Pathol.
College of Vet. Med., Michigan State University, East Lansing,
MI 48824, USA.

Hemivertebra in mink is characterized by a slowly developing posterior paralysis which is due to a severe kyphosis resulting from the vertebral malformation. Posterior paralysis can be seen in mink with hemivertebra, the animals may be as young as 8 weeks of age, but more often they are 14 weeks of age or older.

Prospective breeding studies indicate that the lesion at the fourth thoracic vertebra is inherited as an autosomal recessive trait. We do not have sufficient data to evaluate the lesion at the sixth thoracic vertebra in regard to mode of inheritance.

The disease in mink progresses at a relatively rapid rate with kyphosis as the consistent feature. While it is clear that hemivertebra is progressive in people, these changes are much slower and involve scoliosis at the primary feature of the disorder.

The lesion in mink consistent and reproducible. In terms of the embryology of development of the vertebral body, this model may well be an effective method for an attack on the elucidation of the point of interruption of normal spinal development.

Animals with this defect are commonly found on mink ranches. While specific colonies are not available, animals with this defect can be located. The first author of this paper will take the responsibility for locating affected animals for interested investigators.

SCIENTIFUR code: 9-M.

Animal Models, Nov. 1980.

Abstract: G. Jørgensen

2 figs., 6 references.



PHARMACOLOGIC DETERMINANTS OF OTOTOXICITY OF FUROSEMIDE
IN THE CHINCHILLA.

Thomas P. Green, Leonard P. Rybak, Bernard L. Mirkin, S.K. Juhn, Tetsuo Morizono, Div. of Clinical Pharmacology, Dept. of Pharmacol. and Pediatrics, 3-260 Millard Hall, 435 Delaware St. S.E., University of Minnesota, Minneapolis, MN 55455, USA.

The commonly used diuretic furosemide (FSM) may clinically produce transient hearing impairment by a disruption of endocochlear potential. We have examined the possibility that this ototoxicity is produced by direct FSM penetration into the cochlea by assessing the determinants of FSM penetration into cochlear fluid (perilymph), determining the pharmacokinetics of the drug in serum and perilymph and comparing the time courses of cochlear drug concentration and ototoxicity. The highest FSM concentrations in perilymph were found 15 min. after an ototoxic dose of FSM (100 mg/kg). Elimination of the drug from perilymph paralleled that from serum, and a 65:1 drug concentration gradient (serum/perilymph) was rapidly established and maintained. The same gradient was found after other ototoxic FSM doses (25-200 mg/kg) and after chronic FSM administration. The magnitude of this gradient could not be accounted for by binding of FSM to serum proteins, by pH-dependent drug partitioning or by cochlear drug glucuronidation. The drug elimination profile from perilymph was most consistent with free penetration of drug into the inner ear coupled with rapid removal. The time course of endocochlear potential depression was strikingly similar to the FSM-perilymph concentration time curve; maximal endocochlear potential depression occurred at 5 to 15 min after the intravenous dose, corresponding with the time of peak perilymph FSM levels, but not with local diuretic effects on electrolytes. Calculations based on the pharmacokinetic data revealed that FSM produced depression of endocochlear potential only at doses sufficient to produce FSM perilymph concentrations greater than 1.3 $\mu\text{g/ml}$. Furthermore, this potential remained depressed only as long as the local FSM concentration exceeded this same threshold value. The observations are consistent with the hypothesis that the ototoxicity of FSM is related direct-

ly to drug penetration rather than mediated through secondary effects on electrolytes.

SCIENTIFUR code: 3-9-0.

Journ. of Pharmacology and Experimental Therapeutics, Vol. 216, No. 3, 537-542.

6 figs., 19 references.

Authors' abstract.

**TOXICOLOGY STUDY OF DIISOPROPYL METHYLPHOSPHONATE
AND DICYCLOPENTADIENE IN MALLARD DUCKS, BOBWHITE QUAIL,
AND MINK.**

R.J. Aulerich, T.H. Coleman, D. Polin, R.K. Ringer, K.S. Howell, R.E. Jones, T.J. Kavanagh, Poultry Science Department, Michigan State University, East Lansing, Michigan 48824, USA.

This study was conducted to determine the toxicity, and tissue residue accumulation, of diisopropyl methylphosphonate (DIMP) and dicyclopentadiene (DCPD) in wildlife.

The toxicity was evaluated by acute (LD50), subacute (LC50), and chronic tests with Mallard ducks, Bobwhite quail, and mink. Tissue residue analyses for DIMP and DCPD were conducted with Mallard ducks and Bobwhite quail.

Based on the results of the LD50 tests, DIMP was only slightly toxic to the test animals. An LD50 of 1490, 1000, and 503 mg/kg of body weight was determined for the Mallard, Bobwhite, and mink, respectively.

An LC50 for DIMP in the Mallard and Bobwhite could not be determined due to lack of mortality, even though the daily consumption of DIMP in these tests exceeded the LD50 values for these species. The 21-day subacute LC50 of DIMP for mink was estimated to be greater than 10000 ppm.

In the chronic test, 3200 ppm dietary DIMP resulted in decreased feed consumption and 10000 ppm caused a reduction in egg production in Mallard ducks. No other consistent adverse effects on reproduction, behaviour, feed consumption, growth, hematology, or mortality were observed in the DIMP-fed ducks or quail on the 24-week test. The chronic ingestion of DIMP had no adverse effects on growth or reproductive performance of the mink, although slightly higher mortality occurred in females fed the DIMP-treated diets.

Mallard ducks and Bobwhite quail on the tissue residue study received ¹⁴C-DIMP at 100 mg per kg of diet or were dosed per os at 100 mg per kg of body weight. Plasma, liver, adipose, skin, red blood cells, kidney, brain, and muscle samples were obtained from the birds at days 3 and 5 while they were being fed the ¹⁴C-DIMP diet and at days 3 and 5 after withdrawal of the treated diets. Tissue samples of the birds dosed with ¹⁴C-DIMP were obtained at 0, 2, 24, and 48 hours.

The birds fed the diets with radioactive DIMP had ¹⁴C residues averaging less than 1 ppm which declined to less than detection limits, averaging 0.04 ppm, in most tissues, by the 3rd day after withdrawal. All tissues but skin were clear of residue by day 5 of radioactive feed. Skin had 0.05 - 0.1 ppm at that time.

In the dosing experiment, residues at the second hour were 5.1 to 756 ppm, depending upon tissue and species. The residues, however, decreased rapidly with a biological half-life of 12.7 hours. Most tissues were at, or below, detection limits in 48 hours and clear at 65 hours, based on the half-life value. DIMP was not concentrated in the adipose tissue of either the ducks or quail.

DCPD was found to be relatively non-toxic to Mallards. An LD50 could not be determined, even when levels as high as 40000 mg per kg were administered. For Bobwhites the LD50 for DCPD was 1010 mg per kg. The acute oral toxicity of DCPD for mink was estimated to be greater than 1000 mg per kg of body weight.

An LC50 for the birds could not be determined due to insufficient mortality on diets that contained up to 90000 and 18000 ppm DCPD for the Mallards and Bobwhite, respectively. The 21-day LC50 of DCPD for mink was established as 6800 ppm.

The ingestion of DCPD by the ducks, quail, and mink had no significant effects on any of the parameters (growth, feed consumption, mortality, behaviour, reproductive performance, hematology, etc.) measured during the chronic tests.

In the DCPD tissue residue study, Mallards and Bobwhites were fed or dosed with ¹⁴C-DCPD at the same levels and the same tissues collected for analysis as described for the ¹⁴C-DIMP-treated birds.

Both the ducks and quail fed the ¹⁴C-DCPD-treated diets had residues averaging less than 1 ppm which declined to less than detection limits, averaging 0.04 ppm, in most tissues by the 3rd day after withdrawal. All tissues except quail skin and duck liver and kidney were clear of residue by day 5 off the radioactive diets. In the dosing experiment, maximum residues at the second hour were 5.6 to 50.1 ppm, depending upon tissue and species. DCPD-tissue residues however, decreased rapidly with a biological half-life of 12.7 hours. Most tissues were at or above detection limit in 48 hours. DCPD was not concentrated in adipose tissue of either species.

Toxicity of DCPD to mink.

1. The acute oral toxicity of DCPD for mink was estimated to be greater than 1000 mg/kg BW.
2. The 21-day subacute dietary LC50 of DCPD for mink was determined to be 6800 ppm.
3. The chronic ingestion of DCPD in the diet by mink had no effect on growth, survival, or reproductive performance. Neonate weight gain was significantly reduced by the ingestion of 200, 400, and 88 ppm DCPD by lactating dams. Testes weight of males fed 800 ppm DCPD was significantly less than the controls.

Toxicity of DIMP to mink.

1. The acute oral LD50 of DIMP for mink was 503 mg/kg BW with a 95% confidence interval of 379-668 mg/kg BW.
2. A 21 day subacute dietary LC50 of DIMP for mink was estimated to be greater than 10,000 ppm.
3. Chronic ingestion of dietary DIMP had no effect upon growth, reproductive success of neonate performance. A slightly higher mortality occurred in females fed all DIMP treatments than those fed the control diet.

SCIENTIFUR code: 8-M.

Stenciled report, 333 pages, 132 tables, 38 figs, 11 appendixes.

Authors' summary and
conclusion for the mink
experiments.

**MULTIPLE MYELOMA IN A MINK HANDLER FOLLOWING
EXPOSURE TO ALEUTIAN DISEASE.**

Larry W. Henry, Div. of Radiation Oncology, NN110 University Hosp.
(RC-08) Seattle, WA 98105, USA.

Aleutian disease of mink is a viral illness characterized by systemic plasmocytosis and hypergammaglobulinemia. Some affected mink develop a monoclonal gammaglobulin spike and Bence-Jones proteinuria. A case of multiple myeloma in a mink handler with a 15-year history of exposure to Aleutian mink is presented. Previously reported cases of possible Aleutian disease (AD) in man are discussed and the pathogenesis of AD reviewed. Aleutian disease virus (ADV) may produce asymptomatic infection in exposed individuals. Available data suggest symptomatic disease in humans is extremely rare.

SCIENTIFUR code: 9-14-M.

Cancer, 44, 173-275, 1979.

20 references.

Author's abstract.

A CASE OF CREUTZFELDT-JAKOB'S DISEASE.

(Creutzfeldt-Jakob's sygdom).

Else Højer-Pedersen, Kløvervej 18, DK-6700 Esbjerg.

A case of the subacute spongiform virus encephalopathy, Creutzfeldt-Jakob's disease, in a 47-year old woman with regular contact with mink is presented. To prevent iatrogenic transmission, no presenile patient should be accepted as donor for transplantation or bloodtransfusion and in operating rooms and autopsy rooms special precautions are necessary when handling tissues from these patients.

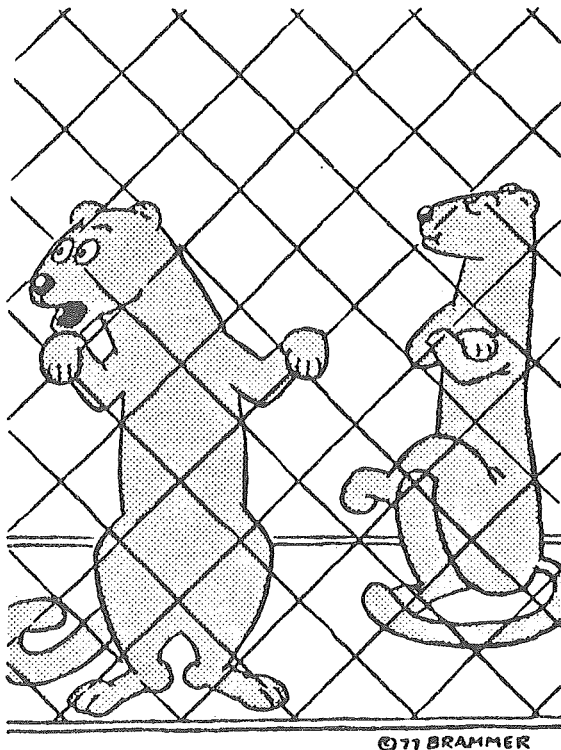
SCIENTIFUR code: 9-14-M.

Ugeskr. Læg. 142/20, 1288.

10 references.

Author's summary.

In Danish with summary in English.



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Don't be anxious, my dear.
There has not yet been
shown contamination from
man to mink !

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PLACE AND DATE

The Conference will be held in the University of Agriculture at DEBRECEN from ~~20-25~~ ^{6 to 11} September, 1982

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The Organizing Committee invites papers to be read at the section meetings in the following subjects:

- A) The possibilities and methods of preserving domesticated but not widely utilized and almost extinct breeds (cattle, swine, horses, sheep, poultry)
- B) Support, propagation and gene conservation of species and breeds important for hunting and fishing (deer, wild boar, small game, fishes)
- C) Support, propagation and gene conservation of species under domestication (fur animals)
- D) Genetical work to be accomplished in the wild animal species that are becoming extinct. Significance of the zoos and game-farming with regard to species growing dangerously sparse

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The Organizing Committee expects to receive papers of the length of 6 to 8 pages. The title and length of the texts has to be sent to the Organizing Committee up to 31st December, 1981. Hereupon the Committee will send out blank forms on which the unabridged text of the lectures is to be typewritten in English. The forms are supposed to be returned up to 31st May, 1982 for printing

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The papers will be presented both in English and Hungarian using simultaneous interpretation

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The participants will receive all printed papers at the beginning of the Conference

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In the course of the Conference, a field day will be held at the Hortobágy National Park (Hungarian Grey cattle, Racka sheep, Mangalica swine)

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In order to have a well organized conference, please return the attached forms to the address of the Organizing Committee by the 30th June, 1981 the latest. Further information concerning excursions, programmes, costs, accommodation, travel, etc. will be supplied in Circular No. 2

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⁶⁻¹¹
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BOOK REVIEW:

A documentary book reviewing the story of mink farming in USA from beginning until today.

NATURE'S JEWELS

A History of Mink Farming In the United States

by

BRUCE W. SMITH

CONTENTS

We are grateful . . .

to the many persons whose records and memories have contributed to this first history of mink farming in the United States. Special thanks are due those who made available to the author their collections of books, periodicals, and notes.

We are indebted to fur industry editors of the past for having chronicled in detail the happenings in the years now distant, to marketing association personnel who provided data, and especially to the directors of the National Board of Fur Farm Organizations, whose action made this book possible.

Bruce W. Smith
Brookfield, Wisconsin
July 31, 1981

Dedicated to my wife, Alida, and to the mink farmers of the United States, past and present. Editorial review by Dwight Brown, Gordon Sill, and Myrle Zimmerman. Manuscript typing by Marilynn Pilmaier. Printed in U. S. A. by Town & Country Printers, Inc., Columbus, Wisconsin.

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NATURE'S JEWELS

A HISTORY OF MINK FARMING IN THE UNITED STATES

After reading this very interesting book you will agree that the main title also can be used as a characterization of the book. It is really a jewel with many interesting facts and facets. A jewel which only can be created by an author who during long and engaged work knows his métier from A to Z and loves both the work and these people by who the story of Mink Farming in the United States has been written.

Gunnar Jørgensen

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Nature's jewels.

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First Edition

Copies of the book (100 pages) can be obtained from The National Board of Fur Farmers Organizations Inc., 3055 North Brookfield Road, Brookfield, Wisconsin 53005, USA - at a price of US\$ 10.95 + additional postage.

BOOK REVIEW.

INNER NON-CONTAGIOUS DISEASES OF FUR-BEARING ANIMALS.

by

p.rof. V.A. BERESTOV, Dr. Sc. Vet.

Honoured Scientist of the Karelian Republic.

В. А. БЕРЕСТОВ

заслуженный деятель науки КАССР,
доктор ветеринарных наук, профессорВНУТРЕННИЕ
НЕЗАРАЗНЫЕ
БОЛЕЗНИ
ПУШНЫХ
ЗВЕРЕЙ

Берестов В. А.

Б48 Внутренние незаразные болезни пушных зверей.
Петрозаводск, «Карелия», 1978.

160 с. с ил.

В книге излагаются данные о биологических особенностях пушных зверей, описываются методы клинической диагностики и общей терапии, обобщаются сведения о внутренних незаразных болезнях пушных зверей при их клеточном содержании.

Рассчитана на ветеринарных работников, зоотехников, руководителей звероводческих хозяйств и звероводов-любителей, а также студентов ветеринарных вузов и техникумов.

Б $\frac{40900-018}{M127(03)-78}$ 30-78

636.09

*Дорогому
проф. Jørgensen*

*с наилучшими
пожеланиями*

В.А. Берестов

ИЗДАТЕЛЬСТВО „КАРЕЛИЯ“
ПЕТРОЗАВОДСК 1978

ч. XII. 81.

Publishing House "Karelia", Petrozavodsk, 1978.

Prof. V.A. Berestov, Dr. Sc. (Vet.),
Honoured Scientist of the Karelian Republic.

Inner Non-contagious Diseases of Fur-bearing Animals.

Publishing House "Karelia", Petrozavodsk, 1978.

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Summary.

The book contains data on some biological features of fur-bearing animals. Methods for clinical diagnosis and general therapy are described. Information on the inner noncontagious diseases of fur-bearing animals kept in cages is generalized.

The book is intended for use by veterinarians, zootechnicians, managers of fur farms and students for veterinary high and technical schools.

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The book which is well illustrated has been written in Russian and contains total 157 pages.

Gunnar Jørgensen

Zagreb, 14. XII 1981.

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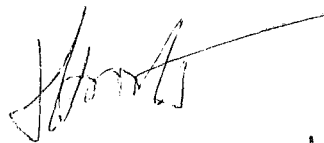
Sir,

I have a pleasure to make you know that on November 5, 1981 in Zagreb was celebrated the 100th anniversary of hunting as an organized activity in Croatia. On that occasion an international exhibition of hunting was inaugurated presenting a great number of hunt trophies, the role of hunters in preservation and keeping of game preserves, in feeding of game and in conserving of the biological equilibrium within the woods. At the same time, i.e. November 5-7, 1981, at the Faculty of Veterinary Medicine in Zagreb was held the 2nd Symposium "Breed and pathology of hunt game". During the Symposium 29 communications were read dealing with: breeding of game, production of game as "meat", influence of ecological factors on the game population, morphology of game and the possibilities of evolution of bones and hairs in expertises concerning the cases of poach hunting.

Enclosed you can find the program and the collection of summaries of the communications read in Croatian. If you are particularly interested in some communication I'll be very glad to translate for you its summary.

your sincerely

prof. dr Ante Hraste



Please contact
Dr. Hraste if you are
interested. G.S.

ZBORNİK SAŽETAKA

3. Simpozija „Male životinje i urbana sredina”

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2. Simpozija „Uzgoj i patologija lovne divljači”

