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THE BACULUM OF PLESIOGULO (CARNIVORA:MUSTELIDAE). Jessica A. Harrison, Dept. of Paleobiology, Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560. (Journ. of Paleontology, V. 56, no.5, 1266-1273, 1982). Code 1-M.

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CONDITION AND GROWTH OF RED FOXES (VULPES VULPES) IN RELATION TO FOOD SUPPLY. Erik Lindström, Grimsö Wildlife Res. Station, S-770 31 Riddarhyttan, Sweden. (J. Zool. Lond. 1983, 199, 117-122). Code 1-F.

ANAL SAC SECRETION IN MUSTELIDS. A COMPARISON. C. Brinck, S. Erlinge, M. Sandell, Lab. of Ecological Chemistry, Univ. of Lund, Ecology Building, Helgonavägen 5, S-223 62 Lund, Sweden. (Journ. of Chemical Ecology, Vol. 9, no.6, 1983) Code 1-M-F-0.

NOTES ON THE MOVEMENTS AND RHYTHM OF ACTIVITY OF A SKUNK MUSTELA-PUTORIUS FOLLOWED BY RADIO TRACKING. Veronique Herrenschildt, Lab. de la Faune Sauvage et de Cynégétique, I.N.R.A., 78350 Jouy-en-Josas, France. (Mammalia, 46, 4, 1982, 554-556, 1982). Code 1-14-0.

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- THE SUSCEPTIBILITY OF THE EUROPEAN RED FOX (VULPES VULPES) TO INFECTION WITH ECHINOCOCCUS GRANULOSUS OF AUSTRALIAN SHEEP ORIGIN.** Annals of Tropical Med. and Parasitology, Vol. 77, no1, 75-82, 1983). Code 9-F.
- MINK LUNG CELLS AS A TOOL FOR DETECTION OF MYCOPLASMA HYORHINIS CONTAMINATION IN CELL CULTURES AND VIRUS STOCKS.** G. Darai, L. Zöllner, R.M. Flügel, H. Gelderblom, Inst. for Med. Virologie der Universität Heidelberg. (In Vitro, Vol. 19, no. 1, Jan. 1983, 7-15). Code 9-8-M.

KALA-AZAR IN PORTUGAL. IV. THE WILD RESERVIOR: THE ISOLATION OF A LEISHMANIA FROM A FOX. P. Abranches, F.M. Conceicao Silva, M.M.S. Ribeiro, F.J. Lopes, L. Teixeira Gomes, Inst. de Higiene e Medicina Tropical, 96 rue da Junqueira, 1300 Lisbon, Portugal. (Transactions of the Royal Society of Tropical Medicine and Hygiene, 77, 3, 420-421, 1983). Code 9-F.

A SURVEY OF RED FOXES (VULPES VULPES) FOR ECHINOCOCCUS MULTILOCULARIS IN SOUTHERN ILLINOIS. William G. Dyer, Willard D. Klimstra, Dept. of Zoology, Southern Illinois University at Carbondale, Carbondale, Illinois 62901. (Transactions of the Illinois State Academy of Science, Vol. 74, 1/2, 133-135, 1981). Code 9-F.

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GASTROINTESTINAL HELMINTHS IN RED FOXES (VULPES VULPES L.) OF SOUTHERN ILLINOIS. William G. Dyer, Willard D. Klimstra, Dept. of Zoology, Southern Illinois University at Carbondale, Carbondale, Illinois 62901. (Transactions of the Illinois State Academy of Science. Vol. 74, 1/2, 137-141, 1981). Code 9-F.

DIROFILARIA IMMITIS IN UROCYON CINEREOARGENTEUS FROM SOUTHERN ILLINOIS. William G. Dyer, Willard D. Klimstra, Dept. of Zoology, Southern Illinois University, Carbondale, Illinois 62901. (Transactions of Illinois Academy of Sciences, Vol. 75, 1/2, 81-83, 1982). Code 9-F.

PANCREATIC FLUKES (EURYTREMA PROCYONIS) IN RED AND GRAY FOXES FROM SOUTHERN ILLINOIS. William G. Dyer, Willard D. Klimstra, Dept. of Zoology, Southern Illinois University at Carbondale, Carbondale, Illinois 62901. (Transactions of Illinois Academy of Sciences, Vol. 75, 1/2, 121-123, 1982). Code 9-F.

DIROFILARIA IMMITIS IN GRAY FOXES IN ILLINOIS. G.F. Hubert, T.J. Kick, R.D. Andrews, Illinois Dept. of Conservation, P.O. Box 728, Hinckley, Illinois 60520. (Transactions of Illinois Academy of Sciences, Vol. 75, 1/2, 149-152, 1982). Code 9-F.

GASTROINTESTINAL HELMINTHS IN GRAY FOXES (UROCYON CINEREO-ARGENTEUS) OF SOUTHERN ILLINOIS. William G. Dyer, Willard D. Klimstra, Dept. of Zoology, Southern Illinois University at Carbondale, Carbondale, Illinois 62901. (Transactions of Illinois Academy of Sciences, Vol. 75, 3/4, 289-295, 1982) Code 9-F.

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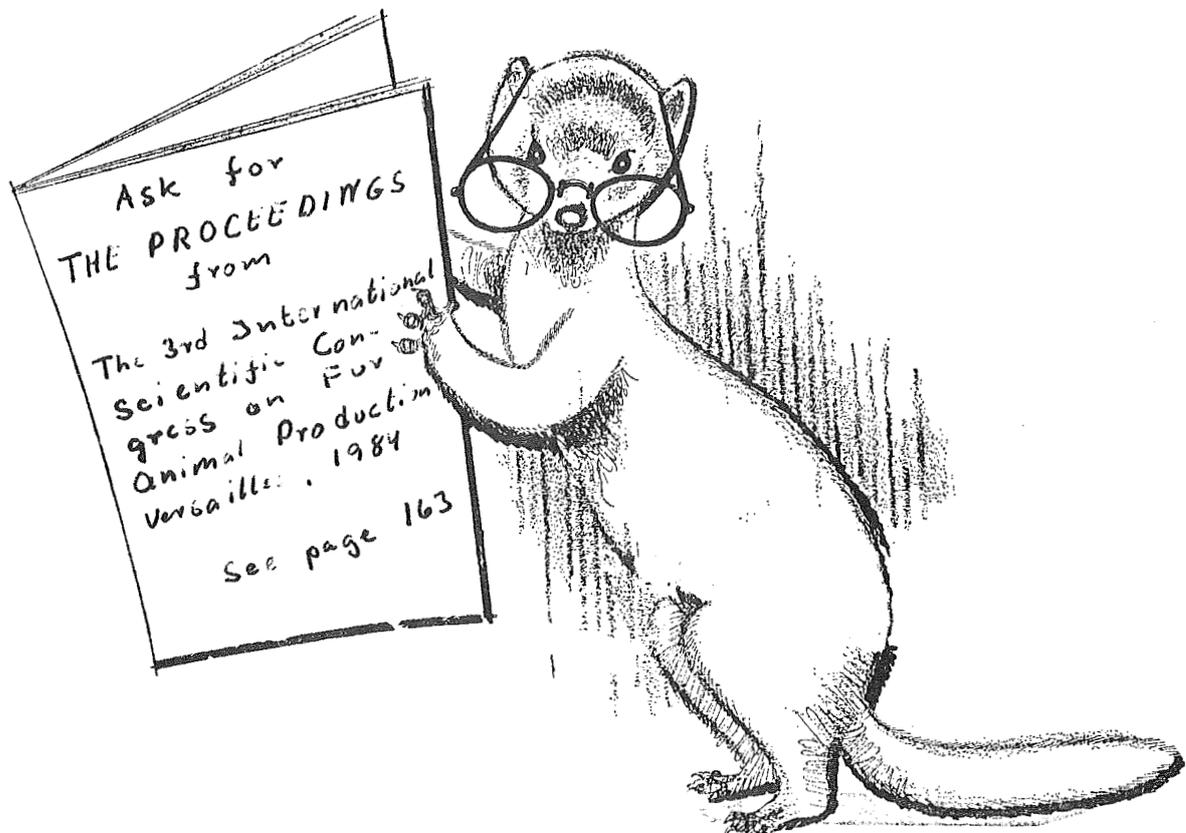
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NOTES

SCIENTIFUR, VOL. 8, NO. 2, 1984.

Just home from the 3rd International Scientific Congress in Fur Animal Production 1984, Versailles, France, the first word coming to your mind must be THANKS. Thanks to Professor J. Rougeot and his arrangement committee for a well organized congress at a historic and very beautiful place (also for nice weather), and thanks to the speakers for very interesting reports.

Much more about this congress and the future congresses you will find under COMMUNICATION. Among others you will find a complete list of reports given at the congress. The proceedings from this are available at a price of 250 FF.

Abstracts from the presented reports were before the congress sent to the participants and do not appear in the proceedings as well as the addresses of the authors. Therefore, it may be questionable how far this matter has to be published in SCIENTIFUR, but if we only get few requests we shall consider to print these abstracts in SCIENTIFUR - because it is one of the reasons why we publish SCIENTIFUR, but, in this issue - typed during the congress week - is not space for it.

ScientiFURTHER problems was presented during the congress by myself, and I will be so frank to bring the abstract from the report in connection to this NOTES, because I feel this is matter to which official response (also yours) is needed.

FURTHER IMPROVEMENT IN COOPERATION AND COMMUNICATION IN THE SCIENTIFIC
AND PRODUCTION ASPECTS OF FUR ANIMAL PRODUCTION

Gunnar Jørgensen

Previous international Scientific congresses on fur animal production the establishment of SCIENTIFUR, and the development of the scientific and production aspects of cooperation have shown us that we are on the right path regarding cooperation and communication. But editing work at SCIENTIFUR has clearly shown me that there is still a considerable language barrier as regards international communication. A lot of important basic reports are still written in "difficult" languages, and sometimes without an English summary. Many of these reports may not receive enough attention and thus not further improve the industry, at least not from an international point of view. Resources for research are so limited today that all sources of knowledge have to be utilized. One solution to the problem may be to start by translating "difficult" languages into a language - preferably English - which gives maximal utilization of the knowledge produced.

As a result of my own experience and that of many colleagues, I am pleased to recommend that this 3rd Congress discuss and stimulate the following activities in international cooperation : (1) complete translation into English of scientific and other important reports written in "difficult" languages (especially in Russian and other eastern languages, but also in French, German, Spanish, etc.) ; (2) Production of professional informative materials (articles, films, slides, transparents, etc.) of both a basic and scientific nature for local journals, public and professional school advisers and for courses in fur animal production. It is suggested that the establishment of the activities mentioned, together with the future production of SCIENTIFUR, should be based on economic support from the International Fur Trade Federation, of which all actual countries are members. The main economic background for the service should, like SCIENTIFUR, be based on subscriptions to the service.

The INTERNATIONAL FUR INFORMATION CENTRE should include the following activities : (1) establishment and management of an effective literature search in fur animal production ; (2) production and further improvement of SCIENTIFUR ; (3) translation into English of Scientific and other important reports dealing with fur animal production ; (4) edition of 2-3 printed pages of popularized International Scientific News for use in ordinary journals for fur breeders ; (5) professional production of all kinds of information materials for advising and teaching ; (6) stimulation of international cooperation in fur animal production. The services mentioned under 2, 3, 4, and 5 should be based on subscriptions.

It is my opinion that a great deal of the more than 150 participants from 22 countries think that the International cooperation regarding science in fur animal production is so valuable that it must continue and improve, e.g. during some more structured set up. Also in this issue of SCIENTIFUR we bring some original reports. It will be a great day when we are able to present at least these original reports in professional print and with good pictures, so we can be able to supply the authors with reprints of better lay out.

One way to get in a such position might be supports from the supplying industry of fur animal production by advertisement in SCIENTIFUR. Of course, we have to ask for permission from the Board of Fur Animal Division of Scandinavian Agricultural Scientists, but if you agree, if you dislike or have better ideas, your comments will be appreciated.

Have a good summer - see you at the next congress.

Best regards


Gunnar Jørgensen

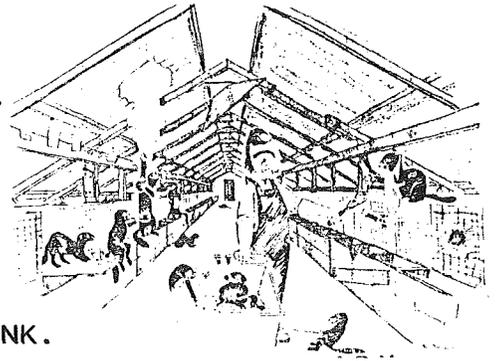
The editor.



— Intet er umuligt.
— Så kan du jo prøve at hænge alle de blade op, hvor de hang.

- Nothing is impossible!
- Well. What about to put the leaves back to the tree!

MULTI DISIPLINARY

ORIGINAL REPORT

STUDIES ON MILK EXHAUSTION IN THE MINK.
(MUSTELA VISON).

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Milk exhaustion in the mink is a complex disease with a yet unknown pathogeny. Its etiology involves various deficiencies in natrium and the vitamins B₂ and B₆ (3,4,5,6,7,8,9,10) and in proteins, glycodes, calcium and phosphorus (1,2).

Economically, the disease gives a high mortality rate among the most prolific females which varies according to the feed diets, from 2 to 20% (1).

The present study contains our observations concerning some epizootologic, morphoclinical and paraclinical aspects.

The first disease cases occurred during the 5th lactation week, and the morbidity rate increased gradually, reaching a peak immediately before weaning. A maximal incidence in highly prolific females receiving diets deficient in animal feeds (meal, milk, fish) was reported in April during the 2nd and 3rd lactation.

The disease had a chronic development in most cases. Originally despite the satisfactory appetite, the animals were losing weight, their hairs were tousled and brightless and their skin was rigid. Furthermore, changes in the general condition could be observed, namely: listlessness, sleepiness, indifference to the off-springs, anorexia and especially adipisia. Some diseased females kept the food in their mouth without swallowing it. The mortality rate ranged between 2-13%.

Due to some deficiencies related to the watering of the offsprings (lack

of water, inadequately located drinking troughs), the animals sucked the saliva from their mothers mouths which resulted in a dehydration. Subsequent to this condition the feces became viscous and dark in colour. Likewise, hypo and agalactia set in, and the milk got aquous, determining gastrointestinal disorders and high mortality rates in the off-springs.

The paraclinical examination revealed hematologic changes expressed by decreased leukocyte and reticulocyte counts. The leukocyte formula recorded a decrease in young neutrophils and an increase in the segmented neutrophils, lymphocytes, eosinophils and monocytes.

The result of the biochemical examination is shown in the Table.

Table.
Biochemical determination in the mink blood.

Specification	U.M.	Group of females with milk exhaustion		Significance	Control group		Significance
		n	$\bar{X} \pm s\bar{X}$		n	$\bar{X} \pm s\bar{X}$	
Phosphorus	mg %	88	8.34 ⁺ _{-1,54}	-	25	8.93 ⁺ _{-0.24}	**
Urea	mg %	8	88.40 ⁺ _{-6.78}	**	12	90.35 ⁺ _{-3.40}	
Fats	mg %	-	-		10	22.68 ⁺ _{-9.12}	
Cholesterol	mg %	-	-		10	349.00 ⁺ _{-2.51}	
Na ⁺	mg %	17	329.58 ⁺ _{-2.42}	**	19	344.70 ⁺ _{-2.55}	
K ⁺	mg %	-	-		12	19.55 ⁺ _{-0.14}	
Ca ⁺⁺	mg %	18	10.24 ⁺ _{-0.16}	*	10	10.87 ⁺ _{-0.22}	
Mg ⁺⁺	mg %	3	2.08 ⁺ _{-6.05}	*	10	1.88 ⁺ _{-0.44}	
Glucose	mg %	-	-		20	59.02 ⁺ _{-2.33}	
Proteins	g %	19	8.10 ⁺ _{-0.27}	-	25	8.31 ⁺ _{-0.21}	
Albumin	%	9	38.10 ⁺ _{-1.38}	-	12	43.50 ⁺ _{-2.56}	
- Globulins	δ %	9	34.20 ⁺ _{-1,44}	*	12	29.45 ⁺ _{-1.17}	*
- Globulins	β %	9	17.10 ⁺ _{-1.90}	*	12	11.70 ⁺ _{-1.41}	
- Globulins	γ %	9	10.50 ⁺ _{-0.84}	*	12	15.10 ⁺ _{-1.66}	

In females with milk exhaustion, decreases in the natremia ($p = 0.01$), calcemia ($p = 0.05$) and gammaglobulinemia ($p = 0.5$) could be found, as well as increases in the uremia ($p = 0.01$), magnesemia and betaglobulinemia ($p = 0.05$), and statistically nonsignificant reductions in the phosphoremia, proteinemia and albuminemia.

The curative treatment contained high amounts of fats, glycerides, 0.5 NaCl, B, AD₃E vitamins and glucose given parenterally. This treatment was unefficient. In contrast, the preventive administration of fats, and glycerides, in 2/1 proportions, contained in the meat, blood, fish, dairy produce and 0.5% NaCl, during May-June, proved efficient.

Among the fur-bearing animals, the mink gives the highest amount of glycerides in its milk. Their presence in the diets provides a normal metabolism of the fats, while a glyceride-deficient diet is associated with the occurrence of ketosis. The ketonic bodies are released as alkaline salts in high amounts and/or long periods, spoiling the Na and Ca ion-content of the body. In order to prevent these dismetabolic manifestation, a 2/1 fat-glyceride ratio is recommended.

On the background of a NaCl deficient diet, and after NaCl release in the milk, a marked deficiency sets in mainly as far as Na is concerned. Hyponatremia may also be the result of other causes such as kidney disorders, insufficient water uptake with increase of blood glycemia, reduction in the blood serum albumin concentrations etc. (2).

Regardless of the etiopathogeny, natrium deficiency in the body contributes to hinder the digestible proteins uptake by the reduction of their uses. In addition, under partial starvation with decrease in the fat supplies, the metabolism of the muscular protides is enhanced, which results in a diminished muscular mass in mink females up to cachexia.

The chloride deficiency results in disorders related to the extracellular isotomy and acid-base balance, as well as to provide digestion through the gastric juice HCl.

The hypophosphoremia enhanced by hyponatremia worsens the body weakness, after a deficient intake of the nutritional ingredients in the diet, together with a considerable decrease in the milk yield in lactating mink females.

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ORIGINAL REPORT

STRESS PROBLEMS ON FUR FARMS AND THE WAYS OF THEIR SOLVING.

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Fur animals are likely to suffer stresses resulting from industrialized fur-breeding and the use of new technological methods in this field. Stress factors common on farms are veterinary-prophylactic measures, transfers, transportation of blood-stock, weaning of kits from mothers, supercooling, superheating and some other procedures related to breeding technology (Berestov et al., 1980; Kohtyuk, Filatova, 1980 and others). These measures are generally accompanied by the high agitation and aggressiveness of animals and may result in the loss of female lactation, lowered disease resistance, the retarded growth of young animals and deteriorated fur quality.

Different pharmacological preparations of the tranquilizer group (Ustinov, 1976; Koval'chik, 1978) are generally used to reduce the damaging effect of stresses in cattle-breeding. They decrease nervous tension and phobia and suppress the motor activity of animals.

Aminazine is the most common antistress preparation. It has been employed in fur-breeding to eliminate stresses in sable (Trutbetskoi et al 1977). Our experiments with mink and polar fox have shown that aminazine may be of use in preventing industrial stresses (Berestov et al. 1980). When weaning kits from their mothers the preparation was intramuscularly injected to minks and polar foxes, 1 mg per kg body weight, on the day of weaning and on the next day. Then it was added for 10 days to a standard ration, 5 mg per kg body weight, twice a day. When the bloodstock was transported aminazine was intramuscularly injected at a dose of 1 mg per kg body weight, 30 min before the animals were taken to a vehicle.

Aminazine easily suppresses stress reactions in fur-bearing animals. This is illustrated by their calmer behaviour and by the analysis of the total corticosteroid hormone content of blood plasma which decreased

significantly after the preparation had been fed to the animals. Observations on the growth and development of weaned kits showed no difference in the preslaughtered weight of experimental and controlled groups. However, the dose chosen decreased the weight increment of young animals during the first ten days after the kits were weaned from mothers. This is the results of its by-effect on the organism. It is well known that aminazine suppresses the secretory reaction of gastric glands, decreases the enzymatic activity of a digestive tract (Mozgov, 1974; Suhsterin, 1978) that hampers the active digestion of food.

In this connection we have chosen mebicar, a well-known medical preparation, to prevent stresses in fur-bearing animals. It has no toxic influence on an organism. The preparation has a stress-preventive effect, it is easily absorbed and completely excreted from the organism in the urea for 24 hours (Val'dman et al., 1981; Zimakova et al., 1980).

We have found no data on the use of mebicar in fur-breeding, therefore we studied its effect on the organism of dark-brown minks, particularly on the activity of blood serum enzymes such as lactic dehydrogenase (LDH), alkaline phosphatase (AP), cholinesterase (ChE), aspartate-amino-transferase (GOT), alanine-aminotransferase (GPT), the level of plasma corticosteroid hormones, fertility and fur quality. In all three series of experiments were performed with 300 minks.

The first series of experiments centred on the study of mebicar effect on the organism of mink kits and their mother in the period when the young animals were weaned from their mothers. 250 mg of mebicar per kg body weight were added to a standard ration of the animals from the experimental group a day before weaning the kits. Then it was daily fed for 10 days at a dose of 250 mg per kg body weight. The experiments showed that the weaning of young animals is a stress factor for both mink mothers and their kits. This was confirmed by the high level of corticosteroids in blood plasma which, two hours after the separation, was 2-fold and 3-fold in female minks (from 4.33 to 9.2 ng/ml, $P < 0.001$) and in kits (from 2.44 to 8.00 ng/ml, $P < 0.01$) respectively. The activity of blood serum enzymes also changed. In females the LDH activity declined by 32% (from 14.3 to 9.77 μ moles/ $P = 0.01$), while the activity of GOT increased by 25% (from 83.5 to 104.2 units, $P = 0.001$)

and that of GPT - by 18% (from 40.3 to 47.6 units, $P = 0.005$). In kits a 13% fall in LDH activity (from 18.68 to 16.4 μ moles /ml, $P < 0.002$), a 45% rise in GOT activity (from 8.60 to 124.8 units, $P < 0.001$) and a 61% increase in GPT (from 13.5 to 29.4 units, $P = 0.05$) were statistically significant.

The injection of mebicar had a pronounced antistress effect because the level of plasma corticosteroids decreased significantly in experimental females and kits to 5.4 and 4.6 ng/ml, respectively. The preparation prevented an excessive growth of transaminase activity and a decline in LDH and AP activity.

The second series of experiments was concerned with the ability of mebicar to impede stresses which resulted from transportation of minks for distances of 30 and 180 km. Before transportation experimental minks were given intramuscular injection of mebicar at a dose of 250 mg per kg body weight. When the animals were transported for 180 km the same dose of the preparation was injected before the animals were taken to a vehicle. The injection was repeated on the arrival day and on the subsequent day.

Short-term transportation of minks for a distance of 30 km led to a 42% increase in plasma corticosteroids (from 63.8 to 91.0 ng/ml, $P < 0.05$) but it did not significantly affect the enzymatic activity except AP whose activity decreased by 40% (from 24.9 to 15.08 units, $P < 0.05$) as compared with the initial background.

Night transportation of animals for 180 km was accompanied by a twofold increase in corticosteroid concentration in blood plasma (from 29.5 to 58.5 ng/ml, $P > 0.001$), while AP and ChE activity decreased by 43% and 24%, respectively. Preliminary injection of mebicar had a stress-preventive effect. It hampered a rise in corticosteroid concentration in the blood plasma of minks and stimulated AP activity, thus impeding its fall.

Thus, in two industrial stresses in minks resulted from weaning and transportation of the animals mebicar had a stress-preventive effect normalizing both the level of corticosteroids and the activity of blood enzymes.

The third series of experiments was devoted to the study of mebicar effect on the mink organism in the period of reproduction. Mebicar 0.1 g per kg body weight, was added to a standard ration and fed to minks during the entire period of pregnancy and lactation (from March 23 to June 20). A total of 19 females was studied in the experiments and in the controls. The animals were divided into groups with respect to their similarity.

Analysis of data obtained for parturition showed that mebicar fed in the period of reproduction had no significant effect on the reproductive function of minks. The number of successfully parturiated females and those which had not become pregnant was the same in experimental and controlled groups. The fertility of females was similar both in the experiment and in the controls (6.44 kits). The number of kits per one female was one-third higher in the experimental group (by 5.1%) at the expense of kits' mortality before registration.

After weaning of kits from mothers (from June 15) the above dose of mebicar was continued to be added to the animals' ration during 10 days. In June adult females and kits were weighed twice. Mebicar was found to exert no statistically significant effect on animal weight.

In november the animals were slaughtered, and commission price fixed for their skins. The skins of the animals studied were bigger in size than those of the controls. The mean sale price for a skin from the experimental group was 11% higher than that from the controls.

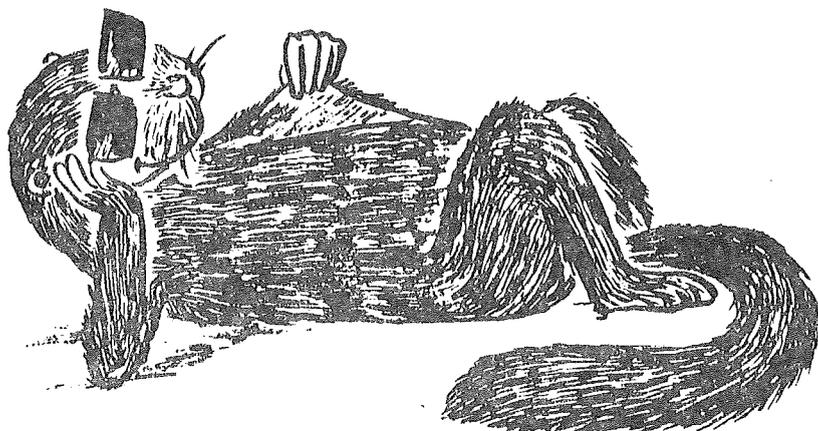
Long-term feeding of mebicar to minks had no significant bearing on their metabolism but rather stimulated some of its processes. Thus, in adult minks GOT activity increased by 17% and in kits the activity of GPT rose by 38% as compared with the controls. This was indicative of a vigorous protein metabolism, in which these enzymes of acid amination are directly involved. In kits LDH activity was enhanced by 13% thus demonstrating that mebicar induced some glycolytic processes which play an important role in the intense growth of animals.

Thus, mebicar, when fed (or injected) to minks for a long or short time, had no negative effect on their metabolism, fertility and fur quality.

We consider that to prevent industrial stresses in minks, mebicar, at a dose of 250 mg per kg body weight, and aminazine, 1 mg per kg body weight, may either be used through intramuscular injection or added to daily ration.

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LATE ONSET OF HEARING IN THE FERRET.

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Onset of hearing in the ferret was judged by simple behavioral, physiological and anatomical indices. The ear canals do not open until the end of the first postnatal month. This coincides with the appearance of a startle response to loud hand claps and the recording of acoustically activated neurons in the midbrains. The late onset of hearing in the ferret (around 32 days postnatal) contrasts with the cat (6 days) and the mouse (12 days).

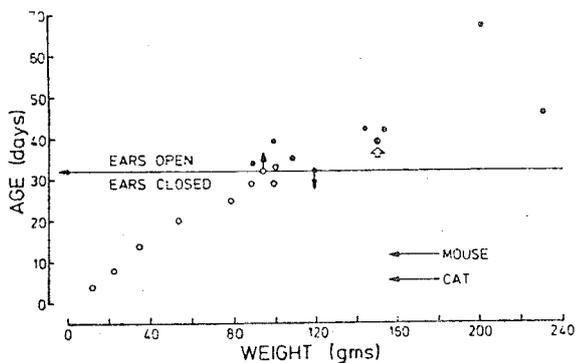


Fig. 1. Relationship between age, body weight and hearing in neonatal ferrets. Each point represents a separate successful experiment. Open circles, no response to hand claps and no acoustically influenced midbrain neurons; Filled circles, response to hand claps and neural responses to tone stimuli. Ferret 81-23 (unfilled arrow) did not respond to hand claps but did have driven neurons. All ferrets older than 32 days had open ear canals; those younger than 32 days had closed ears. At 32 days one animal had open ears and the others ears were closed, as indicated by the arrows. Age of hearing onset in the mouse^{1,15} and cat^{1,7} is also shown.

Brain Research, 253, 1982, 309-311.

1 fig., 16 references.

Author's summary.

CATION AND ATP CONTENT OF FERRET RED CELLS.

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Ferret red cells were shown to have the following properties:

1. They have a high sodium (96 mmol/l cell) and low potassium (3.9 mmol/l cell) content.
2. The majority do not appear to have an active sodium pump in their membranes.

3. Their membranes are highly permeable to rubidium indicating that they are probably also highly permeable to potassium.
4. Their magnesium (3.01 mmol/l cell) and calcium (0.01 mmol/l cell) contents are similar to those of red cells from other species.
5. Their ATP content (0.6 mmol/l cell) is similar to that of cat and dog red cells and is sufficiently high to activate known ion transport systems.

Comp. Biochem. Physiol. Vol. 74 A, no.4, 939-943, 1983.

3 tables, 1 fig., 24 references.

Authors summary.

PINEAL GLAND - PITUITARY (α -MSH) INTERRELATIONSHIPS IN FUR PRIMING AND REPRODUCTIVE CYCLES IN MINK (*MUSTELA VISON*).

LeGrande C. Ellis, Michael D. Groesbeck, Roland E. Howell, Dept. of Biology, Utah State University, Logan, Utah 84322.

Our investigations show that blindness, either natural or surgically induced results in a lack of fur priming and sexual development. Definite genetic color phase differences were observed in the sensitivities of the biological clocks for initiating fur priming, testicular development and time of breeding and whelping. Finely-bred dark mink molted and their pelts primed later in the fall than did either pastel or opaline mink. Testicular development was earlier and more extensive for the opaline, but was intermediate for the pastels and slower and least extensive for the finely-bred dark mink. The dark mink, however, bred earlier than did either the pastel and opaline strains. Hedlund (deaf, white) mink pelted about the same time as the pastels and opalines, but they bred and whelped later than the above three strains of mink.

Plasma α -MSH levels were inversely related to testosterone levels and testicular development. It was high in all three strains (darks, pastels and opalines) during both the spring and autumnal molts, but was low during testicular development and breeding.

The Pineal and Its Hormones, pp. 197-205, 1982.

4 figs., 1 table, 13 references.

Authors summary.

PLASMA CONCENTRATIONS OF TESTOSTERONE AND DIHYDROTESTOSTERONE
DURING PERINATAL DEVELOPMENT IN MALE AND FEMALE FERRETS.

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Concentrations of testosterone (T) and 5 α -dihydrotestosterone (DHT) were measured in plasma collected from male and female ferrets at eight perinatal ages, spanning the period when behavioral sexual differentiation occurs in this species. Concentrations of T were significantly higher in males than in females 5 days before birth (day -5) and on postnatal days 10, 15, and 40. Plasma concentrations of DHT were equivalent in both sexes at all ages. In males, mean plasma T (2,278 pg/ml) and DHT (1,989 pg/ml) concentrations were highest on day -5, and declined significantly by postnatal day 5. In females, plasma concentrations of T (1,220 pg/ml) were highest on the day of birth, whereas concentrations of DHT (1,896 pg/ml) were highest on day -5; both declined significantly by postnatal day 5.

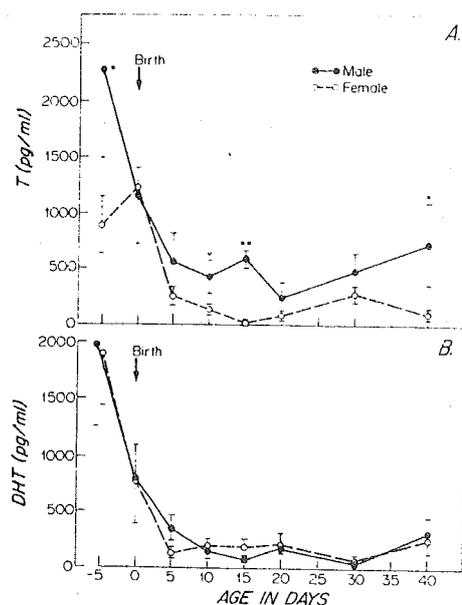


FIG. 1. Mean (\pm SEM) plasma concentrations (picograms per ml) of T (A) and DHT (B) at the indicated perinatal ages in male and female ferrets. Asterisks (*, $P < 0.05$; **, $P < 0.01$) indicate statistically significant differences between the sexes. The number of determinations contributing to each mean was 5-10 for T and 4-8 for DHT.

The mean concentrations of T and DHT in sera from reproductively active adult male ferrets were 26,019 and 888 pg/ml, respectively, whereas sera from seasonally quiescent males contained 2,976 pg/ml R and 252 pg/ml DHT. The results demonstrate that circulating concentrations of T are

significantly higher in male than in female ferrets at those neonatal ages when, in other experiments, T administration to females permanently augmented their ability to display masculine coital behaviour in adulthood.

Endocrinology, 111, 3, 767-772, 1982.

1 fig., 1 table, 24 references.

Authors summary.

EXCRETION AND PLACENTAL AND MAMMARY TRANSFER OF
HEXACHLOROBENZENE IN THE EUROPEAN FERRET.
(*MUSTELA PUTORIUS FURO*).

Michael R. Bleavins, William J. Breslin, Richard J. Aulerich, Robert K. Ringer, Dept. of Animal Science, Michigan State University,
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Female European ferrets (*Mustela putorius furo*) absorbed 98.5% of a single dietary exposure of hexachlorobenzene (HCB). The HCB was found to readily cross the placenta and to be excreted in the milk of pregnant/lactating ferrets. After consuming HCB-treated feed, ferrets raising offspring excreted 50% of the initial dose by 32 d, while unbred ferrets achieved this same degree of HCB elimination in 41 d. The percentage of HCB excreted via the urine and feces were approximately 5 and 45%, respectively, in both groups at the 50% stage of elimination. Adipose tissue was the most significant long-term repository for HCB in the ferret. The other tissues analyzed for [¹⁴C] HCB showed a general relationship of increased radioactivity with increased fat content of the tissue. The ferrets with nursing kits were able to significantly reduce their body burden of HCB when compared to unbred females. The developing ferret kits were subjected to HCB insult both in utero and via dam's milk. The ratio of milk to placental exposure in the growing offspring was calculated to be 31:1. Thus, in addition to any toxic effects HCB may have on the adult reproducing population, the placental and mammary transfer of HCB constitutes a potential threat to the developing and growing animal.

J. of Toxicol. and Environm. Health, 10, 929-940, 1982.

2 tables, 1 fig., 50 references.

Authors summary.

ULTRASTRUCTURAL STUDY ON THE CENTRO-ACINAR CELLS OF THE
MINK PANCREAS WITH PARTICULAR REFERENCE TO THE ACETYL
CHOLINESTERASE (AChE) ACTIVITY.

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Av. Dr. Arnaldo, 455 - 01245 - Sao Paulo, Brasil.

A centro-acinar cells (CAC) of the pancreas of 8 mink specimens were studied under ultrastructural points of view with regard to the distribution of acetyl cholinesterase. The subcellular characteristics observed do not suggest an important participation in the production of transport secretory proteins, but do indicate some function in electrolyte transport. The reaction for specific cholinesterase was positive, particularly close to the basal and lateral plasmalemma of the CAC, in the intercellular spaces between these cells, and next to nerve endings. Some of these endings present small agranular vesicles, and others, besides these vesicles, show large cored ones. Nerve endings and CAC are very close together, although being separated by their basal membranes.

Arq. Gastroent., S. Paulo, 18 (1), 14-20, 1981.

5 figs., 40 references.

Author's summary.

In ENGL, summary in SPAN.

THE PRESENCE OF TWO POPULATIONS OF SENSORY-TYPE CELLS
IN THE PINEAL ORGAN OF THE FIVE-BEARDED ROCKLING,
CILIATA MUSTELA L. (TELEOSTEI).

Annie Meiniel, Berthe Vivien-Roels, Lab. de Biologie animals, BP no.
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The pineal organ of the five-bearded rockling, *Ciliata mustela* L., was examined by means of electron microscopy. Two categories of sensory cells are described: 1) Sencory cells 1 (or photoreceptor cells sensu stricto) showing the characteristic ultrastructure of photoreceptor cells with a well-developed receptor pole (outer segment) and a transmitter pole (ribbon-type synapse in the basal pedicle contacting dendritic processes), and a segmental organization of organelles. 2) Sencory cells 2 (or photo-

neuroendocrine cells) displaying no particular segmentation. The ultra-structure of the receptor pole (outer segment) is variable in shape (with either long or short disks) and in the number of disks; some outer segments are simple cilia of the 9 + 0 type. This second cell category is rich in smooth endoplasmic reticulum, β - particles of glycogen, dense inclusions of variable size and content, and dense-core vesicles 130 nm in diameter. These cells have an extended contact area with the perivascular space. The functional significance of both cell categories is discussed in terms of the known physiological responses of the pineal organ. A possible confusion in identification of interstitial cells and neuroendocrine cells in some teleost species is discussed.

Cell Tissue Res. 1983, 230, 553-571.

17 figs., 60 references.

Authors' summary.

**FINE STRUCTURE OF THE RETINAL EPITHELIUM, BRUCH'S MEMBRANE
(COMPLEXUS BASALIS) AND CHORIOCAPILLARIS IN
THE DOMESTIC FERRET.**

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Canada.

The fine structure of the retinal epithelium, choriocapillaris, and Bruch's membrane has been studied by electron microscopy in the domestic ferret. The ferret possesses a tapetum cellulosum in the superior fundus, and the morphology of the retinal epithelium and its associated structures varies depending upon its relation to the tapetum. Over the tapetum the retinal epithelium is a single layer of low cuboidal cells with basal infoldings and two types of apical process. Internally the cells are non-pigmented, display much smooth endoplasmic reticulum, little rough endoplasmic reticulum, lysosomes, phagosomes, and a basally located nucleus. The choriocapillaris is composed of large capillaries indented into the retinal epithelium. Bruch's membrane is thin and composed of three layers. In non-tapetal regions the retinal epithelial cells are pigmented but display most of the other features noted over the tapetum. The choriocapillaris is not indented in non-tapetal areas. Bruch's mem-

brane appears identical to that noted over the tapetum. Wandering phagocytes are occasionally noted at the retinal epithelium-photoreceptor junction.

Acta anat. 113, 117-127, 1982.

9 figs., 33 references.

Author's summary.

PROGRESSIVE RETINAL DEGENERATION IN RANCH MINK.

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Retinal degeneration was prevalent in a large group of sapphire and pastel mink (*Mustela vison*) kept for studies on slow viral diseases. Nearly 78% of those two to eight years old were affected. The retinopathy was equally common in both sexes but more frequent in sapphires (85%) than in pastels (63%), and it was severe more often in sapphires than in pastels. By light microscopy, the primary change appeared to be progressive degeneration of fully developed photoreceptors, beginning in their outer segments. In many mink, including some younger ones, the rods and cones and outer nuclear layer had disappeared from all but the far periphery of the fundus.

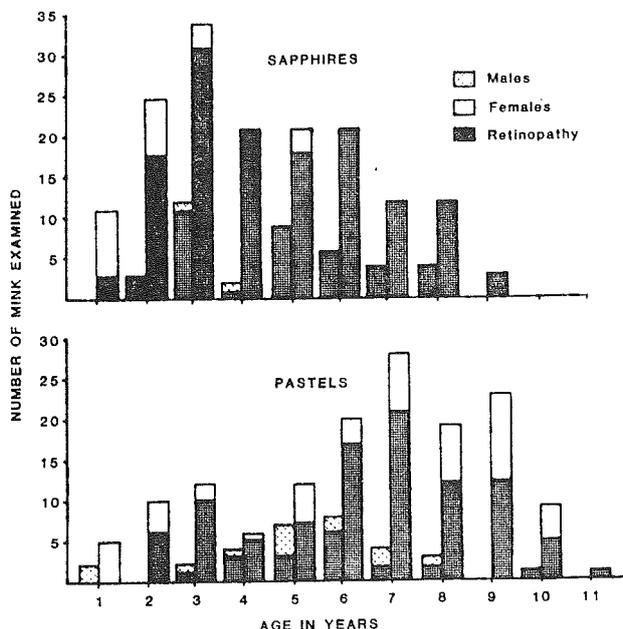


Fig. 13: Relation of age, sex, and color phase to the prevalence of retinal degeneration in 375 sapphire and pastel mink examined from 1970-1982.

The inner retinal layers were spared until late in the disease, and the pigment epithelium remained essentially unchanged. The cause of the retinopathy was not established. It may represent an abiotrophy in which the structural integrity of the photoreceptors began to wane in many mink after they reached two years of age. Apart from reducing visual acuity, the retinopathy has implications for the photoperiodic control of fur growth and reproduction in this highly light-sensitive carnivore.

Vet. Pathol., 21, 18-27, 1984.

15 figs., 60 references.

Author's abstract.

TERMINAL DIVES IN MINK, MUSKRAT AND BEAVER.

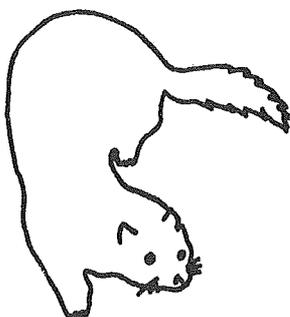
Frederick F. Gilbert, Norman Gofton, Dept. of Zoology, Washington State University, Pullman, WA 99164, USA.

Monitoring of EEG, EKG and overt behavior of mink, muskrat, and beaver caught in leg hold traps in an aquatic tank, showed marked differences by species. Death by CO² induced narcosis (submersion asphyxia) was evident in beaver, about 50 percent of muskrat but "wet" drowning occurred in mink. Bradycardia was evident in all three species but was most pronounced in the beaver. Times to cessation of struggle, brain activity and heart activity indicated that the terminal dives of mink and muskrat, but not beaver, fell within the tentative criteria of humane-ness for trapping devices established by the Federal Provincial Committee for Humane Trapping of Canada.

Physiology & Behaviour, Vol. 28, 835-840, 1982.

5 tables, 18 references.

Authors' summary.



THE MICROSCOPIC STRUCTURE OF GROWING MUSCLES OF NUTRIAS.

I. INTERSTITIAL CONNECTIVE TISSUE AND FIBRE THICKNESS.

(Mikroskopická stavba rastucich svalov nutrii.

I. Intersticialne väzivo a hrubka vlakien).

Vladimir Uhrin, Res. Inst. of Poultry Rearing and Breeding,
Ivanka pri Dunaji, 949 92 Nitra, Hlohovská 2.

Changes were studied in the work of the microscopic structure of three muscles during the growth with the orientation to structural suppositions of meat quality in grown-up nutrias. It has been found that the thickness of muscular fibres grows proportionally with the live weight growth over the first 21 days of the postnatal period. Then the live weight growth is more intensive. The growth of muscular fibre thickness slows down at the age of 7 months and ends approximately at the age of 8 months. Cells and the amorphous intercellular mass prevail in the interstitial connective tissue at birth. Collagen fibres which then form the most essential component of the connective tissue are produced with the age. The connective tissue produces relatively large isles, from which stripes run between the muscular bundles of all orders. The septation of primary bundles can be observed at the age 8 months still. Adipose cells appear only between the tertiary and the secondary bundles. They are small, there are few of them they grow but slightly with the age. Solitary dystrophic fibres occur in all the muscles under observation. By 24-hour cooling down, the muscular fibres shrink on the average by approximately 11%, by one-hour boiling by about 14%. The muscles containing thicker fibres shrink more.

Pol'nohospodarstvo = Agriculture, Bratislava, Slovenskej
Akademia vied. 1983, V. 29, 3, 232-244.

2 tables, 5 figs., 43 references.

Author's summary
translated by
Dr. Jan Nichta.

In SLOE, summary ENGL, RUSS.

COMPOSITION AND ORGANOLEPTIC CHARACTERS OF NUTRIA
(MYOCASTOR COYPUS) MEAT.

(Zusammensetzung und organoleptische Eigenschaften des
Fleisches vom Nutria (*Myocastor coypus*).

E. Sperber, W. Leyk, E. Gehle, Staatliches Veterinärunter-
suchungsamt Münster, Von-Esmarch-Strasse 12, D-4400
Münster.

For 9 nutria, body weight at slaughter averaged 5455 g (4940-
6025) and dressing percentage (including fat) 52.2. The per-
centage of external carcass fat, leg and saddle averaged 4.5,
21.6, and 22.9 resp. Details are given of meat composition,
colour and consistency.

Deutsche Pelztierzüchter, 57, 4, 58-60, 1983.

6 tables, 9 references.

CAB-abstract.

In GERM.

DISTRIBUTION AND SYSTEMATICS OF THE EUROPEAN MINK
MUSTELA LUTREOLA LINNAEUS 1761.

Phillip M. Youngman, Natl. Museum of Natural Sciences, Ottawa,
Ontario K1A 0M8, Canada.

The historic distribution of the European Mink is from the
Pechora River basin in the East, to the Basque region of norther
Spain in the West, and from the tundra near Archangel in the
north, to the Caucasus in the south. The countries from which
it has been recorded include the USSR, Finland, Poland, Hungary,
Romania, Germany, Austria, Czechoslovakia, Switzerland, France
and Spain. It is postulated that the European Mink spread to
France, from the east, as recently as the end of the eithteenth
century, at the same time it was disappearing from industri-
alized middle Europe. The spread of *M. lutreola* to northern
Spain occurred in the past 30-35 years.

At the present time there are viable populations in the USSR, France, Romania, Spain, and possibly Finland. Where there is competition with the larger, stronger, more eurytopic American Mink (*M. vison*), the native mink is being replaced.

Since most publications on the biology of *M. lutreola* are in Russian, a summary of ecological data is presented.

Linear discriminant analyses were used to study cranial variation in *Mustela lutreola* and 13 other species of the genus *Mustela*, including 5 putative *M. lutreola* x *M. putorius* hybrids.

The European mink can be easily distinguished from the polecat, *M. putorius*, and the American Mink by characteristics of the skull and pelage. The European Mink shows weak geographic variation. None of 13 previously named subspecies is reconized herein.

The genus *Mustela* is tentatively divided into five subgenera: *Mustela* (*M. erminea*, *M. nivalis*, *M. altaica*, & *M. frenata*); *Putorius* (*M. putorius*, *M. evermanni*, & *M. nigripes*); *Lutreola* (*M. lutreola*, *M. sibirica*, *M. lutreolina*, & *M. nudipes*); *Vison* (*M. vison*) and *Grammogale* (*M. africana*). Morphologically and karyotypically *M. lutreola* most closely resembles *M. sibirica*.

The European and American minks share a number of convergent aquatic characters, however they differ in a number trenchant characters and are not considered to the related by way of the geographically intermediate *M. sibirica* as has been previously suggested. Although *M. lutreola* and *M. putorius* occasionally hybridize the differ considerably.

Characters useful in separating *M. lutreola* from *M. vison* and *M. putorius* are given.

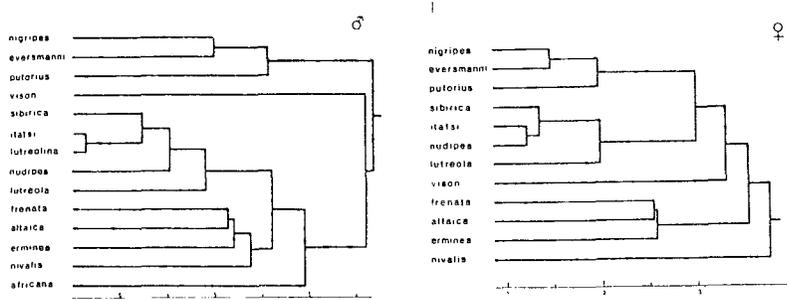


Fig. 21—22. Single linkage dendrograms using generalized distances between species centroids for *Mustela* males, and females.

Mustela vison is considered to be an endemic Nearctic species with many similarities to *Martes*.

Acta Zoologica Fennica, 166, 1-48, 1982. ISBN 9519481117.

27 figs., 137 references.

Author's summary.

THE ECOLOGY OF CARNIVORE SOCIAL BEHAVIOUR.

David W. Macdonald, Animal Behaviour Res. Group, Dept. of Zool.,
South Parks Road, Oxford OX1 3PS.

Diverse selective pressures have contributed to the evolution of the varied social groups of carnivores: the benefits of strength of numbers for defence of kills and territory, and in the hunting and killing of large prey; the ability to intimidate predators and to be vigilant against their approaches; the potential for information transfer and social learning, and a suite of alloparental behaviour patterns. Each of these may operate within the constraints upon group size and home range size set by patterns of resource dispersion. Between and within species, the magnitudes of costs and benefits attendant upon group life vary with circumstances and between individuals.

Nature, Vol. 301, Feb. 3, 9, 1983.

2 figs., 98 references.

Author's summary.

A MOBILE RACK OF CAGES FOR FERRETS (*MUSTELA PUTORIUS FURO*).

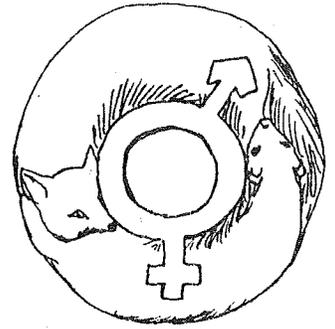
Marie S. Wilson, P.N. O'Donoghue, Royal Postgraduate Medical
School, Ducane Road, London, W12 OHS, U.K.

Ferrets have been housed and bred in a versatile mobile battery that can be arranged to provide 3-9 cages of 3 sizes. The animals were healthy, active, long-lived and easy to handle.

Laboratory Animals, 1982, 16, 278-280.

1 fig., 4 references.

Authors' summary.



**CHROMOSOME LOCALIZATION OF THE GENES FOR ISOCITRATE
DEHYDROGENASE-1, ISOCITRATE DEHYDROGENASE-2, GLUTATHIONE
REDUCTASE, AND PHOSPHGLYCERATE KINASE-1 IN THE AMERICAN MINK
(MUSTELA VISON).**

N.B. Rubtsov, S.I. Radjabli, A.A. Gradov, O.L. Serov, Inst. of Cytology
and Genetics, Siberian Branch of the Academy of Sciences of the
USSR, Novosibirsk-90, USSR.

Twenty-eight hybrid clones with different mink chromosomes were derived
from the fusion of Chinese hamster and American mink (*Mustela vison*)
cells. This set of clones made it possible to assign the mink genes for
isocitrate dehydrogenase-1 (soluble) to chromosome 4, for isocitrate de-
hydrogenase-2 (mitochondrial) to chromosome 10, for glutathione reductase
to chromosome 6, and for phosphoglycerate kinase-1 to the X chromosome.

Cytogenet. Cell Gent. 33, 256-260, 1982,

4 figs., 1 tables.

Authors' abstract.

In ENGL.

**ISOLATION AND CHARACTERIZATION OF SOMATIC CELL HYBRIDS
BETWEEN CHINESE HAMSTER AND MINK.**

N.B. Rubtsov, S.I. Radzhabli, A.A. Gradov, O.L. Serov, Inst. of Cytology
and Genetics, Siberian Branch of the Academy of Sciences of the
USSR, Novosibirsk-90, USSR.

Isolation of somatic cell hybrids between Chinese hamster and mink by
using inactivated Sendai virus has been described. Thirty-nine hybrid
clones showing loss of individual mink chromosomes were formed by fusing
the Chinese hamster cells deficient in hypoxanthine phosphoribosyl trans-
ferase with normal mink cells. Enzyme assay for these hybrid clones
revealed that the mink genes coding for lactate dehydrogenase-A, lactate

dehydrogenase-B, malate dehydrogenase-NAD (soluble), 6-phosphogluconate dehydrogenase and glucose-6-phosphate dehydrogenase are not syntenic. The possibility of using these somatic cell hybrids for mapping the mink genes has been demonstrated.

Cytol. Genet. (ENGL transl. Tsitol. Gent.) 15 (3), 1981 (Recd. 1982) 48-54, 1981. In ENGL

4 figs., 3 tables, 19 references.

Authors' summary.

**PREFERENTIAL CONSERVATION OF A GROUP OF MINK CHROMOSOMES
IN HYBRIDS OF SOMATIC CELLS OF THE CHINESE HAMSTER AND
AMERICAN MINK.**

N.B. Rubtsov, M. Shverin, V.A. Kulichkov, S.I. Radzhabli, Institute of Cytology and Genetics, Siberian Branch of the Academy of Sciences of the USSR, Novosibirsk-90, USSR.

An analysis was made of the segregation of mink chromosomes in 57 clones of hybrid somatic cells of the hamster and mink. It was shown that in the presence of a high level of elimination of mink chromosomes, the segregation is nonrandom. A relationship was detected between the type of segregation and the size of the blocks of structural heterochromatin of the chromosomes.

Tsitologiya i Genetika, Vol. 16, no.3, 17-22, 1982.

3 figs., 12 references.

Authors' summary.

In ENGL. (RUSS fully translated into ENGL).



Its more like a Bulldog
than a Hamster!

USE OF MARKER GENES LOCALIZED IN X-CHROMOSOMES FOR ANALYZING
LENS DEVELOPMENT IN ARCTIC FOX x FOX HYBRIDS.

O.L. Serov, S.M. Zakiyan, V.A. Kulichkov, Inst. of Cytology and Genetics,
Siberian Branch, Academy of Sciences of the USSR, Novosibirsk
-90, USSR.

Glucose-6-phosphate dehydrogenase (G6PD) isozymes have been studied in the lens and certain tissues of arctic fox x fox hybrid females at different stages of development. During embryonic and early postnatal (up to the 2nd day) development, a high degree of individual variation in the ratio of the parental G6PD forms was observed in the lens. The number of stem cells for the lens was estimated to be six by using the binomial method to describe this variation. In view of the similarity of G6PD spectra in the right and left lenses, it is proposed that both lenses develop from a common pool of stem cells. After the 4th day of postnatal development the lenses of all hybrid females displayed a hemizygote-like phenotype of the maternal type.

It is suggested that the pseudo-hemizygote phenotype is formed as a result of the post-translation chemical modification of G6PD isozymes.

Translated from *Ontogenez*, Vol. 13, no.2, 152-161, 1982.

3 tables, 4 figs., 24 references.

Authors' summary.

In ENGL

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

III. DISTRIBUTION OF NUCLEOLAR ORGANIZER REGIONS.

СРАВНИТЕЛЬНАЯ ЦИТОГЕНЕТИКА ТРЕХ ВИДОВ СОБАЧИНЫХ
(CARNIVORA, CANIDAE)

СООБЩЕНИЕ III. РАСПРЕДЕЛЕНИЕ ЯДРЫШКООБРАЗУЮЩИХ РАЙОНОВ

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

Nucleolus organizer regions were detected by silver staining technique in chromosomes from dog, fox and arctic fox. In the fox Ag-NORs were located in the telomeric ends of a maximum of four pairs of autosomes,

but not on any of the microchromosomes. The number of Ag-NORs per fox cell varied between 3 to 7. In dog, Ag-NORs were located in the telomeric ends of three pairs of acrocentrics. The number of Ag-NORs per dog cell varied between 3 to 6. The minimal amount of heterochromatin was detected in the genomes of dog and fox. An arctic fox had six pairs of chromosomes with Ag-NORs, all in the telomeric ends of additional heterochromatic arms. The number of Ag-NORs per arctic fox cell varied between 9 to 12. On the basis of authors' data and those from literature, the role of evolutionary rearrangements of heterochromatin in regulation of ribosomal gene activity is discussed.

Genetika, USSR, 19 (5), 778-783, 1983.

5 figs., 11 references.

Author's summary.

In RUSS. Summaries in ENGL.

THE CHROMOSOMES OF *VORMELA PEREGUSNA* (CARNIVORA, MUSTELIDAE).

ХРОМОСОМЫ ПЕРЕВЯЗКИ — *VORMELA PEREGUSNA* (CARNIVORA, MUSTELIDAE)

A.S. Graphodatsky, Yu G. Ternovskaya, D.V. Ternovsky, Inst. of Cytology and Genetics and Biological Institute, Siberian Branch of the USSR Academy of Sciences, Novosibirsk, USSR.

The chromosomes were analyzed by the standard, G-, C- and Ag-NOR-banding techniques in the marbled polecat. The genome of this species is characterized by unique features: presence of unusually large heterochromatic blocks with secondary constrictions and NORs inside. A comparison of the data obtained with those already published has shown that the genus *Vormela* is related phylogenetically more closely to the genus *Martes*, than to the genus *Mustela*, and, at the same time, is separated to a great extent from these two groups.

Zool. Zh. 61, 3, 464-467, 1982.

1 fig., 12 references.

Authors' summary.

In RUSS. Summary in ENGL.

DIFFERENTIAL STAINING OF CHROMOSOMES IN *MARTES MARTES*
(CARNIVORA, MUSTELIDAE).

ДИФФЕРЕНЦИАЛЬНАЯ ОКРАСКА ХРОМОСОМ ЛЕСНОЙ КУНИЦЫ
(*MARTES MARTES*)

A.S. Graphodatsky, Yu G. Ternovskaya, D.V. Ternovsky, Inst. of Cytology and Genetics, Siberian Branch of the USSR Academy of Sciences, Novosibirsk, USSR.

The pine marten chromosomes were studied by means of G-, C- and AgNOR-banding techniques. This species was shown to be very closely related to the previously studied sable (*M. Zibellina*), although the former has additional heterochromatin bands on some chromosomes. Nucleolus-forming regions are localized in the zones of secondary constrictions of the 4th pair of acrocentrics.

Zool. Zh. 61, 2, 313-314, 1982.

10 references.

Authors' summary.

In RUSS. Summary in ENGL.

BANDING PATTERNS OF THE CHROMOSOMES IN THE STONE MARTEN.
MARTES FOINA (CARNIVORA, MUSTELIDAE).

ДИФФЕРЕНЦИАЛЬНАЯ ОКРАСКА ХРОМОСОМ КАМЕННОЙ
КУНИЦЫ *MARTES FOINA* (CARNIVORA, MUSTELIDAE)

A.S. Graphodatsky, Yu G. Ternovskaya, D.V. Ternovsky, Inst. of Cytology and Genetics and Biological Institute, Siberian Branch of the USSR Academy of Sciences, Novosibirsk, USSR.

The chromosomes of the stone marten were studied by means of G-, C- and AgNOR-banding techniques and compared with those of the sable and pine marten previously studied. The former species is distinguished by an additional heterochromatic arm on one pair of acrocentrics. AgNORs are present in the secondary constrictions of the acrocentric pair No.3.

Zool.Zh. 61, 10, 1607-1608, 1982.

8 references.

Authors' summary

In RUSS. Summary in ENGL.

THE INTERRELATIONSHIPS OF CHROMOSOME BANDING PATTERNS IN
CANIDS, MUSTELIDS, HYENA, AND FELIDS.

Doris H. Wurster-Hill, W.R. Centerwall, Dept. of Pathology, Dartmouth
Medical School, Hanover, NH 03755, USA.

The G-banding patterns of six canids, four mustelids, one hyena, and 12 felids have been studied, and data from the study of 30 felids are summarized. The canids are karyotypically very similar to one another, but minor differences have tentatively been identified. The mustelids show the greatest karyotypic diversity of all the carnivore families so far studied. They do display, however, considerable G-band conservatism, as is common throughout the Order, and appear karyotypically more closely related to the Feloidea than to the Canoidea. The hyena shares many autosomes with the felids, showing a close relationship to that family. The felids are for the first time divisible into small groups or individually identifiable on the basis of 16 different karyotypic patterns.

Cytogenet. Cell Genet., 34, 178-192, 1982.

2 tables, 22 figs., 32 references.

Authors' summary.

THE BREEDING STRATEGY WHEN USING ARTIFICIAL INSEMINATION IN
FOXES

Einar J. Einarsson

Department of Poultry and Fur Animal Science

The Agricultural University of Norway

N-1432 Ås-HLE, Norway

The artificial insemination (AI) in foxes started in the thirties, but has been in practical use during the last four years only. In 1983, 20 000 female foxes were inseminated in Norway, 5 300 in Finland and about 550 in Denmark. A rapid increase in inseminated foxes are expected in 1984. The method of insemination is intrauterine, using fresh semen. The practical results have been variable, and are on average below those obtained by natural mating. The most common use of AI has been the insemination of blue foxes with semen from silver foxes, producing Silver Blue. However, the largest potential for genetic gain by AI is in pure breeding.

The breeding strategy with AI should be organized with an open structure, where all farms are potential suppliers of breeding animals, and without special multipliers. At the present time there should not be established nucleus herds, but semen stations for male foxes could be established.

The most efficient selection of elite males will be obtained by using selected young males which will be progeny-tested for the fertility of the daughters and the pelt quality of the progeny. The young test males are one year old when first used, and will be progeny-tested elite males before their third season. The selection of breeding males will contribute to 70 percent of the genetic gain and the selection of females to the remaining 30 percent.

The genetic gain obtained in the breeding work by the use of AI, will depend on factors as the security of the selection, the number of test males, the generation interval and the use of elite males. The breeding work should be organized in units (fox circle), each including at least 500 female foxes, which allows 10-15 test males per year and 15-20 daughters with litters in each progeny group. The work will, however, be more efficient if the number of the females in the fox circles could be increased to 1 000. The one year old test males should be used to 50 percent of the females and the elite males to maximum 20 percent of the females.

When frozen semen can be used successfully under practical conditions, it allows a more intensive use of the elite males and a better spreading of the best gene material. Frozen semen could also be important for establishment of gene banks, import and export, control of breeding work and hygienic efforts.

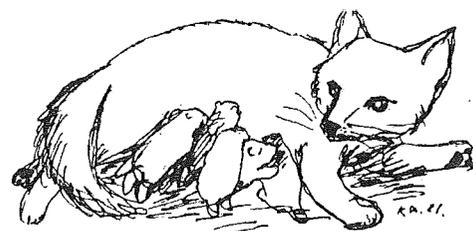
The Scandinavian meeting in Fur Animal Production

Malmö, Sweden, October 3-5, 1983

26 pp, 8 tables, 6 figures, 38 references.

In NORG

Author's summary.



REPRODUCTION

ADJUSTMENT OF GENETICALLY DETERMINED EMBRYONIC MORTALITY BY PHYSIOLOGICAL STATE OF MATERNAL ORGANISM.

A.I. Zhelezova, D.K. Belyaev, Inst. of Cytology and Genetics, Academy of Sciences of the USSR, Siberian Branch, Novosibirsk, USSR.

Transplantation of blastocysts at the 12th–14th day of development from silver blue shadow minks, mated to males of the same type, into uteri of standard females not having the shadow gene showed that lethality of embryos homozygous for shadow is determined by the genotype of the embryo itself and does not depend on genotype of the female. However, adjustment of the genetically determined time for manifestation of the lethal effect is possible by alteration of the physiological condition of the maternal organism through additional illumination of the female recipients during their pregnancies.

Translated from *Genetika*, Vol. 18, no.9, 1541–1543, 1982.

0038–5409/82/1809–1150\$07.50 1983 Plenum Publishing Corporation.

1 table, 4 references.

Authors' abstract.

in ENGL.

EFFECT OF CONSTANT ILLUMINATION OF THE FUNCTION OF TESTES AND SUPRARENAL GLANDS IN YOUNG MINKS.

ВЛИЯНИЕ ПОСТОЯННОГО ОСВЕЩЕНИЯ НА ФУНКЦИЮ
СЕМЕННИКОВ И НАДПОЧЕЧНИКОВ У МОЛОДЫХ НОРОК

D.V. Klochkov, A.L. Markel, A.I. Prasolov, Inst. of Cytology and Genetics, Siberian Branch of the USSR Academy of Sciences, Novosibirsk.

The constant illumination of young male minks for 1.5 months during the fall period inhibits the genital system: the mass of gonads decreases, the diameter of seminal tubules diminishes and spermatogenesis is suppressed. In the testes of experimental animals the number of tubules with

pachytene spermatocytes was less and that of spermatogonia was twice more than in the control animals. The same effect on adult male minks during the spring period activates the genital system: the diameter of seminal tubules increases reliably, the number of pachytene spermatocytes in their wall and the number of spermatids is higher than in the control animals. The constant illumination in autumn and spring intensifies the secretion of corticosteroids by the suprarenal glands.

Ontogenez., 13, 5, 517-523, 1982.

2 figs., 29 references.

Authors' summary.

In RUSS. Summary in ENGL.

PROLACTIN BINDING SITES IN THE UTERUS OF THE MINK.

Jack Rose, Fredrick Stormshak, John Adair, James E. Oldfield, Dept. of Animal Science, Oregon State University, Corvallis, OR 97331, USA.

The present study was conducted to determine if specific binding sites for prolactin (PRL) are present in the uterus of the mink. Uteri of anestrus mink were homogenized and subjected to differential centrifugation into three particulate fractions. 1500, 15,000 and 50,000xg. Binding (^{125}I)oPRL to membranes in an aliquot (200-400 μg protein) of the 50,000 x g particulate fraction was quantified. Time and temperature for optimal binding were 18 h at 25° C. Scatchard plot analysis revealed a single set of binding sites for PRL with a K_D of $8.25 \times 10^{-11} \pm 0.68$ M. The maximum amount of (^{125}I)oPRL bound was 28 fmoles/mg protein. Prolactin binding sites were detected in both the uterus and kidney of mink, but not in skeletal muscle, spleen, diaphragm or lung. These data indicate that uterine cell membranes of the mink contain sites that bind prolactin with high affinity.

Molecular and Cellular Endocrinology, 31, 131-139, 1983.

4 figs., 26 references.

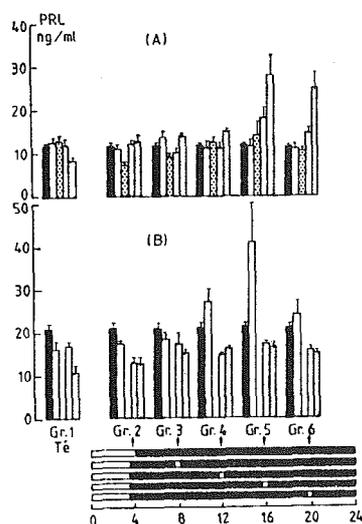
Authors' summary.

EVIDENCE FOR A CIRCADIAN RHYTHM IN PHOTSENSITIVITY
INVOLVED IN THE PHOTOPERIODIC CONTROL OF AN ANNUAL CYCLE
IN PLASMA PROLACTIN IN THE MALE MINK.

(Photosensibilité circadienne et contrôle photopériodique du cycle
annuel de la prolactinémie chez le Vison.)

Line Boissin-Agasse, Jean-Paul Ravault, Jean Boissin, Ctr. d'Etudes
biologiques de Animaux sauvages, C.N.R.S., 79360 Beauvoir-sur-
Niort, France.

An annual cycle in plasma prolactin was evidenced in male Minks with a minimum in fall and a maximum in June. In two series of night interruption experiments, it was found that the photoperiodic control of the prolactin cycle involved a circadian rhythm in sensitivity to light whose photosensitive phase culminated 16 hrs. after dawn. The same photosensitivity rhythm also induced the annual testis cycle, although, in the latter case "long days" had an inhibitory effect instead of the stimulatory control for prolactin.



Night-interruption experiments related to plasma prolactin concentrations in male Minks. Evidence for a circadian phase of photosensitivity in two experiments scheduled either in fall (A) or in summer (B). For each group, the successive bars indicate prolactin levels at days 0, 15, 30, 45 and 75. In the summer experiments measurements at day 30 were omitted. Gr 1: outdoor controls. Primary light span: 3.5 hrs. Secondary light phase 30 min. Means \pm SEM.

C.R. Acad. Sc. Paris, t. 296, 1983, Série III, 707-710.

1 fig., 1 table, 18 references.

Authors' summary.

In FREN. Summary and subtitles in ENGL.

THE LEVEL OF COPPER AND IRON IN PRIMIPAROUS FOXES IN
NORMAL AND DISTURBED COURSE OF PREGNANCY AND LACTATION.

(Poziom miedzi i zelaza u lisic pierwiastek w prawidłowym i
nieprawidłowym przebiegu ciąży i laktacji).

Barbara Stanislawska, ul. Lomżyńska 47 b/27, 85-863 Bydgoszcz, Poland.

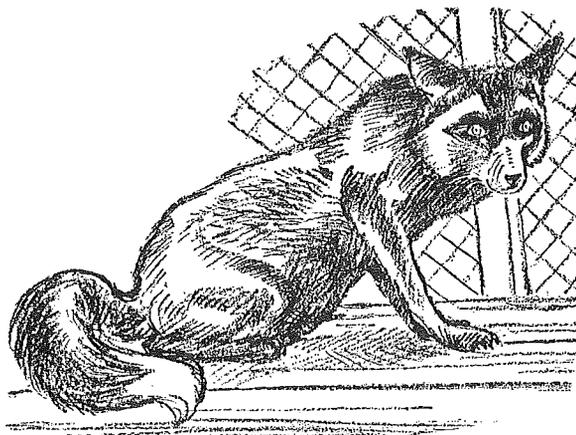
The aim of the examinations was to determine the content of copper and iron, the capacity of iron binding and the activity of ceruloplasmine in sera of females foxes. It was found 2-3 times lower level of copper, four times lower activity of ceruloplasmine and 2-3 times higher level of iron and higher capacity of iron binding by serum protein in old multiparous female foxes. In primiparous female foxes which did not give birth or eaten progeny after parturition was noted a statistically significant lower binding capacity of iron by serum proteins, lower content of copper and iron and higher activity of ceruloplasmine in comparison to primiparous female foxes which gave birth and nursed progeny. These alterations were pronounced in the course of lactation. Lack of increasing binding of iron capacity by serum protein in primiparous foxes in which appeared pathological course of pregnancy and lactation is considered as a cause of foetus resorption and eating progeny by mother unabling complement iron deficiencies just after parturition and during pregnancy.

Medycyna Weterynaryjna, Rok. XXXIX, nr. 10, 622-625.

2 tables, 4 figs., 6 references.

Author's summary.

In POLH. Summaries in RUSS and ENGL.



VASCULARISATION OF VIXEN'S (*VULPES VULPES* L.) CORPORA LUTEA
DURING PREGNANCY AND AFTER PARTURITION.

Noor Jahan Sarker, Dept. of Zoology, Univ. of Dacca, Dacca-2,
Bangladesh.

This study has been made on the basis of vascular casts of the luteal vessels after injection of plastic solution. The vascularisation of the corpus luteum of the red fox (*Vulpes vulpes* L) during pregnancy and after parturition has been studied. The observation reveals that the vascularisation of the corpus luteum after parturition maintains the conformity observed during pregnancy. But the central capillaries seem to disperse to some extent.

Proceedings of Zoological Society of Bangladesh. 15-17 March 1980.
Dacca (Bangladesh) ZBS, pp. 262-265, 1981.

(This work is a part of Doctorate thesis accepted by the University of Bordeaux II, France in 1978).

1 fig., 5 references.

Authors abstract.

RESEARCH IN THE FIELD OF MINK AI AND ITS FUTURE PROSPECTS.
(Stand der Forschung auf dem Gebiet der künstlichen Besamung
beim Nerz und Zukunftsaussichten).

C. Adams, A.R.C., Inst. of Animal Physiology, Animal Research St.,
307 Huntingdon Road, Cambridge CB3 0JQ, UK.

Vaginal insemination of mink female does not result in conception, but of 9 female treated with HCG at the end of March and inseminated into the uterus 24 h later, 7 conceived and 6 gave birth to a total of 34 kits. The effect of duration of mating on fertility was also investigated. Of 8 female mated for 5 min with a fertile male, 1 produced a litter vs 6 of 8 female mated for 5 min with a fertile male, followed by a 15-min mating with a vasectomised male. In a 2nd experiment, 6 female mated for 5 min produced only 2 litters, each of 1 kit vs. 5 litters totalling 40 kits for 6 female whose 5-min mating with a fertile male was followed by a

20-min mating with a vasectomised male. In a 3rd experiment, 10 female mated with a vasectomised male for 20 min, and then with a fertile male for 5 min produced 10 litters totalling 61 kits, whereas 10 female mated in the same way, but with a 4-h interval between matings, produced 8 litters totalling 40 kits.

Deutscher Pelztierzuchter, 57, 2, 17-18, 1983.

3 tables.

CAB-abstract.

In GERM.

MAN-MADE MINK.

Anonymous.

High-energy diets to increase pelt size caused sterility. Diets were then restricted prior to breeding and increased afterward to produce the desired larger pelts.

Utah Science, 43, 3, 1982.

Author's abstract.



THE FERTILITY OF BLUE FOX DAUGHTERS IN RELATION
TO THE SIZE AND SEQUENCE OF THEIR MOTHER LITTER.

L. Stolc, F. Louda, Agric. University Prague, Dept. of Cattle Breeding
and Dairying, 160 21 Praha 6 - Suchdol, Czechoslovakia.

The experiment was aimed at some selection criteria governing the fertility of blue fox females, and included 1,394 Daughters selected with regard to the size and order of their mother litter. No significant differences were found in the number of born and weaned cubs in blue fox daughters when relating them to the sequence of litter. When evaluating the fertility of blue fox daughters originating from litters of different size, females coming from litters of four or less cubs, and several littering, cannot be recommended for further breeding.

2nd World Congress on Genetics Applied to Livestock Production.
October 1982. 7. symposia. Part of collective document, 587-590, 1982.
ISBN 84-7391-092-3.

2 tables.

Authors' summary.

In ENGL. Summaries in ENGL and CZEC.



NUTRITTON



ACID PRESERVED SEAL BYPRODUCTS IN MINK NUTRITION.

(Ensilert selavfall som fôr til mink).

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

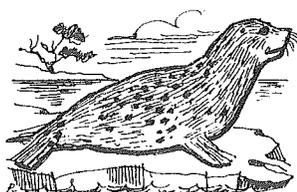
Experiments were conducted to study the value of byproducts recoverable from the Norwegian hunt of Harp seal (phoca groenlandica) as feed for fur animals. After removal of skin with subcutaneous fat, and some meat for human consumption, the remaining byproducts were ground and preserved with 2.1% formic acid, 0.4% propionic acid and 220 ppm ethoxyquin. The acid preservation resulted in a pH of about 4.3 and high stability upon prolonged storage at room temperature. Analyses of acid preserved seal byproducts revealed contents of 39.4% dry matter, 22.1% protein, 6.2% fat, 5.2% ash and 198 ppm iron. The amino acid and fatty acid profiles were comparable to common values for fish products. Apparent digestibilities for protein and fat were determined with mink and averaged 85 and 86%, respectively.

Feeding experiments with dark mink were carried out using 6 and 12% acid preserved seal byproducts as replacement for fish offal and slaughterhouse byproducts. The results obtained indicated slightly improved growth, fur quality and reproduction when acid preserved seal byproducts were included in the diet. A positive effect on feed consistency and reduced feed wastage were also noted. It was concluded that acid preserved seal byproducts can be a valuable ingredient in practical mink diets.

Norsk Pelsdyrblad 1983, 57, 399-407.

Author's summary.

In NORG.



PANCREATIC PROTEINASES FROM MAN, TROUT, RAT, PIG, COW,
CHICKEN, MINK AND FOX, ENZYME ACTIVITIES AND INHIBITION BY
SOYBEAN AND LIMA BEAN PROTEINASE INHIBITORS.

Åshild Krogdahl, Halvor Holm, Dept. of Poultry and Fur Animal Science,
Agricultural University of Norway, N-1432 Ås-NLH, Norway.

1. The specific activities of the trypsin and chymotrypsins, measured with synthetic substrates varied within one order of magnitude.
2. The trout trypsin and chymotrypsin were 5-15 times as efficient in hydrolyzing casein as the remaining animals.
3. The inhibition of total caseinolytic activity in extracts of pancreatic tissue by SBTI and inhibitors in crude extracts of raw soybeans varied ten-fold.
4. The animals may be ranked as follows according to the sensitivity of the caseinolytic activity to SBTI: trout > fox, chicken > pig > rat, cow > mink > man.

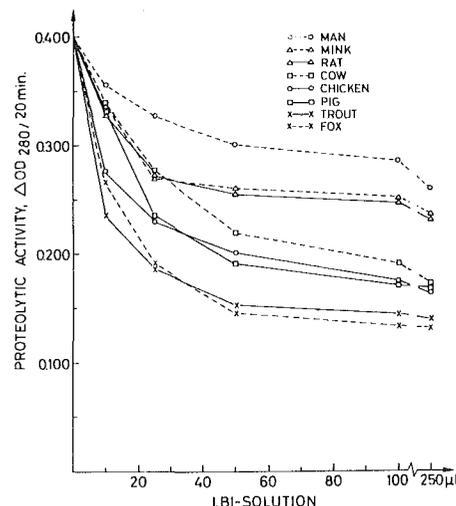


Fig. 1. Total proteolytic activity in preparations of pancreatic enzymes from different animals as function of amount of LBI in the incubation mixture.

Comp. Biochem. Physiol., Vol. 74B, No. 3, 403-409, 1983.

3 tables, 2 figs. 26 references.

Authors' summary.

**THERMOREGULATION OF POLECAT AND RACCOON DOG:
A COMPARATIVE STUDY WITH STOAT, MINK AND BLUE FOX.**

Hannu Korhonen, Mikko Harri, Juha Asikainen, Dept. of Applied Zoology,
University of Kuopio, POB 138, SF-70101 Kuopio 10, Finland.

1. Oxygen consumption ($\text{mg} \cdot \text{kg}^{0.75}$ per min) in relation to ambient temperature (T_a) in the raccoon dog (*Nyctereutes procyonoides*), polecat (*Mustela putorius*), mink (*Mustela vison*) and stoat (*Mustela erminea*) is described by equations $y = 14.2 - 0.23x$, $y = 26.3 - 0.47x$, $y = 26.9 - 0.33x$ and $y = 39.0 - 1.06x$, respectively. Resting metabolic rate (RMR) of blue fox (*Alopex lagopus*) could be measured only at thermoneutrality.

2. In polecats, calorigenic response to noradrenaline was about 40% above the RMR, while in raccoon dogs it was absent.

3. The cooling constant (per min) of decreased raccoon dogs was similar to that measured for blue fox (0.0008), but considerably higher than that measured for dog (beagle 0.0016) or polecats (0.0023-0.0031).

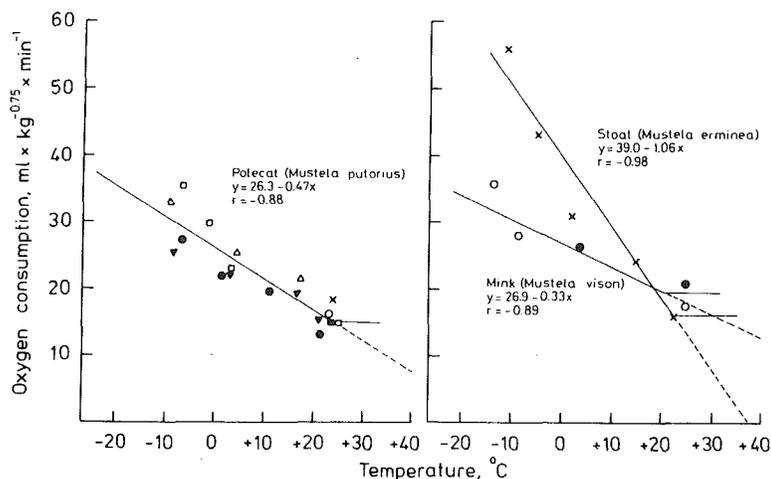


Fig. 2. Metabolic responses of mustelids to ambient temperature. Different symbols represent different individuals with the exception of mink for which the different symbols represent different measurements for the same individual. The curves of metabolism on temperature below thermoneutrality were fitted by means of least squares.

Comp. Biochem. Physiol., Vol. 74A, No.1, 225-230, 1983.

2 figs., 2 tables, 24 references.

Authors' summary.

REPRODUCTION RESPONSE IN FERRETS CONSUMING PURIFIED DIET INGREDIENTS.

Daniel E. McLain, Daphne A. Roe, Cornell University, Ithaca, NY 14853.

The ferret (*Mustela putorius furo*) has shown potential as a nonrodent animal model for teratologic testing of drugs. Attempts to establish the ferret as an animal model have been limited by ignorance of nutritional requirements. Aims of this study were to prepare and test a purified diet meeting nutritional requirements of the ferret. A natural-ingredient diet (control) was analyzed for macro- and micronutrients, reproduced in several modified formulas using refined ingredients, and tested under field conditions through reproduction. Differences between control and purified diet females when gestational parameters were evaluated at birth were that control females gained significantly more body weight by parturition, although purified diet females maintained an equal or superior feed efficiency. Growth rate and weaning rate of kits was greatest in control females during lactation. Conclusions based on objective evaluation were that a purified diet can be used which requires modification to increase palatability.

67th annual meeting of the Federation of American Societies for Expt. Biology, Chicago, Ill., USA, April 10-15 1983. Fed. Proc. 42 (5) 1983.

Only abstract received.

Authors' abstract.

HEAT ENERGY METABOLISM DURING PREGNANCY AND LACTATION IN CHINCHILLA LANIGERA.

毛丝鼠妊娠与泌乳期的热能代谢

Wang Peichao, Qian Guozhen, Lu Houji, Dept. of Biology, East China Shanghai 200062, People's Republic of China.

1. Heat energy metabolism measured under a simple closed system respirometer at a thermoneutral zone of $22 \pm 0.5^\circ \text{C}$, was determined in the female chinchilla (Family: Chinchillidae) during pregnancy and lactation.

2. The energy expenditure of the female chinchilla during pregnancy averages 48.6842 Kcal/ind./day and it is higher by 7.66%, as compared with that of the non-pregnant females.
3. During pregnancy, the total metabolic rate in chinchilla exhibits a positive correlation with both body weight and length of pregnancy and the latter is probably the most important controlling factor.
4. During lactation, the total metabolic rate is 11.82% higher than that of the normal females, and 3,86% higher than that of pregnant animals.
5. The metabolic rate of chinchilla during lactation showed a non-linear correlation with the body weight and the length of lactation.

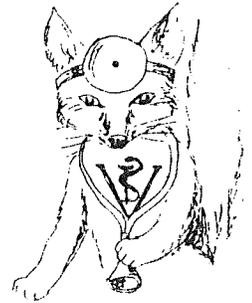
Acta Zoologica Sinica, Vol. 29, 4, 1983.

7 figs., 1 table, 18 references.

Authors' abstract.

in CHIN. Summary in ENGL.



ORIGINAL REPORT

STUDIES ON EXPERIMENTAL REPRODUCTION OF WELCHIOSIS
(ENTEROTOXIAEMIA) AND BIOLOGIC RELATIONSHIP BETWEEN
C. WELCHII AND E. COLI IN THE MINK.

V. Secasiu*, N. Pastirnac**, R. Zabava*.

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Feldioara nr. 20, 2200 Brasov.

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Welchiosis is a frequent anaerobic disease in fur animals, especially in carnivores. It appears as a food poisoning.

In the mink, various enzootic diseases produced by *C. welchii* type A were described (1,3,4,5,7,8), where the infective source is represented by contaminated animal feeds.

Although many research works have been conducted regarding the pathogenesis of welchiosis in some mammals, mainly sheep, this problem has not been fully understood.

Through experimental studies performed in cattle, swine, sheep and poultry, we have demonstrated the possibility of reproducing welchiosis by administration of *C. welchii*: cultures by oral route, under the conditions of a special feeding (9).

The literature reports the obtention of negative results after experimental oral infection with *Cl. welchii* type A strains isolated from disease outbreaks in the mink (1).

At the same time, ecologic relationships of synergism and antagonism are mentioned, obtained experimentally or identified with associated infections, such as *Cl. welchii* and *E. Coli* (8), *Staphylococcus* (7) and *C. botulinum* (3).

In previous papers (9,10) we presented the results of our investigations concerning the relationship between *C. welchii* and some Gram negative bacteria, determined in vitro and in vivo, on experimental and some domestic animals.

The literature does not contain any references to such studies in the mink.

Material and method.

1. Experimental animals: adult minks, standard variety.
2. Bacterial strains:
 - *C. welchii*. Type A strains: collection BP₆K, 4342, 4546, 4648 and 4653 isolated from minks with dietary enteritis;
 - type B strain: Collection B-85; type D strain: collection D-238.
 - The toxicity for mice of *C. welchii* strains isolated from the mink was 40, 60, 40 and 20 LMD/ml.
 - *E. coli*. Strains 4362, serogroup O₁₄₉; 4500, serogroup O₁₀₁ and 4645, serogroup O₁₄₁, were isolated from piglets with *E. coli*; 4654, serogroup O₉, from mink with dietary enteritis and strain 4685, serogroup O₈ isolated from calves with *E. coli*.

The *C. welchii* strains were cultivated in liver-in-broth for 18 hours at 37°C, and the *E. coli* ones in glucose broth 2%, for 18 hours at 37°C.

In 20 minks, distributed in 4 groups of 5 minks each, the respective strains were given in different amounts, in three administrations (Table 1).

Table 1. RESULTS OF EXPERIMENTAL REPRODUCTION OF WELCHIOSIS
IN THE MINK

Group	No exp. anim.	<i>C. welchii</i> strains	Date of exp. infection					
			R e s u l t					
			29 May ml	R	2 June ml	R	11 June ml	R
I	5	BP ₆ K	10	neg.	50	neg.	100	neg.
II	5	B-85	10	neg.	50	neg.	100	+
III	5	C-St	10	neg.	50	neg.	100	+
IV	5	D-238	10	neg.	50	neg.	100	neg.

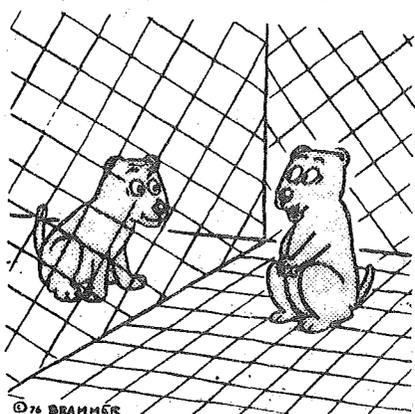
Seven days after the first administration, the drinking water was replaced by 4% bicarbonate water for 2 days. On the last administration of *C. welchii* sodium bicarbonate was added in amounts of 0.2 g/mink/day, for 2 days.

The pathogenicity of *C. welchii* and *E. coli* cultures was tested in 164 minks by intraperitoneal route and was observed for 5 days (Table 2).

Table 2. RESULT OF I.P. INOCULATION OF *C. WELCHII* AND *E. COLI* STRAINS IN THE MINK.

No.	Inoculated strain			No. inoc. anim.	Inoculated amount (ml)						
	Symbol	Type Sero-group	Origin		0.05	0.1	0.25	0.5	1	2	3
0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
<i>C. welchii</i>											
1.	BP ₆ K	A	Man	21	-	-	-	-	+	+	+
2.	B-85	B	Sheep	19	-	-	+	+	+	+	+
3.	C-St	C	Sheep	16	-	+	+	+	+	+	+
4.	D-238	D	Sheep	15	-	-	-	-	+	+	+
5.	4342	A	Mink	10				-	-	+	+
6.	4546	A	Mink	11				-	-	-	-
7.	4648	A	Mink	10				-	-	+	+
8.	4653	A	Mink	9				-	-	-	-
<i>E. coli</i>											
9.	4362	O ₁₄₉	Pig	12				-	+	+	+
10.	4500	O ₁₀₁	Pig	14				-	-	-	-
11.	4645	O ₁₄₁	Pig	8				-	-	-	-
12.	4654	O ₉	Mink	8				-	-	-	-
13.	4685	O ₈	Calf	11				-	-	-	-
T O T A L				164							

The relationships between *C. welchii* and *E. coli* in vivo, by simultaneous i.p. inoculation were determined in 45 minks (Table 3).



- I was lucky.
- I was inoculated with strain 4654 serogroup O₉.

Table 3. RESULTS OF SIMULTANEOUS I.P. INOCULATION OF
C. WELCHII AND E. COLI STRAINS IN THE MINK.

No.	C. welchii			E. coli		No. inoc.			Inter- preta- tion
	Strain	ml	Pathog.	Strain	ml	Pathog.	anim.	Result	
0.	1.	2.	3.	4.	5.	6.	7.	8.	9.
1.	4342	2	+	4500	6	+	2	P	I
2.	4342	3	+	4500	5	-	2	P	I
3.	4342	2	+	4500	4	-	2	P	I
4.	4342	2	+	4500	2	-	2	N	A
5.	4342	2	+	4362	1	+	2	P	I
6.	4342	0.5	-	4362	0.25	-	3	N	I
7.	4546	4	+	4500	6	+	2	P	I
8.	4546	1	-	4500	0.5	-	3	N	I
9.	4546	1	-	4500	0.25	-	2	N	I
10.	4546	0.5	-	4500	0.5	-	2	P	S
11.	4546	3	+	4362	2	+	2	P	I
12.	4546	4	+	4362	1	+	3	P	I
13.	4546	0.5	-	4362	0.25	-	2	N	I
14.	4648	2	+	4500	6	+	2	N	A
15.	4648	2	+	4500	4	-	2	N	A
16.	4648	0.50	-	4500	0.5	-	2	P	S
17.	4648	2	+	4500	0.25	-	2	N	A
18.	4648	2	+	4362	2	+	2	P	I
19.	4648	2	+	4362	0.1	-	3	P	I
20.	4648	0.5	-	4362	0.1	-	2	P	S

NOTE: +, - : positive and respectively negative pathogenicity on simple inoculation (separate).

P, N : positive and negative pathogenicity on simultaneous inoculation.

I : indifference; A: antagonism; S: synergism.

The increase in the lethal activity of the respective strains on associated inoculation was considered as synergic effect, the decrease of this activity as antagonistic effect and the absence of any modification as effect of indifference, in comparison with the results obtained on separate inoculation of each strain. Thus, C. welchii strains 4342, 4546, 4648 and E. coli strains 4362 and 4500 gave a positive response to 2,4,2,0.5 and 6 ml respectively and negative response to 1,1,1,0.25 and 5 ml respec-

tively. At the same time, a positive response was also considered the lethal effect obtained at 5 day interval, in 75% of the inoculated animals and a negative response when the cultures were harmless.

One day before the experimental infection and three days after, blood was collected for hematologic examinations from 2 or 3 minks in each group.

Results and discussions.

The results of the oral infection are shown in Table 1. The administration of 10 ml and 50 ml of *C. welchii* culture gave negative results. On the first day when the animals received water with additional sodium bicarbonate, 2 minks died from each of the groups 1 and 2, without having shown any disease symptoms. Degenerating lesions were revealed in the liver and kidneys, while the bacteriologic and mycologic examinations were negative.

After the last administration of *C. welchii* culture associated with sodium bicarbonate for 3 days the minks in groups 2 and 3 receiving B and C type cultures presented a reduced appetite, listlessness, quivers and muscular contractions (4 animals - 50%) seromucous diarrhoea (5 animals - 62.5%) and hemorrhagic diarrhoea (3 animals - 37.5%).

The leucocytic determinations revealed a more significant leukopenia in the minks from group 3. Thus, the first determination recorded values of 5.4 and 6.1 thousand/mm³, and the second 3.7 and 3.1 thousand leukocytes/mm³ respectively, while no significant differences were scored in groups 1 and 4.

The bacteriologic and bacterioscopic examinations, performed in diarrhoeic feces a predominant type *C. welchii* Gram positive microflora, and the respective strains could be recovered.

After 3 days the minks remitted.

The i.p. *C. welchii* experimental infection gave the results shown in Table 2.

The highest pathogenicity was observed in C-St and B-85 strains having a MLD of 0.1 ml and 0.25 ml respectively, and the lowest pathogenicity in the strains isolated from minks with dietary enteritis where the MLD ranged between 1 and 3 ml. The lethal effect occurred within 1 to 2 days. The necropsic examination showed hemorrhagic dyathesis lesions, with the parietal and visceral peritoneum uniformly stained in deep red and with degenerating and congestive lesions in the heart, liver and kidneys. The culture of bone marrow and internal organs were positive.

Among the *E. coli* strains, only serogroups O₁₄₉ was pathogenic, with a MLD of 0.5 ml. The development of the infection until exitus covered again 1 to 2 days. Punctiform hemorrhages on the peritoneum and hepatonephrosis were seen.

The relationships between *C. welchii* on i.p. inoculation are displayed in Table 3.

Following the association of *C. welchii* 4342 and 4546 strains with *E. coli* 4362 and 4500 strains, in 13 variant, in difference was obtained in 11 cases (84.6%), antagonism in 1 case (7.6%) and synergism in 1 case (7.6 %).

Unlike the above mentioned, *C. welchii* 4648 strain associated with *E. coli* strains in 7 variants induced indifference in only 2 cases (28.5%), antagonism in 3 cases (42.8%) and synergism in 2 cases (28,5%).

The positive results obtained after oral administration of *C. welchii* type B and C strains only in case of pH increase in the digestive tract, are similar to those obtained in other mammals (9). The only difference consists in the infecting dose which was 110 ml in the mink and 7 ml/kg live body weight in sheep (9).

The positive results obtained with type B and C strains and with the other types may also be a result of a higher pathogenicity in *C. welchii* type B and C for the mink, in comparison with the other strains (Table 2).

The experimental reproduction of the clinical disease, followed by the

remittance of the animals are due to the much lower susceptibility of minks to this organism as compared to the ruminants, mainly sheep, which are the most susceptible.

The artifices introduced by us for the experimental reproduction of the disease in the mink, following the pattern for the other mammals (9) accounts for the positive results and the failure of the attempts made only with pure culture (1).

The death of the 4 minks is due to foreign causes, sometimes unknown in this wild animals reared in captivity. The morphopathologic and bacteriologic examination revealed no *C. welchii* involvement.

The low pathogenicity of *C. welchii* and *E. coli* strains isolated in the mink (Table 2) is due to the fact that these strains originate from cases of noninfectious dietary enteritis.

Like other species, the mink responds similarly to the simultaneous experimental infection by i.p. route with *C. welchii* and *E. coli* strains (Table 3). In this case too, the differences in the response do not depend so much on the host animals but rather on the inoculated strains (9) such as the association 4648 + 4362 and 4648 + 4500, which gave the highest number of antagonistic and synergic results.

In the domestic animals mixed *C. welchii* and *E. coli* infections give synergic relationships between these organisms, which make the disease more severe (9). Such ecologic connections were also observed in the mink, a fact which shows that mixed infections may also occur in this species.

The fact that in our experiments we obtained antagonistic and synergic responses in 20% and 15% respectively of the variants used, claims for a reconsideration of the diagnosis and control procedures for enteric diseases in the mink.

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- Did you get the wrong strain of *C. Welchii* or was your journey dawn here caused by synergism?

IMMUNOGLOBULIN CLASSES OF ALEUTIAN DISEASE VIRUS ANTIBODY.

David D. Porter, Helen G. Porter, Stephen C. Suffin, Austin E. Larsen,
Dept. of Pathology, Univ. of California at Los Angeles School of
Medicine, Los Angeles, California 90024.

Aleutian disease virus (ADV) persistently infects mink and causes marked hypergammaglobulinemia. Immunoglobulin class-specific antisera were used to define the total immunoglobulin of each class by radial immunodiffusion and the immunoglobulin class of ADV-specific antibody by immunofluorescence in experimentally and naturally infected mink. Electrophoretic gamma globulin closely reflects the immunoglobulin G (IgG) level in mink, and the majority of the increased immunoglobulin and ADV antibody in infected mink is IgG. IgM becomes elevated within 6 days after infection, reaches peak levels by 15 to 18 days, and returns to normal by 60 days after infection. The first ADV antibody demonstrable is IgM, and most mink have virus-specific IgM antibody for at least 85 days postinfection. Serum IgA levels in normal mink are not normally distributed, and ADV infection causes a marked elevation of IgA. Low levels of ADV-specific IgA antibody can be shown throughout the course of infection. Failure of large amounts of virus-specific IgG antibody to inhibit the reaction of virus-specific IgM and IgA antibodies suggests that the various classes of antibodies are directed against spatially different antigenic determinants. The IgM and IgA were shown not to be rheumatoid factors.

Infection and Immunity, Vol. 43, 2, 463-466, 1984.

2 tables, 1 fig., 38 references.

Authors' summary.

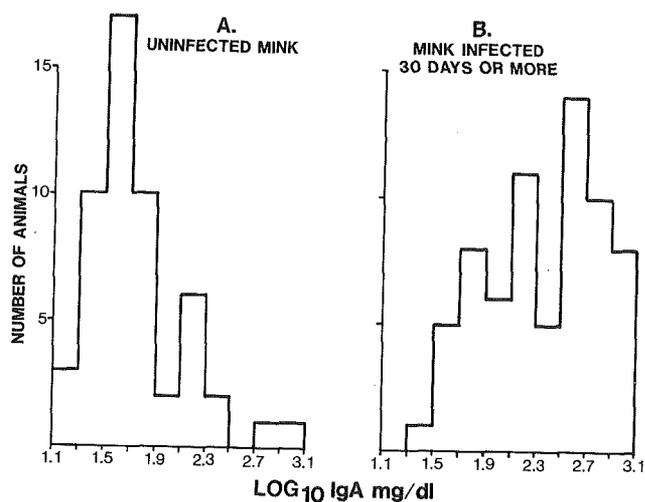


FIG. 1. (A) The wide range of serum IgA concentrations in 52 uninfected mink. Mink infected with Aleutian disease virus for 1 to 18 days had IgA concentrations similar to those of the uninfected mink (not shown). (B) Sixty-eight mink infected for 30 days or more with Aleutian disease virus had a marked increase in serum IgA concentration.

**DEMONSTRATION OF ALEUTIAN DISEASE VIRUS-SPECIFIC LYMPHOCYTE
RESPONSE IN MINK WITH PROGRESSIVE ALEUTIAN DISEASE:
COMPARISON OF SAPPHIRE AND PASTEL MINK INFECTED WITH DIFFERENT
VIRUS STRAINS.**

Richard E. Race, Marshall E. Bloom, John E. Coe, Dept. of Health and Human Services, Public Health Service, Natl. Inst. of Health, Natl. Inst. of Allergy and Infectious Diseases, Lab. of Persistent Viral Diseases, Rocky Mountain Laboratories, Hamilton, MT 59840.

Lymphocyte blastogenesis was used to study the antiviral lymphocyte response of sapphire (Aleutian) and pastel (non Aleutian) mink inoculated with Pullman or Utah I Aleutian disease virus (ADV). Both mink genotypes developed a virus-specific response when inoculated with Utah I ADV. In contrast, after inoculation of Pullman ADV, sapphire mink had a positive virus-specific response, whereas pastel mink did not. Response occurred late after infection (8 wk) and correlated with the development of progressive Aleutian disease (AD). The response to keyhole limpet hemocyanin (KLH) and concanavalin A (Con A) was also determined. Most mink of either genotype, inoculated with either virus strain, maintained an anti-KLH response during disease. Most mink also responded to Con A, although some exhibited suppressed Con A response late in the disease course. These results indicated that mink develop an anti-ADV lymphocyte response during progressive AD and are not immunosuppressed with regard to other antigens or mitogens.

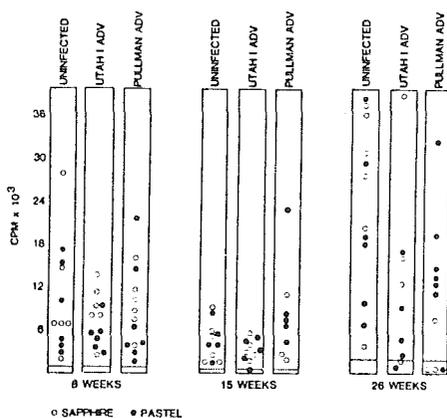


Figure 2. Comparison of the proliferative response of unfractionated lymph node cells from normal and Utah I or Pullman ADV-infected mink to KLH. All mink were immunized with KLH and 5 wk later received a booster immunization. Five weeks after the last KLH inoculation, mink were inoculated with 300 ID₅₀ Utah I ADV, 300 ID₅₀ Pullman ADV, or were not inoculated with ADV. Cells were cultured with 31 µg/ml KLH (6.2 µg/culture). Nodes examined were as described under Figure 1. The decreased magnitude of response at 15 wk post-inoculation reflects the relatively more distant anatomic location of the submandibular lymph node from the sites of KLH immunization. Δcpm represent mean incorporation of [³H] by triplicate cultures in the presence of KLH, less incorporation by cultures without added antigen.

The Journal of Immunology, Vol. 131, no.3, 1983. 1558-1564.

4 tables, 3 figs., 41 references.

Authors' summary.

**MINK TYPE C VIRUS:
BIOCHEMICAL CHARACTERIZATION OF THE STRUCTURAL POLYPEPTIDES.**

B.K. Pal, C. Susan Shimizu, Biological Science Department, California State Polytechnic University, Pomona, 3801 West Temple Avenue, Pomona, CA 91768, USA.

Mink types C virions contained six major protein species of approximate M.W. of 90,000, 70,000, 30,000, 15,000, 12,000 and 10,000. The two largest polypeptides were glycosylated and the 12,000 M.W. polypeptide was the major phosphoprotein of the virion. Two-dimensional tryptic peptide map of the 30,000 M.W. major structural protein of MiLV showed a pattern distinct from those of analogous proteins from mouse and endogenous cat type C viruses. Significant peptide homology of this protein was, however, found with the corresponding protein of infectious feline type C virus (FeLV).

Archives of Virology 75, 157-162, 1983.

1 table, 2 figs., 24 references.

Authors' summary.

**RESPONSE OF MINK, SKUNK, RED FOX AND RACCOON TO INOCULATION
WITH MINK VIRUS ENTERITIS, FELINE PANLEUKOPENIA AND CANINE
PARVOVIRUS AND PREVALENCE OF ANTIBODY TO PARVOVIRUS IN
WILD CARNIVORES IN ONTARIO.**

J.K. Barker, R.C. Povey, D.R. Voigt, Dept. of Pathology, Ontario Veterinary College, University of Guelph, Guelph, Ontario N1G 2W1.

Mink virus enteritis, feline panleukopenia and canine parvovirus-2 were inoculated separately into groups of raccoon, mink, red fox and striped skunk. Raccoons were highly susceptible to mink virus enteritis and feline panleukopenia, with animals developing clinical illness, and several dying within six to ten days of inoculation with lesions typical of parvovirus infection. Both viruses were shed in high titre in the feces of infected raccoons, and high antibody titres were stimulated.

Raccoons inoculated with canine parvovirus-2 showed no signs; shedding of virus was sporadic through moderate titres of antibody developed. Mink inoculated with mink virus enteritis and feline panleukopenia developed signs and lesions of early parvovirus infection. No signs or

significant lesions followed canine parvovirus-2 inoculation. Shedding of virus was heavy (mink virus enteritis) or sporadic (feline panleukopenia and canine parvovirus-2), though good serological responses were elicited to all three viruses. Red fox showed no signs of infection, shed all three viruses only sporadically, and the serological response was strong only to feline panleukopenia. Skunks developed low antibody titres, but no signs, and did not shed virus. Antibody to parvovirus was found in 79.2% of 144 wild red foxes; 22.3% of 112 wild raccoons; 1.3% of 157 wild skunks and 6/7 coyotes in southern Ontario. The likely significance of these viruses to wild and captive individuals and populations of these carnivores is discussed.

Can. J. Comp. Med. 1983, 47, 188-197.

6 tables, 6 figs., 37 references.

Authors' abstract.

In ENGL, Summary in FREN.

ISOLATION OF MYCOPLASMAS FROM EXPERIMENTAL FERRETS (MUSTELA PUTORIUS).

Kaoru Koshimizu, Hitoshi Kotani*, Yukio Syukuda, *) Imamichi Institute for Animal Reproduction, Dejima-mura, Niihari-gun, Ibaraki 300-01, Japan.

A total of 21 apparently healthy experimental ferrets, 8 males and 13 females comprising 1, 2 and 3 year-old animals were examined for Mycoplasmatales. Mycoplasmas were isolated from 17 samples of 21 oral cavities (81.0%), and from 2 of 21 nasal cavities (9.5%), but not from the prepuce or vagina of the animals. Neither ureaplasma nor acholeplasma was demonstrated in any of the locations of the ferrets examined. These mycoplasma strains proved to metabolize glucose but not arginine and urea. The growth inhibition test revealed that all the strains had similar antigenicity but were not related antigenically to any reference strains from dogs, cats, sheep, cattle, mice, raccoon dogs and a Japanese badger. They are the first mycoplasmas to be isolated from ferrets.

Exp. Anim. 31, 4, 299-302, 1982.

3 tables, 12 references.

Authors' abstract.

In ENGL. Summary in JAPN.

TOXOPLASMOSIS IN NUTRIAS.

U.D. Wenzel, G. Albert, H. Hattenhauer, Bezirksinstitut für Veterinärwesen,
7010 Leipzig, Goldschmidtstr. 21.

Toxoplasmosis is widely spread among domestic animals and productive live stock. Mostly, infections are latent, without any clinical symptoms and animal losses, and are only revealed by serological examinations. Statements on the occurrence of toxoplasmosis in nutrias are very scarce in literature. Systematic investigations have not yet been made. Concluding from our first serological survey examinations toxoplasmosis must be supposed to be a fairly frequent infection in nutrias.

A total of 96 serum samples was examined by us using the Sabin Feldman test. 39.6 per cent of the samples had titres between 1:4 and 1:2048. Most titres ranges between 1:4 and 1:128. High titres were only found in adult nutrias (body weight more than 3 kg).

Although transplacental infection with toxoplasms is possible, oral infection dominates under natural conditions. Animals are mostly infected through the faeces of toxoplasmotic cats excreting on nutria feed.

Clinical determination of toxoplasmosis in living nutrias is hardly possible, as according to our experience there are no characteristic symptoms of the disease. Neither do there seem to be any specific pathomorphological changes. As according to Holmes et al. (1976) living toxoplasms persist for long periods after infections, infected nutrias present a potential source of infection for man and his domestic animals. Since the contact with infected animals during slaughtering, skinning, marketing and utilization involves the danger of smear infection, nutria stock should be kept free from toxoplasms. For this purpose it is demanded:

- not to feed any raw slaughtering offals to carnivores
- to keep off cats from nutria stock, feed stores and storage rooms
- to keep the farm grounds clean and orderly and provide disinfections at regular intervals.

Appendix: Survey of SFT titres.

Brühl 23, 4, 14-15, 1983.

Authors abstract.

RACCOONS (PROCYON LOTOR) AS CARRIERS OF SALMONELLA.

E.V. Morse, D.A. Midla, K.R. Kazacos, Dept. of Microbiology, Pathology and Public Health, School of Veterinary Medicine, Purdue University, West Lafayette, IN 47907.

During 1978-80 a survey was conducted to ascertain the prevalence of Salmonella in raccoons (*Procyon lotor*) in Indiana. The animals were live-trapped and their feces and mesenteric lymph nodes cultured for salmonellae. Of the total 106 raccoons examined, 43 salmonellae isolations were made from 33 animals (33.1%). The mesenteric lymph nodes from 8 of 20 raccoons which were necropsied contained salmonellae. Twelve serotypes were identified. Two harbored 3 serotypes, while 7 others were colonized with 2 serotypes, Urban origin raccoons were 30.8% Salmonella positive, while 34.7% of the rural raccoons yielded the pathogens. Among the adults, 39.6% were positive and 33.3% of the immature animals harbored salmonellae. The most frequently isolated organism was *S. typhimurium* (35%) and its variant, Copenhagen. The antibiograms of the Salmonella isolates were ascertained using 12 antimicrobials. Resistance to common antimicrobials used in veterinary practice was minimal.

J. Environ. Sci. Health, A18, 4, 541-560, 1983.

2 tables, 34 references.

Authors' summary.



THE EPIZOOTIC OUTBREAK OF SARCOPTIC MANGE IN SWEDISH
RED FOXES (*VULPES VULPES*).

Torsten Mörner, Natl. Vet. Instituts, S 750 07 Uppsala, Sweden.

Sarcoptes scabiei v. *vulpes* appeared for the first time in Sweden in 1972. It is believed that the disease was introduced by dispersing red foxes from Finland. From 1975 the disease has been spreading rapidly in Sweden, and has today reached almost all parts.

The disease is believed to be primarily spread from infected dens. the mortality seems to be high and local populations infected with mange are heavily reduced.

Mange is commonly first seen on the tarsal joints. The disease spreads and in severe cases mange is found on all parts of the body. The skin in affected parts is hairless and thickened. Commonly there is also a purulent-mycotic dermatitis. Infected foxes appear to die from starvation.

Sarcoptic mange has also been diagnosed in lynx (*Lynx lynx*). In the dog sarcoptic mange has increased dramatically in areas where infected foxes are found. No cases have been diagnosed in the cat, the badger (*Meles meles*), the marten (*Martes martes*) or the arctic fox (*Alopex lagopus*). The disease is believed to be a threat to the small endangered arctic fox population in Sweden, although no cases have been seen.

North America; Wildlife Disease Ass. Wildlife Diseases of the Pacific Basin and other Countries. Proceeding of the 4th Internat. Conf. of the Wildlife Diseases Ass., Sydney, Australia, Aug. 25-28, 1981. Part of collective document, pp 124-130, 1982.

4 tables, 8 figs., 17 references.

Author's abstract.

LEUCOSIS IN A POLECAT (MUSTELA PUTORIUS).
 (Leukose bei einem Iltis (Mustela putorius)).

O. Geisel, Inst. für Tierpathologie der Ludwig-Maximilians-Universität München, Lehrstuhl für Allgemeine Pathologie und Pathologische Anatomie, Veterinärstrasse 13, D-8000 München 22.

The findings are described of a post mortem on an 8 year old, castrated male polecat, euthanatized because of its suffering from leucosis.

Z. Jagdwiss. 29, 2, 1982, 123-125-

3 figs., 4 references.

Author's summary.

In GERM, summaries in ENGL and FREN.

HEMATOLOGY AND BLOOD CHEMISTRY IN THE SEA OTTER (ENHYDRA LUTRIS).

Thomas D. Williams, L. Thomas Pulley, Monterey Bay Aquarium, 886 Cannery Row, Monterey, California 93940, USA.

Hematology and blood chemistry studies were undertaken on 41 sea otters during a 3-yr period. The results are compared to corresponding values for other mustelids and diving marine mammals. Results showed the otters apparent adaptation to its marine environment by having values that were similar to those of pinnipeds and cetaceans.

Journ. of Wildlife Diseases, 19, 1, 1983, 44-47.

2 tables, 13 references.

Authors' summary.



VETERINARY DRUGS AGAINST DISEASES OF DOGS AND
FUR BEARING ANIMALS.

(Preparaty weterynaryjne stosowane w zapobieganiu i leczeniu
nietorych chorob u psow i zwierzat futerkowych).

Stanislaw Trusiewicz, Zjednoczenie Przemyslu i Zaopatrzenia Wetery-
naryjno-Zootechnicznego, Warszawa, Poland.

Preparations of pharmaceutical and bioveterinary industry for prevention
and treatment diseases of dogs and fur bearing animals were presented
in the paper. Sera, vaccina, vitamin preparations, antiparasitic drugs,
antibiotics and sulphonamides were showed.

Futerkowych, Nowosci Weterynarii, Poland, Vol. 12, 1-2, 34-38, 1982.
In POLH. Summaries in ENGL and RUSS. Author's summary.

PRELIMINARY STUDY OF DISEASES OF THE DIGESTIVE SYSTEM
OF CHINCHILLAS.

(Untersuchungen über erkrankungen des magen-darmkanals beim
chinchilla. Orientierende voruntersuchungen).

Manfred Brem, Kaufbeuren, München.

Over a period of approximately 2 years a total of 69 chinchillas from
21 different farms were submitted to postmortem examination. 54 of the
animals had died of a disease, the remaining 15 had been killed for
the purpose. All of them were dissected and then submitted to close
anatomical, pathological und bacteriological examination. In about
90% of the animals which had died of a disease traces of an inflamma-
tory process could be found in the digestive tract, which contained
a high percentage of E coli bacteria. In the bodies of the 15 killed
animals not any sign of an illness could be seen.

After a preliminary series of tests on non-diseased animals from various
farms made to find out the quantity of food eaten and the quantity
and morphologie of excrement, experiments were made in order to pro-
voke a dysbactery in the digestive tract. In a first experiment we

twice changed the type of food the animals were fed with. Starting with rabbit pellets we passed on to chinchilla pellets and then to "Medizinalpellets M1", special pellets containing a medicaments against parasites. The results was negative.

In 3 other experiments the animals were not given any food at all for four days. The idea was to slow down the passage of the chyme and thus create conditions favourable to the development of E coli germs in the excrement. Here, too, the result was negative, clinically as well as bacteriologically, although a slowing down of the chyme's passage could be proved.

A few chinchillas were infected directly be means of their drinking water. In a first test we used a serotype that was not enteropathogenic, in a second test we used a serotype with adhesive factors enabling the germs to stick to the mucous membrane, thus rendering the germs enteropathogenic. In the latter experiment the relative humidity of the air was artificially increased by 40% up to a maximum of nearly 80%. In both tests we succeeded in provoking disturbances with all animals, immunized as well as non-immunized. The result of the bacteriological analyses of the excrements were positive in either case.

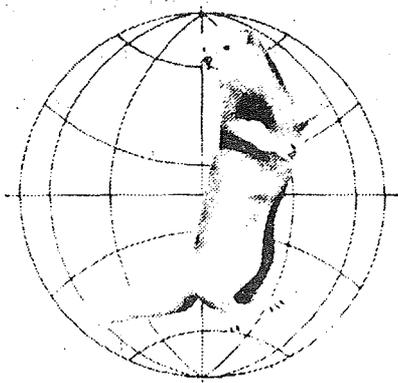
Inaugural-Dissertation, Tierärztliche Fakultät, Ludwig-Maximilians-Universität München. 125 pp, 1982.

37tables, 55 references.

Author's summary.

In GERM. Summary in ENGL.



COMMUNICATION

REPORT FROM

VERSAILLES

25-27 AVRIL 1984

3rd INTERNATIONAL SCIENTIFIC CONGRESS IN FUR ANIMAL PRODUCTION

The congress is over. More than 150 participants from 22 countries gave and/or listened to 50 scientific reports and studied 14 very interesting posters.

The matters discussed (in plenum) during the very successful congress appears from the following content of proceedings.

The organizing committee, consisting of colleagues, JEAN ROUGEOT (initiator and chairman), GENEVIÈVE CHARLET-LERY, LISE MARTINET, DANIEL ALLAIN and EMILIE COLLAS (secrétaire) have found the right place for the congress, THE TRIANON PALACE HOTEL in Versailles, which only can be described as the best imaginable place for such an arrangement.

The program sat up, the social occasions, and the French cooking will together with the scientific level of the congress be in our mind for a long time.

Everything at the congress was just enjoyable, - and great thanks and respect are given to Professor Rougeot and his arrangement committee. All of us are convinced that this 3rd International Congress was the congress which confirmed that the INTERNATIONAL SCIENTIFIC CONGRESSES IN FUR ANIMAL PRODUCTION is very valuable and are to continue.

From the former congresses and the actual congress we know that it may be discussed how far some parts should be arranged in specific sections and/or poster sessions. The general impression was, as mentioned, that

this 3rd congress has a good set up, and troubles, if any, with time shortage for discussions, which perhaps together with the "corridor" or "social discussions" are the most important of such arrangements, mainly were based on speakers use of time for presenting the papers.

The number of reports and participants have been increasing during the first three congresses. Therefore, it has still to be discussed in which way the program can be overcome in a sufficient way. I think it should be necessary to discuss the problems, and this is an invitation for suggestions for publication in SCIENTIFUR under communication. It is up to you to be fully satisfied.

Gunnar Jørgensen

THE 4th INTERNATIONAL SCIENTIFIC CONGRESS IN FUR ANIMAL PRODUCTION
1988 - see page 169.

The 3rd Congress concluded that THE CONGRESS LANGUAGE OF ALL PROSPECTIVE International Scientific Congresses in Fur Animal Production SHOULD BE ENGLISH. (Reports etc. in OTHER LANGUAGES WILL NOT BE ACCEPTED).

THE 5th INTERNATIONAL SCIENTIFIC CONGRESS IN FUR ANIMAL PRODUCTION
1992 - ?

At the 3rd Congress was discussed the place for the 5th Congress, which are to be held in 1992.

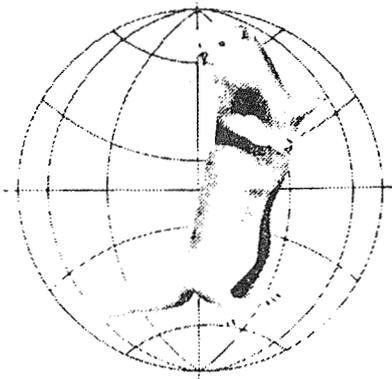
The 3rd Congress was presented for an informal but not confirmed invitation from USSR with proposed place Leningrad. Our colleagues and friends from the USSR are asked to confirm the invitation, latest 1/2 year before the 4th Congress is held.

Secondly, the Fur Breeders Association of Norway in cooperation with SCANBOARD and the Fur Animal Division of Scandinavian Association of Agricultural Scientists should be pleased to welcome the 5th Congress in Oslo 1992.

Also suggestion from Prof. Löliger, Celle, regarding arrangement of the 5th Congress in connection to the Frankfurt Fur Fair in 1992 was given.

We are looking forward.

3e CONGRES INTERNATIONAL SCIENTIFIQUE
SUR LA PRODUCTION DES ANIMAUX A FOURRURE



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3rd INTERNATIONAL SCIENTIFIC CONGRESS
IN FUR ANIMAL PRODUCTION

25, 26, 27 avril 1984, Versailles, France

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To The National Board of Fur Farm Organizations, USA, and
Canada Mink Breeders Association, Canada.

The 3rd International Scientific Congress in Fur Animal Production, which was participated by more than 150 persons, accept by this with thanks your common invitation (expressed by Mr. Tony Rietveld at the 2nd International Scientific Congress in Fur Animal Production and confirmed by letters from your organizations October 1980 (published in SCIENTIFUR Vol. 5, no. 1, January 1981, pages 65 and 66)) to

The 4th International Scientific Congress in Fur Animal Production to be held somewhere in North America or Canada in 1988.

The suggestion from the 3rd Congress is to prefer Canada (the Toronto area) as the place for the 4th Congress.

Furthermore, the 3rd Congress underline that the International Congresses are SCIENTIFIC congresses, therefore we suggest that the majority of the arrangement committee should be scientists.

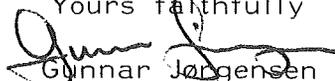
It is our hope that the arrangement committee should be able to:

1. publish the meeting place before October 1st, 1986.
2. set up 1 or 2 post congress study excursions of various duration.
3. state the estimated price of participation in congress and excursions before 1st October 1987.

The 3rd Congress suggest that the communication in connection to the 4th International Scientific Congress in Fur Animal Production also involve SCIENTIFUR.

THE 3RD CONGRESS IS LOOKING FORWARD TO THE 4TH CONGRESS.

Yours faithfully


Gunnar Jørgensen

Subscription is 350 danish crown per volume (yearly). Subscriptions should be paid to:

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MINISTÈRE DE L'AGRICULTURE

Direction de la Qualité
Services Vétérinaires

RÉPUBLIQUE FRANÇAISE

CENTRE NATIONAL D'ÉTUDES SUR LA RAGE

Domaine de Pixérécourt
B. P. N° 9
54220 MALZÉVILLEMALZÉVILLE, LE 12 AVRIL 1984
TÉL. 16 (8) 329.26.08Scientifur
Editor : Gunnar Jorgensen
NJF's fur Animal Division
484 Roskildevej
DK 3400 HILLEROED
DanemarkN. Réf. MJD/413/84 CNER (21 mars 1984)
MA/CB/525/84

Dear sir,

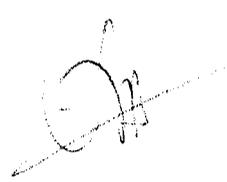
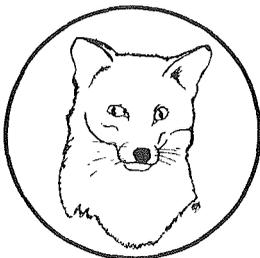
You will find enclosed final issue of the Canid's seminar program.

Would it be possible to insert this program in Scientifur, but with mention of CNER as "Direction de la Qualité - Service Vétérinaire" service.

Thanking you for this courtesy.

With kind regards

Sincerly yours

C.N.E.R.P.A.S.*
I.R.E.P.A. C.I.F.F.E.N.**
O.M.S.***

M. ARTOIS


SÉMINAIRE INTERNATIONAL

**éco-pathologie
des canidés sauvages ou errants
dans la zone paléarctique**

**eco-pathology
of wild or feral canids
in the palearctic zone**

**NANCY (FRANCE)
9-11 OCTOBRE 1984**

ORGANISÉ PAR :

* Centre National d'Etudes sur la Rage et la Pathologie des Animaux Sauvages (Centre Collaborateur de l'OMS pour la recherche et l'organisation en matière de lutte contre les Zoonoses) B.P. n° 9 F 54220 MALZEVILLE (France).

(Associated centre of the WHO for research and organisation in the fight against Zoonosis) B.P. 9 F 54220 MALZEVILLE (France)

** Institut de Recherche et d'Essais sur les Produits en Alsace Centre International de Formation à la Faune et aux Espaces Naturels - 55, Avenue d'Alsace F 68001 COLMAR (France)

*** Organisation Mondiale de la Santé, 1211 GENÈVE (Suisse)
World Health Organization, 1211 GENEVA (Switzerland)

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FOR THE PREPARATION OF THE SEMINAR

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Le Compte-rendu du Séminaire sera publié avec l'aide de
la FONDATION MARCEL MÉRIEUX

The proceedings of the seminar shall be published
with the help of
the MARCEL MÉRIEUX FOUNDATION

**PROGRAMME PROVISOIRE
PRE-PROGRAM**

**Mardi, 9 Octobre 1984
Tuesday, October 9, 1984**

MATIN / MORNING

**Séance inaugurale - Organisation des séances de
travail - Communications sur l'éco-éthologie des
canidés sauvages**

**Opening session - Planning of the workshops
Information about eco-ethology of wild canids**

HARRIS S.
Urban fox populations in Britain
KOLB H. H.
Movements and habitat use by foxes in Edinburgh
DELIBES M. et Coll.
Ecologie du renard au Colo-Donana (Espagne)

APRÈS-MIDI / AFTERNOON

KAPPELER A.
Age structure of foxes killed by hunting, road traffic,
and rabies
PULLIAINEN E.
Expansion mechanism of the wolf (*Canis lupus*)
in northern Europe

ZIMEN E.
Density dependend spatial behaviour and dispersal
in a red fox population

MARCSTROM V.
Fox and marten predation on tetraonids and hares in
northern Sweden

NIEWOLD F.
The ecology of Fox in Netherlands (titre à confirmer)

HERSTEISSON P.
Ecology of arctic foxes (*Alopex lagopus*) in Iceland

**Panneaux muraux ou textes écrits sans présentation
orale**

Posters or written texts without oral presentation

CAPT S.
Régime alimentaire chez le renard et ressources
alimentaires dans une vallée des Alpes Suisses
DUCHENE M.J. / ARTOIS M.
Connaissance du chien viverrin en Europe
IKEDA H.
General ecology of racoon dogs
AUBERT M.F.A.
Traitement informatique des données du radio pistage
du Renard sur micro-ordinateur
ROBOLY O.
Etude des populations de canidés sauvages et errants :
Intérêts du tir de nuit
LOIRE C.
Le loup et la rage en France

**Mercredi, 10 Octobre 1984
Wednesday, October 10, 1984**

MATIN / MORNING

**Communications sur le chien errant
Communications on the feral dog**

BEN OSMAN F.
Le chien errant en Tunisie
CORBETT L.K.
The role of Asian Canis as a reservoir of rabies virus
MANTOVANI A.
Problems connected with stray and wild dogs in Italy



**éco-pathologie
des canidés sauvages ou errants
dans la zone paléarctique**

EDITION FONDATION MARCEL MÉRIEUX

LARTIGES A.
Problèmes liés au chien errant en France (titre à confirmer).
ESTEVE R.
Recensement du cheptel domestique et sauvage dont la
mort est due à des éléments naturels ou à des chiens
errants.
BOITANI L. et coll.
Ecologie des canidés en Italie (Titre à confirmer)

APRÈS-MIDI / AFTERNOON

**Communications sur l'épidémiologie :
Rôle des carnivores sauvages et errants
Communications on epidemiology :
Importance of the wild and feral carnivores**

CARVALHO-VARELA M.
Le renard roux (*Vulpes vulpes silacea* MILLER 1907)
comme révélateur de foyer d'helminthozoonoses au
Portugal

LINDSTROM E.
The spread of sarcoptic mange among swedish foxes
in relation to fox population dynamics

HOUIN R./LIANCE M.
La circulation d'*Echinococcus multilocularis* entre les
hôtes naturels

PETAVY A.F./DEBLOCK J.
Les hôtes intermédiaires d'*Echinococcus* alvéolaire

MAC MANUS D.P.
The Epidemiology of Hydatid disease in Kenya and the
United Kingdom

**Panneaux muraux ou textes écrits sans présentation
orale**

Posters or written texts without oral presentation

WANDELER A.I.
Sarcoptic mange in Foxes in Switzerland

ROMANOWSKI J.
Dogs in suburban zone of Warsaw

ROLLIN P.
Rage dans l'Arctique

SCHWERS A.
Fréquence des infections par le parvovirus canin et le
rotavirus chez le renard roux en France

SAMIR AFRAN M.
Serological diagnosis of visceral leishmaniosis in dogs,
experimental and survey studies.

**Jeudi, 11 Octobre 1984
Thursday, October 11, 1984**

MATIN / MORNING

**Communications sur l'immunisation des carnivores
sauvages et communications libres
Communications on the immunization of wild carnivo-
res and free communications**

WACHENDORFER G.
Preliminary results of a field trial in Hesse (FRG) to control
fox rabies by oral immunization

PASTORET P.P.
Vaccination antirabique de renardeaux à l'aide d'un vaccin
inactivé

BLANCOU J. et Coll.
Vaccination des renards contre la rage par voie orale.
Essais en station expérimentale

ARTOIS M.
Comportement du renard enragé en liberté

CHEESEMAN C.L.
Bovine tuberculosis in European badger (*Meles meles*)
population

**Panneaux muraux et textes écrits sans présentation
orale
Posters and written texts without oral presentation**

SVEC J.
Contribution to the ecology of the red fox in Slovakia and
oral antirabic vaccination of wild canids

SVRCEK S.
Modification of quantitative method for the determine of
immunogenic activity of live antirabies vaccines in oral
immunization

KIHM U./BRUCKNER L.
Prévention de la rage urbaine en Suisse par vaccination
des chiens : enquête séro-épidémiologique

BARRAT J. et Coll.
Etudes des réactions sérologiques du renard roux (*Vulpes
vulpes*) en liberté

APRÈS-MIDI / AFTERNOON

SECRETARIAT
Suite des communications libres
Bilan, résumé et recommandation du Séminaire

TITLE OF THE COMMUNICATION

AUTHORS*

For the oral presentations and written text, the corresponding written text **should not exceed 5 pages**, including the present first page, diagrams and figures.

The text of the other four pages has to fit into a frame of the same size, to enable a recto-verso photocopy.

Concerning the posters, the whole text should not exceed 2 pages (including diagrams and figures) and has to fit into the frame of this page.

Recommandations to the authors

The texts of all communications should reach the general secretariat before July 16, 1984.

They should not exceed more than 5 typed pages, with figure or black and white photographs. They will include a French and an English summary (the organisers will check the English translations and translate the English summaries into French). The legends to the illustrations will be bilingual. The presentation of the manuscript has to conform to the enclosed model.

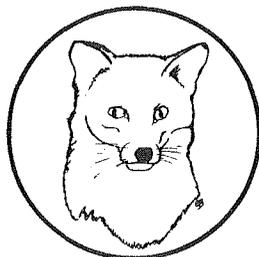
General information

Access to Nancy, bookings-forms for accomodation, customs clearance, and the program of the evenings and visits will be detailed in the definitive invitations sent out in June.

All the communications will be made in English or French. All the end of each communication, a translator of the organizing committee will give a summary in the language not used by the speaker. Insofar as possible, the illustrations (transparents, slides) presented by the speaker should be sent together with English or bilingual legends.

The definitive registration forms have to be sent back by **May 28, 1984**.

* Address of the authors



DEFINITIVE INSCRIPTION FORM

- *I confirm* my participation to the seminar
-

- *I will present* : an oral communication, a poster, a written text (*delete useless mentions*)
-

DEFINITIVE TITLE

SUMMARY

(very short : only for the organizing committee, not to be published) :

- *I wish* a booking for a hotel room (approx. 200 FF, or 25 US \$ per night)
a booking for a room on the University Campus (approx. 60 FF, or 7 US \$ per night)
a booking for a camping car place (free - no comfort)

Monday 8th - Tuesday 9th - Wednesday 10th - Thursday 11th OCTOBER 1984

(Delete useless mentions)

Participants who wish to book a room by themselves will receive a list of the hotels.

The total cost for the meals on October 9, 10 and 11 should reach approximately 400FF, or 50 US \$.

● NAME : _____ LABORATORY OR CENTRE : _____

ADDRESS : _____

DATE : _____ SIGNATURE : _____

Please send this form back to the following address (preferably typed) :

CNER

Séminaire "Canidés"

BP n° 9 - 54220 MALZEVILLE - France

Der Waschbär

Lebensweise und Ausbreitung

ANKE LAGONI-HANSEN



Verlag Dieter Hoffmann, Mainz

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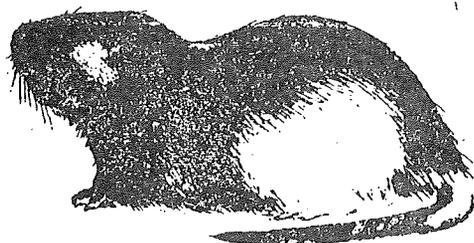
Fotos:

Hans Reinhard, Heiligkreuzsteinach (10), Hansgeorg Arndt, Lübeck (3)

122 pp, 13 photos, 6 tables, 4 figures, 343 references.

In GERM.

NUTRIA DISEASES



Dr Witold Scheuring

CHOROBY NUTRII

Wydanie II
poprawione i uzupełnione

Państwowe Wydawnictwo Rolnicze i Leśne
Warszawa 1983

PAŃSTWOWE WYDAWNICTWO ROLNICZE I LEŚNE
Zarz. 6105. Warszawa 1983 r. Wydanie II
Nakład 10 000+200 egz.
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Wiesław Rek

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Warszawa 1983

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Scheuring, W.: "Nutria diseases", II ed. Państwowe Wydawnictwo, Rolnicze i Leśne Warszawa 1983, 220 pp, 18 tables, 60 figs., 202 references, 120.- zł.
In POLH, Code 2-3-9-0.

Summary.

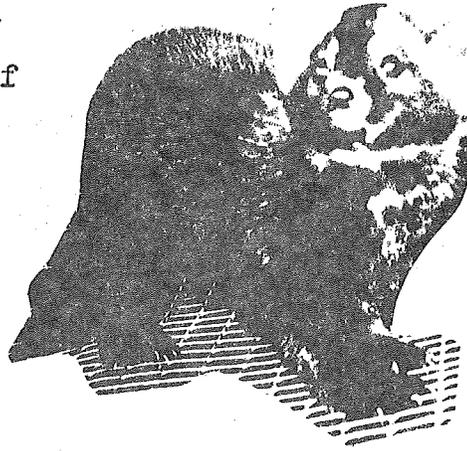
This publication is the reference book for veterinary specialists and nutria breeders. It includes some problems of anatomy, physiology, prophylaxis and diseases of nutria.

Contents:

1. Selected problems of anatomy and physiology of nutria .	11-29 pp.
2. Prophylaxis in nutria breeding.	54
3. Nutria diseases.	
3. 1-2 Infectious diseases/viral, bacterial and fungi.	98
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Letters to the Editor.

Mr. Gunnar Jorgensen
National Institute of
Animal Science
Roskildevej 48 H
3400 Hillerod
Denmark



February 8, 1984

Dear Dr. Jorgensen,

I ask you to inform *Scientifur's* readers about our new monograph "Scientific fundamentals of fur-breeding. Reference book". Book volume - 35 editor's sheets. Nauka Publishers, Leningrad. It is to be published in the USSR in 1985.

The monograph was written by the leading fur scientists of the Soviet Union. The authors are: Prof. Perel'dik, Prof. G.Kuznetsov, Prof. V.Berestov, Dr.sci. V.Kladovshchikov, Dr.sci. V.Slugin, Dr. B. Babak, Dr. A.Berestov, Dr. L.Kozhevnikova, Dr. Y.Pavlov, Dr. A.Rodyukov, Dr. Y.Samkov, Dr. N.Tsepkov and practical fur-breeders - honoured agriculture workers of the KASSR V.Gur'yanov and honoured zootechnician of the RSESR and KASSR S.Zaitsev.

The book provides fur-breeders as well as scientists, teachers and graduates of biology with a thorough grounding in various areas, such as: a) biological features, morphological and biochemical blood content; b) genetic fundamentals of selection as well as methods for mink, sable, ferret, polar fox, racoon, coon and chinchilla breeding; c) nutrient and energy requirements of fur-breeding animals of different species.

This time-saving sourcebook offers the first-scale review of research done in such veterinary problems as noncontagious, infectious and invasionous diseases, diagnosis techniques, treatment and effective health care.

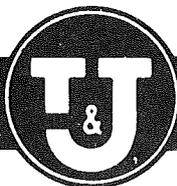
Detailed discussion of animal feeding, storage and preparation of food enable the reader to evaluate possible rations, and administrative-managing principles of fur-breeding state farm are given adequate account of.

The new book is richly illustrated with figures, graphs and photos. Such a book is published in the USSR for the first time. There are no counterparts in the world fur breeding literature.

Foreign readers may order this book through the firms and shops selling soviet literature.

Yours sincerely

Prof. Berestov
 Prof. Berestov
 SCIENTIFIC EDITOR



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EJ/PS

6th January, 1984

Mr. G. Jorgensen,
 NJF'S Fur Animal Division,
 Scientifur,
 48 H. Roskildevej,
 DK.3400 Hillerod,
 DENMARK

Dear Mr. Jorgensen,

METALOSATE
Amino Acid Trace Mineral Chelates

Further to my letter of 17th November 1982, you may be interested to see the enclosed trials result from a Danish trials site, showing the effects on haemoglobin status and pelt quality.

If I can give you any more data or information please contact me.

Yours sincerely,
 For THOMSON & JOSEPH Ltd.,

E. JOSEPH

"METALOSATES" are efficient mineral nutrients for all types of animal husbandry, widely used in poultry, sheep, cattle, horses and other animals in the United States of America. The following evaluation serves to underline their nutritional value across the species parameters.

Mink Production trials 1982

SITE: Ronde - Denmark

Grade "A" Mink Farm (certified free from plasmacytosis)

Period of trial: From weaning to slaughter/breeding selection - 1982

Animals - Scanblack Mink

Feed Regime: Wet (gruel) from feed kitchen.

ANIMALS	CONTROL <u>Standard feed</u>	TRIAL <u>+1.5K IMZ/Ton</u>	IMPROVEMENT <u>%</u>
Males	240	240	
Females	240	240	
	<u>480</u>	<u>480</u>	
<u>Mortality</u>	Approx 1½%	Less than 1%	Insignificant
<u>Average Haemoglobin levels</u>	16.25%	18.3%	From acceptable to good
<u>Best animals chosen for breeding</u>			
Male	39	54	38.46%
Female	6	16	166.66%

PELT GRADING

Percentage of SLAUGHTER <u>ANIMALS</u>	Percentage point <u>Improvement</u>
1) Saga selected	4
2) Saga	6
3) I A	1
4) I	-10.5
5) II	

CONCLUSION

The addition of I.M.Z. appears to improve haemoglobin iron status and to raise numbers of animals selected for breeding. There also appears to be a clear improvement in fur grading.