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Contents.

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Happy Christmas.

NOTES
SCIENTIFUR
Vol. 3, no.4. November 1979.

This issue is finishing volume 3 of SCIENTIFUR. We are glad that many of you have continued the subscription and sending reports or abstracts, and we wish to thank you for your cooperation during this 3rd year.
At the end of the year we have registered 176 subscribers from 21 different countries, namely Andorra (1), Argentina (3), Belgium (6), Canada (18), China (2), Denmark (49), England (6), Espana (1), France (7), Finland (21), GDR (West Germany) (2), Holland (12), India (1), Iceland (1), Japan (4), Norway (13), Poland (4), Schweiz (1), Sweden (6), USA (16) and USSR (2).
To chat we are exchanging journals with Czechoslovakia, DDR (East Germany) and Scotland. SCIENTIFUR is really going to be international, but not forget to help us with public relation for our common child.

Under Communication you can read about the second international scientific congress in fur animal production. We hope that all

participants of this congress will be able to respect the dead lines, which is proposed in the papers we are sending directly to all whose have sent ud the preliminary enrollment.

As stated - if you have get possibilities to go to the congress - please write the Congress Secretariate and ask for program and registration formulas.

We are sorry to ascertain that there in this issue of SCIENTIFUR only is 5 abstracts from reports given at the very succesful Scandinavian scientific meeting in October. It is our hope to receive more to the next issue.

In the next issue (Vol. 4 No. 1) we want to bring abstracts of all reports which will be given at the 2nd International Congress in April 1980.

Perhaps some og you will get the opinion that the pages of SCIENTIFUR could be used for more actual matters, than can be seen in this issue. But again - dear readers - it is up to yourselves, because we can only print the material we are receiving.

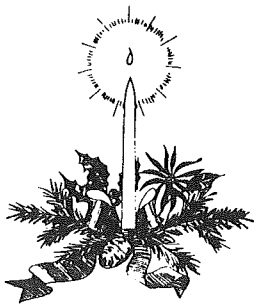
In this month it also is time for sending the invoices for the 1980-subscription. We hope that you will get it paid in a short time for helping us, because it takes a lot of time and cost a lot of money with all these reminders. We feel that it is better to use the time on doing SCIENTIFUR better, than on writing unpleasant letters to delated subscribers.

Finally we want to thank all subscribers and contributors again for the co-work in 1979. We want also to wish a MERRY CHRISTMAS and a HAPPY NEW YEAR to all whose reads these lines, and we hope for a further progress for you and YOUR SCIENTIFUR in 1980.

With kind regards

Gunnar Jørgensen
The editor

Light



THE ROLE OF LIGHT IN THE ENVIRONMENT.

by Gunnar Jørgensen.

In the previous issues of SCIENTIFUR we have been presented for numerous abstracts from reports in which the effect of light on the hormoneproduction in mink are discussed.

No one of the reports are mentioning the wavelength of the used light or discussing the eventually role of that.

All scientists agree that the light environment play an important role in the productivity of mink and foxes. But it is questionable how far this very important details are given the right priority, and, perhaps, to a higher degree how much we shall offer on that without taking the wave length of the light in consideration.

During my visit in USA in 1978 I got a very interesting book from Tony A. Rietveld, director of the Northwood Fur Farm in Illinois.

This book, written of John N. Ott, is, in spite of the very popular form in which it is written, giving a very convincing dokumentation of the importance of the wavelength of the environmental light.

In the following we want to present this book, so all can get an idea about the matters discussed herein and - perhaps the most important - get the chance to buy it and read it in the whole.

Health and Light ↘

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Health and Light

John N. Ott

The Effects of Natural and Artificial Light on Man and Other Living Things

Introduction by

JAMES W. BENFIELD, D.D.S.

To the men and women who believed in our early experiments and who continue to support our work at the Environmental Health and Light Research Institute.

POCKET BOOK edition published July, 1976
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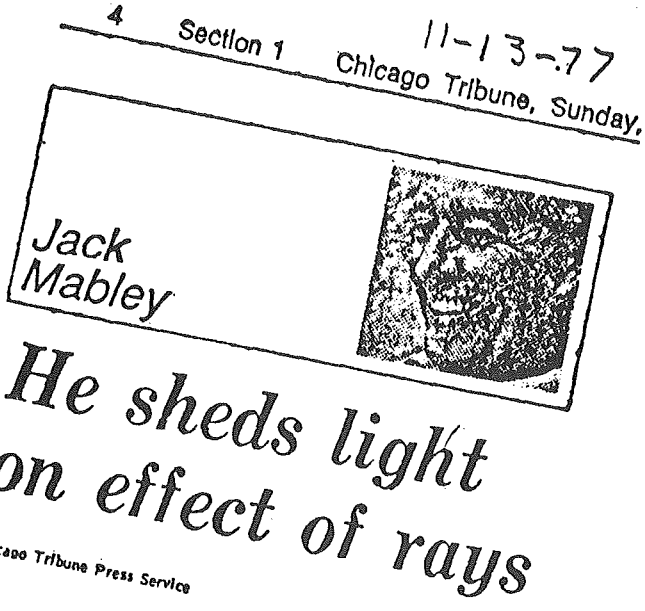
CONTENTS

"A remarkable breakthrough in the study—and understanding—of light . . .

"Recognition of John Ott's untiring research work has come to him in the form of citations and awards from horticultural, scientific, and medical societies, plus the Grand Honors Award of the National Eye Institute (in 1967) for an important contribution to eye care. In 1971, he was asked to give a seminar to scientists who were designing the first United States space station. . . . There is still much to be learned about the effects of light on plants, animals, and man, but there is enough knowledge already available to provide important guidelines to the manufacturers, architects, and scientists who can directly influence the environment in which millions of people work and live. . . .

"I firmly believe that the reader will gain important insights from *Health and Light*."

—James Winston Benfield, D.D.S.



4 Section 1 Chicago Tribune, Sunday, 11-13-77

Jack Mabley

He sheds light on effect of rays

Chicago Tribune Press Service

PREFACE

Ever since the research of William Rowan in the '20s we have known that seasonal changes in the lengths of daylight and darkness have a significant effect on bird migration as well as upon mating periods for some species. Out of such studies, also, have grown the poultry industry's programs of lengthening short daylight hours in winter by means of artificial light in order to increase egg production. The response of the hens is due to the light energy entering the eyes and stimulating the pituitary gland. This has given rise to strong evidence that the endocrine system of mammals responds to particular wavelengths of *visible light* as well as other areas of the *total spectrum,* including the longer wavelengths of ultraviolet that penetrate the atmosphere.

This book is the outgrowth of extensive time-lapse photography, described in an earlier book, *My Ivory Cellar.* Some of that work will be summarized in order to provide the proper prelude to what we believe to be the pioneering studies of our Institute today. Actually, most of the research on the influence of light on the human endocrine system has grown from our observation of plant and animal growth responses to wavelength variations in the distribution of light energy—a result of time-lapse pictures of plants growing and flowers blooming. This work has been developed over more than forty years.

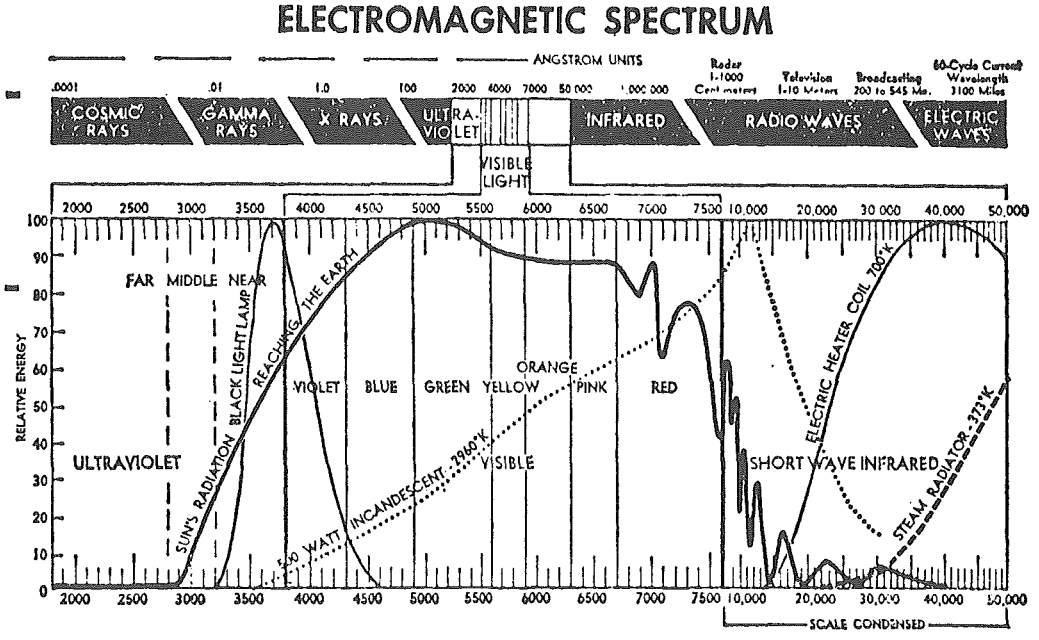
As man has become more industrialized, living under an environment of artificial light, behind window glass and windshield, watching TV, looking through colored sunglasses, working in windowless buildings, the wavelength energy entering the eye has become greatly distorted from that of natural sunlight.

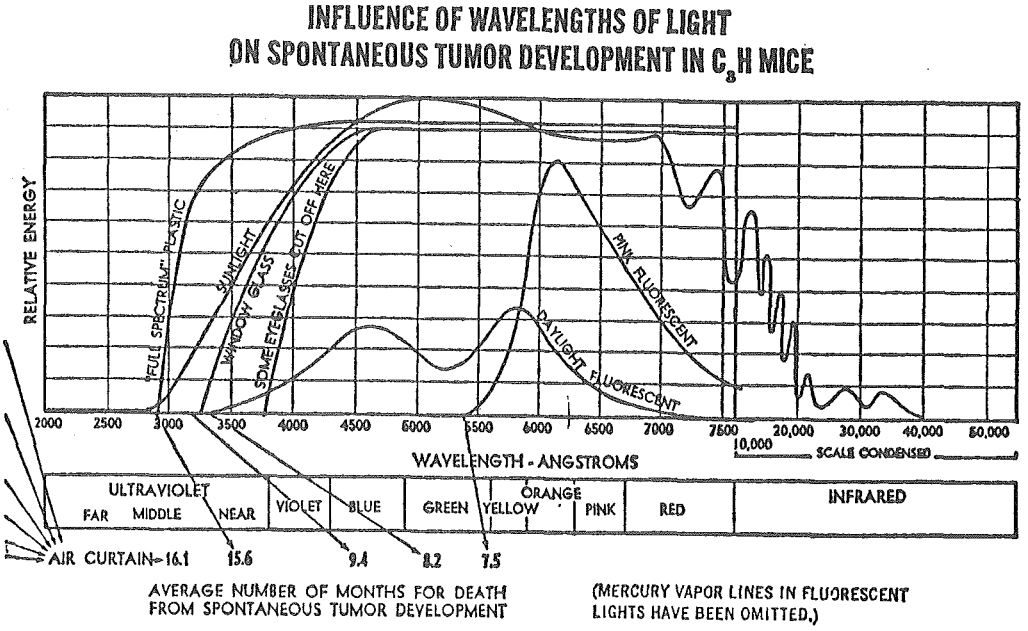
Much of the development of modern lighting has, unfortunately, been toward the use of light sources of increasing distortion. For example, the "natural white" fluorescent tube used in many hospitals to give the patients more color is greatly distorted from natural light. The sharp peak of energy in the red or longer wavelengths can make a pale, peaked patient look as though he had just come back from a vacation in a sunny climate. Flattering? Perhaps, but it creates an utterly false impression.

The tremendous significance of the rapidly developing body of knowledge about variations in wavelengths of light energy has finally spurred several big corporations to design products that permit the full spectrum of natural sunlight to enter the eye. Too little is known generally, however, about the importance of providing an environment of natural light indoors, where so many people must spend a major part of their time. It is our hope at the Environmental Health and Light Research Institute that this book will help chart new pathways toward that goal, as well as toward breakthrough findings in the fields of various ills that plague mankind.

—JOHN N. OTT
Environmental Health and Light Research Institute
Sarasota, Florida

The content, introduction and preface should talk for itself, but for giving you an idea of what John Ott are writing abouth below are shown 2 figures from the book and the results from experiments with mink decribed in chapter 1o.





Research with mink.

The experimental work with mink was carried on at the Northwood Mink Farms in Cary, Illinois, but unfortunately the project was suddenly interrupted due to the death by automobile accident of Mr. Bud Grosse, owner and operator of the farm. Immediately after his death the principal investigator and his two assistants all moved to other mink ranches in different parts of the country and no official paper was ever published. However, I was in close contact with Mr. Grosse while the experiment was under way and progress reports were given to me on the various results obtained.

The reports indicated that the mink exposed to natural daylight through a deep pink glass became increasingly aggressive, difficult to manage and in many instances actually vicious. Ordinarily, mink are kept in open sheds with open window areas containing no glass. They are provided with a box-like shelter containing some straw, but the sheds are not heated as the natural habitat of mink is in north country, where the winters are long and cold.

However, mink normally are quite fierce and even without the pink glass it is customary for the animal caretakers to wear heavy leather gloves for protection, especially during the mating season. But when some of the mink were placed behind deep blue plastic they became friendly and docile, and in thirty days could be handled with bare hands like ordinary house pets.

The effect of the different colors on the animals' behavioral patterns was interesting, but the difference in the results of mating the animals under either pink glass or blue plastic was possibly of even greater interest.

When a female mink does not become pregnant after the first mating, it is common practice to give her an injection of a pregnant mare serum before attempting the second mating. This was not necessary with any of the female mink in the cages with the blue plastic, as all became pregnant after the first mating. Furthermore, to use the language of the mink industry, all the males were found to be "working males."

But the situation was quite different with both males and females in the cages behind pink glass. After three attempts at mating the females, which included two injections of the pregnant mare serum, only 87 per cent became pregnant and 90 per cent of the males were classified as "non-working."

The principal investigator of the project was Alex Ott (no relation), who also advised that four animals under the pink glass died during the experiment from a strange malady that he had never seen before. An autopsy of each animal indicated what appeared to be a cancerous condition of the abdominal area including a number of vital organs. Unfortunately, an actual biopsy was not performed due to the abrupt termination of the entire project. Approximately 500 female mink were used in each experiment.

Research of other authors.

We are sure that there will be a lot of other reports for the interested scientists. Here we will bring abstracts from 2 reports received during the last month, unless that they not originate from research in economic important fur bearing animals.

☆ INFLUENCE OF VISIBLE LIGHT ON ORGAN WEIGHTS OF MICE.

Cora G. Saltarelli, Christine P. Coppola, Life Sciences Center, Nova University, 3301 Collega Avenue, Ft. Lauderdale, FL 33314, USA.

Hau:ICR mice separated by sex, were reared for 30 days under various fluorescent lamps: pink, blue, black UV, cool white and full spectrum. Body weights and absolute organ weights were compared. After light exposure, female body weights were not significantly different between any groups, however, a difference in male body weights was observed. Light affected the weights of the pituitary, adrenals, kidneys and prostate in male mice and the adrenals, thyroid and pineal glands in females. The weight of adrenal glands of both males and females were most sensitive to changes in lighting.

Laboratory Animal Science, Vol. 29, No.3, 1979.
10 references, 3 tables.

Authors summary.

☆ THE INFLUENCE OF LIGHT OF DIFFERENT WAVELENGTH ON THE SEXUALCYCLUS OF ALBINO MICE.
I. ALTERNATING LIGHT-DARK-RATIO (12 L/12D).
(Der Einfluss von Licht unterschiedlicher Wellenlänge auf den Sexualzyklus der Albinomaus.
I. Alternierender Hell-Dunkel-Rhythmus (12 H/12 D)).

R. Kittel, Ch. Ziemann, Anatomisches Institut der Universität, DDR-402, Halle, Grosse Steinstrasse 52.

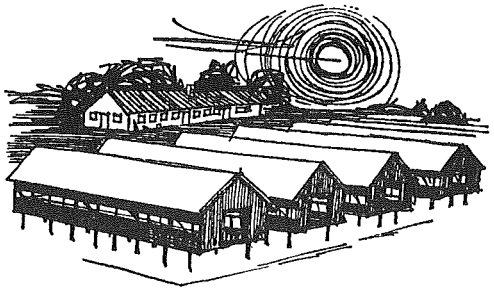
Albinotic virgin female mice of the inbred strain AB/Jena Halle were exposed to light of various wavelength by 5o lux in a light: dark ratio of 12L:12 D. The effects on the estrous cycle were studied. The results indicate that the estrous cycles of animals kept in colour-light were longer than those of the controls. The cycles of mice kept in red light were longer than those of mice kept in blue, green and yellow light. The length of the estrous phase increases with wavelength. This knowledge should be considered by keeping of laboratory animals in artificially lighting and in a experimental environment.

Z. Versuchstierk. 21, 226-233, 1979.
27 references, 5 figs.
In German with English summary.

Authors summary.

✡ WAS THAT THE BEGINNING OF THE STORY ✡

The editor.



DIFFERENT CAGE SIZES FOR MINK DURING THE GROWTH PERIOD

Eva Aldén and Anne-Helene Tauson, Dept. of Animal Husbandry,
Swedish University of Agricultural Sciences,
Funbo-Lövsta, S-755 90 Uppsala, Sweden.

Effects of different cage sizes (4-10 per 2 m section) have been studied during the growth-furring period for three consecutive years (1969-71). Two different netting materials were used for cage bottoms, namely: 25x25 mm plastic coated and 25x38 mm stainless netting. The rest of the cage was made by standard galvanized netting. The walls between the cages were either single and made by 6x13 mm plastic coated netting or 25x25 mm standard galvanized netting (25 mm between the walls). The animals used were of standard and sapphire type. They were kept single, in pairs (one male and one female kit per cage) and in pairs from July until the last period before pelting when they were divided and placed one animal per cage.

No negative effects on growth, health and fur quality were found when growing mink kits were kept in cage sizes up to 10 cages per 2 m section. However, a growth retardation was documented for animals put single in the middle of September compared to those kept in pairs. This fact was considered to depend upon being less comfortable and upon a higher energy need for maintenance of single animals.

On the basis of received results the following conclusion was drawn: Provided that no more than two animals are kept per cage it ought to be possible to use up to 8 cages per 2 m section during the growth-furring period (July-pelting) for mink. No investigations concerning the effects of that

system upon later reproductive performance have been made. Single netting walls between the cages are not recommended.

NJF´s subsection for fur bearing animals, Kungälv, Sweden, October 1979. 10 tables, 8 figures, 11 references.
In Swedish. Authors summary.

☆ THE CHARACTERISTICS AND MANAGEMENT OF MINK WASTES.

John H. Martin, Jr., Thomas E. Pilbeam, Raymond C. Loehr, Hugh F. Travis, Research Associate, Agricultural Engineering Dept., Cornell University, 321 Morrison Hall, Ithaca, NY 14850, USA.

Production rates and characteristics of mink wastes were determined over a 2-yr period. The data collected showed that mink wastes contain higher concentrations of nitrogen compared to the wastes of other domestic animals. To permit estimation of waste production under commercial conditions, the concept of a mink unit was developed. Based upon nitrogen content, it was estimated that 55 ha (135 acres) of land used for corn production is required to dispose of the waste production from 2,000 mink units.

In formulating guidelines or regulations for the disposal of mink wastes, it should be recognized that extrapolation of application rates in terms of kg/ha of wet manure or dry solids which are based upon experiences with other animal wastes can be inappropriate. The significantly higher concentration of nitrogen in mink wastes could lead to excessive nitrogen application to the soil. Therefore, application rates should be based on the nitrogen content of the treated or untreated wastes. Ideally, mink wastes should be disposed of on only productive land where crop uptake can recycle nitrogen.

TRANSACTIONS OF THE ASAE, Vol. 20, no.3, 515, 516 and 522, 1977.
9 references, 3 tables.

Authors summary and conclusions.

THE THRESHOLD FOR HIGH-SPEED DIRECTIONAL MOVEMENT DETECTION IN THE MINK, MUSTELA VISON SCHREBER.

Nigel Dunstone, Andrew Clements, Dept. of Zoology and Dept. of Extra-Mural Studies, University of Durham, South Road, Durham DH1 3LE, UK.

A method is described for determining the speed above which the mink can no longer reliably perceive the direction of movement of a stimulus. An electronic logic system controlles presentation of the stimulus, a bright spot of light, 4 mm in diameter, subtending an angle of 2-4 min at the eye, which was moved across a viewing screen representing 77° of visual field in either the left or right horizontal direction. The stimulus speed at which the mink could no longer discriminate direction was approximately 3oo cm s^{-1}. It is suggested that this threshold represents behavioural rather than physiological limitation. The result is discussed in terms of the hunting behaviour of the mink.

Anim. Behav. 1979, 27, 613-62o.
27 references, 5 figs.

Authors abstract.

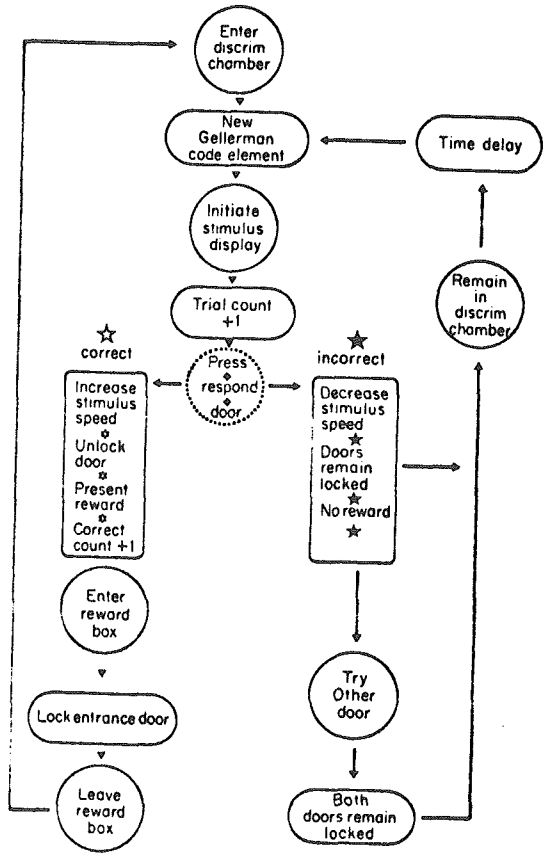


Fig. 2. Flow chart of trial structure. Key: boxes, control system; circles, animal's action.

ORIGINAL REPORT

ATTEMPTS AT HORMONAL STIMULATION OF OESTRUS AND OVULATION IN POLAR FOXES (ALOPEX LAGOPUS).

S.J. Jarosz, R.W. Dukelow, B. Barabasz, Institute of Animal Nutrition, Agricultural Academy, 3o-o59 Krakow, Al. Mickiewicze 24/28, Poland.

Summary.

Experiment on induction of estrus and ovulation was conducted in two stages. In the first, at the beginning of breeding season, 12 females were used in 4 groups. The following treatments were used: Group I: lo mg of progesterone, after 5 days 5 doses of 1 mg FSH during 6 days and after 12 hours 5oo i.u of HCG. Group II: 4 doses of loo i.u. during 5 days and on the sixth 5oo i.u. of HCG. Group III: 5 doses of 1 mg FSH during the 5 days and after 12 hours 5oo i.u HCG. Group IV (control) were given only vehicle.

In the second stage 9 females which till 5 April did not show any estrus symptoms were given for 5 days loo i.u. and on the sixth 5oo i.u.of HCG.

The swelling of the vulva characteristic for estrus was marked on the seventh day in females in group I and on the eighth day of group II from the beginning of injections, i.u. group III swelling riched the moderate stage at this time and in group IV no distinct swelling was recorded.

On the vaginal smears of the females of group I and II the epithelial acidophilic and cornified cells characteristic for estrus appeared on 5-7 days from the beginning of injections. In group III no cornified cells were found and in group IV were found only basophilic cells from the deeper layers of epithelium.

On the ovaries of females after 36 hours from the last injection

of HCG the more numerous were started only in females of group II. On the second stage of experiment in all treated females estrus symptoms were started at 5 or 6 days of hormonal injections and all these females were successfully mated in 4 days after terminating treatments.

Introduction.

Polar foxes belong to monoestrial animals their oestrus occurs from middle February to late April. No estrus symptoms, failure to discover it or unsuccessful service lead to on year female sterility and serious losses on the farm. On breeding farms can be observed in some female foxes the absence of distinct estrus symptoms as well as a prolonged delay (sometimes up to 2 months) of mating period and subsequently of deliveries what interfers with proper organization of work with respect to feeding and animal care during the period of kit breeding. Therefore it seems advisable to search for methods of inducing estrus earlier or causing pronounced symptoms of estrus in the mating season in these animals. Studies on this topic were carried out among others: on foxes Benjaminsen et al. (1), Berdow (2), Rosianu et al. (4), on dogs Wright (8), Wildt (6). They tried to stimulate follicular development and next ovulation in the mentioned Canidae with the use of gonadotropic hormones in various quantities and sequence. The aim of our study was to make trials with hormonal stimulation of development of Graaf's follicles and ovulation, observations of the accompaning changes in the reproductive organs and acceleration of estrus in female which up to 5 April have not shown any estrus symptoms.

Material and Methods.

Experiment was composed of two stages. In the first the effect of ovarian and gonadotropic hormones on the action of ovaries and changes in reproductive organs was investigated, in the second the effect og gonadotropin on the estrus indution and on stimulation of service.

In the first stage lasting from February 2o to March 4, 12 females were used, divided into 4 groups of 3 females. Animals in 3 experimental groups were given hormones in the following amounts and sequence:

Group I. 1o mg of progesterone, after 5 days FSH 5 doses of 1 mg during 6 days and after 12 hours 5oo i.u of HCG.

Group II. HCG - 4 doses of 1oo i.u. and the fifth of 5oo i.u. during 6 days.

Group III. FSH - 5 doses of 1 mg during 5 days and after 12 hours from the last injection of FSH, 5oo i.u. of HCG.

Group IV (control). were given in the same time injections of vehicle (physiological salt (1 ml)).

During gonadotropin administration vaginal smears were taken from all females and they were stained according to the method of Papanicolau.

After 34 hours from the last injection of gonadotropin preparation or physiological salt (control) animals were slaughtered with a view of determining a quantity and size of Graaf's follicles and ovulation on the ovaries. On the isolated reproductive organs measurements were taken and from the ovaries histological preparations were made.

In the second stage of experiment 9 females which till 5 April did not show any estrus symptoms, were given for 5 days 1oo i.u of HCG and after 12 hours 5oo i.u of HCG (a variant which in the I. stage gave the best result). Control group of 8 females was given physiological salt solution intramuscularly. During the period of taking injections vaginal smears were collected from the experimental females and a degree of external organs swelling was estimated with the use of 4-degree scale:

0 = no swelling
1 = small swelling
2 = moderate swelling
3 = intensive swelling.

All experimental and control females were subjected to matural service according to the system used on the farm.

Results and Discussion.

In group I animals where hormonal sequence: progesterone, FSH, HCG was used, a swelling of the vulva was marked as early as at 4 days after the injection of gonadotropin, and in groups II (HCG) and III (FSH and HCG) as late as at 5 days. Also a maximal swelling of the vulva equal 3 degrees (after the adapted scale) characteristic of the estrus stage (Szuman 1978) was found to occur at the earliest in group I (after 7 days), while in group II as late as at 8 days from first gonadotropin administration. In group III at the same time the swelling of the vulva reached hardly medium size, and in group IV no distinct swelling was recorded. A similar picture of vaginal cytogram in particular groups was stated.

Table 1. Degree of vagina swelling during hormonal treatment.

Group		No of animals	Date of treatment								
			20/2	25/2	27/2	28/2	1/3	2/3	3/3	4/3 x)
I	Progesterone/p/ + FSH + HCG	3	P	FSH	FSH	FSH	FSH	FSH+HCG	-	-
			0	0	0	0,3	1,7	2,7	3,0	3,0
II	HCG	3	-	HCG	HCG	HCG	HCG	HCG	-	-
			0	0	0	0	1,3	2,3	2,7	3,0
III	FSH + HCG	3	-	FSH	FSH	FSH	FSH	FSH+HCG	-	-
			0	0	0	0	0,6	1,7	2,0	2,3
IV	Vehicle (control)	3	-	cont.	cont.	cont.	cont.	cont.	-	-
			0	0	0	0	0	0	0	-

0 = no swelling
1 = small swelling
2 = moderate swelling
3 = intensive swelling.

x) date of killing.

The first day of gonadotropin injection on the vaginal smear one could distinguish in most cases entirely the cells from the deep layers of epithelium and not numerious from surface layers with a germinal vesicle. The superficial acidophilic cells with picnotic vesicle and cornified cells characteristic of an early estrus period (Burdel 1975) and estrus (Wolinki 1965) appeared in groups I and II at 5 days from the gonadotropin injection. In group III

Table 2. Cytogram of vagina during hormonal treatment.

Date	Superficial cells						Epithelical cells from deep layer %	
	Cornified %		with pycnotic nucleus %		with vesical nucleus %			
	A	B	A	B	A	B	A	B
	Group I. Progesterone + FSH + HCG							
2o/2	-	-	-	-	2,2	4,2	o,6	93,o
25/2	-	-	-	-	13,4	22,o	4,9	59,7
27/2	-	-	2,2	4,1	17,4	23,7	-	52,5
1/3	3,4	-	7,o	7,3	45,1	16,7	-	12,4
3/3	4,6	4,5	6,4	3,9	44,5	34,1	-	1,9
4/3	1,7	5,9	17,6	2,2	43,8	18,8	-	3,3
	Group II. HCG							
25/2	-	-	-	-	-	2,9	-	97,1
27/2	-	-	2,1	4,5	24,1	19,7	-	49,6
1/3	2,o	o,8	9,o	5,6	45,4	28,9	-	8,1
3/3	9,o	-	1o,5	o,5	62,5	16,5	-	1,2
4/3	9,3	-	33,4	3,o	34,1	6,2	-	4,9
	Group III. FSH + HCG							
25/2	-	-	-	-	-	-	-	1oo,o
27/2	-	-	2,2	-	-	7,o	-	9o,8
1/3	-	-	2,2	-	5,2	16,3	-	76,3
3/3	-	-	2,1	2,4	12,2	31,5	-	51,8
4/3	-	-	2,o	5,6	12,5	47,o	-	32,9
	Group IV. Control.							
25/2	-	-	-	-	-	-	-	1oo,o
27/2	-	-	-	-	-	-	-	1oo,o
1/3	-	-	-	-	-	1,9	-	98,1
3/3	-	-	-	-	-	-	-	1oo,o
4/3	-	-	-	-	-	5,7	-	94,3

A = acidophilic.

B = Basophilic.

throughout the period of hormonal injections no cornified cells were found. There were found here only (from the third day after hormonal injection) scarce the cells of epithelium with a picnotic vesicle and more numerous superficial cells with germinal vesicle in which dominated basophilic typical of a preestrus phase (late proestrial). In control animals during this period (with some exceptions) were found only the epithelial basophilic cells from deep layers usually met in early estrus period. In the final period of hormonal injections at 6-7 days most characteristic of the estrus and most pronounced changes in the epithelium of vagina were found in group II females which received 4 doses of 1oo i.u. + 1 final dose of 5oo i.u. of HCG. In the group III females which before FSH administration had been given progesterone, cytological estrus symptoms were in this period less pronounced.

On the ovaries of slaughtered females after 36 hours from the last injection of HCG (5oo i.u.)the ovulation was stated (on both ovaries) only in group II. Also on the ovaries of this group females the greatest number of Graaf's follicles was found in the pre-ovalatory stage (average 2,7 on left and right ovaries). While in group I, in spite of similar estrus symptoms the ovulation was stated only in one female on the right ovary (on the average 1 ovulation) and here, unlike in group II no follicles in pre-ovulatory stage were found with a diameter of 3 mm.

On the ovaries of control animals, as could be expected on the basis of the cytogram, of vagina and outer appearance of vulva, only Graaf's follicles occurred with a small diameter (o-1 mm) and very scarce (o,7) with a diameter 1-2 mm.

Based on the above results concerning the development of Graaf's follicles and numbers of ovulations it can be inferred that HCG administered in the reproductive period for a few days in small doses and after reaching a stage of estrus of one bigger dose (5oo i.u.) induces the most potent stimulation of ovarian function terminated with ovulation.

Table. 3. Number and size of Graafian follicles and number of ovulations in 36 hours after last injection of gonadotropin.

Group (treatment)	Left ovary: Number and diameter of Graafian follicles (average in mm)				Number of ovulations	Right ovary: Number and diameter of Graafian follicles (average in mm)				Number of ovulations
	-1	1-2	2-3	3-		-1	1-2	2-3	3-	
I progesterone FSH, HCG	-	1o,7	5,5	-	-	-	6,o	3,o	-	1,o
II HCG	-	2,7	12,o	2,7	1,7	-	6,7	8,o	3,7	3,o
III FSH, HCG	8,3	3,o	o,7	-	-	6,o	2,3	3,7	-	-
IV Vehicle (Control)	3,o	o,7	-	-	-	6,3	-	-	-	-

In group II females also the sizes of ovaries (2.1 x 1.7 x 1,3 cm) were larger than in the females of other experimental groups and control (1.3 x 1.1 x o.8 cm) what indicates their more intensive function. The remaining reproductive organs such as fundus, uteri, vagina (6.7-7.o cm) did not differ considerably in length in females of particular groups, while the length of uterus horn in animals hormonally stimulated was slightly greater (17 cm) compared to control (average 15 cm).

In the second stage of experiment where 9 females which failed to show any estrus symptoms up to 5 April, the best variant of estrus stimulation from the first experimental stage was applied (HCG after loo i.u for 5 days and after 12 hours 5oo i.u. of HCG) in all females estrus symptoms were stated at 5 or 6 days of hormonal injections. In 65% of females a maximal swelling of vulva was found, in vaginal smears epithelial cells could be distinguished, acidophilic cells with germinal visicle and pyctonic one, typical of an early estrus period. All the females subjected to hormonal stimulation were successfully mated in four days after terminating injections.

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A SYNDROME OF HEREDITARY TYROSINEMIA IN MINK (MUSTELA VISON SCHREBER).

K. Christensen, P. Fischer, K.E.B. Knudsen, S. Larsen, H. Sørensen, O. Venge, Chemistry Dept., Royal Vet. and Agric. University, Thorvaldsensvej 40, DK 1871 Copenhagen V, Denmark.

During the last few years some Danish mink farmers have observed a rather high mortality among kits of the Standard type mink. Death usually occurred in the course of two to three days after the first symptoms had been observed when the kits were about weaning age. The general view among the farmers has been that it is a genetic disorder.

A hereditary disease in mink (Mustela vison Schreb.) leading to death when the affected kits are about six weeks old has been investigated. The disorder is inherited as a simple autosomal recessive character.

Strongly elevated plasma tyrosine concentration is an outstanding feature of the disease. An enzyme defect in tyrosine aminotransferase (EC 2.6.1.5) or 4-hydroxyphenylpyruvate dioxygenase (EC 1.13.11.27) is considered together with the possibility of a parallel between the disease in mink and the disease tyrosinosis or heriditary tyrosinemia in man.

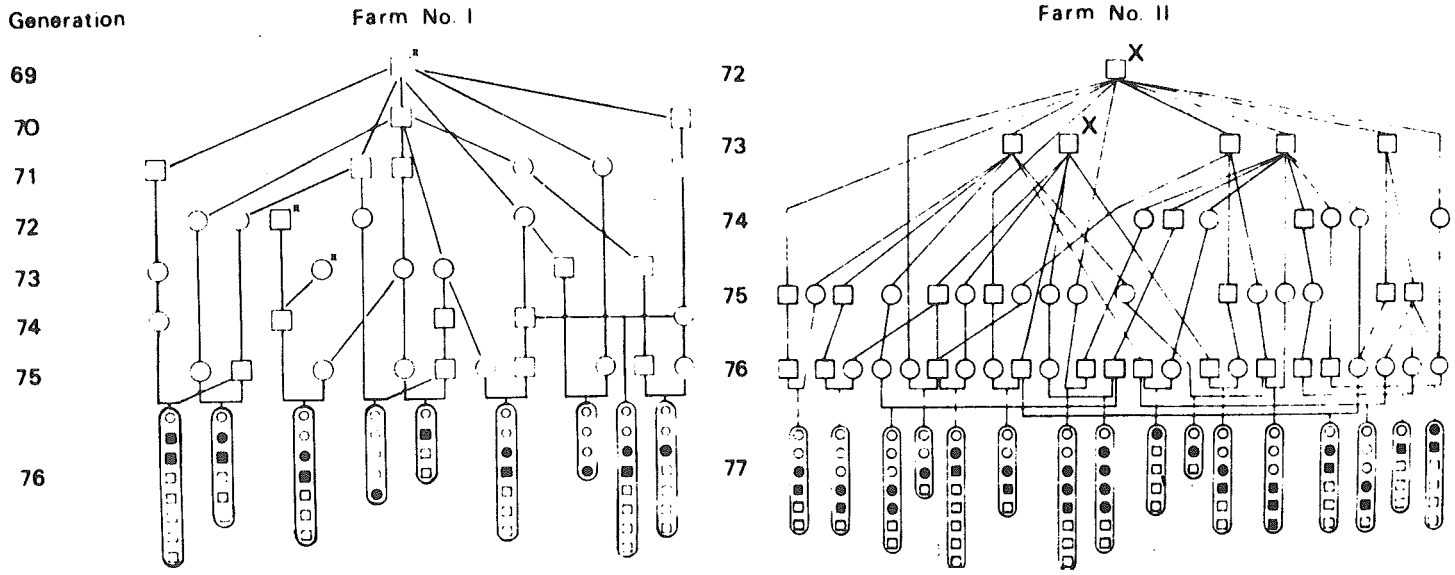


Fig. 1. Genealogical diagram of litters with diseased animals from farm No. I and from farm No. II. The sign X means: purchased from the same stock. A square is the symbol for a male and a circle for the female. The diseased animals are marked by a filled symbol.

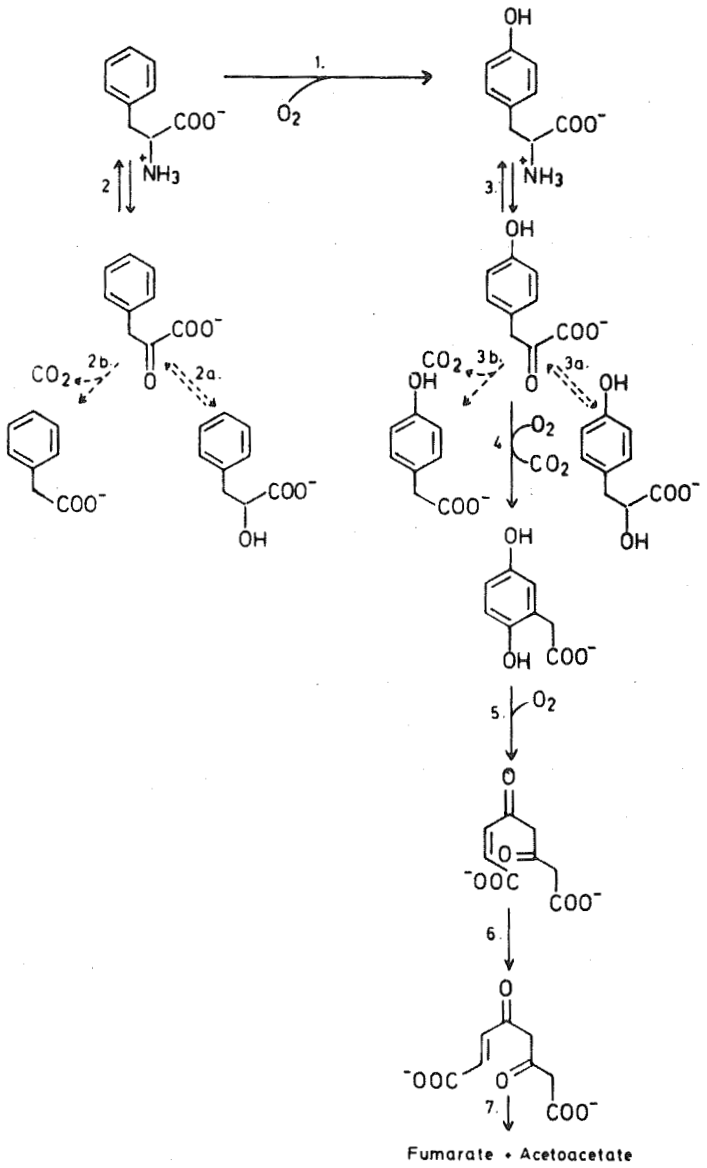


Fig. 2. Catabolic pathways of phenylalanine and tyrosine in animals. The heavy arrows indicate the normal degradation of phenylalanine and tyrosine. The broken arrows indicate degradative pathways with a limited function in the normal catabolism of these amino acids.

Canadian Journal of Comparative Medicine, Vol. 43., no.3, 1979.
24 references, 4 tables, 2 figs.
In English with abstract in English and French.

Authors abstract.

THE USE OF SELECTION METHODS IN MINK BREEDING

By E.J. Einarsson, Department of Poultry and Fur Animal Science, The Agricultural University of Norway

It is very important to use a selection method that takes into account the economic important traits and thereby select the best animals from a genetic point of view for this traits. This should lead to greater genetic gain and improve economic results. A selection method were the traits can be judged in a objective way, especially for pelt traits, is preferable.

The tandem method, the minumum method and the index method are described, and the efficiency of these methods is compared (Hazel and Lush, 1942). It is concluded that the index method is the most effective selection method.

The use of the index method is well known from other species (cattle, pig, sheep), but the method must be adapted in mink breeding.

In the literature two scientific works about selection methods in mink breeding were founded. Rønningen et al. (1979) have proposed an index method that includes litter size at 3 weeks of age and overall impression. Overall impression was a combined measure of body size, fur quality, colour shade and possible fur defects. It can be raised objections against the use of overall impression as a trait of selection. Objections can also be raised against calculating genetic parameters for this combined trait. Another problem is the time factor when judging of the pelt is done in November.

Another index for mink was developed by Narucka and Gedymin (1978). This index includes the traits coat colour, live weight (size indication) and structural quality of coat. No trait for fertility was included.

For adapting the selection method to practise a combination of the index and the minimum methods seems suitable. In this way an

index can be calculated early and the farmer may judge the pelt of mink with good index value, only. Fertility must be included in this index, and the number of kits should be determined as soon as possible after birth.

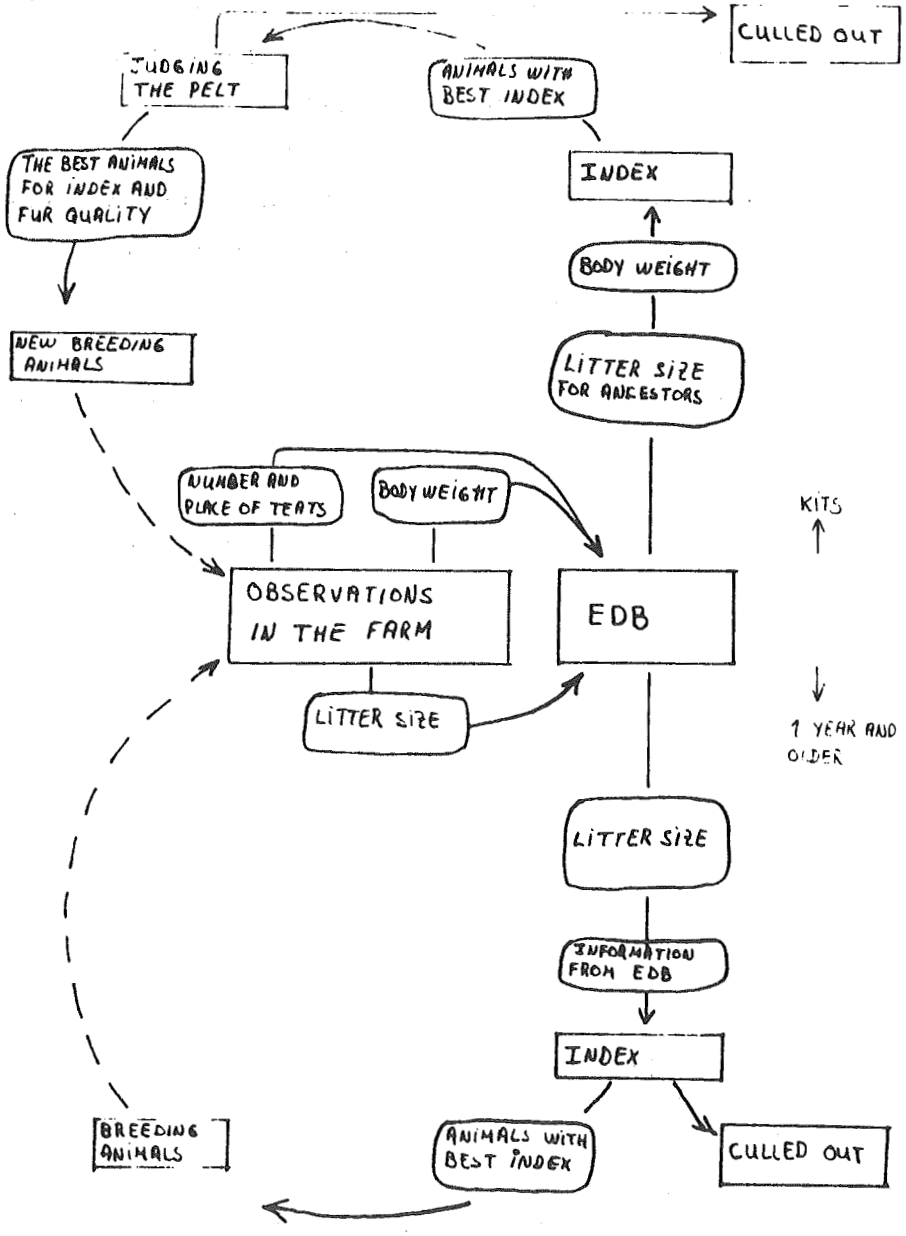


Fig. 1. Selection system for mink. Upper half for kits and lower half for breeding animals 1 year and older.

If one also takes into account the number of kits at weaning (6 weeks) maternal qualification will be included. If possible use of mink with few or misplaced teats as breeding animals should be avoided. Investigations have showed that body weight

in August (approx. 18 weeks) is a good size indication and this trait should therefore be included in the index. Finally, the pelt quality may be judged in November in the farm.

The index for the kits will be calculated on the basis of their own body weight and litter size for their mother, her full- and half sisters and the father's full- and half sisters. When the mink have produced own kits, these results will of course be included in the index and attach great weight. This is shown in fig. 1. All information will proceed to an EDB-bank where they can be combined. It will also be possible to obtain identification cards from the computer.

NJF's subsection for fur bearing animals, Kungälv, Sweden.
October 1979.
12 pages, 5 figs. 1o references.

Authors summary.

She knows she has the best index on the farm.

A CHEMICAL AND BACTERIOLOGICAL STUDY OF ACID PRESERVED FISH SILAGE FOR MINK.

(Kemiske og bakteriologiske undersøgelser af syrekonserveret fiskeensilage til mink).

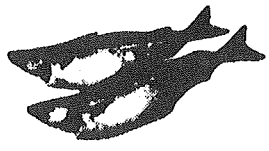
Kjeld Hansen, National Institute of Animal Science, Dept. of fur Bearing Animals, Roskildevej 48 H, DK 3400 Hilleroed, Denmark.

The effect of pH in the silage on the potentiel growth in different microorganisms is described. Different parameters for evaluation of the quality of protein and fat in the silage are discussed.

Results from investigations of a number of preserving agents and their influence on the parameters of importance for the quality of the silage are given. The most of the preserving methods investigated, protected effectively against microbiological growth in the silage. 200 ppm ethoxyquin protected the fat against oxydation. Further addition of free tocopherol or ∝-tocopherol-acetat did not have any effect.

A project made at The National Institute of Animal Science, Dept. of fur Bearing Animals, pp.21.
7 figs., 6 tables, 11 references.
In Danish.

Summarized by Niels Glem-Hansen.



ACID PRESERVED FISH FOR MINK.

(Syrekonserveret fisk til mink.)

Kjeld Hansen, National Institute of Animal Science, Dept. of Fur Bearing Animals, Roskildevej 48 H, DK 3400 Hilleroed, Denmark.

The effect on physiology and production result of feeding different amounts of sulphuric acid preserved fish is reviewed from a study

of the literature concerned. A description of the fish used as raw material and the effect of different acids as preserving agents are presented. Furthermore, the influence of pH in the feed on the acid-base balance in the blood are mentioned, and so are the influence on digestibility of the main nutrients and the metabolism of the minerals. The applicability of fish silage during the reproduction- and growth periods were also studied.

From this study it can be concluded that fish silage is a valuable feedstuff for mink if it is used within certain amounts in the feed. The experiments have shown that fish silage may constitute approximately 15% during reproduction, 1o% during lactation, and 2o% during the growing period. If greater amounts should be used during the later part of the growing period, the feed should be neutralized to a pH at about 5.3.

A graduate project made at the Nationals Institute of Animal Science, Dept. of fur Bearing Animals, pp 64.
7 figs., 36 tables, 61 references.
In Danish.

Authors summary translated
by Niels Glem-Hansen.

☆ PROTEIN REQUIREMENT FOR MINK IN THE LACTATION PERIOD. METHODS FOR EVALUATION OF PROTEIN REQUIREMENT DURING LACTATION.

Niels Glem-Hansen, National Institute of Animal Science, Dept. of Fur Bearing Animals, Roskildevej 48 H, DK 34oo Hilleroed, Denmark.

The requirment for protein in mink females and their kits during lactation and very early growth until weaning was examined with five groups of seven female mink, each with a litter of four or more kits.

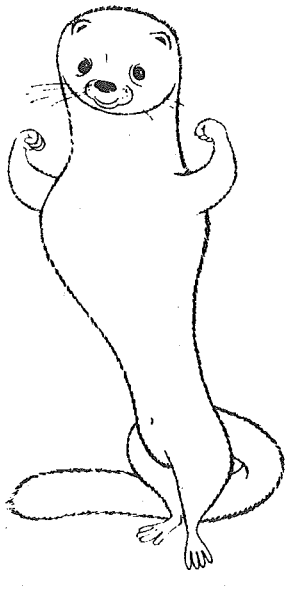
The protein content in the diets was limiting for the growth of the kits during this period, but it did not influence the amino acid composition of the bodies.

The protein requirement during lactation was found to be the amount of digestible crude protein which provides 34-42% of the metabolizable energy using diets with a net protein utilization of 82% measured on rats.

The requirement of protein with a normal quality, i.e. NPU = 65%, must constitute 43 to 53% of the ME during the period from parturition until weaning at six weeks of age.

Table 3. *Composition of the experimental diets and the calculated content of nutrients*

	Diets and groups				
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)
Basic feed mixture	96.70	88.22	79.74	71.26	62.78
Maize starch[a]		2.60	5.20	7.80	10.40
Dextrose		2.60	5.20	7.80	10.40
Lard		2.00	4.00	6.00	8.00
Soya bean oil	2.00	2.40	2.80	3.20	3.60
Fish oil	0.60	1.30	2.00	2.70	3.40
Vitamin mixture[b]	0.25	0.32	0.39	0.46	0.53
Mineral mixture[c]	0.45	0.56	0.67	0.78	0.89
Content in the diets					
Dry matter	38.0	43.1	48.1	53.2	58.2
Ash	4.0	3.8	3.6	3.4	3.2
Digestible crude protein	16.9	15.5	14.0	12.5	11.0
Digestible crude fat	4.5	7.2	9.9	12.5	15.2
Digestible carbohydrate	5.5	9.3	13.1	16.9	20.7
Metabolizable energy, kcal/100 g	141	176	211	244	279



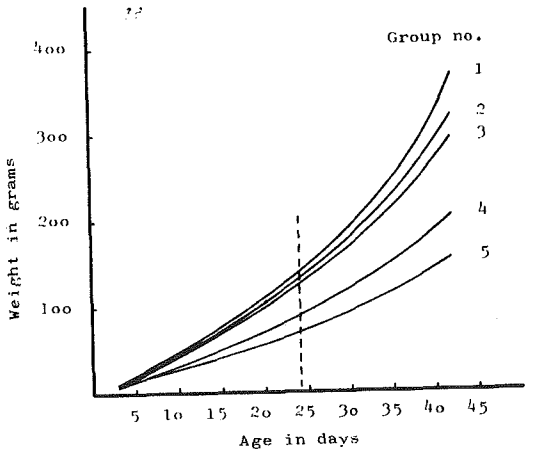


Fig. 2

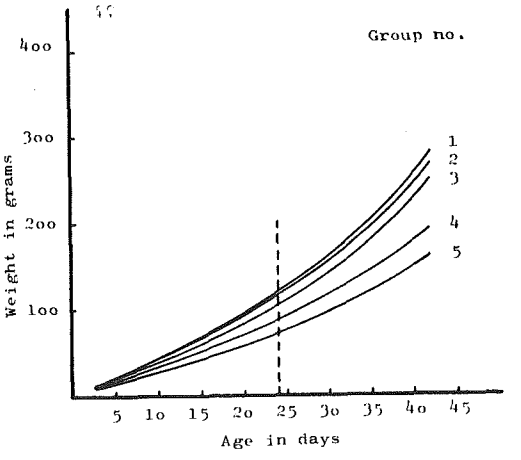


Fig. 3

Figs. 2 and 3. Body weight of male (Fig. 2) and female (Fig. 3) kits as influenced by protein concentration in the diets. The part of the curves until the dotted line represents that part of the lactation period where the feed consumption of the mothers were registered.

Acta Agriculturæ Scandinavica, 29, 1979, 129-138.
29 ref., 13 tables, 3 figures.

Authors summary.

ENERGY METABOLISM IN ADULT MINK IN RELATION TO PROTEIN-ENERGY LEVELS AND ENVIRONMENTAL TEMPERATURE.

A. Chwalibog, N. Glem-Hansen, S. Henckel, G. Thorbek, National Institute of Animal Science, Dept. of Animal Physiology and Chemistry, 25 Rolighedsvej, DK 1958 Copenhagen V, Denmark.

1. Energy metabolism in 8 adult mink fed different protein-energy proportions (18, 34, 61%), feeding levels (150, 200, 250 g feed/day) and kept at different temperatures (20, 10, 0° C) has been measured in 62 respiration experiments.

2. CO_2- production and O_2-consumption in relation to metabolic weight ($kg^{0.75}$) increased about 40% by the temperature decreasing from 20 to 0°C.

3. ME being about 80% of gross energy for mixtures A (18% protein-energy) and B (34%) was found to be independent of feeding levels. ME decreased to 72% for mixture C (61%) caused by a lower digestibility of the energy. ME was found to be independent to temperature for mixture B (34%).

4. Retained energy (RE, RQ) was dependent on protein level, being highest for mixture B (34%) on all feeding levels.

5. Retained energy was dependent on temperature and decreased from 311 kJ at 20 to -324 kJ at 0^{o} C for mixture B (34%).

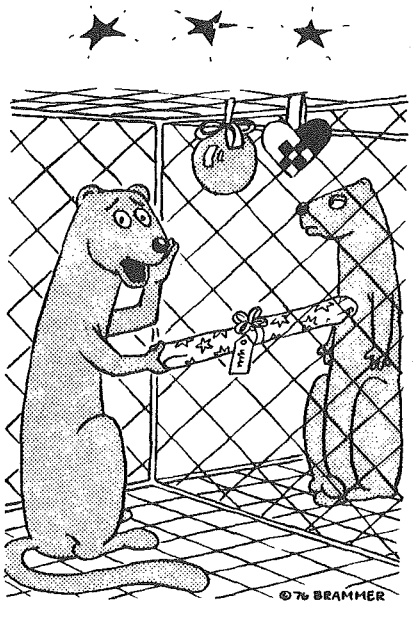
6. The maintenance requirement based on 33 measurements with positive energy balance in the thermoneutral zone (20^{o} C) was estimated as:
ME_m, kJ = 527 x W,$kg^{0.75}$.

7. In this group (n = 33) the overall efficiency of utilization of ME for production $(\frac{RE}{ME-ME_m})$ was found to be 0.67±0.09.

Proc. 8th Symposium on Energy Metabolism, Cambridge, England, Sept. 1979.

2 references, 4 tables, 1 figs.

Authors summary.



I was hoping on some warm clothes for use in the cold chamber.

FEEDING INTENSITY TRIALS WITH MINK

Anne-Helene Tauson and Eva Aldén, Dept. of Animal Husbandry,
Swedish University of Agricultural Sciences,
Funbo-Lövsta, S-755 90 Uppsala, Sweden.

Effects of different feeding intensity on reproduction, growth and pelt quality in mink have been studied in 1973-1978. Results regarding reproductive performance of the females in the trial can be concluded as follows:

By feeding three different feed mixtures with different calorific density but with the same ration sizes and the same amount of digestible protein different condition of the females was supposed to be achieved. However, there were difficulties in getting the females extremely fat mainly due to low feed consumption in cold periods during the winter. It also proved very hard to slim fat females, especially old ones. Whelping results did not differ significantly between feeding intensity levels, and kit growth was only slightly affected. There was some tendency towards heavier kits at weaning when they were fed high intensity feed.

The females were also grouped in quartiles regarding slimming November-March. Females very much slimmed had a bad reproductive performance and a great number of kit losses from parturition to weaning. Even kit growth was somewhat lower expressed as weight at weaning (42 days) for kits after heavily slimmed females.

When the females were grouped in quartiles due to live weight at the beginning of March, only slight differences in reproduction results were noticed. For sapphire females the lightest females had the worst reproductive performance.

As more pronounced effects of condition on reproduction were likely to occur in young females, their results were computed separately. Grouped in quartiles regarding degree of slimming from November to March, the females had no differences in number of live born kits, but the 25 % most slimmed lost more kits than the others, resulting in a significantly lower kit number per mated female at weaning.

Except for females barren for two consecutive years, all females were kept without regard to reproductive results. Thus, females put in the trial in November 1973 and still alive in November 1977 were kept for another breeding season, so that the effects of age on reproduction could be studied. 63 % of the females of standard, 40 % of those of pastel and only 20 % of those of sapphire mink were still alive in 1978. Only standard females were used in the study, because there had been no differences between years when the results for all standard females were computed. The best reproduction results expressed as live born kits per mated female had the 2-year-old females. The results for the 1- and 3-year-old ones were only slightly worse, but for the 4- and especially 5-year-old females there was an evident decline in reproductive performance. The 5-year-old females had over two live born kits less than the 1- and 2-year-old females.

The results from these experiments have given less differences than was expected. Partially, this is an effect of too small a number of females in the trial. If the experiments were repeated with young females and with a great number of females per group, it is likely that more pronounced differences will be achieved.

NJF's subsection for fur bearing animals, Kungälv, Oct.-79.
11 tables, 1 figure, 21 references.

In Swedish. Authors summary.

ANALYSIS OF PROTEINURIE IN CONNECTION TO ALEUTIAN DISEASE IN MINK BY MEANS OF SDS-POLYACRYLAMIDGELELECTROPHORESIS.

(Analyse der Proteinurie bei Aleutenkrankheit der Nerze mittels SDS-Polyacrylamidgelelektrophorese.)

R. Müller-Peddinghaus, G. Trautwein, Tierärztliche Hoshschule Hannover, Institut für Pathologie, 3ooo Hannover 1.

The SDS-polyacrylicamidgelelectrophoresis (PAGE) allows in principle the molecule weight dependent separation of urine proteins in macro proteinurie (glomerulare proteinurie)and microproteinurie (tubulare proteinurie).

At for example the virus induced aleutian disease in mink the applicability of SDS-PAGE is demonstrated for early finding and documentation of glomerularic changes. The quantitative urine protein determination is supplemented through the qualitative characterization of urine protein by means of SDS-PAGE and allow it to follow the progression of a clinical glomerulopathi. The appearing glomerulonephritiden (GN) was differentiated with suitable histological methods. The most frequent form is the membraious GN, which appears together with a remarkable high proteinurie. Mesangial-proliferative and mesangial-sclerosiating GN shows only a little increase in the urine protein secretion.

Der praktische Tierarzt, Vol. 6o, 4, 335, 1979.
14 references, 1 table, 2 figs.
In German.

Authors summary
translated by Margit Lykkeberg.

This page was reserved for YOUR abstract.

MUSTELID ANAESTHESIA AND HALOTHANE HEPATITIS.

L.W. Greenham, G.C. Ware, Dept. of Bacteriology, The Medical School, University Walk, Bristol.

In view of the accumulatin literature on halothane hapatitis in man and animals, we have re-examined the kidney and liver tissues of three mink multiply anaesthetised with halothane(bromochlorotrifluoroethane) in order to attempt comparisons.

In our mink the most consistent changes were found in the kidneys. Macroscopically, these were shunken and very pale to chalky white in appearance. Microscopically, the glomeruli were shunken and the proximal and distal convoluted tubules showed changes which varied from mild swelling to necrosis and obliteration of the tubular structures but with sparing of the basement membranes. Fatty changes were most evident in the periglomerular areas.

The kidney and liver changes observed in the mink were most probably the result of the repeated administrations of halothane.

We hope shortly to ascertain the sensitivity of mink to halothane in properly controlled experiments in order to test the validity of these suppositions, and we would welcome any observations which others might wish to make in this matter.

The Vet. Record, August 4, 1979.
16 references.

Abstract by
G. Jørgensen

THIS IS OUR SLEEPING PARTNER - NOT YOU.

✡ MECHANISMS OF ANEMIA IN ALEUTIAN DISEASE VIRAL INFECTION OF MINK.

Travis C. McGuire, Lance E. Perryman, John R. Gorham, Dept. of Vet. Microbiol. and Pathology, Washington State University and the Agricultural Research Service, USDA, Pullman, Washington 99164, USA.

Mink with Aleutian disease developed severe anemia within a few months after infection. Evaluation of erythropoiesis and erythrocyte survival demonstrated that the anemia was caused by increased erythrocyte destriction, complicated in some cases by decreased or inadequate erythropoiesis. An inverse relationship existed between the amount of IgG on affected mink erythrocytes and the erythrocyte half-life. However, the number of IgG molecules/erythrocyte were not high enough to be detected by direct Coombs' test, with the exception of one case. Inadequate erythropoiesis was reflected by lower plasma iron turnover levels and reticulocyte numbers than expected considering the severity of the anemia involved.

Veterinary Microbiology 4, 1979, 17-27.
24 references, 4 tables, 1 fig.

Authors abstract.

✡ THE FINE STRUCTURE OF THE EXOCRINE PANCREAS OF THE MINK. (Zur Feinstruktur des exokrinen Pankreas vom Nerz).

Claudio A. Ferrax de Carvalho, Departamento de Anatomia do ICB, Universidade de Sao Paulo, Caixa Postal 2921, olooo Sao Paulo, Brasil.

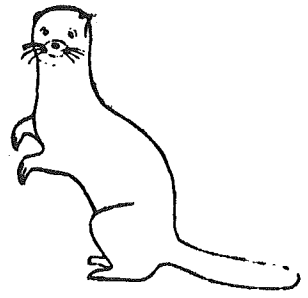
The pancreas of female mink has been investigated by transmission electron microscopic means. The following results can be summarized: The pancreas of the mink is built up by the well known gland lobules as found in many other species; each lobule contains branched ducts

with acini. The acinar cells are characteristically packed with granular endoplasmic reticulum, large Golgi apparatuses, and zymogen granules. Particularly interesting are large vacuoles, which seem to emerge directly from the endoplasmic reticular cysternae. The centroacinar cells form relatively extended protrusions or pseudopodia, which frequently penetrate into the intercellular spaces between neighbouring acinar cells. The peripheral isthmic parts of the ducts are covered by an isoprismatic epithelium. The adventitial tissue of the intralobular ducts contain mucous glands. Within the loose connective tissue between the exocrine cells, blood vessels as well as numerous nerves can be found.

These results are compared to earlier reports on the same subject, and also discussed together with available data from the literature.

Anat. Anz. 145, 1979, 225-236.
28 references, 12 figs.
In German with abstract in English.

Authors abstract.



☆ FEEDING AND PATHOLOGY ON THE DOMESTIC CARNIVORES.
NOTE 1: ALIMENTARY MISTAKES PATHOLOGICAL CONSEQUENCES.
(Alimentation et pathologie chez les carnivores domestiques).
(Note 1: Consequences pathologiques des erreurs alimentaires).

R. Wolter, Ecole Nationale Vétérinaire de Lyon, Route de Saint-Bel - Marcy-L'Etoile, 69260 Charbonnieres-Les-Bains, France.

After considering the digestive particularities peculiar to the carnivores, the author analyses their alimentary needs (energizing, proteinic, lipoidic, glucidical, mineral, vitaminic) taking notice of the pathological repercussions that their nonsatisfaction involves.
Review without references.
In French with summaries in English, German and Spanish.

TOXIC EFFECTS OF DIETARY POLYBROMINATED BIPHENYLS ON MINK.

Richard J. Aulerich, Robert K. Ringer, Fur Animal Project, Poultry Science Dept., Michigan State University, East Lansing, MI 48824, USA.

Serial levels of fireMaster^{R} FF-1, a commercial mixture of polybrominated biphenyls (PBB), and tissues from chickens and a cow that had previously consumed PBB were fed to mink to ascertain the chronic effects of the commercial and "metabolized" form of this compound on mink. Diets that contained 6,25 ppm (or more) PBB were lethal to adult mink within 1o months. One to 2.5 ppm dietary PBB fed for 9 months had an adverse effect on litter size, kit weight at birth, and kit survival. The data suggest that the PBB derived from contaminated beef and poultry was more toxic than the original PBB. The clinical signs of PBB poisoning in mink were food rejection, weight loss, and unthrifty appearance, and fatty infiltration of the liver. Based on these findings, mink must be considered highly susceptible to PBB toxicity. PBB residue levels 6o times the amount in the diet were found in the adipose tissue of of the PBB-treated animals.

Arch. Environm. Contam. Toxicol. 8, 487-498, 1979.
29 references, 3 tables, 2 figs.

Authors abstract.

SOCIALIZING A RED FOX.
(A case history).

G.M. Landsberg, M.S. Spiegle, Doncaster Animal Clinic, 99, Henderson Avenue, Thornhill, Ontario L3T 2K9.

In November of 1977 a 2-year-old, female red fox (Vulpes vulpes) was presented to the clinic, unable to support weight on its front legs after falling five stories from an apartment balcony.

Radiographs showed multiple fractures and dislocation of the carpi and metacarpi. The damage was repaired by the application of plaster and Minute-On^{R} (Jen-Sal) casts. Despite the use of an Elizabethan collar, a muzzle, and numerous unpalatable concoctions, the fox managed to remove or destroy four casts during the four months required to complete repair of the legs.

The fox usually was gentle with the owner, but its behavior was highly unpredictable. We determined the fox's major problem to be fear-biting. The animals was most frightened by sudden and unexpected movements and by unfamilar or loud noises.

Attempts to train the fox were fruitless. Punishment led to displays of aggression.

Perhaps the most upsetting problem was the fox's foul odor. This was a pungent, skunk-like scent that clung to the fox and permeated the owner's home. This typ of scent is characteristic of fox urine, but we postulated that the anal and tail glands were also involved.

As a solution to the periodic aggressiveness our client requested that an ovariohysterectomy be performed.

The fox was premedicated with xylazine (Rompun^{R} - Haver-Lockhart) and intubated. Anesthesia was maintained with halothane(Fluothane^{R} - Ayerst). The surgery was routine. The horns of the uterus were quite long (approximately 4 inches) and the body of the uterus was small.

The procedure for excising the anal sacs involved the use of the Vettec^{R} Anal Sac Gel. Kit. After the gel was heated and injected into the anal sac, an incision was made over the packed sac. The sac was dissected free and ligated. The incision was closed and the procedure was repeated on the opposite side.

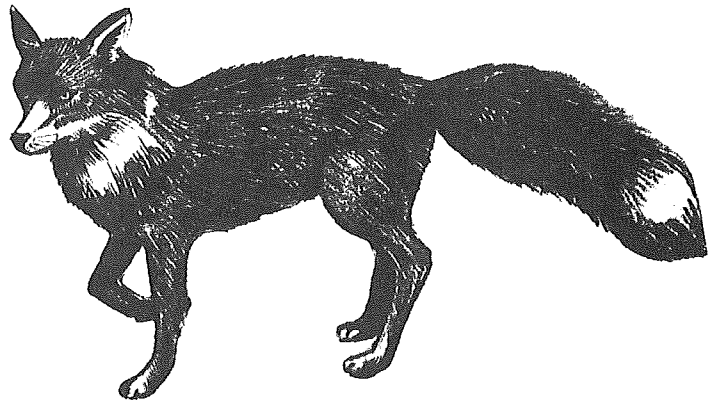
The results of both surgeries were remarkable. The fox's odor was dramatically reduced. Although some odor remained after the animal

urinated, it rapidly dissipated. In addition, the fox immediately became more docile. All biting except fear-biting and play-biting, has stopped. The fox greets and licks its owners and strangers alike, and rolls over to be petted. During the 16 months since surgery, there have been no displays of agression.

We reiterate that we do not want to encourage the keeping of foxes as pets. However, we hope that this report will be of help to zoos, research or humane facilities, or any group that uses foxes for study or public display. The spayed and descented fox makes a much more sociable animal.

Veterinary Medicine/Small Animal Clinician, June 1979, 841-844.
6 references, 6 colour photos.

Abstract: G. Jørgensen.

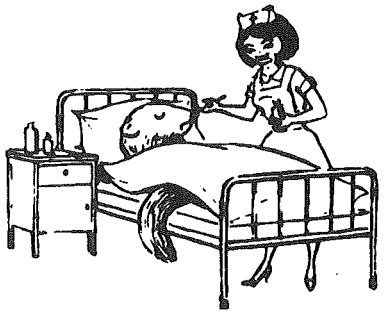


FROM THE SECTION : M E D I C I N E O F O T H E R A N I M A L S.

XXI ВСЕМИРНЫЙ ВЕТЕРИНАРНЫЙ КОНГРЕСС
XXI WORLD VETERINARY CONGRESS
XXI CONGRÈS MONDIAL VETERINAIRE
XXI WELT-TIERÄRZTEKONGRESS
XXI CONGRESO MUNDIAL DE VETERINARIA

ALEUTIAN DESEASE OF MINK; SPECIFIC DIAGNOSTICS, ITS NON-PROGRESSIVE COURSE AND PROBLEMS OF ITS ERADICATION.
V.S. Slugin, "Pushkinsky" Fur Animals Breeding State Farm, Moscow Region. USSR

АЛЕУТСКАЯ БОЛЕЗНЬ НОРОК: СПЕЦИФИЧЕСКАЯ ДИАГНОСТИКА, ИНАППАРАНТНОЕ ТЕЧЕНИЕ И ПРОБЛЕМЫ ЛИКВИДАЦИИ.
В.С.Слугин. Зверосовхоз "Пушкинский" Московской области (СССР)



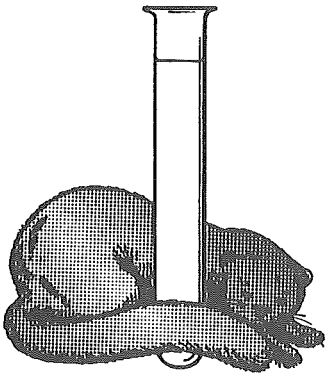
The objective of this work was a serological, epizoological and partially, pathomorphological study of the test and spontaneous forms of the Aleutian desease (AD), elucidation of certain aspects of its non-progressive course and its eradication. Over 20 thousand minks came under study, 145 of them constituded a test lot.

The minks were infected by way of intra-abdominal injection of "P-1" strain of the AD virus. Also studied were contact and intra-uterine AD injection.

The mink blood serum was subjected to multiple study through the immunoelectric osmophoresis reaction to detect AD virus antibodies and estimate their accumulation rates. It was found that 5.3 to 71.4 percent of the minks had the non-progressive course of the Aleutian desease characterized by very low titles of the antibodies (not in excess of 1:256) prevailing for months, frequent cases of the positive immunoelectric osmophoresis reaction of a short or long duration (particularly in young animals), comparatively low lethality within the observation period (lasting over a year), lack of any symptoms of the desease and pathomorphological changes. The said specific features are comparable with the criteria of the non-progressive course of the Aleutian desease described by An and Ingram (1978), however, the positive immunoelectric osmophoresis reaction is not related to the disappearance of passive colostral antibodies. The research has also proved that there are no prospects for eradicating the Aleutian desease by the application of the iodine agglutination paste. The materials obtained as a result of the study can be utilized in the practical control of the Aleutian desease.

THE SYSTEM OF VETERINARY PREVENTION IN LARGE-SCALE PRODUCTION OF FUR-BEARING ANIMALS.
J. Konrád. University School of Veterinary Medicine, Brno (CSSR)

СИСТЕМА ВЕТЕРИНАРНЫХ ПРОФИЛАКТИЧЕСКИХ МЕРОПРИЯТИЙ В КРУПНЫХ ПРЕДПРИЯТИЯХ ПО ПРОИЗВОДСТВУ ПУШНЫХ ЗВЕРЕЙ.
Я.Конрад. Высшая ветеринарная школа, Брно (ЧССР)



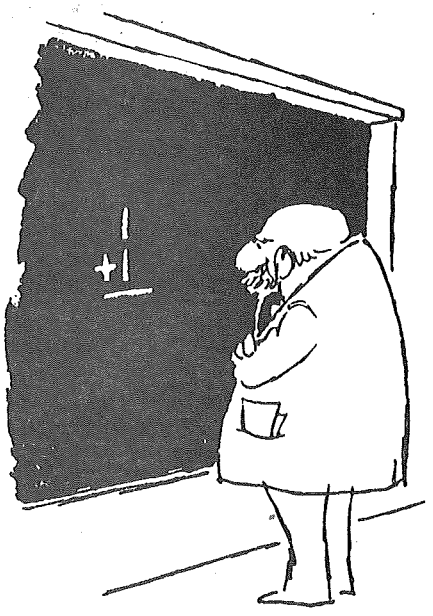
The system of veterinary, preventive and therapeutic care for fur-bearing animals was worked out. All animals are immunized against distemper, Aujezsky Disease, Rubarth disease, botulism and eventually against Fort-William disease, minxes were tested for the presence of Aleutian disease. Regular measures involve koproanalysis, dehelmintation, metabolic disorders control and water resources. The active

creation of health is based on the veterinary participation in the plan of zootechnical, nutrition and breeding measures and on routine preventive 14-day controls of all the herd. Two to five percent cadavers are subjected to post-mortem examination in the period of skinning. Veterinary case is ensured by a specilized veterinary doctors & specialists.

MORTALITY IN YOUNG MINKS AND RABBITS: ITS FREQUENCY, CAUSES AND PREVENTION. **H.-Ch. Löliger, S. Matthes, A. Lösing and B. Wein. Inst. of Small Animals, Division of Hygiene and Disease, Celle (Germany).**

HAUFIGKEIT' URSACHEN UND VORBEUGUNG DER VERLUSTE BEI JUNGEN NERZEN UND KANINCHEN. **H.C. Löliger, S. Matthes, A. Lösing, B. Wein. Institut für Kleintierzucht, Abt. Hygiene und Krankheiten, Celle (Deutschland)**

Investigations were made in 1 mink farm during two breeding and whelping seasons and in 2 rabbit farms. Dams and their litter were observed consecutively from birth till 4 weeks of age. – Following findings resulted:



No. of	total kits	born kits living	born kits death	losses (from living born)	surviving	litter size ♀ at birth	litter size ♀ at weaning (4 weeks)
A. Rabbits							
1397	9988	85,8%	14,2%	55,1%	44,9%	7,2	2,6
88	631	90,2%	9,8%	25,0%	75,0%	7,2	4,9
B. Minks							
88	442	93,4%	6,6%	10,2%	83,8%	5,0	3,9

In rabbits more than 85% of all losses occurs during the first five days, in minks about 95% of all losses in the first two days. The main causes of the postnatal mortality at rabbit and mink kits are undercooling and cannibalism by the mother Undercooling results by wet nests, destroying of the nest by excitation of the mother or by displacing of kits through the dam at suckling or in course of excitation. Infections or enteritis occur at earliest at 14 days and older.

In the postweaning period of young rabbits enteritis resp. dysenteria, caused by infection with E. coli or coliform bacteria in connection with other factors is wide spreaded. The mortality can be 40% of all kits and more. In young minks between 4 and 8 weeks the enteritis is also the most spreaded – unspecific disease.

In the prevention of those young animal losses hygienic programmes in the litter care as well as in the feeding system are more effective than pharmaceutic treatment.

ROLE OF ANIMALS AND BIRDS IN FUR-BEARING ANIMALS' INFECTION WITH TUBERCULOSIS. **B. Khaikin, T. Yakovleva, N. Kolychev. Siberian Research Veterinary Institute, Omsk Medical and Omsk Veterinary Institutes (USSR)**

РОЛЬ ЖИВОТНЫХ И ПТИЦ В ВОЗНИКНОВЕНИИ ТУБЕРКУЛЕЗА ПУШНЫХ ЗВЕРЕЙ. **Б.Я.Хайкин, Т.А.Яковлева, Н.М.Колычев. Сибирский научно-исследовательский ветеринарный институт, Омский медицинский и Омский ветеринарный институты (СССР)**

297 samples were taken from healthy cattle, horses, sheep and birds, 27 milk samples from fur-bearing animals' diets and 100 samples from the surroundings and soil of the five infected fur-bearing animal farms to identify the source of inoculum. At the same time on the two other farms infected with TB, people and fur-bearing animals were tested for TB. TB agent of bovine type was contained in 5.5% meat and 13% milk samples. Out of the 59 cultures of mycobacteria isolated from the surroundings 9 cultures were of bovine and 6 cultures of avian types. Cross infection of people and animals with tuberculosis was established.

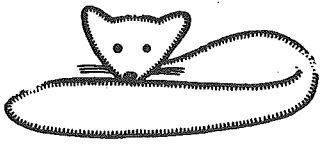
PREVENTIVE MEASURES IN INDUSTRIAL FUR FARMING. E.P. Danilov, Research Institute of Fur Farming and Rabbit Farming, Moscow District (USSR)

СИСТЕМА ПРОФИЛАКТИЧЕСКИХ МЕРОПРИЯТИЙ В ПРОМЫШЛЕННОМ ЗВЕРОВОДСТВЕ. Е.П.Данилов. Научно-исследовательский институт пушного звероводства и кролиководства, Московская обл. (СССР)

Methods of diagnostics and specific prevention of a number of diseases were developed. Vaccine against botulism in mink, whelps of mink of 40–45 days old was produced. There are 3 types of vaccines against Pasteurella pestis infection in carnivorous with good immunogenic properties. They are used for immunization of whelps of fox, polar fox and mink up to 2 months old.

TOXIC AND CARCINOGIC EFFECTS OF N-NITROSODIMETHYLAMINE (NDMA) IN BLUE FOXES. (ALOPEX LAGOPUS). N. Koppang, A. Helgebostad, National Veterinary Institute and Veterinary College of Norway, Oslo.

TOXISCHE UND CARCINOGENE WIRKNUNG VON N-NITROSODIMETHYLAMIN (NDMA) AUF BLAUFUCHSE (ALOPEX LAGOPUS). N. Koppang, A. Helgebostad, Nationales Veterinärinstitut und die Norwegische Veterinärhochschule, Oslo.



Thirtyseven blue foxes were exposed to single doses of NDMA varying from 8–15 mg/kg b.w., while 18 other blue foxes were fed varying doses of NDMA twice weekly. LD_{50} for blue foxes was found to be 10 mg NDMA/kg b.w. A single dose NDMA may induce progressive vessel changes leading to liver cirrhoses or tumours. The cumulative effect of NDMA fed twice weekly will by higher dosis cause hepatic damage and lever cirrhosis. Foxes exposed to lower doses develop obliterating changes in the hepatic veins, and later, multiple tumours grow out from the injured vessel walls. In the group fed 0.7 mg NDMA/kg b.w. weekly, one fox died of a brain tumour, after 3–4 years exposure 3 foxes developed multiple liver tumours, while 2 animals only showed obliterating changes in the hepatic veins.

Scientifur
COMMUNICATION.

THE SECOND INTERNATIONAL SCIENTIFIC CONGRESS IN FUR ANIMAL PRODUCTION

In these days we are sending the final invitation, preliminary program and enrollment forms to all scientists, who have sent their preliminary enrollment to the congress.

Today it is clear that the congress will be participated of at least 125 active scientists from 16 different countries, and, that there will be given between 5o and 6o reports at the congress.

In the following pages you will see the preliminary program for the congress, and do you feel that you may come to the congress, and have not send the preliminary enrollment form, you until the 1st of January 198o will be welcome to request the necessary forms from the congress secretariate, which adress you will find below.

Congress fee will be US $ 22o,- in double room and US $ 26o,- in single room + eventually a special excursion for studying fur farming in Denmark, US $ 17o,-.

All reports given at the congress will be collected in a congress folder, which will be dealt out to the participants at the beginning of the congress.

This folder can be ordered after the congress and the price will be US $ 3o,- or Dkr. 18o,- including postal fee.

In SCIENTIFUR Vol. 4, no. 1, February 198o we, if possible, will

bring abstracts of all reports, which will be given at the congress.

If you want more information about the congress or want to order the congress folder, please write the secretariate:

2nd Int. Scientific Congress 1980
SCIENTIFUR, 48 H Roskildevej
DK 3400 Hilleroed, Denmark

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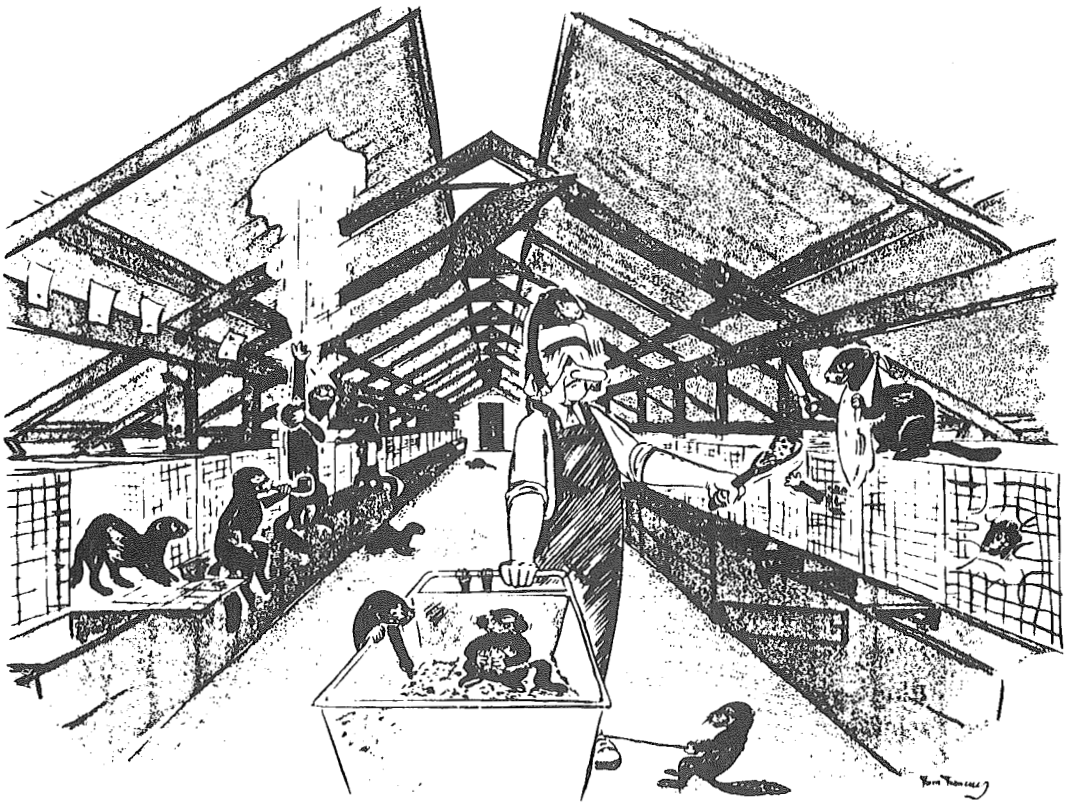
phone No. 03-261410.

For the arrangement committee

Gunnar Jørgensen



Better to go to the congress in 1980.

THE SECOND INTERNATIONAL SCIENTIFIC CONGRESS IN FUR ANIMAL PRODUCTION

DENMARK 8-10.4.1980

PRELIMINARY PROGRAM

Tuesday the 8th of April:

12.00 Lunch

13.30 The opening and welcome to the congress

Practical instructions

14.00 - 15.20

SECTION 1. Genetics, Chromosomes, Biochemical, Allotypes, Selection

1. The Chromosomes of Blue Foxes (Alopex lagopus)	*A. Mäkinen*	Finland
2. Studies on Biochemical Polymorphism in Silver Foxes	*O.L. Serov*	USSR
3. Genetic Systems of Serum Protein Allotypes in Domestic Mink	*K. Baranov*	USSR
4. Objectivization of Methods of Exterior Evalution of Standard Mink	*J. Sławón* *J. Maciejowski*	Poland
5. Genetic Parameters of Some Traits in Mink and the Opportunity of Dising them in Fur	*P. Nicolae*	Romania
6. Inheritance of Some Fur Colours in Foxes and their Pleiotropic Effects	*A.O. Ruvinsky*	USSR
7. The Use of Selection Index in Mink	*A. Olausson*	Sweden

15.20 Coffee

15.40 - 17.00

SECTION 2. Genetics, Hereditary Diseases, Reproduction

8. Syndrome of Hereditary Tyrosinemia in Mink	*O. Venge*	Denmark
9. Further Investigation of the Tyrosinemia Syndrome in Mink	*P. Henriksen*	Denmark
10. Spontaneous Heteroploidy at Early Postnatal Period in Mink	*D.K. Belyaev* *G.K. Isakova*	USSR
11. Correlations between Some Parameters Determining the Litter Size in Silver Foxes	*L.N. Trut*	USSR
12. Genetically Determined Embryonic Mortality in Foxes and Minks and Methods to Overcome It	*D.K. Belyaev*	USSR
13. Strategy and Tactics in Conversation of Reproductive Potential of Colour Minks	*V.I. Yevsikov*	USSR
14. Prenatal and Early Postnatal Mortality in Mink	*E.J. Einarsson*	Norway

18.00 Welcome dinner

Wednesday the 9th of April:

9.00 - 10.20

SECTION 3. Reproduction, morphology, physiology

15. Reproduction of the Foxes	*A. Frindt*	Poland
16. Seasonal Variation in Morphology and Function of Leydig Cells in Blue Fox	*K. Andersen*	Norway
17. Measurement of Electric Resistance of the Vaginal Smear/mucous Membrane in Silver and Blue Foxes as an Aid for Heat Detection	*O. Møller*	Norway
18. Vaginal Cytology and Histological Picture of the Ovaries during Hormonal Induction of Ovulation in Polar Foxes	*S.J. Jarosz*	Poland
19. Interaction between Adrenal and Gonad Function in Silver Foxes	*N.M. Bazhan*	USSR
20. The level of Androgens, Estrogens and Progesterone in the Peripheral Blood and their Production by Gonads and Adrenals in the Postnatal Ontogenesis of the Silver Foxes	*N.S. Logvinenko*	USSR
21. Sexual Behaviour of the Mink - Sexual Behaviour Description, Cry, Hormonal Approache	*C. Noulin*	France
22. Estimating Effects of Reproduction in Blue Fox Population Genetics	*M. Skrivan* *L. Stolc* *F. Louda*	Czechoslo-vakia

10.20 Coffee

10.40 - 12.00

SECTION 4. Hormones, blood picture

23. Hormonal and Photoperiodic Control of Implantation in Mink	*L. Martinet*	France
24. Thyroid Activity in Minks of Various Genotypes at the Initial Stages of Postnatal Ontogeny under Natural and Shortened Daylight	*J.S. Benimetzky* *D.V. Klotchkov*	USSR
25. The Influence of Photoperiodic Conditions upon the Reproductive Function of Young Minks	*D.V. Klotchkov*	USSR
26. Hormonal and Photoperiodic Regulation of Spring and Autumn Moults in Mink	*J. Rougeot*	France
27. Sedation and Anaesthesia of Mink. Influence on the Haematological Values	*Ø.R. Jepsen*	Denmark
28. Possibilities for and Considerations in Taking Metabolic Profiles in Mink	*J.S. Dirch Poulsen*	Denmark
29. Organ Distribution of Enzymes in Mink	*T. Juokslahti*	Finland
30. Enzym Studies of Mink Serum	*J. Kangas*	Finland
31. The Significance of Metabolic Disturbances and Possibilities of Controling Metabolism in Carnivorous Fur Bearing Animals	*V.D. Wenzel* *H. Keil*	DDR

12.00 - 13.30

Lunch

13.30 - 15.10

SECTION 5. Veterinary, infectious diseases, toxins

32. Classification of AD-Virus	*B. Åsted*	Denmark
33. Eradication of Aleutian Disease	*Mogens Hansen*	Denmark
34. Contribution to the Epidemiology Eradication of Aleutian Disease	*J. Haagsma*	Netherland
35. Cell Mediated Immunity in Mink with Aleutian Disease	*S.H. An* *B.N. Wilkie*	Canada
36. Enzyme-linked Immunosorbent Assay of Aleutian Disease Viral Antibodies	*P. Wright* *B.N. Wilkie*	Canada
37. An Improved Botulism Toxoid	*H. Kammer*	USA
38. A Serious Outbreak of Botulism Type C in Blue Foxes	*J. Haagsma*	Netherland
39. Experimental Staphylo-enterotoxicosis in Mink	*T. Juokslahti*	Finland
40. Pseudomonas Aeruginosa Infections in Mink	*J.R. Gorham*	USA
41. Toxicity of Polychlorinated Biphenyls to Mink	*R.J. Aulerich*	USA

15.10 Coffee

15.30 - 17.00

SECTION 6. Nutrition, physiology and utilization

42. Energy and Nitrogen Balance in Male Mink during the Growing Phase	*Charlet-Lery*	France
43. Energy Metabolism in Adult Mink in Relation to Protein Energy Levels and Environmental Temperature	*N. Glem Hansen*	Denmark
44. Amino Acid Digestibility in Mink	*A. Skrede*	Norway
45. Amino Acid Profile in the Plasma, Pelt and Hair of the Mink	*R. Chavez*	Canada
46. Mink Response to Enzymatic Pre-hydrolysis of Micronized Soybean Meal	*R. Belzile*	Canada
47. Lecithin-enriched Fats in Mink Nutrition	*J. Hertrampf*	Germany
48. Sulphuric Acid Presered Feed and Deposition of Minerals in Mink	*N.E. Hansen*	Denmark
49. Technique of Feeding Pellets to Mink	*D. Allain*	France

19.00 Congress dinner

Thursday the 10th of April:

9.00 - 10.10

SECTION 7. Feeding and general production problems

50. A Pot Pourri of Disease Problems in Nova Scotia-Mink and Foxes	*G. Finley*	Canada
51. Early Growth Performance of Dark and Pastel Kits at the Northwood Ranch 1971-75	*W.L. Leoschke*	USA
52. About Efficiency in Mink Production	*R. Garcia-Mata*	Argentina
53. The Composition of Diets Fed on Commercial Mink Farms in Britain	*M.G. Stuart Jones*	Great Britain
54. Morphological and Histological Characteristics of Fur Defect "Metallic"	*L. Blomstedt*	Finland
55. Some Significant Changes in Management at Northwood Fur Farms since Helsinki 1976	*A.A. Rietveld*	USA
56. The Influence of Food Restriction on the Growth and Development of Different Genotypes of American Mink	*O.V. Trapezov*	USSR

10.10 - Coffee

10.30 - 12.00

Evaluation of the congress

Suggestions for further international co-operation

Closing remarks

12.00 Lunch

13.30 Excursion to Copenhagen Fur Center

The following reports and erratums will be included in the final program:

Energy and Nitrogen Balance in Male Mink during the Animal Adult Life	Charlet-Lery	France
Researches on Vitamin E and Biotin status in Mink.	J. Beltic	Switzerland

---

1. The Chromosomes of Blue Foxes.	A. Mäkinen	Finland via Sweden

CHINCHILLA BIBLIOGRAPHY

Compiled by

María de Jesús Marichal and Richard J. Aulerich

This chinchilla bibliography was prepared to assist individuals in obtaining information concerning this furbearer published from 1900 through 1978. Although a fairly thorough search has been undertaken, this bibliography is by no means complete. There are many general texts which concern chinchillas, as well as other animals, which are not included. Undoubtedly some foreign publications have also been omitted, although many are cited.

The references in the bibliography are listed alphabetically by senior author under the following subjects:

Articles pertaining to more than one subject are listed under each appropriate heading.

---

[1]Journal article no. 8844. Michigan Agricultural Experiment Station.

[2]Fur Animal Project, Poultry Science Dept., Michigan State University, East Lansing, MI 48824

CARNIVORE

August 10, 1979

Gunnar Joergensen
NJF's Fur Animal Division
SCIENTIFUR
48 H Roskildevej
DK-3400 Hilleroed
DENMARK

Dear Editor:

We ask that you announce the journal Carnivore to your readers. Now in its second year, Carnivore has been well received (see letters enclosed). Volume II (1979) has an improved format, including typeset.

We also ask for an ad rate card as we wish to consider placement of an ad in your journal.

Lastly, we wish to establish perpetual exchange of Carnivore for your journal.

Thank you and kind regards,

Randall Eaton

Randall L. Eaton, Ph. D.
Editor

RLE:JO

P.S. You might also wish to announce the forthcoming conference on Carnivores, Carnivory and Human Evolution, January 4-5, 1980, (program enclosed).

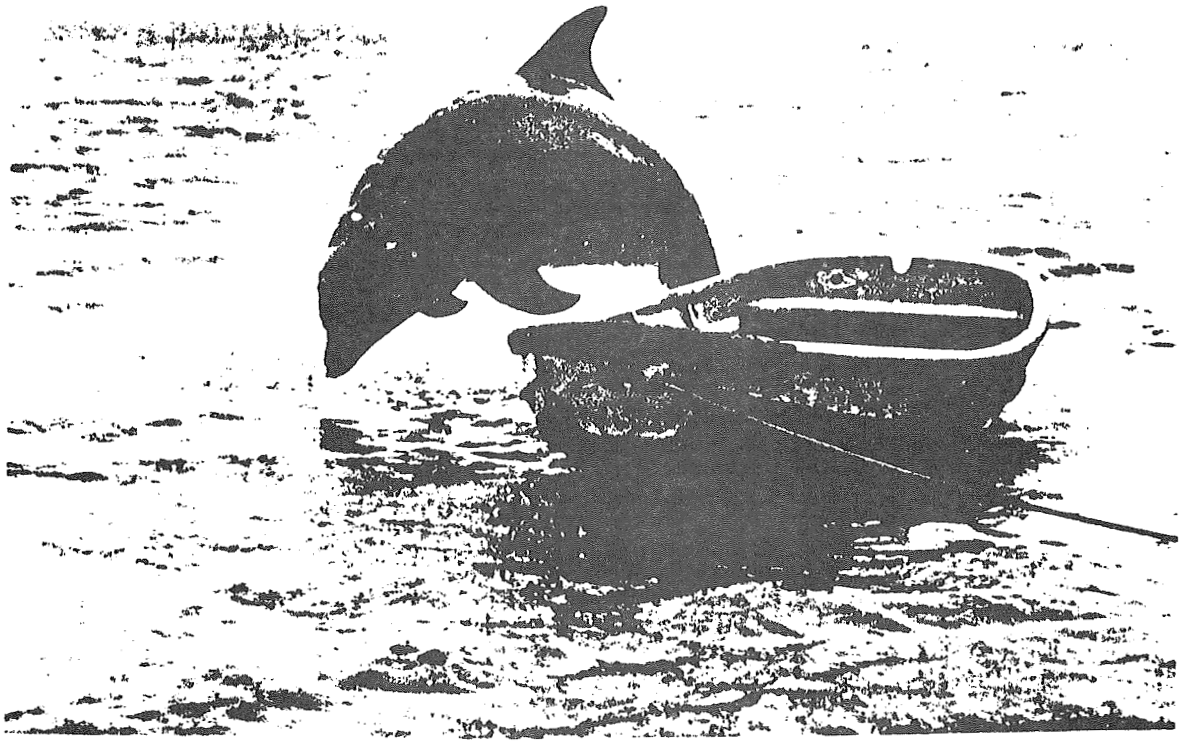
Enclosures

Carnivore Research Institute

Burke Museum DB-10, University of Washington Seattle, Washington 98195

CARNIVORE

Carnivorous Mammals Including Man



Carnivore is a regular journal devoted to the understanding of carnivory and carnivorous mammals including man. The policy of **Carnivore** is to encourage creative thought about the function and origin of carnivory and carnivorous mammals so as to better comprehend and benefit human life. **Carnivore's** primary emphasis is scientific and philosophic with secondary emphasis on application of knowledge.

Communications in **Carnivore** may appear in the form of letters, commentaries, articles, notes, announcements or news and book reviews. **Carnivore** is published four times per annum: three journal issues in January, May and October and one issue of monographs at an unspecified date. **Carnivore** is published by the Carnivore Research Institute, Burke Museum DB-10, University of Washington, Seattle, Washington 98105. All inquiries should be sent to R. Eaton, Editor.

CARNIVORE

Vol. I Part I, January 1978

CONTENTS

Carnivore Research Institute
Burke Museum DB-10, University of Washington, Seattle, Washington 98105

The Lion's Share

An Interdisciplinary Conference on Carnivores, Carnivory and Human Evolution

January 4-5, 1980

Seattle, Washington

Theme: Carnivores as Models of Human Evolution, The Role of Carnivory in Human Evolution, Competition with Carnivores and Evolution of Human Social Behavior.

Tentative Program

Alan Walker, Johns Hopkins University
Dental Adaptions in Early Hominids from East Africa and their Bearing on Possible Hominid Carnivory

R.J.G. Savage, University of Bristol
The Mechanics of Carnassial Dentitions

C.K. Brain, Transvaal Museum
The Importance of Carnivore Predation in the Lives of Southern Africa Australopithecines

Noel T. Boaz, New York University
Paleontological Indicators of Diet, Including Carnivory, in Early Hominidae

Bennett Blumenberg, Lesley College
The Origins of Hominid Megafaunal Carnivory

Q.B. Hendey, South African Museum
Interrelationships of Carnivores and Hominids During the Later Cenozoic

Glenn King, Monmouth College
Primates and Carnivores in the Reconstruction of Early Hominid Behavior

W.C. McGrew, University of Stirling
Animal Foods in the Diets of Wild Chimpanzees: Why Cross-Cultural Variation?

Helmut Hemmer, University of Gutenburg
An Overview of the Carnivore Faunas Associated with Early Man

Helmut Hemmer, University of Gutenburg
Domestication: the Major Change of Carnivore Habits and of Competition with Carnivores in the History of Man

Juliet Clutton-Brock, British Museum
Man and Dog versus the Wolf in the history of Livestock Husbandry

Randall Eaton, University of Washington
The Significance of Large Carnivores in Paleolithic Art of Trophyism as an Indicator of Human Rank Among Carnivores

Randall Eaton, University of Washington
Competition between Hominids and Carnivores: Does it Explain Human Social Evolution?

Discussion Topics

Man, Wolf and Dog in the Late Pleistocene and the Early Holocene.

Predation, zenophobia and cannibalism in chimpanzees.

Methodologies in the study of diet in fossil Hominidae.

Theories of social evolution in humans.

Call for Papers

Additional Contributions are sought, especially those about nutrition and reproductive success in human hunting societies, and the adaptive role of interspecific competition among carnivore, primate and human societies.

Abstracts of 250-500 words should be sent by June 10th to: Randall Eaton, Carnivore Research Institute, University of Washington DB-10, Seattle, WA 98105.

The edited proceedings will be published as a special issue of *Carnivore: Carnivorous mammals including man.*

Registration

Pre-registration $35, after June 10th $45. To register send your name, address and check made payable to: Carnivore Conference.

Or write for further details: Carnivore Research Institute, University of Washington DB-10, Seattle, WA 98105. You will receive information on conference locations, program, housing and travel options.