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Cover Drawing, Samber State (Cervus Unicolor) Drawing by
Dr. Mir Gowher Ali Khan.

THE SECOND OPINION.

I was taken aback when Dr. H. WIESNER, Technical Director, and Chief Zoo Veterinarian of MUNICH ZOO revealed at the workshop on " Capture Methods by Tranquilizing Gun" at Delhi in January, 1982; that he has tranquilized a Zebra Young Foal daily for about more than 20 days for Treatment of a complicated wound. can we even think of it? Is it possible to have such an equipment, Medicine and expertise in our Indian Zoos? The answer is in affirmative "Where there is a will there is a way" as the good old saying goes. But the present position with our Zoos is that, first of all they donot have this equipment, and few of those which are possessing Capture Gun do not have the expertise. And if same one is lucky and by practicing the "shooting" regularly has come close to a "Drug dosage Schedule" but one fine morning to his utter disappointment, finds that the stock of the darts and the tranquilizing drug is exhausted, and there is no way to get either of the two in near future. As a result the equipment is nicely locked up in the woodencabinet never to be opened again.

To meet this challenge the Indian Board for Wild Life should give a second thought:-

1. To impart training to the Zoo Vets. and Managers in the art of using Capture Guns on the Wild Animals.
2. To find ways and means for the smooth supply of Capture Gun its accessories and the Tranquilizing drugs to all the Indian Zoos, deer parks and Sanctuaries.


Editor.

EFFICACY OF ANTITUBERCULOSIS DRUGS IN THE CONTROL OF
ZONOTIC TUBERCULOSIS AMONG CAPTIVE MAMMALS (1966-1985)

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ABSTRACT

In India Tuberculosis in man, domestic animals and captive mammals is a serious problem. For over coming this problem the author examined a total of about two thousand captive wildlife, Delone (proprietary name of Dey's Medical) was used as antituberculosis (viz. Isoniazid and Pasf drugs routinely by concealing in their food. In spite of continuous exposure from visitors from 1966 to 1984 the tuberculosis is not much problem as compared to other Indian zoos. During the year 1966-1969 a total of about nine species were effected. One chimpanzee name 'CAROLINA' and some zoo keepers were also cured from tuberculosis. Proper management alongwith use of antituberculosis drugs are considered necessary as preventive measures for saving wildlife wealth under captive conditions in zoos and research institutes. Further research is necessary for wild mammals regarding the use of Ethambutol (Lupin-Laboratory, human dose 800 mg per day and cost Rs. 1.50 per tablet) as this is used by Bareilly Tuberculosis clinic, Utter Pradesh and four thousand T.B cases in man was studied recently by author.

INTERODUCTION:

One dozen of antituberculosis durgs were listed for use in man (Sensi, 1983) but their use in captive wildlife is a challenging research as preventive measure. Like other zoos, tuberculosis was problem at Calcutta zoo, before use of antituberculosis drugs as preventive and curative therapy from 1966 to 1984 and continuing these therapy. No research paper were published in this regard from any zoos regarding use of antituberculosis drugs as preventive therapy. Therefore, it is pertinent to report this matter for the welfare of wildlife zoonoses control.

The use of antituberculosis drugs at Calcutta zoo was pertinent as tuberculosis is problem in captive wildlife in India (Liston and Soparkar, 1924 ; Ray, 1966 ; Lall, 1968. Rathore and Khera, 1982) and abroad (Griffith, 1928, Griffith 1939; Urbain, 1941 ; Rankin and Mc Diarmid, 1969 and other).

MATERIALS AND METHODS :

Suspected captive wildlife were selected on the basis of susceptibility to Primates and wild herbivores. Wild carnivores are rarely susceptible to T.B. Wildlife was selected on the basis of cachectic symptoms and when they were fed judiciously with "DELONE " (Proprietary antituberculosis drug of Dey's Medical Company) was used by crushing the tablets by making space in banana for primates and for wild-herbivores. The crushed tablet's powder by mixing with some feed and after taking medicated ration, the whole daily ration was given in the primate house or paddocks. The dosage schedule was followed on the basis of adult human dose mentioned in proprietary drugs. The disease was found Zoonotic as some occupational zookeepers were also affected and cured them by use of Ambistryn, (Streptomycin sulphate, "Sarabhai Chemicals).

R E S U L T S:

Out of about three x hundred mammals only the following animals died due to Tuberculosis (Table.I) and showed acid fast bacilli. Prevalence of tuberculosis among captive wildlife (1966 - 1969)

Contd.

Sl.No.	Name of Species	Scientific Name.	Remarks
1.	Chimpanzee	<u>Pan troglodytes</u>	cured,
2.	Stumptailed Monkey	<u>Macaca Lyssodes arcoides</u>	suddenly died
3.	Lion-tailed Monkey	<u>Macaca Silenus</u>	Died suddenly
4.	Spotted Deer	<u>Axis Axis</u>	Died suddenly
5.	Sambar Deer	<u>Cervus Unicolor</u>	Died suddenly
6.	Thamin Deer	<u>Cervus eldi Thamin</u>	Died suddenly
7.	Eland antelope	<u>Taurotragees Oryx</u>	Died suddenly
8.	Giraffe	<u>Giraffe Camel opar-dalis</u>	Died in spite of use of antituberculous drugs
9.	Camel	<u>Camelus Dromedarius</u>	-do-

Among 1700 avian species none died due to tuberculosis

D I S C U S S I O N

The results showed that at Calcutta zoo only three species of primates were affected as compared to the survey in India among five Zoos where antituberculous drugs were not used as routine therapy (Rathore and Khera, Loc. cit) Lall (loc. city) reported. Human type of tubercle bacilli among one chimpan-zee and two Monkeys (species not mentioned) in India. An outbreak of T.B in Bombay zoo due to Bovine * type of Tubercle bacilli has been reported (Liston and Sopar-kar, 1924). Therefore, in India tuberculosis caused a severe constant problem. This could be controlled by use of routine therapy with antituberculosis drugs. Tuberculosis Association of India (1985) reported 10 million human patient suffer from tuberculosis and among these five lakh T.B patients died each year in India.

ACKNOWLEDGEMENT

The author is grateful to Dr. P.N. Bhat "Director " IVRI; Dr. N.P.Bhalla, Head Division of Veterinary Public Health, IVRI; Dr. R.K. Lahari Ex-Director, CALCUTTA zoo and all staff of BAREILLY T.B. Clinic for encouragement.

The author is also grateful to his wife Dr.Mrs.Chaitali Ray for her work on cell-mediated immunity, PPD Tuberculin tests in Children and other immunological tests.

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SURRA IN A JACKAL.

(A CASE REPORT)

1. Dr. Mir Gowher Ali Khan,
2. Dr. Sabir Ali, and
3. Dr. Dattatri Rao.

INTRODUCTION: Surra or Trypanosomiasis is the most common infection in quite a good number of species of large felids, kept in captivity in various Indian Zoos and Circuses, so far it is reported in Tiger (*Panthera tigris*) including the white one, Indian Lion (*Panthera leo*) leopard (*Panthera pardus*) Puma (*Felis concolor*) and Jaguar (*Panthera onca*) It is also reported from striped Hyaena (*Hyaena hyaena*) Surra in wild canids such as Jackal, fox and wolf is uncommon as per the available literature. This article describes a case of Surra in a captive Jackal (*Canis anreus*) and its successful treatment with Antrycide Prosalt.

CASE REPORT: NEHRU Zoological Park, Hyderabad is exhibiting a family of Jackals consisting of 2 male and 4 females in a beautiful moated enclosure since April, 1981. The animals have settled down well and even started breeding. But in the month of October 1982 we lost a male and a female. The deaths were sudden without showing symptoms of illness. Postmortem conducted on the carcasses could not reveal any significant pathological changes in the internal organs.

On 13-12-1982 one of the Jackals was found dull. On close examination it revealed high fever, dullness and opacity of Cornea of both the eyes. Pyrexia and opacity of Cornea lead us to suspect Surra. Blood films prepared from the tips of the ear were examined at the Zoo Hospital and few were send to the pathological section of College of Animal Husbandry and Veterinary Service, Rajendranagar and to the Veterinary Biological and Research Institute, Hyderabad. These films were found positive for T. evansi infection.

The treatment details and the observations are given below:-

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-
1. Deputy Director (AH) (Retired) Nehru Zoological Park, Hyderabad. A.P.
 2. Assistant Director (AH) Nehru Zoological Park, Hyderabad. A.P.,
 3. Veterinary Officer, Nehru Zoological Park, Hyderabad. A.P.,
-

Date.	Body Temperature.	Treatment given.	Observations.
13-12-82.	105° F.	Injected Antrycide Prosalt 30 mg. S/C. @ 4 mgrm Per kilo B/Wt. Estimated Wt. 15 Kilos. (1/2 the dose was given)	High fever dull. off feed. opacity of cornea.
14-12-82.	104° F.	-do-	Fever persisting but improving appetite improving.
15-12-82.	104° F.	No treatment was given.	Appetite almost normal opacity of Cornea persisting.
16-12-82.	104° F.	-do-	-do-
17-12-82.	102° F.	-do-	No fever oppetite normal.
18-12-82 to 22-12-82.	--	-do-	-do-
23-12-82.	--	-do-	opacity of both the eyes got cleared up.

PROPHYLACTIC TREATMENT. The remaining Jackals 1, Male, 2, Female were given prophylactic doses of Antrycide prosalt @ 2 mg. per Kilo body weight i.e., 30 mg. S/C on 14-12-82 and they remained clean of infection during this out-break.

S U M M A R Y .

One female Jackal was treated for Surrah successfully with Antrycide prosalt. The Jackals in contact were also given prophylactic does of Antrycide prosalt. Antrycide prosalt has been found quite effective both as curative and prophylactive in case of Surra in Jackals.

....3

 The civilization started when the first tree was cut,
 it will come to an end when the last tree will be cut.

:: 3 ::

A CASE OF A SQUAMOUS CELL CARCINOMA IN A RHINOCEROS.

1. Dr. M. S. KALOREY, and DR. S. A. CHEDE.

A Rhinoceros aged about 27 Years was brought to the Zoo Veterinary Hospital, Veermata Jeejabai Bhonsale Garden Byculla, Bombay for treatment. It has a small wound on the lumbar region. Considering a routine case, the wound was dressed with Antiseptic powder and the Animal was given a shot of Antibiotic. But even after a regular treatment for 15 days i.e., removal of the dead tissues, dressing of the wound, local and parenteral treatment with Antibiotics, the wound did not heal. Hence the case was referred to the Bombay Veterinary College Hospital.

The case was suspected to be a malignant growth. As the Animal was ferocious, it was difficult to collect tissue sample for histopathological examination, hence S XYLETHENE Hydrochloride 3 ml. was given I/M by means of a "BLOW PIPE" and the material collected for biopsy. The investigations were done at the TATA CENTRE RESEARCH INSTITUTE, and the growth was confirmed as a squamous Cell Carcinoma.

Since the growth was quite extensive the Animal did not respond to any treatment and ultimately it succumbed after 3½ years period.

S U M M A R Y .

A case of squamous Cell Carcinoma in an Indian Rhinoceros is reported.

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1. Veterinary Officer, Jeejabai Bhonsale Garden, Byculla, BOMBAY.

HYGIENE, HEALTH AND DISEASE CONTROL ON COMPOSITE WILD
LIFE STOCK FARMS OR ZOOLOGICAL PARKS IN INDIA.

DR. A. H. M. AZMATHULLAH

WILD ANIMALS are comparatively some what more stronger than Domestic Animals i.e., they are more resistance to diseases. But confinement makes them prone to many infectious diseases, due to various factors. Zoo management has its own limitations in their treatment due to their strength, wilderness, sensitiveness and difficulty to control. Hence it is very suggestive of the term, "PREVENTION IS BETTER THAN CURE" in the wildlife management.

The following measures are suggested to keep them healthy and disease free to a great extent.

I. GENERAL CLEANLINESS.

(a) DISINFECTION: The floor of the Animal Houses (Cemented) should be washed and cleaned with Non-Corrosive disinfectants such as *ASIPHORE* which contain permissible Iodine. When used in proper dilutions it is a safe disinfectant and deoderiser. Asiphore can also be used for disinfection of animal Houses including Cages, Walls, Roofs by thoroughly spraying once in a month.

(b) DISINFECTION OF ANIMAL FEED AND UTENSILS: The Utensils such as Feeders and Waterers can also be cleaned with the solution of Asiphore. This solution is extensively used for washing Milk Tankers, Cans and Milk Chilling Plants, and is very safe. The advantage of this solution is that it does not require after wash OR rinsing. Even drinking water source such as water Moats can also be get treated with Asiphore. All the edibles, such as Fruits, Vegetables and Beef can be washed in this solution. This treatment will make such edibles free from dirt, dust and few of the harmful pathogens.

(c) DISINFECTING FOOT BATHS: To avoid the spread of infection through feet of the visitors, workers, it is advisable to provide "FOOT BATHS" of disinfectant solutions at the entrance of the Zoo Parks. At the entrance gates the cars of the visitors should pass through a Road dam, containing disinfectant solution by half, dipping the cars wheels and taking a full found of the wheels. Disinfectant Foot Baths filled with strong solution of Phenyle are to be provided at the main and the service gates in such a way that only the soles of the shoes of the visitors and the keepers are soaked in the disinfectant solution. No one should get in to the Zoo premises with out passing through these Foot Baths. Providing such disinfectant Foot Baths at each and every Animal Cage and enclosure must also be taken into consideration. This will definitely minimise the spread of infection.

(d) DISINFECTION OF WATER MOATS: This is an essential item of prophylaxis in order to control the spread of coli bacteria and salmonella infections through the drinking water. These pathogens are mostly responsible for causing Gastro Enteritis in Zoo Animals. Hence the MOAT WATER has to be got periodically cleaned and disinfected with Bleaching Powder OR Asiphore.

II. CONTROL OF ECTOPARASITES.

Ectoparasites like LICE, MITES, TICKS, MOSQUITOES, Etc., are carriers of many Haemoprotozoan diseases such as Surra, Piroplasmosis, Anaplasmosis Etc., Hence to keep such infestations as low as possible, spraying of all Animal Houses with insecticides such as MALATHION/SUMITHION is done periodically. Feeders and Waterers should be removed from the Animal Houses before using pesticides. Few hours should be allowed to take back the Animals in their Animal Houses. It is advisable to give a "TAP WATER WASH" before the Animal feed is laid down in their Cages.

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III. FLY CONTROL.

Fly infestation can be controlled by using BAYGON/TUGON Fly baits, available in the market. This bait has to be spread on the floors, sewage heaps and into the dust bins. Besides attracting and killing the flies these baits also kill the cockroaches.

IV. RODENT CONTROL.

Rodents are also responsible for spreading the disease by contaminating the Animal Feed. This can be controlled by way of providing RODAERIN BAIT, as a continuous process. (This has already been discussed in the previous issue of the WILDLIFE HEALTH).

V. DISPOSAL OF DEAD ANIMALS.

Proper and Scientific disposal of Dead Animals is essential in order to stop the spread of the disease causing agents. Most of the Zoological Parks in the Country do not have such facilities, as a result the diseases are not fully controlled but get disseminated. Hence provision of a pucca Disposal Pit, with 2 to 3 manholes and an exhaust in every Zoo Park is advocated. All the dead Animals instead of being buried here and there in the Zoo premises, should be dumped in these Disposal Pits.

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(1)

ROLLAPADU is a Village in Nandikotkur Taluq of Kurnool District of A.P., State. Where an Ornithologists dream came true. Here some where in July, 1984 a team of Forest Officials of the State along with a group of Scientists from the Natural History Society, Bombay saw and counted 38 Nos of Great Indian Bustard in two groups of 28 and 10. Dr. Rehmani, (BHS) said it was the largest group of Bustard to be sighted at any one place in the Country.

When Mr. Pushp Kumar, Conservator of Wild Life, Hyderabad A.P., came to this village in August, 1982 he saw only 3 Birds after searching the area for about three hours, last August the No. rose to 13.

The B.N.H.S. has setup station at KARERS in M.P. and NANAJA in Maharashtra to study the Bustards, with the encouraging findings at Rollapadu another station is very much on the cards at.

(HINDU)

(2)

A seven feet long white crocodile has been obtained more as an accident than by design and this has been bred in captivity in Nandankanan Biological Park, Orissa. This salt water crocodile is one of the only two now in the world to be bred in captivity other one being in a zoo in THAILAND. The white Crocodile, a proud possession of the Orissa State Forest Department is going to be the starting point of captive Breeding of white Crocodiles in this part.

(3)

The Padmaja Naidu Himalayan Zoological Park, Darjeeling, received on 6-2-1985 a pair of USSURI TIGERS as a gift from the HELSINKI ZOO FINLAND. The Male "MIHAIL" and the Female "MILAYA" were born on 6-6-1981 and are litter mates. They were received at the Calcutta Air Port by Dr. R.K. Lahiri, Director, of the Zoo Park.

....2

This Park is already having two tigers of this sub species. The number now with the addition of these new two tigers is increased to Four (2:2)

(DR.D.S.GURUNG)
ASST.DIRECTOR.
DARJEELING ZOO.

(4)

The College of Veterinary Sciences of the KERALA Agriculture University at Mannuthy is setting up a Centre for studies on Asian Elephants, the first of its kind in Asia. The University Council had made token provision of Rs.2,5000/- for the establishment of the Centre. The proposed Centre will have as its infrastructure an Elephant Clinic, Elephant Stalls, Bathing Tanks, Studio, Laboratory, Office and Museum.

(5)

Dr.L.N.Acharjyo, a member of the I.Z.W.L.V.A. has submitted a thesis titled "GROSS AND HISTOPATHOLOGY OF COMMON DISEASES IN SOME CAPTIVE WILD MAMMALS" to Orissa University of Agriculture and Technology, Bhubaneswar in 1985, under the guidance of Dr.A.T.Rao, Professor and Head Department of Pathology, Orissa Veterinary College, in partial fulfillment of the M.V.S.C. degree. This thesis covers nine species of wild Ruminants of India. This is the first thesis on wild life pathology of our Country.

(6)

The Karnataka State Forest Department has proposed as a part of a large Scheme to Create a TIGER SAFARI at the Bennerghatta National Park, Bangalore, an ambitious plan to raise a new crop of white Tigers.

(LIVESTOCK ADVISER)

A workshop on wild life health for veterinarians was held at Wild life Institute of India, FRI campus Dehradun from 22.11.85 to 26.11.85. This was sponsored by the Wild Life Institute of India. Dr. Albert W. Franzmann, Director of the Moose Research Centre for the Alaska Department of Fish and Game, founder and past president of the American Association of Wild life veterinarians hold the seminar and discussions on various aspects of health, disease control, and management of wild life, both in captivity and in free living state.

A total No. of (19) veterinarians including Professors, Senior Scientists, Deputy Directors, Asst. Directors and Vety. officers, involved in the up keep of the wild animals in zoos and free living state participated in the seminar. Many interesting articles were presented. The session was opened by a very important talk by Dr. Albert W. Franzmann on " Wild Life Health and Indicator Animal concept" and came to an end by the concluding remarks of Dr. J.B. Sale, FAO, Chief Technical Advisor, Wild life of India.

Peshwa park, Pune was besieged by huge crowds to witness an usual wedding. Mantras were chanted to solemnise the wedding ceremony of the Tigers and the Tigeresses, Amar, Akber, Anthony with Ganga, Laxmi and Rukmini.

The tiger wedding was organised by the Pune Municipal Corporation on its anniversary to create an awareness among people about the necessity to preserve wild life.

(Established 1982)

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VETERINARIAN'S ASSOCIATION

The Objective of the Indian
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1. To advance programme for preven-
tive medicines, husbandry and
scientific research in the field of
Veterinary medicines dealing with
wild animals in captivity and in
free state.
2. To provide a forum for the
presentation and discussion of
problems related to the health
care and disease management of
the Wild Life.
3. To publish and distributed
Scientific information related
and pertaining to the Veterinary
medicines dealing with captive
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conservator (Wild life) Andaman for a donation
of Rs. 20=00

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A LIST OF FEW BOOKS ON ZOO MANAGEMENT AND ZOO AND WILD
ANIMAL MEDICINE.

Sl. No.	Name of the Book.	Author.	Publishers.
1.	The Management of Wild Mammals in Captivity.	LEE . S. CRANDALL.	The University of Chicago Press, Chicago L O N D O N .
2.	Zoo and Wild Animal Medicine.	Edited by MURRAY. E. FOWLER.	W. B. S. Saunders & Co., 1978 LONDON, TORONTO.
3.	Bird Diseases.	ARNALL. L. and KEYMER I. F.	BAILLIERE AND TINDALL (1975)
4.	Infectious and parasitic Deaseses of Wild Birds.	Edited by JOHN. W. DAVIES - & ROY. C. Anderson - 1971. IOWA STATE UNIVERSITY PRESS - 1971.	
5.	Parasitic Deiseases of Wild Animals.		-do-
6.	Infectious Deiseases of Wild Animals.		-do-
7.	Diseases of Free Living Wild Animals.	Macdiarmid, A	F. A. O. Publications (1962)
8.	Camparative Nutriti of Wild Animals.	Edited by M. A. Crawford.	Academic Press. L O N D O N . (1968)
9.	Hand Book of Zoo Medicine- Diseases and Treatment of Wild Animal in Zoos Game Parks, Circus & Pvt. Collections.	HEINZ. GEORGE KIOS AND ERNST, M. LANG	VNR V N NOSTRAND REINHOLD CO., (1982) NEW 2 YORK.
10.	Wild Life Diseases.	Edited by LESLIE ANDREW PAGE.	Ple Num Press, New - York and L O N D O N - 1975.