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Editor :

P. SRINIVASA RAO, G.M.V.C.

Veterinary Surgeon, Madras

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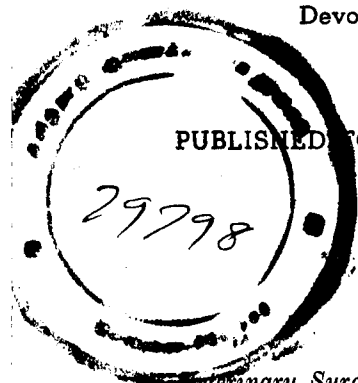
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The Indian Veterinary Journal

A Bi-monthly Record of Veterinary Medicine and Surgery
Devoted to the cause of the Veterinary Profession



PUBLISHED FOR THE ALL-INDIA VETERINARY ASSOCIATION.

EDITOR:

P. SRINIVASA RAO, G.M.V.C.,

*Veterinary Surgeon, and Proprietor, Dr Pangal's Veterinary Institute,
26, Wallajah Road, Mount Road, Madras, S. India.*

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THE

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Group Photo taken at the Annual Conference of the Bombay Veterinary Medical Association, held at Dharwar, on the 28th and 29th December, 1940.

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Group Photo taken at the party given to Mr. M. W. RAHALKAR, G.B.V.C., Veterinary Inspector, Akola District, Central Provinces, who has been promoted as Assistant Director of Veterinary Services, Raipur, C. P.

THE Indian Veterinary Journal

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General Articles

SOME OBSERVATIONS ON THE BLOOD-SUGAR CONTENT OF ANIMALS

BY

M. A. RANGASWAMI AYYAR, B.A., G.M.V.C.,
Lecturer in Physiology, Madras Veterinary College,

AND

K. N. GOVINDAN NAYAR, G.M.V.C.,
*Assistant to the Lecturer in Physiology, Madras
Veterinary College.*

All carbohydrates in whatever form they are ingested are mostly converted into glucose during the process of digestion. They are absorbed by the blood stream and taken to the liver by the portal vein. A certain quantity of glucose is retained in the blood stream, and the excess is converted into glycogen and also fat if present in sufficient quantity. The glucose in the blood is taken up by the tissues and used up mainly for the production of heat and energy. As blood-sugar falls, a certain quantity of glycogen is converted into glucose and sent into the blood stream. Thus, the quantity of glucose in the blood is kept constant. The conversion of glucose into glycogen and its reconversion into glucose are effected by an enzyme glycogenase present in the liver. This is chiefly under the control of Insulin (an internal secretion of Pancreas) which checks the conversion of glycogen into glucose and helps its utilisation in the tissues. If by some derangement such as deficiency of Insulin etc, the blood sugar is allowed to rise, the excess is eliminated from the blood by the cells of the kidney, leading to glycosuria (sugar in the urine). If the cells of the

kidney are not functioning properly, sugar may pass into the urine even when the blood sugar is normal. Hence, the estimation of glucose in blood is necessary in order to find out the cause of glycosuria.

On analysis it has been found that cattle have a low blood-sugar content compared with other animals. The following list gives the blood sugar estimations done in this laboratory. The method adopted is that of Folin and Wu and is described below :—

Prepare protein-free blood filtrate by taking 34 c.c. of 3 per cent solution of sodium sulphate crystals in a centrifuge tube, adding 0.2 c.c. each of 10 per cent solution of sodium tungstate, $\frac{2}{3}$ N. H_2SO_4 , and blood, mixing well and centrifuging for 3 to 4 minutes. Take 2 c.c. of the supernatant protein-free blood filtrate in a blood-sugar tube and add 2 c.c. of alkaline copper sulphate solution. In another blood-sugar tube take 2 c.c. of 0.01 per cent glucose in saturated benzoic acid and add 2 c.c. of alkaline copper sulphate. This is the standard. Keep both tubes in boiling water bath for 6 minutes, keep in a cool bath for 2 minutes and add to each 2 c.c. of Phosphomolybdic acid solution. After the reaction has subsided, make up to 25 c.c. with distilled water. Estimate the amount of glucose by comparing with the standard in a colorimeter keeping the standard at 20 m.m.

Table showing the blood-sugar contents in horse, cattle and dog.

Species	Number of samples examined													Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	
	Mgms. per 100 c.c. of blood													
Horse	68	74	80	67	56	85	68	62	72	76	82	77	78	72.7
Cattle	57	36	46	52	50	40	44	40	43	48	43	54	44	45.9
Dog	57	56	63	62	71	69	45	44	61	60	63	50	78	59.9

In addition to the above, sugar was estimated in blood of buffaloes which were made use of for serum production in the Madras Serum Institute. During the process, the same animal is bled about five times at intervals of 3 to 5 days. Samples of blood drawn at different bleedings were obtained and their blood-sugar content estimated. In all, 76 samples of blood taken from 17 animals were examined. The following table gives the results.

S. No. of the animal.	I Bleeding.	II Bleeding.	III Bleeding.	IV Bleeding.	V Bleeding.
Mgms. per 100 c.c. of blood.					
1	53	30	55	...	...
2	36	50	31	...	...
3	35	73	36	...	...
4	48	72	68	...	...
5	66	60	53	55	80
6	65	46	45	60	54
7	54	48	58	53	59
8	51	68	95	66	71
9	69	50	61	78	73
10	63	57	67	53	73
11	56	49	45	47	69
12	69	61	45	67	70
13	57	53	50	43	60
14	50	44	36	57	57
15	40	56	32	53	51
16	53	40	47	35	53
17	...	34	37	55	70

Although some variations have been noticed in the blood-sugar content in the same animal at different bleedings they do not show any gradation or regularity. Hence it is not possible to draw any definite conclusion from these variations. In all samples, the blood-sugar content remained more or less within normal limits.

INDIGENOUS DRUGS IN THE TREATMENT OF LIVESTOCK

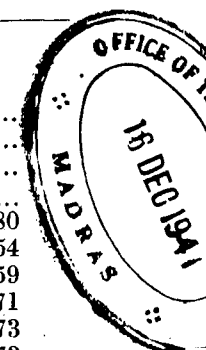
BY

HECTOR C. PERERA G.V.Sc.,

Honorary Secretary, Ceylon Veterinary Association,
Frankfort Place, Bambalapitiya, Colombo.

The Imperial Council of Agricultural Research of India sanctioned some-time ago three schemes costing over a hundred thousand rupees, for research in Indian drugs. The schemes will cover investigation into the cultivation of medicinal plants, the efficacy of indigenous drugs and the indigenous treatment of cattle.

The researches under the first scheme will cover the survey of medicinal plants which can be grown in India, chemical analysis of their pharmacological and therapeutic action and an investigation of food poisons, particularly



in cereals. In a recent article on "Research in Indian Drugs" Lt. Col. R. N. Chopra, Principal of the School of Tropical Medicine, Calcutta, writes thus: "There seems little doubt that out of the large number of drugs used by Indian physicians for centuries and still in use, there are many that deserve the reputation they have earned as cures. It is true that empiricism and superstition are intimately mixed with some descriptions of drugs and remedies in the ancient Hindu *Materia Medica*; but a critical study of well-known ancient treatises like *Charaka* and *Sushruta* cannot fail to reveal some very critical and remarkable observations. Such observations when confirmed by modern science may lead to a sound principle which may be followed with advantage even at the present time."

The second scheme will cover a study of poisonous plants and their doses required in veterinary practice. The object is to examine how far indigenous drugs can replace the imported ones. In this connection it is of interest to note that the Western Pharmacopoeia is made up of drugs collected from all over the world — *Digitalis* from Britain, *Ipecacuanha* from Brazil, *Strophanthus* from Africa, *Opium* and *Nux Vomica* from India, *Ephedrine* from China, *Asafetida* from Persia, *Antimony* from Greece, *Ergot* from Spain and Hungary, *Cinchona* from Peru and scores of drugs from numerous other countries.

The third scheme is for the collection of literature about cattle treatment with indigenous drugs — the information to be gathered from manuscripts and other sources. That this is a sound scheme is not to be doubted when we remember that Jenner got his clue to vaccination from milkmaids, and that Withering's discovery of digitalis and several other important remedies is attributed to folk-lore.

Like other tropical countries Ceylon has a number of medicinal plants growing in the country. The following remark was made about the indigenous medicinal plants of Ceylon, a collection of which was sent to the Colonial and Indian Exhibition of 1886: "It must be admitted that the native *Materia Medica* of the Sinhalese will compare favourably in many respects with the Pharmacopoeia of the most enlightened countries of the West. Not only is every class of medicine well represented and supplied in profusion by the boundless prodigality of nature in Eastern tropical climes, but some of the vegetable productions are valuable enough to deserve a place in the medicinal resources of Western science, while very many can easily and usefully replace the more expensive drugs of the same class which are imported into the Colony for use in hospitals."

In the treatment of animals it is most essential to take into consideration the value of the animal and the financial position of the owner. The utmost economy must be observed in the treatment of all livestock, and often the question, "Will it pay?" has first to be answered. It is no use

trying to cure the ailment of an animal that would take months to complete if eventually the drugs used would cost more than the animal itself. It is here that indigenous drugs could play a very useful and important part not only in the treatment of cattle but also other animals like goats, pigs and even poultry.

Dr. John Attygalla, M. D., has the following in his introduction to the Sinhalese *Materia Medica*: "To my mind it (indigenous medicine) is a well arranged and coherent system, guided by whose teachings I have seen scores and scores of patients, suffering from various diseases, successfully treated by *vedaralas*; and truth compels me to add that among these were many patients that had been previously treated and given up as hopeless by some of the most skilful Western practitioners in the Island." Now, like the Veterinary Surgeon who practises Western medicine and uses similar drugs as for human beings, the native '*vedarala*' who treats cattle also employs the drugs used in the treatment of human ailments.

It cannot be denied that "cattle *vedaralas*" use a number of local drugs and remedies that possess very valuable curative properties. Considering the cheapness of the drugs, their ready availability and their mode of preparation and administration, they are remarkable for their efficacy.

To take an example, Tympanitis is a common affection of cattle. It is a condition characterised by the accumulation of gas in the stomach due to the fermentation of undigested food. The causes are many. In advanced cases the trouble has to be attended to quickly lest the accumulated gas should increase in volume and by pressing against the diaphragm suffocate the animal to death. Western Veterinary treatment requires large doses of drugs like *Nux Vomica*, *Asafetida*, *Ammonium Carbonate*, *Magnesium Sulphate* etc. In a place where there is a dispensary there is no difficulty in getting the mixture compounded. But, out in the village, the prescription becomes useless both because of its cost and because of the difficulty of having it dispensed.

On the other hand, the ordinary villager confronted with a similar difficulty has his own remedy. A couple of rhizomes of ginger, a few seeds of pepper, a handful of salt, a little *asafetida* and a few shavings of the bark of the drum-stick tree, are all well pounded and the juice extracted. The juice is then diluted in a bottle of warm water, to which at times a little country liquor is added, if available, and the liquid is poured down the throat of the animal. Of course, the actions of the drugs he uses and the precise quantities that produce the best results are unknown to him, yet the man succeeds in saving his animal's life. The point here to be emphasized is that the prescription with the local drugs

was so easy to procure — most of them from his own household, while the cost, too, was trifling.

But one thing must be borne in mind. While the Veterinarian chose the drugs for his prescription in a scientific way knowing how much of each drug was required and how each was going to act on the animal's system the villager chose his empirically. No two of these 'amateur vets' would probably agree in regard to the quantities required. This is due to the want of scientific knowledge and a proper standard by which to measure the quantity needed; the result is that while curing one disease the cattle doctor or villager often lays the foundation of another by the indiscriminate use of drugs. There are several Veterinarians to-day who use local drugs in the course of their practice but they do so only with the utmost caution.

Another very common bazaar drug that is widely used in the treatment of livestock is Neem oil. The bitter property it contains and its characteristic smell make it a good and cheap wound dressing by keeping away flies. But to it is attributed incredible curative properties and so is used for anything and everything in the ailments of animals. Be it a fracture or a dislocation, fever or a difficult parturition — one can be certain that neem oil will be used in some form or another.

In many parts of India where the bael fruit grows it is widely used to check the diarrhoea that accompanies rinderpest. It acts most effectively. It is cheap and easily obtained. There are several other simple remedies with reputed curative properties like bran in the treatment of brittle feet, the infusions of certain pods and herbs as anthelmintics and tonics, fruits as galatagogues and so on.

Among the importations for which an equally efficient local substitute is said to have been found is antiphlogistine. According to a report that appeared in the "Ceylon Daily News" not long ago, a Ceylon doctor, a member of the staff of the Medical College, had prepared the substance at a fraction of the cost of the imported article. Not only was it found to be cheap but clinical tests carried out proved it to be as efficient as the foreign material. It will probably surprise many to learn that the chief material for the preparation of antiphlogistine is Kaolin, a kind of clay which is said to abound in certain parts of Ceylon.

It cannot be gainsaid that with all the defects and anomalies that have crept into the indigenous system of treatment of ailments there are still really valuable and efficacious remedies. These should not be allowed to die out by neglect and further corruption. It is also a remarkable fact that the average villager prefers local drugs — most of which are so familiar to him — to Western drugs which he often considers "heating."

To-day when the village vedaralas (medicinemans who treat animals) prescribe he does so without any knowledge of the pharmacological properties or the therapeutical actions of the drugs he uses. A list of drugs, some of which could be easily avoided, is in fact what his prescription amounts to. His skill in the treatment of any disease depends mainly on a guess as to the best prescription among many given in the old books.

A collection of known remedies, as is done under the third scheme of the Imperial Council of Agriculture Research should immediately be made. Old books, folk-lore, oral tradition, can all be made to swell the collection which would then be subject to a careful study and experiment in the light of modern science. Says Professor Read: "Modern science is like a furnace through which we need not fear to put our precious love. The rubbish will be burnt up, but the purified and glistening treasure will remain."

To conduct researches on every plant and shrub and to study their chemical composition, their active principles, their pharmacological actions and toxicity would be a vast undertaking. For that work is needed the co-operation of the botanical chemist, pharmacologist, toxicologist and the clinician. Such a thorough undertaking would be excellent but it will not only be expensive but it will take several years to complete. What is indicated at the moment is first the collection of the various prescriptions and then some "field trials" to find out their efficacy. Thereby the chaff could be removed from the substance. In this work organisations like the Ceylon Veterinary Association and the Ceylon Cattle Breeders' Association could render much valuable help but unfortunately these two associations are too young to undertake heavy financial burdens.

Surely there is nothing derogatory in the use of local drugs by those who practice Western Medicine when they are convinced of their efficacy and usefulness. The notion that there is nothing in the ancient systems of medicine is not merely dying out, but says Col. Chopra: "There is reason to believe that they are attracting more and more attention from the medical profession." Dr. Hugh S. Cummings, the president of the U. S. Pharmacopoeia Commission says: "Any system of medicine, or for that matter any ancient usage or custom, that has held its own for generations, usually has something at the back of it, no matter how little it appears to be supported by modern science. For generations the fact that the American Indian hunters always chose the liver and the white man the meat, when the animals they trapped or killed were divided, was quoted as a proof of their ignorance and primitive developments; yet in the last five years the great nutritive value of the liver has come to be recognised and is usually prescribed in cases of anaemia."

FISH AS A MARKETABLE COMMODITY AND ITS INSPECTION BY THE MARKET STAFF IN BOMBAY*

BY

D. S. LAUD, G.B.V.C., F.R.H.S., F.Z.S.,
Superintendent, Municipal Markets, Bombay.

One of the principal duties of the Market staff is the inspection of fish in addition to the inspection of other food stuffs such as meat, fruits and vegetables, poultry and eggs, provisions, etc.

Fish is widely sold in the Bombay markets and carefully inspected by the Market staff.

The local fishermen Kolis bring their catches to the Bombay markets from such of the local ports as Chawpatty, Colaba near Arthur Bunder, Mazagaon, Worli, Sewri, Sion, Dharavi, Carnac Bunder, and from Danda (near Bandra), Virar, Palghar, Nala Sopara, Agashi, Utan, Kurla, Thana, Bassein and Uran in the Thana and Colaba collectorates. Fish is also imported from Janjira, Malwan and Vengurla in the Ratnagiri district. The catches from these ports are brought to Bombay particularly in the motor launches provided and hired by the merchants from the Government and which are in charge of the Director of Industries.

The market price of fish varies according to the size and quality of fish. It is higher during the monsoon, when the local supply is limited, and supplies packed in ice are imported by rail from Bilimora, Broach, Div and Daman and other towns in Gujrat, and by sea from Jamnagar and Verawal in Kathiawar and from Karachi in Sindh by the wholesale merchants.

The local supply during the fair season is more plentiful during "Udhan" or high tide than at "Bhang" or low tide. "Udhan" and "Bhang" occur twice a month lasting for 11 and 4 days respectively.

The treatment of fish after it is caught has improved since last few years. Formerly salt water was only used to keep the fish fresh; but at present the fishermen during the hot weather use ice to prevent the fish getting tainted. They even take the advantage now a days of a Refrigerator after transporting the fish to the markets. Formerly ice chests were used by them for storing fish overnight, but in the Crawford Market, they place their stock in the cold storage.

* Paper read at the Bombay Veterinary Medical Association Annual Conference, held at Dharwar on 28th, 29th December 1940.

The only types of fish that reach the markets alive are — lobsters, mullets (Boi or pilsa), prawns, Levta (Bampreys) and Vekru.

Fish is never gutted or cleaned on board; but the larger kinds of fish are gutted immediately they reach the shore. There is a big market for such guts; the bladders from many of the fish are extensively collected along the coasts of India and exported to China and Europe for the manufacture of ising glass. Small fishes are never gutted on reaching the markets. The cleaning has therefore to be done by the customers themselves. Large business is done from Shark fins, which are removed dried and exported to China for the manufacture of glue.

With the exception of Bumelo and small fry, very little curing of fish is done in Bombay. The Bumeloes are never gutted, before being salted; but simply hung on stings to dry in sun for three or four days, after which they are ready for consumption as the well known 'Bombay ducks'. The small fry, Sardines, Shrimps etc. are merely thrown on sands to rot and dry under the action of sun and then sold as fish manure. Surmai fish is excellent in flavour and salts well. It is the Surmai which is used for making that much flavoured concoction known as 'Tamarind fish'. Occasionally, a few of the larger fish are salted and dried. They are at first gutted and in the thicker parts they are split and incised, then salt is rubbed in and they are pressed for 24 hours and then finally exposed for about 15 days to the sun on netting or trellis work.

Fish is sometimes divided into:

- (a) White fleshed fish, e.g., Pomfrets grey and black.
- (b) Red fleshed fish e.g., Salmon, Dhara, Ghol, Rawas etc.
- (c) Greasy flesh fish e.g., Mackerel, Surmai, Banga.

Signs of fresh fish

- (a) Firm to the touch, solid and opaque, not semi-gelatinous or watery.
- (b) Flesh adherent firmly to the bones, scales intact, and gills bright. (Cases are on record when gills have been artificially coloured with fresh blood or with some red dye to give the fish the appearance of being fresh).
- (c) Eyes full, and not sunken, in their sockets.
- (d) No unpleasant smell or odour.
- (e) If fish be held in horizontal position by the head, there should be no drooping of the tail.
- (f) If the fish be pressed firmly between the fingers and the thumb, the flesh should not separate from the skin, if it does, then it is a sign of decomposition having set in.
- (g) Fresh fish sinks in water, bad fish floats.

In flat fish the skin should be smooth, moist and closely adherent to the flesh ; it is a bad sign if the skin is blistered.

Signs of staleness

- (a) Flesh of stale fish separates readily from the bones leaving a discoloration like that of rust in those parts of flesh which have been in contact with the bony structures.
- (b) Flabbiness and softness.
- (c) Sunken eyes.
- (d) Discoloured gills.
- (e) Disagreeable odour.

It should be borne in mind that smell alone is not a sure guide, because fish that have been kept in ice may smell fresh and yet change very rapidly when removed from it.

Fish ought to be gutted as soon as caught. The Norwegian fishermen not only gut but also bleed them by making an incision below and behind the gills or else above the tail. It is said that fish treated in this manner keep better.

Knocked about or bruised fish generally goes bad and should not be used.

It is important that fish should be in season. They are in the best condition just before spawning, thereafter they become poor, thin, watery and unfit for food.

Fish as an article of diet

The white fleshed fish is nutritious and easily digested. Salmon and greasy fleshed fish are more difficult to digest.

Many parasites attack fish more particularly when they are in poor condition, but the encysted form of the tape-worm called '*Bothriocephalus latus*' is the only one found to be harmful to men.

"*Bothriocephalus latus*"

It is unarmed, has no hooks. The genital pores are central in each segment.

Length 10 to 20 yards.

Head Lanceolate and in place of suckers carries two long canals or bothria.

Segments much wider than long, when ripe the terminal segments shrivel and remain attached for a while. They are practically empty of ova.

In the worm actual ovulation takes place, eggs are exuded from the central opening.

Inter-mediate host-perch or pike.

The worm inhabits the intestines of man or dog in countries where sanitation is neglected and sewage is drained into lakes or rivers.

Shell fish

All shell fish such as oysters, mussels, cockles etc., for human food should be gathered from clean 'layings', beds, ponds or shores where sewage cannot gain access to them. Many outbreaks of Enteric or poisoning are on record, traced to the consumption of shell fish of various kinds contaminated in such a manner. In countries with such outbreaks two types of illness are generally met with :—

- (a) Ptomaine poisoning which appears immediately after eating shell fish.
- (b) Enteric fever which appears after a period of incubation.

Shells of oysters should be thoroughly cleaned by scrubbing before the oysters are placed in a common vessel. Such vessel should be of white impervious material not of brass or copper and not used for other purposes. Weak oysters should at once be removed. It is desirable to procure fresh oysters daily from "beds" etc. and shells should be thoroughly cleaned before being despatched therefrom.

Healthy Oysters

Shells should be tightly closed or if apart, they should, when the oyster is held flat between the finger and thumb, be felt to be gripped together by means of the powerful adductor muscle, which the oyster is provided with. If the shells gape and do not at once and vigorously close on handling, the oysters should be rejected.

Lobsters and Crabs

They should always be heavy for their size, if light, their flesh is watery. They decompose very rapidly after death, and therefore should be plunged while yet alive, into a pot of boiling water. If they die before being cooked, their flesh is no longer wholesome. A lobster which has been cooked alive, as it ought to have been, will have a stiffness in its tail, which if gently raised will return with a spring.

In conclusion it may be mentioned that Bombay is a maritime city. It has therefore great facilities for developing the fish trade. This has been rendered possible already by the marine survey which the Government carried out some years ago by the employment of the trawler "*William Carick*" which surveyed the water in and around Bombay. The report of this survey, as well that of Dr. Sorley has shown how far the fish industry

could be developed in Bombay. Several contributions have appeared from the pen of Sir Reginald Spence and his collaborators and also from Dr. Hora, the Director of the Zoological Survey in India and others in the journals of the Bombay Natural History Society. Specimens of food fishes available in Bombay markets are exhibited in the galleries of the Zoological collection of the Prince of Wales Museum of Bombay. Government has now on the staff of the Director of Industries a special officer for fisheries. It is now high time that Bombay should have an Aquarium like the one at Madras or Honolulu. We trust that such an Aquarium would be soon established in Bombay at no distant date, second to none of its kind in India.

CATTLE BREEDING AND ITS PRESENT POSITION IN SAVANUR STATE

BY

R. S. JOTI, G.V.Sc.,

Veterinary Surgeon, Savanur State.

The life, efficiency, development and progress of agriculture depend on the cattle stock of a country. Live-stock being the back-bone of agriculture, the remark of H. E. the Viceroy "that the cow and the working bullocks have on their patient back the whole structure of Indian agriculture" is the result of a careful analysis of the several ways and means to the betterment of cultivators in their financial position.

The recognised method of improving cattle is by the provision of good stud bulls in all the villages. So our advice should be buy bulls and not cows. If the breeder duly pays more attention and care to the bull which sires his herd, in course of time he is sure to have his own good cattle stock. A heavy price paid at the beginning for a well-bred bull is no loss but really results in gain at the end. The continued use of the approved bulls of the same breed on village cattle known as "grading" is most economical and the best way of improving the existing village herd.

Next comes the proper feeding. A considerable proportion of Indian cattle population is underfed and over-worked. The only way of increasing the percentage of youthful individuals is to popularise—raising fodder crops and grasses, reserves and control of pasture lands, silage making by which the animal gets succulent feed during the hot months. The method of cutting the dry fodder (Jowari kadabi) is very important and the common method of cutting into long bits which results in a huge loss must be replaced by cutting it into a minimum size of one inch length, so as not to give choice for the animal to select only the leafy portion and to refuse the fibrous portion.

Meherban Nawab Saheb of Savanur has an object lesson in educating the people on the lines indicated above. He himself has opened a private palace cattle breeding farm which has stood the test of time for the last 18 years. I am proud to say, the result in the opinion of the experts in this line, has been indeed very promising. The breeding bulls were selected from the Amrit Mahal stud farm along with 35 heifers from Ajjampur Cattle Breeding Farm, Mysore State; and the progeny has now reached the fourth generation. The breeding bulls have been regularly changed from time to time. One remarkable bull 'Mandya Bull' proved and tested on the Bankapur Farm—who though 16 years of age—was still serving cows. He has served 92 cows since arrival at Savanur and there are 47 progenies of this bull.

In the villages good breeding bulls are centered at four places which serve the village cows free of charge. The Patil looks after the animal and maintains the breeding record. Recently two more bulls have been imported from Mysore State at a huge cost and two young bulls and four heifers of Killar breed from Budgaon State have been introduced. Till now 525 cows have been served and second progeny of the bulls have been reached. The offsprings are decidedly far superior to the remaining village cattle bred by country scrub bulls. Regular inspection is done at intervals by the Veterinary Officers and necessary advice is given to the cultivators.

There are 7 silo pits where green fodder is stored and fed to cattle. The improved chaff cutters are distributed all over the villages. A portable power chaff cutter mounted on wheels is carried to the houses of the cultivators and their fodder is chaffed. Thus the wastage in the fodder cutting is very much minimised. Grazing fees are remitted.

The State although small with only 25 villages maintains a well-equipped Veterinary Dispensary under the charge of a Veterinary Surgeon who looks to the immediate preventive aspect of the cattle epidemics in villages.

Regular cattle shows are arranged every year, during which Veterinary Exhibits, Lantern Lectures, pamphlet distribution forms the main activities of this Department.

The Palace herd has now become a nucleus of good breeding stock and year after year young stock are being distributed all over the state.

RAISING OF CALVES. *

BY

M. P. SHARMA (NEPALI)

Imperial Dairy Diploma Student, Allahabad.

Introduction — Agriculture is India's vital industry and cattle form its backbone. India also ranks first in the cattle population of the world. In 1935 the cattle population of the world was about 69 crores, out of which 18·8 crores, nearly one-third of the total population, belonged to India (Wright, 1937, 1). Dr. Wright in his report on the Development of the Cattle and Dairy Industries of India says that India stands second in the volume of production of milk (Wright, 1937, 2). The total agricultural income of India is approximately Rs. 2,000 crores, out of this one-half, or Rs. 1,000 crores, is from cattle and cattle products, as shown below : (Wright, 1937, 3).

From Milk and its product	...	Rs. 300	crores.
„ Hide	...	40	„
„ Cattle labour	...	300-400	„
„ Manure	...	270	„

The calf of to-day is the cow of tomorrow; so calves, not raised properly, do not become reliable and responsive cows. Permanent success in dairying also depends on the careful raising of calves. The starting point, therefore, of the breeder is not the dam but the calf.

Calves raised carefully are saved from becoming victims of disease. A desired herd can be built up, economically. High yielding animals can be produced, and individual history and pedigree sheet of the herd can be kept.

In every kind of undertaking, there are difficulties no doubt, but the difficulties are to be surmounted. The first difficulty in calf raising is the non-productive period with no return on the investment. The second is the danger of losing calves by death and disease. The third and the last is, that some calves will prove to be inferior producers. These difficulties can be overcome if a careful selection of an individual cow is made, a good pure bred sire is used, heifers from the best cows are raised and disease is controlled (Herman, 1937, 1).

Care of the cow before freshening. — The programme of successful calf raising begins with the pregnant cow. The cow is a living machine for the production of milk. As constant work and no rest tells upon the ability of

generating power of the machine, so also is the case in cows. Therefore, an opportunity must be given her to build up the reserve, which is exhausted during the milking period. She not only is allowed to recoup the reserve, but also to be prepared for the requirements of the uterus and subsequently of another embryo. A rest of about two months between lactation period, with a liberal rather laxative ration, containing plenty of legume hay, silage and concentrates will usually provide for this. “Cows producing 20 lbs. or less milk daily may be satisfactorily dried off by the simple process of reducing the feed and ceasing all further milking. For heavy producers, the common plan of skipping milkings may be followed, at least until the production falls to below 20 lbs. daily” (Herman, 1937, 2).

Care of the cow before calving. — Cows freshen normally from about 270 to 290 days after breeding (Shepherd, 1934, 1). Nearly two weeks before freshening, the cow should be separated from the rest of the herd and kept in the calving pen or in a quiet safe place. Approach of calving is indicated by a “relaxation of muscles, sunken appearance on either side of tail head, uneasiness and irritation with constant motion of tail, a swelling of vulva, fullness of udder and teats, white straw-coloured glairy discharge and ineffectual attempt to dung (Tweeds, 1931).

Care of calf at birth. — Cows that calve normally, usually get up immediately and begin licking the calf. If she fails to lick, the calf should be thoroughly cleaned up with dry straw or gunny bags. Occasionally the foetal membrane may stick to the calf's nose and should be removed immediately to prevent smothering. “When a calf does not begin breathing promptly after birth, any mucus or membrane, should be removed from its nostrils, and attempt should be made to start respiration, by slapping the chest vigorously or by alternately compressing and relaxing it” (Morrison, 1937,1). “After drying up the calf thoroughly, to avoid the danger of infection, the navel of the calf should be painted with tincture of iodine. The best way is to tie the navel with cat gut or twine about 1½ inches from the belly, cut off the rest with a pair of scissors, and then saturate the navel with tincture of iodine.” (Anonymous, 1933,1). Alum powder dusted on the navel cut, will dry it up quickly. The udder and teats of the cow should be sterilized by wiping them with a cloth dipped in a mild chlorine solution, before the calf is nursed.

Nutrients requirements. — “In raising dairy cattle, special attention must be given to providing plenty of protein, protein of satisfactory quality, enough total digestible nutrients to permit normal growth, sufficient minerals, specially calcium phosphorus and common salt and liberal amounts of vitamin” (Morrison, 1937,2). Protein requirements for younger calves are proportionately higher than for cows. Nutritive ratio for calves 100 lbs. in weight is 1 : 3·9 to 1 : 4·5 whereas for cattle 1000 lbs. in weight is

* Reprinted from “Allahabad Farmer” July 1940.

1:8.0 to 1:8.4—(Morrison, 1937,3). It is also the same case with the amount of total digestible nutrients. Growing animals require more, because they require more energy. The variation is 1.5 to 2.21 lbs. for 100 lbs. in weight and 11.4 to 12.6 lbs. for 1000 lbs. in weight (Morrison, 1937,4).

Mineral requirements.—Deficiency in mineral matter results in malnutrition, rickets, bone disease, stunted growth and reduced constitutional storage. During colostrum period there is no deficiency of mineral matter. After this, common salt, in addition to grain mixture, should always be supplied. A calf putting on about a pound and a half of body weight daily, should absorb no less than $\frac{1}{2}$ oz. of lime and phosphorus every day. Wheat bran and linseed meal are high in phosphorus and the inclusion of these feeds in grain mixture will prevent phosphorus deficiency. Bone meal is a source of both calcium and phosphorus. So bone meal unmistakably should be added in the mineral mixture. Rock salt supplies sodium and chloride, necessary for the osmotic pressure of blood and digestion respectively. "Lime, as lime water should be given mixing with milk, 1 oz. per head per day, until the calf is 3 to 4 weeks old. At that time lime not only supplies calcium but also delays the action of renin on milk and prevents hard curd formation, which is not easily digestible in the stomach." (Shepherd, 1934,2).

Requirements of Vitamin.— "Vitamin A and D are of great importance in raising dairy cattle, for they often suffer from deficiencies of these vitamins" (Morrison, 1937,5). Vitamin A is supplied with whole milk. Sunlight is sufficient for vitamin D. "It is generally accepted that the vitamin B is synthesised in rumen by bacterial action. So the concentration of vitamin B remains constant in cow's milk throughout the year" (Davies, 1936,1). After the cessation of milk as a ration vitamin A should be supplied with carotin. "As a rule the greener the colour of the roughage the greater the content of vitamin A" (Shepherd, 1934,3).

Colostrum.— "The colostrum period may be regarded as the transition stage for the infant from that period, when it was nourished directly by the blood of the mother, to the subsequent period when it must depend on its own alimentary tract for its nutrition" (Davies, 1936,2). The proteins of blood and whey are almost identical. "Both blood serum and colostrum were found to contain antibodies, which by this means could be transmitted from the maternal blood to that of the offspring." (Davies, 1936,3). Colostrum contains protein (albumin and globulin) up to 17.6 per cent. whereas milk contains only 3.5 per cent. (Herman, 1937,3). The high acidity of colostrum is the main factor for the slower rate of coagulation by renin in the stomach of calf and thus helps for the digestion of milk easily. "The iron content of colostrum is approximately 17 times that of

milk" (Davies, 1936,4). "Colostrum is very high in vitamin A" (Olson 1939,1). The high percentage of minerals of colostrum *e.g.*, 1.6 per cent. (milk 0.7 per cent.) makes the new bodily organs of calf function well. "Various functions have been ascribed to this fluid, amongst the most important, being the purging or cleansing of the alimentary tract coupled with a disinfecting action, and the seeding of the intestines with the proper flora to deal with the milk later" (Davies, 1936,4). Colostrum should be given just after birth. The amount depends on body weight, breed and physical constitution of the calf. In case the cow is milked before calving, the substitution for colostrum is to add castor oil and egg albumin in milk ration. For calves not receiving colostrum, 1 oz. of linseed oil for four or five days, at night may be given (Sayers, 1937,1).

Weaning.—Most of the owners and dairy farmers prefer to leave the calf with its mother for 3 to 5 days. "It is often stated that, with the cattle in India it is impossible to wean calves at birth, because the dam almost invariably goes dry and weaned calves are difficult to rear," (Macguckin, 1935,1). It is true that forcible weaning and weaning in other lactation but first, may reduce and even stop milk yield. In no case, practically, a cow, on first calving should be first affected, by having her calf weaned at birth. "With the removal of calf from the milking shed, the whole standard of calf management can be improved, hygiene of milking is simplified and accurate date on yield are collectable," (Macguckin, 1935,2). Of course it is to be remembered that in both weaning and proper feeding, one cannot be said to be perfect without the other. Singh (1935) in his article "practical advantages of the weaning system", states all the advantages and disadvantages and concludes that 98.3 per cent. cows and 97.7 per cent. buffaloes, have been successfully weaned at all stages, from the first to the fifth calving. Our conclusion is that from economical and hygienical points of view, the calves should be weaned.

Teaching the calf to drink from the pail.—By instinct a calf stretches upwards to receive its nourishment. It must be taught to reach downwards to the pail. If kept hungry for 12—18 hours, calves are easily taught to drink from a pail. Generally a calf is backed to a corner and straddled. The calf is then allowed to suck the fingers of one hand held in the milk, kept in front of it. When the calf begins to suck, two fingers are spread apart a little and the calf will draw milk between the fingers. This procedure is repeated several times, until the calf begins to nose around the pail and suck with its own accord. The bucket is held up or placed on a rack about one foot above the ground. The calf should not be permitted to gulp milk, which extends the oesophagus and some of the milk goes into the rumen instead of going into the abomasum. The milk does not pass readily from the rumen and undesirable fermentation takes place, resulting in

scouring and allied ailments. The result is an unthrifty pot-bellied calf. Care also should be taken when taking out the fingers, that the calf may not suck air only, as this affects digestion by causing flatulence.

Feeding whole milk.—Milk is the secretion of mammary glands of mammals for the nourishment of their young ones. So the calf, though possible to some extent, to raise without milk, should be fed with whole milk, at least for 4 to 5 months. The temperature of the milk fed should be equal to the blood temperature of a cow *i.e.*, round about 100°F. It is better if the milk is pasteurised and cooled down to the required temperature. Pasteurization lowers the nutritive value of milk, no doubt, but the loss is insignificant as compared with the bad effect of bacteria. "Milk is easily digested and assimilated. Its nutritive value is 1 : 3.9. It is high in minerals, especially in calcium and phosphorus. It contains fat soluble vitamin A and D. It is deficient in iron, copper, manganese and magnesium, but this does not cause any harm, unless animals are continued on milk as an exclusive diet during a far longer period than normal (Morrison, 1936,6). Foam in milk in large quantity causes the animal to bloat, but in small quantity it does not have any bad effect. A new born calf should receive from 6 to 8 pounds of milk a day or about 10 per cent. of its weight for the first week or two (Olson, 1939,2). As the calf grows the amount increases until 8.1 lbs are given daily. At least for the first week the calf should be fed with its own mother's milk thence forward herd milk may be given. "General milk of the herd should be fed not the stripping. All calves should be weighed at birth and their feeding is regulated according to their weight as per chart given below" (Sayer, 1937, 2).

Wt. of calf at birth.		Quantity of milk fed.
Under 40 lbs.	...	5-5½ lbs.
40-45 "	...	6-6½ "
45-50 "	...	6½-7 "
50-55 "	...	8 "

Feeding skim milk.—At about 1½ to 2 months of age the calves are started feeding on skim milk. But it should be substituted gradually with whole milk. The amount varies from 0.51 lb. to 1.5 lbs. according to the constitution of the calves and method of raising.

Feeding grain mixture.—Grain mixture supplies the deficiency of energy due to the low fat content of skim milk, and adds to the mineral requirements of the calf as well. Wheat bran is a good source of iron and phosphorus. The mixture differs according to climatic conditions of the country. In Nepal, the grain mixture given to the calf consists of 2 parts maize flour, 1 part barley, 1 part soya bean, and 1 part *tori* (rape) oil cake. Either it is fed in the form of dilute gruel, or fed in the form of pills by inserting them with forefingers up to the gullet of the calf. This is fed twice a day even

during the colostral period. The amount of mixture varies with the size and age of the calf.

Feeding roughage.— "Since green coloured hay is the richest source of vitamin D among common feeds and is also high in vitamin A, it is very important that calves have access to good hay as soon as they will eat it" (Morrison, 1937,7). At about 4 weeks of age the calf's rumen is fully developed to digest half a pound of hay, usually by the beginning of the 2 or 3 weeks of age, a handful of hay should be placed before a calf each day in a hay-rack or in a clean place. "From the stand point of the amount of protein, calcium, and vitamin A and D supplied, leafy, fine stemmed legume hay is the best for calves" (Morrison, 1937,9). Silage should not be fed too early, for it may cause more trouble from scours (Morrison, 1937,9). Silage given should be free from mould and not too acid.

General Management.—Calves should be provided with clean, well lighted and airy stalls. All feeding vessels and water buckets, should be well cleaned and sterilized before use. Water should be given only after the second week. The feeding schedule should be followed closely. It is better to keep the calf always a little hungry than to overfeed. They should be often brushed in order to do away with lice and ticks and to keep the skin clean. The calves are allowed to lick salt after feeding on milk. It saves them from licking each other or the wall and bringing digestion trouble. If possible they should be muzzled up to 2½ months of age when not being feed. This will prevent them from licking and consequently from getting its bad effect. Personal examination of each and every calf is the most essential thing. Special ration may be given to that particular animal, which is indicated by birth weight, by the ability to transmit high producing characteristics of the sires, and by the yielding capacity of the dam.

Dehorning.—As a rule calves should be dehorned at the age of one to two weeks. The most satisfactory method is to use caustic potash for the purpose, as it kills growing horns. First the hair is clipped from a small area around the horn buds. Then encircle the clipped area with vaseline to confine the action of caustic potash to the area of horn and thereby to prevent it from running to the eyes. Finally the horn buds are rubbed with a caustic-stick, till the outer scale comes off exposing white tissues. The calves are then protected from rubbing their heads against the wall or poles. Dehorned cows are easier to handle and are more uniform in conformation. They can do no damage to each other. The percentage of udder injuries in the herd is also less. Dehorning cattle however do not fetch good price or prizes, as well.

Removing extra teats.—Rudimentary teats often appear on the udder of heifers. Occasionally rudimentary teats appear as a part of the main teat and are of a considerable annoyance in milking. Such teats are hard

to remove and require a veterinary doctor. But an ordinary extra teat is removed by simple methods. One of these methods is to tie tightly with thread or rubber band or horse hair, around the base of the extra teat. Within a week or two the extra teat will drop off. Another effective method is to cut with sharp scissors and apply iodine solution in the wound (Herman, 1937,4).

Marking for identification.— There are several methods of marking cattle for identification *e.g.* (1) tattooing the ear, (2) notching the ears, (3) "branding with hot iron, (4) branding with brandem-al solution" (S. Cox and Lazarus, 1937), (5) tagging the ear, (6) leather strap or chain round the neck, (7) halters with number plates attached, (8) clipping of the hair of tail in a certain fashion, (9) various colouring matter in the bodies of animal, and (10) photograph in some herd (Herman, 1937,5). To permit easy identification each calf should be plainly marked. It is necessary in pure-bred herds and herds of considerable size even if of made up grades.

Common Ailments of Calves

Scour.— The most common disease in calves is scour or extreme looseness of the bowels. Its causes are over-feeding, sudden change in quantity, and feeding milk too rich in fat. Its precaution is to isolate the calf without the milk for a day. A pint of lime water may be added to milk at each feeding. Castor oil emulsion should be given thrice daily.

Lice.— These are common in winter and are often present, specially round the muzzle, eyes, withers and along the line. The treatment consists in the application of raw *tori* oil, raw linseed oil or 3 per cent. coal-tar. Any of these should be applied two or three times repeatedly at weekly intervals.

Ring worm.— This infection of the skin is indicated by round spots of rough skin, devoid of hair. The spots should be washed with soap water, scraped to remove all scaly materials, and treated with tincture of iodine and iron in equal parts. Some prefer to use kerosine oil and petrol mixture too.

Calf Pneumonia.— It causes a heavy loss in calves. It is caused by bacteria, but the susceptibility of the animal is influenced greatly by bad management, *e.g.* over-crowding, dampness, poorly ventilated quarters, insufficient bedding, concrete floor, etc. The disease is characterised by profuse discharge from nose, heavy breathing and high body temperature. Such calves should be isolated, blanketed, placed in dry well-bedded pen free from drafts and given access to clean water. A purgative of castor oil with mineral oil should be administered.

Lead Poisoning.— Paints containing lead should never be used on building or fences. Such paints when consumed in any appreciable quantity are poisonous and result in the death of the animal.

Scale of Calf Feeding (special) [Sayer, 1937, 3].

Age in weeks	Milk lbs.	Skim Milk lbs.	Grain mix lbs.	Salt oz.
1—2	8	...	...	...
3—4	10	...	...	...
5—8	12	...	1	1
9—12	14	...	1	1
13—20	10	2	1½	1
21—28	8	4	2	1
29—36	6	6	3	1
37—40	4	6	4	1
41—44	2	6	4	1
45—48	...	4	4	1
(Ordinary)				
1—2	8	...	...	...
3—4	10	...	...	...
5—8	12	...	½	1
9—10	8	2	1	1
11—12	6	4	1	1
13—16	4	4	1½	1
17—18	2	6	2	1
19—20	2	4	3	1
21—24	...	4	3	1

Feeding Schedule for Calves.

Agricultural Institute, Allahabad Dairy.

Age in weeks	Whole milk lbs.	Skim milk lbs.	Grain mix lbs.	Grass hay lbs.	Silage lbs.
1	2.5	...	...	...	...
2	2.5	...	0.25	0.5	...
3	2.5	...	0.25	0.5	...
4	2.5	...	0.5	1	...
5	3.0	...	0.5	2	...
6	3.0	...	1	3	...
7	3.5	...	2	4	...
8	3.5	...	2	4	...
9	2.5	1.0	2	6	...
10	2.0	1.5	2	6	...
11	2.0	2.0	2	8	2
12	1.0	3.0	2	8	2
13—20	...	4	3	10	3
21—24	...	5	4	12	4

The above schedule is per feeding. At least for 2 weeks calves should be fed thrice daily. Rock salt is given in the stall. Colostrum is given for three days. During the first week calves are fed with dam's milk only.

N.B.:—

Mineral Mixture		Grain Mixture	
Bone Meal	49.8%	Juar	30%
Slacked lime	16.6%	Ground barley	30%
Salt	33.3%	Wheat bran	30%
Potassium iodide	0.03%	Mineral Mixture	2%

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THE **Indian Veterinary Journal**

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Editorial

INDEFENSIBLE

Some time back we drew the attention of the Government of Madras to the existence of a peculiarly anomalous feature in their administration of the Civil Veterinary Department whereby they left a good proportion of the strength of the subordinate service on a temporary basis. We feel it necessary to revert to the subject because it is a very important one having serious repercussions on the efficiency of the administration.

Briefly stated, out of a total of 350 Veterinary Assistant Surgeons, as many as 148 are recruited and kept up as temporary staff. These temporary Veterinary Assistant Surgeons are allotted the same nature of work as the permanent officers. They are posted for touring work, they are engaged in the campaigns against contagious diseases, they are put in charge of Hospitals and Dispensaries, they are employed as Assistant Lecturers in the College and lastly they find a place in special posts and research sections. In fact, the duties allotted to, and carried out by these temporary officers are in no way different from those done by the permanent officers. Further, they are given the same scale of pay. A good number of these officers have put in long terms of service, even as many as ten years. Their services are needed for carrying on the day to

day duties of the Department. Still, in spite of all these facts, these temporary officers have no hope of being made permanent in the service. As a result, their service is non-pensionable and their future is gloomy. This state of affairs, especially in these days of enlightenment, may surprise many; but all the same, it is the simple truth. It is an arrangement that has been going on in this Department for nearly a decade now. And if we were to look into the genesis of this arrangement, it will be still more of a surprise.

About the year 1931, the Government of Madras was seeking ways and means of reducing the expenditure of its various branches of administration. A Retrenchment Committee was appointed for the purpose of going into the details of the working of every Department. When the Committee took up the Civil Veterinary Department for scrutiny, the then head of the Department appears to have given some amazing evidence which has been responsible for the present tragic state of affairs in the Department. He seems to have opined that, with the introduction of S.S. inoculation against Rinderpest, there is a very good chance of the disease being eradicated from the Province and that in consequence, there may not be any need for strengthening the existing staff! This extraordinary observation, coming as it did from an expert, carried a good deal of weight with the Committee. And it made the following recommendations in the course of its report.

"We agree with the Director that the work of the Department in future should increasingly be directed towards the combating of cattle disease in the districts. It is too early to predict the results of the campaign against Rinderpest but it seems possible that, either as a result of this campaign or from natural causes, the virulence of the disease may diminish. We have therefore, thought it necessary to sound a note of warning against employing on a permanent basis too large a proportion of the staff engaged on this work". "...They consider therefore that any addition to the touring staff that may be found necessary during the next few years should be made on a temporary footing and that recruitment should be so regulated as to retain

only 75 per cent. of the strength of the existing staff on a permanent basis."

It will thus be seen that the present policy of keeping a good proportion of the staff on a temporary basis has been the result of an entirely gross misconception about the campaign against Rinderpest and also about the functions and duties of the Department itself. The Committee does not seem to have been appraised of the fact that the campaign against Rinderpest was only one of the many phases of the activities of the Department, that there were a host of other essential services to be rendered for the benefit of the people, and that they were only waiting for the expansion of the organisation to be included in the programme of work. If only these points had been brought home to the members of the Committee with clearness and lucidity, they could not have taken such a narrow view and recommended the retention of only 75 per cent. of the then strength of the Department on a permanent basis. As years have rolled by, the effects of these recommendations, are unfolding themselves. What do we see now? Rinderpest is still continuing to levy a heavy toll, though for no fault of the S. S. inoculation against the disease; the other contagious diseases are still prevalent causing a good deal of mortality amongst the livestock population; and the demand for more and more Veterinary Assistant Surgeons is becoming more insistent. The people have begun to appreciate the benefits of prompt and early treatment of cattle diseases both contagious and non-contagious; added to these, the livestock section has been transferred recently to the Veterinary Department. All these have increased the scope and extent of the Department in many ways and the responsibilities of the staff have become very great and exacting. The few annual additions to the strength of the cadre have been totally inadequate to meet the needs and even now the cry is for more and still more Veterinary Assistant Surgeons, especially in the rural tracts. Thus the anticipations of the Committee, based as they were on wholly untenable data, could not, and did not, in fact, materialise. But, unfortunately, no cognizance is taken of this fact. The recommendations of the Committee still continue to

guide the policy of the Department and, as a result of it, a host of Veterinary Assistant Surgeons, nearly half of the total strength, are being kept on a temporary basis. Is there any meaning in this? Is it conducive to a contented service and efficiency of administration? Will it not lead to a gradual and steady deterioration of the morale of the staff as years pass by? The action of the Government in this matter is quite an unheard of thing and is quite indefensible. Not only should the entire staff be made permanent but their past services also must be taken into consideration and counted up for pension.

A word to the head of the Department in this connection. He owes a duty to the men working loyally under him. He should take up their case immediately and see that they are given a fair and square deal without any further delay. We readily admit that he has to contend — and to contend hard too — against the legacies inherited by him in this matter. But we are hopeful that, with a correct and lucid representation, the Government would be only very glad to rectify an obviously badly handled case. The silent suffering Veterinary Assistant Surgeons, ill-paid as they already are, do deserve a better treatment than what they are having at present.

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Clinical Articles

A CHRONIC TYPE OF ECZEMA IN A DOG AND ITS TREATMENT

BY

M. V. PILLAI, G.B.V.C.,

(Late Assistant Municipal Veterinary Surgeon, Penang).

In the course of routine canine practice, it is not un-common to come across different variety of skin affections in all stages and one of the commonest and most troublesome of these, is eczema. It can be defined as a non-contagious inflammatory condition of the skin, characterised by the formation of papules, vesicles, pustules, serous or watery discharge, matted in certain places scaly in other places, fissured condition and accompanied by pruritis and itching. It is not necessary for a practitioner to meet with all the stages during his daily practice, but it is possible to see any one or two of the above stages. This is one of the few affections of skin, the cause of which has not been so far discovered or any organism isolated. Professor Maignon of Alfort Veterinary College once stated, that the factors which may produce this affection may be (1) External, (2) Internal or chemical (3) Physical, (4) Mechanical, (5) Lack of vitamins and (6) Diseases of the internal organs particularly digestive troubles and (7) Nephritis. Indiscriminate use of strong external dressings in the form of soap, lotions and liniment, local irritation caused by ticks, lice, fleas, accumulation of dirt, lack of exercise are also predisposing causes that are liable to produce eczema.

A case which puzzled me for over a month was a thorough bred, Cocker Spaniel bitch, aged about five years, belonging to a European in Singapore. The owner, a lover of dogs, has been known to me for a long time (being the son of Col. A. Smith, F.R.C.V.S., the late Principal of the Veterinary College, Calcutta, during my time). I gathered from him that he had been treating the animal himself by getting instructions from his father who was a F. R. C. V. S., by post, and finding that self treatment did not respond matters, the dog was brought to me as a last resource in a most miserable state. General condition appeared to be very poor with wrinkles on the face, sores, sero-sanguineous discharge, pustules, and alopecia in some places specially on the back, chest, round the eyes and legs. Constant scratching, biting and licking the sores of the legs due to itching were also observed. The clinical picture of the poor creature was so disgusting that I hesitated to give a favourable prognosis. The owner being persistent to give a fair trial, I took the case up on 2-4-40 to give a chance.

The treatment adopted in this case was (1) External (2) Internal and (3) Dietetic — Started treatment on 3-4-40 with a good inner cleaning by giving a strong purgative. Next thing I did was to clip the hairs of the whole body short followed by a bath with a thick solution of Soda Bicarb. Skin scrapings from different parts of the body more than once were carefully examined and showed negative results for Sarcoptic or Follicular mange. Government Pathologist of the General Hospital — Dr. Luther, L. R. C. P. & S., — was approached with a request to have a culture made out of the lesions of the skin, which he very gladly consented. On 7-4-40, the Pathologist reported that microscopical examination of the culture revealed a sort of spore forming organism similar to Actinomyces and the spores could not be killed in a water bath of 68 and 100 in one hour. A pup was injected with this culture and it produced no reaction. Doubting that it is a fungoid affection, a lotion made up of 10 grs. of Copper Sulphate, 5 grs. of Zinc Sulph in 1 oz. of water was rubbed into the parts for a few days with unsatisfactory results. Odylyn application combined with Aricyl injection could have produced better results but the difficulty of obtaining these during this period of international trouble was a great misfortune. All sorts of common astringent and antiseptic ointments and lotions used for eczematous conditions also failed to produce good results.

As a last resource, I determined to give a course of treatment with Hyposulphate of Soda solution 50 per cent. and Acid Hydro Chloric 5 per cent. I divided the body into 4 parts and applied the first solution with an old tooth brush followed after 15 minutes by the second solution into one part in one day and the rest the following day, so that each part received 3 applications every 4 days. Along with this treatment a course of 5 injections of Sodium Cacodylate was given. To prevent the dog biting the sores on the front legs, a specially made socks was applied.

Dietetic treatment consisted of milk in the morning, one sheep's fresh spleen at 7 A.M. and another at 2 P.M., with soup, bones and a little meat. Raw fresh spleen was continued for a month. After 20 days of the above treatment, a marvellous change was found in the dog. Sores all healed up, discharge dried up, hairs started growing, face wrinkles disappeared — in fact the whole body was shining with a smooth and glossy coat. General condition surprisingly improved. Rubbing of gingely oil all over the body followed by a wash after 12 hours removed all scales and dandruff and increased the glossy appearance. The owner's joy knew no bounds and he could recognise the animal only with difficulty. The dog is still on excellent condition, I hear.

Note :— The ingestion of Raw Spleen must have contributed a good deal to improve the general condition of the body, on account of the presence in it of an enormous number of red and white corpuscles.

TREATMENT OF HEART WORMS WITH ANTIMOSAN — OBSERVATIONS ON THE TREATMENT OF TWO CASES

BY

M. V. PILLAI, G.B.V.C.,

(Late Assistant Municipal Veterinary Surgeon, Penang).

One of the common blood parasites frequently found among the dogs in Malaya is heart worms. This affection has become a menace sometimes not only to the lovers of dogs but also to the Veterinarians engaged in canine practice. The future authors of canine text books would not be wrong in including Malaya as one of the countries, where this disease is fairly prevalent. The educated lovers of dogs, now a days, are now fully conscious of the seriousness of this disease. I myself, during my long years of canine practice, have dealt with more than fifty cases and no opportunity was presented to me to use any drugs on account of the fact that many of the owners were found reluctant to make an experimental treatment considering the expenses, long duration, and uncertainty of a cure.

Many drugs have been tested and recommended by enthusiastic workers in America. Compounds of Arsenic, Antimonium Tartaratum, Neo-salvarsan, Bayer's 205, have, it is said, been tried and found not very effective. According to some, "Filsol and Fuadin" by intravenous or intramuscular injections have produced good results. There is another drug of recent introduction called "Stibsol" an organic antimonium compound prepared by an American Chemist, which, according to Harold P. Brown and James A. Austin of Kansas City, is considered as a safe remedy in removing the Micro-Filaria from the blood stream and killing the adult female worms lodged in the heart without causing any reaction on the patient.

Two cases of worm in the heart came to my hand during the beginning of this year (1940) and small description of the symptoms and method of treatment adopted will be of interest to the readers of this *Journal*.

Case No. 1

A highly bred Alsatian bitch, about 6 years old, which has been under my care for nearly 2 years developed the following symptoms:—Slow emaciation, weakness of the hind legs, and skin lesions in spite of good food and exercise. Lameness of the hind legs appeared to be of a metastatic nature; appetite was good throughout. Anti-rheumatic mixtures, tonics and electric treatment were all tried with very little satisfactory results. One day, not satisfied with my treatments it struck me to examine the blood under microscope and was surprised to find a number of embryos of heart-worms. The matter was reported to the head of the Veterinary Department,

Johore, who suggested to adopt any suitable treatment. I had nothing in stock except a small quantity of Antimosan with which I tried to make an experimental treatment as is given below :—

Embryos detected on 21-3-40

1st injection — 2 c.c. on the same day.

2nd „ — „ on 23-3-40.

3rd „ — 2.5 c.c. on 25-3-40.

4th „ — „ on 27-3-40.

5th „ — 3 c.c. on 29-3-40.

6th „ — 3 c.c. on 31-3-40.

No reaction was noticed, but daily examination of blood revealed still positive. Two more injections of 3 c.c. each were given on 5-4-40 and 7-4-40. Total number of injections the animal had was 8. Daily examination of blood for a fortnight showed less number of embryo and inactive in their movements. In the meanwhile a course of Arsenic and Iron tonic was given in addition to raw meat once a day, milk, boiled meat, soup and vegetables in the evening. With all these the general condition of the patient did not show any appreciable improvement, and the animal had therefore to be destroyed with the consent of the owner. A post-mortem examination was made and the heart was found free of any worms. The only change noticed was that the heart was flabby and smaller in size. One month previous to the destruction, a weekly examination of blood was made and the results were negative. It is evident from this that Antimosan has had an effect in destroying the embryos and the adults worms from the heart. Absence of reaction was one of the peculiarities observed in this dog.

Case No. 2

A strong and healthy bull terrier of 3 years of age, still alive and in good spirits, was brought for treatment with a swelling around the region of the right parotid. A little pain and heat were also present on manipulation. A small sore on the chin was present with no tendency to heal. The swelling disappeared after a course of Antiphlogistine application, leaving the sore on the chin unhealed. Examination of blood under microscope revealed presence of embryo of heart-worms. When informed of the result of examination the owner was very much surprised. With owner's consent, giving him no guarantee, a course of Antimosan injection was given as before, commencing from 2 c.c. and increasing the dose by .5 c.c. every other day up to 3 c.c. After 6 injections (23-3-40) severe reaction appeared (unlike the first case) with symptoms of severe depression, vomiting, purging salivation and stiffness in gait. At this stage further injections were discontinued and the dog was given warm saline enema daily and 3 injections of Calcium Gluconate intravenously. Toxic symptoms subsided

after 4 days and 2 more injections of 3 c.c. of Antimosan were continued. Daily examination of blood, as before, showed positive results though the number of embryos was less and they were inactive in their movements. Examination of blood after one week did not reveal any embryo and the owner being anxious, removed the animal on 3-4-40. Weekly examination of blood was again carried out for a month and every time it was negative. The animal is still alive in the best of spirits, health and strength. The diet throughout the whole course was confined to bread and milk.

I can't claim that all cases of heart-worms can be treated with this drug successfully, though I had favourable results in these two cases.

A CASE OF HYPERPYREXIA IN A HORSE

By

V. D. RATNAM, G.M.V.C.,

Veterinary Assistant Surgeon on Glanders Duty, Madras City.

Subject :—A bay Australian mare, aged nine years, No. 26 (Rex) of H. E. The Governor's Bodyguard, Madras.

History :—In April 1940 the animal was taken to Ootacamund (in Nilgiris District) for the season and it was returned to Madras after a stay there of about 2½ months with a complaint that it was steadily losing condition and that it was getting excited and uncontrollable during mounted exercise. On arrival at Madras the animal was examined, but it did not show signs of any specific ailment. The dung, on microscopical examination, was negative for worms. However, the animal was prepared for a purgative and it was intended to follow it up with a course of Saline treatment to improve the condition. The purgative acted well and the animal was in due course put on its normal food.

On the fourth day after the dose of physic, i.e., on 16-6-40, at 3 P.M., it was reported that the animal refused to take its normal food and that some swelling was noticeable on both the fore fetlocks.

On examination the animal was found to have a temperature of 103° F. Visible mucous membranes were congested. Both the fore fetlocks were hot with a fair amount of swelling round the joints; pulse was rapid and breathing was heavy and frequent. Muscular tremors were observed on the region of both shoulder and elbows. The animal evinced great pain in both fore legs when disturbed.

Treatment :—A saline enema was given and as a result of it some normal dung followed by a quantity of semi solid faeces came out. The following mixture was given by the stomach tube :—

R/—	Sodi Salicylas	—	℥i
	Spts. Ammon. Aromat.	—	℥i
	Spts. Aether. Nitrosi	—	℥i
	Liquor Ammon. Acetas	—	℥i
	Tr. Digitalis	—	℥i
	Aqua..... ad.	—	℥i

Also gave

Mag Sulph	—	℥ii
Pot. Iodide	—	℥p in drinking water.

The shoes were removed and both the fore fetlocks were rubbed with Belladonna and Opium Liniments and bandages were applied.

At 5 P. M., the temperature came down to 102° F. The animal took some green grass and water and some bran mash freshly made. It was found moving in the stable.

At 7 P. M., the temperature went up to 104° F., the animal was breathing heavily and showed no inclination to move from its place. Any attempt to lift any one of the fore legs made the animal go down immediately in great pain. An injection of Iodine was given intravenously (3 grains of Iodum with 8 grains of Pot. Iodide in 20 c. c. of distilled water).

At 9 P. M., the temperature was 104° F. No improvement was noticed and the salicylate mixture was repeated and given by the stomach tube. At 12 midnight the temperature was 105° F. Seeing no improvement a dram of Quinine Sulph dissolved in a sufficient quantity of Acid Sulph. Dil. and mixed with a pint of water was given by the stomach tube.

Next morning at 7 A. M., the temperature was 107° F. Blood smears were examined and the results were negative. The mucous membranes became brick red in colour and the animal was breathing very heavily. A tepid bath was given and ice was applied on the head. In about an hour, the temperature came down to 102° F. The breathing became almost normal, the animal took a little green grass and drank a little water. The ice bag was therefore removed.

Within another half an hour, the temperature began to rise steadily and it went up to 107° F. again. The ice bag was reapplied. A saline enema was given and as a result of it some semi solid faeces were passed. I called in Sri M. Sundaranathan of the Madras Veterinary College in consultation. He found the animal standing stubbornly in one position with the fore legs firmly planted on the ground, head poked, nostrils dilated and breathing heavily. His attempts to lift up a fore leg were of no avail and the fetlocks were hot. Suspecting laminitis, he advised the administration

of Tr. Aconite ℥i with ℥i of camphor in jaggery. At 9 A. M. the temperature did not come down but remained at 107° F. The ice bag was on the animal's head continuously. Tepid bath was also given. One drachm of phenacetinum was therefore given in jaggery.

At 12 midday the animal was definitely worse. The temperature went up to 108° F. Ice bag on the head was continued and also the tepid bath at short intervals. Tr. Aconite ℥ii was given with jaggery.

At 2 P. M. the temperature went above 110° F. The column of mercury in the thermometer went up to its full length and it could not record any more. Tepid bath and ice on the head were continued. At 3 P. M., the animal fell down and died. All the time the animal never stirred from the place where it originally stood without even turning its head. Only its tail was moving to ward off flies.

The post-mortem was conducted in the Madras Veterinary College and the following is an extract from the P. M. report:—

Result of examination of blood — Negative for B. anthracis.
taken after death.
Both fore fetlocks slightly swollen.

Internal Examination:—

Haemorrhagic patches on the Thoracic and abdominal walls on the near side.
Blood clotting normally.
Position of organs normal.
Peritoneum normal.
Trachea, larynx and glottis normal.
Liver normal (slight fatty degeneration)
Spleen (present weight 3 kilos) normal.
Kidneys congested
Oesophagus normal
Stomach external congested
Interior M. M. congested and filled with ingesta.

Intestines:— Both small and large intestines were congested and the contents scanty and mixed with catarrhal exudate.

Lymphatic glands normal.

Bladder empty and highly congested.

Generative Organs:— Uterus and horns highly congested.

Ovaries:— Right ovary contained 2 cysts. Left ovary normal. Thoracic cavity — Pleura highly congested. Heart distended and contained

haemorrhagic spots on the myocardium. Right auricle and ventricle and left auricle empty. Left ventricle contained a small quantity of blood. Valves normal.

Endocardium :— Plenty of Haemorrhagic spots seen.

Lungs :— Right lung highly congested, left lung slightly congested.
Brain congested.

Cause of death :— Suggestive of heat stroke.

Conclusion.

If one goes through the post-mortem report, one will be led to suspect that the case may be one of gastro enteritis or heat stroke. The peculiarity of the case however was that the symptoms exhibited by the animal while alive were not suggestive of either of those diseases.

2. Presumably cystic ovary would have been the cause of the excitement of the animal and its uncontrollable nature while being mounted.

My thanks are due to Sri M. Sundaranathan for having kindly examined the animal and advised the course of treatment to be adopted.

My thank are also due to the Principal, Madras Veterinary College, for having conducted the post-mortem and for having supplied the post-mortem report.

SOME OBSERVATIONS INTO THE INCIDENCE OF THEILERIASIS IN CATTLE

BY

H. V. KULKARNI, G.B.V.C., P.G.,

Disease Investigation Officer, Baroda.

In the month of June 1940, I had an opportunity to visit one of the cattle breeding farms to investigate the cause of deaths amongst calves. The calves, which were of the Kankrej breed were found to be in an unthrifty condition, anaemic and heavily infested with ticks. Out of the 25 bull-calves between one to two years, and 18 of the young stock between one to four months, five were reported to have died.

At the time of my visit one young calf about two months old was detected to be ill. On my examination the symptoms noted were — off-milk, constipated, temperature 106°F, puffy swelling of the eyes with watery discharge, visible m.m. ecteric and the body heavily infested with ticks.

Blood smears of this case, on microscopical examination, revealed Theileria bodies in fairly large number but Koch's blue bodies could not be detected.

This calf died on the next day and P. M. examination exhibited the following pathological picture :—blood watery and thin in character, liver enlarged and yellowish, abdomen inflamed and the spleen normal.

Microscopical examination of the smears from various organs also confirmed the presence of Theileria bodies.

On the same day I had a chance to conduct P. M. on the body of another bull-calf from the same herd and farm. P. M. findings and the results of the microscopical examination of the smears taken from various organs were exactly similar to the above case.

Examination of the blood smears of all the animals, numbering 85, was then undertaken, one by one, and 42 of them were to be 'carriers' for both the infections namely Theileriasis and Piroplasmosis. The parasites had been also observed in the blood of two village calves with similar symptoms.

The results of the investigation so far obtained are as follows :—The causal parasite has been identified as Theileria mutans (confirmed by Mukteswar Laboratory) and it appears to be pathogenic for young calves.

Specimens of ticks collected from adults as well as young stock have been identified as *Hyalomma aegyptium* (confirmed by M.L.) and it is believed to be the natural transmitting agent of this disease.

Microscopical examination of the blood smears of all the animals at the farm has revealed the presence of these parasites in nearly half the number. It, therefore, appears that cattle get infection soon after their birth and very few of them develop the disease in an acute form.

Out of the various causes of poor condition of the animals at the farm in general, and of the calves in particular, and deaths amongst them, infection with ectoparasites may be said to be the most important.

Similar conditions were noticed at various cattle camps in the famine stricken areas in the month of May 1940 and there too my findings were confirmed by Mukteswar Laboratory.

From the above observations it appears that the incidence of this infection is not rare.

I am greatly indebted to the Deputy Director, Veterinary and Animal Husbandry Services, Baroda State, for affording me an opportunity to investigate the cause of the disease conditions prevailing amongst calves in particular and for permitting me to send this for publication. I also express my sincere gratitude to the Director, I.V.R.I., Mukteswar for having examined the material sent to the Laboratory in this connection.

LACTATION IN A STERILE COW

BY

K. V. RAGHAVACHARI, G.M.V.C.,

Inspector of Livestock, Calicut.

History.—The subject is a Jersey cow, aged about 6 years. The owner got her as a calf and she came to heat for the first time when she was three years old. She was not put to the Bull during the first three or four heat periods. She was however sent to a Bull later on but the service was not successful and the cow came into oestrus again in three weeks time. She was again sent to a bull but to no good. This regular oestrus and unsuccessful service by the bull continued, it appears, for three or four times when the cow suddenly stopped coming on heat. It was then thought by the owner that the cow conceived and was pregnant. He was expecting that the cow would calve, because of the absence of oestrus and also appearance of small quantities of milk in the teats. But eighteen months elapsed, nearly twice the period of gestation—and to his disappointment, the cow suddenly showed signs of oestrus again and stood well to the Bull when taken for service. It was then that I was called in to examine her.

Symptoms.—I examined the cow for the first time on 8-7-1940. She was found quite normal in appearance. There was no enlargement of the abdomen, nor were there any other signs suggestive of pregnancy. Examination of the ovaries per rectum revealed nothing abnormal but the uterus was found flabby. Vaginal examinations revealed the os to be slightly dilated and there was a thick whitish discharge from the uterus. Suspecting the case to be one of Endometritis, I submitted a sterile swab charged with this discharge to the Principal, Madras Veterinary College, for favour of supplying me with auto-vaccine for the cow.

Treatment.—The cow was treated with the auto-vaccine supplied by the Principal, Madras Veterinary College—4 subcutaneous injections at intervals of 3 days. The cow again showed signs of oestrus on 26-7-40 and she was served. The discharge stopped with the auto-vaccine treatment and the cow had not shown signs of oestrus again. It was therefore thought that the cow had conceived. I examined her again on 9-10-40 nearly 3½ months after she was served and found her to be not pregnant; but at the same time the cow did not come to heat again after the treatment and service.

At the time of treatment, close examination of the udder revealed that the mammary gland was slightly enlarged and there was secretion of milk in all the four quarters. The milk appeared quite normal to naked eye but as the cow was neither pregnant nor reported to have calved before, I was doubtful whether the milk could be used for human consumption. To

make sure that the milk was not in any way injurious to health, I began feeding a dog with this milk which did well on it and did not show any untoward results. Subsequently, I told the owner of the cow that the milk may be used for human consumption as the dog had been thriving well on this milk. On my advice the owner began to feed the cow on nutritious food and milked her regularly. The milk yield gradually increased and she is now giving about 3 to 4 pounds a day. The interesting point is that the cow has never had a calf and she was not given any special drugs to stimulate lactation. In spite of this there is secretion of milk in the udder.

ASPERGILLUS Sp. AS THE CAUSE OF SKIN DISEASE IN ANIMALS

BY

T. S. RAJAGOPALAN, G.M.V.C.,

Veterinary Assistant Surgeon, Kurnool.

Mudaliar (1938) found a species of *Aspergillus* as the cause of skin disease in a dog. This is the first record of its kind in this part of India, and there appears to be no record of finding similar fungus causing skin disease in ruminants and this opportunity is taken to describe two clinical cases that came under the notice of the writer in August 1940.

Subject I. A Countrybred he-goat

History.—The owner said that the lesions on the skin appeared on the ears a fortnight previously and that the animal rubbed the parts against a post or trunk of a tree or it incessantly scratched the ears and head with its hind feet. The affected ear was very tough, painless indurations and desquamated abscesses were found. The condition was associated with a dry cough in the goat. In short the animal had intense pruritis.

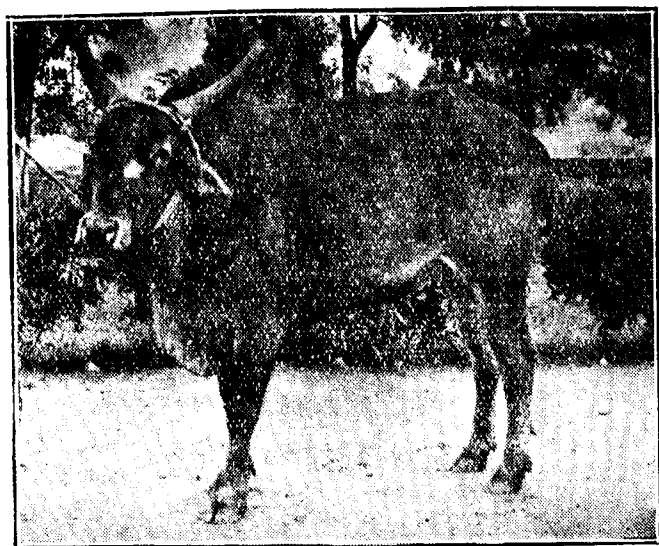
Diagnosis.—Skin scrapings from the ear were examined at the Madras Veterinary College Laboratory and the presence of *Aspergillus* Sp. was reported.

Treatment.—The affected parts were first cleaned with soap and warm water and then dressed with a 60 per cent solution of Sodium Hyposulphite and a ten per cent solution of Hydrochloric acid. This treatment was repeated every third day. Three applications effected a clinical cure. It is not known however if the goat had a relapse.

Subject II. A countrybred red bullock

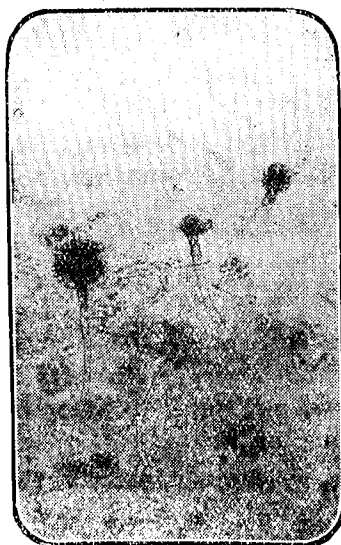
History.—The skin condition, the owner said, developed suddenly and it spread very rapidly all over the body. The animal scratched itself or rubbed its body against any hard object, so much so, the restlessness prevented the animal from grazing.

Diagnosis:—The animal had eruptions over the body and a serous discharge was seen to ooze out of them. The lesions on the lambs discharged a sero-sanguineous discharge (Fig. 1). It was suspected for a fungoid affection.



(Fig. 1).

tion of the skin and the scrapings were submitted to the Madras Veterinary College for examination and report. The presence of *Aspergillus* Sp. was



(Fig. 2).

reported. A microphotograph of the coccidia as found in the scrapings is seen in Fig. 2.

Treatment:—The bullock was given 0.45 gram of Neosalvarsan intravenously. This treatment lessened the prurities and the animal commenced to eat a little from the next day. On the second day, 40 c. c. of Lugol's solution was administered intravenously. At the same time, dressings containing Liq-Plumbi subacetatis with glycerine and mange dressing (containing sulphur, Pot. Bicarb, Oleum Picis and coconut oil) were applied after first washing with soap and water. This treatment apparently gave relief to the animal. Three days later, pruritis returned and a putrid smell began to emanate from its body. The owner of the animal sold it to a butcher who in his turn brought the animal again for treatment. The animal was again treated with Lugol's solution, 20 c.c. intravenously every third day, with Liq. Arsenicalis by mouth and mange dressing on the skin. The condition of the animal got worse in spite of the treatment for about a week. The owner stopped sending the animal for treatment and no further information about it is available.

I am thankful to the Principal, Madras Veterinary College, in having the skin scrapings examined and for the micorphotograph of the fungus for publication. I am grateful to him for going through this paper also.

REFERENCE :

- Mudaliar S. V. (1938) A preliminary note on a species of *Aspergillus* from a case of skin disease in a dog.—Indian Journal of Veterinary Science and Animal Husbandry. Volume 8, Part IV.

COENUROSIS

BY

MUHAMMAD RAHIM-UD-DIN, G.M.V.C.,

Veterinary Assistant Surgeon, Adoni.

Animal.—Ram, local breed, about a year old. Case No. 556.

History.—On 21-7-1940, the above animal was brought to the hospital. The patient presented the following symptoms viz, the left eye ball (the upper sclerotic portion, was protruding out of the upper eye-lid and presence of an abscess at the base of the left ear.

Treatment.—With a lancet a small incision was made at the most prominently bulging portion of the eye ball. This ejected a cyst. Similarly when the abscess at the base of the ear was opened, another cyst came out. The former was treated with Z. A. B. lotion with Cocaine and the latter with iodine gauze. Both the operation wounds healed up by 6-8-1940.

The cysts were suspected for Coenurus. The Principal of the Madras Veterinary College was kind enough to confirm my findings.

Note :— As far as I know the common seat of predilection of Coenurus is the brain and occasionally the spinal canal. In the present case it was found to have been lodged in the eye ball and the muscles of the jaw which appears to me rather rare. Hence my publication of this small note on Coenurosis.

GUINEA WORM IN A DOG.

BY

MUHAMMAD RAHIM-UD-DIN, G.M.V.C.,

Veterinary Assistant Surgeon, Adoni

Subject :— A local bred dog, aged, was admitted to the Veterinary Hospital, Adoni, on 15th May 1940.

History :— The owner stated that he found his dog lame with an oedematous swelling on the left fore-leg, but he did not pay much attention to it. About 3 or 4 days afterwards an abscess was noticed in front of the left fetlock.

Treatment :— As the abscess was ripe enough it was opened when thin pus tinged with blood came out. It was dressed with mercury gauze and bandaged. Next day when the dressings were being removed, the worm about 3 inches in length came out with the dressings. I tried to pull the whole worm out but it did not come. Only about 2 inches more of the worm could be easily drawn. The protruding piece of worm about 5 inches long was twisted round a clean lint piece and left at the seat of opening of the abscess, painted some Tr. Iodine and bandaged. This treatment was adopted till 20th May 1940, when the whole worm came out and by the next week with camphor oil application, the lesion healed up.

Note :— (1) Guinea worm infestation in dogs is rather rare. One may expect to find a few cases in places where human beings get affected.

(2) The Principal, Madras Veterinary College, was kind enough to identify the worm as "Dracunculus Medinensis".

2. While extracting the parasite, care should be taken to pull it out gently. Otherwise if it happens to break, the portion of the worm left inside the animal's body sets up acute inflammation in some other part of the body, and abscess formation may take place. Thereby the course of treatment is prolonged and the patient suffers for a longer time. As the author has noticed, this is what happens in human beings.

HAEMATURIA IN CATTLE — SUCCESSFUL TREATMENT BY LEAD ACETATE

BY

N. N. BANERJEE, G.B.V.C.

Veterinary Assistant Surgeon, Tinsukia, Assam.

Two plough bullocks belonging to a local cultivator, were apparently normal and, as usual, were kept in the same shed and fed together. As it was not the working season the animals had almost complete rest. The whole day they were allowed to roam about for grazing and very little concentrates were given.

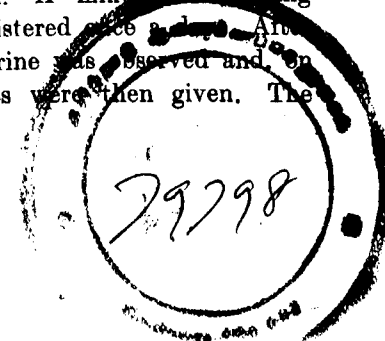
Symptoms.— Both the cases showed almost identical symptoms, one after the other, within a short interval of four days, the cure of one case synchronising with the onset of ailment in the other. The bullock was apparently normal in the morning and all of a sudden began to pass blood-stained urine in the evening. The urine was dark red or of portwine colour. Systemic disturbance was not of a severe nature. Slight dullness with little inclination to feed or drink water, and a somewhat rough and staring coat were observed. Temperature was 102.6°F and the urine was passed as usual without any apparent pain or strain. There was no colicky pain or injury to the genitals. The course of the disease lasted for 3 or 4 days.

Diagnosis.— Urine and blood smears were examined. A small quantity of urine — about 4 ounces — was kept in a measuring glass undisturbed for a short time when a small layer of deposit was noticed at the bottom with a few small blood clots. Smears of sediment showed R. B. C. without any casts. No ova of Schistosoma or any bacterial infection could be detected.

The reaction was alkaline and the specific gravity was 1.032. Chemical examination revealed the presence of albumin but there was no trace of phosphate, sugar or bile.

Blood smears gave negative result for any protozoa. Hence the case was diagnosed for 'Haematuria'.

Treatment.— Grazing was stopped and rice gruel and a little grass were allowed. Adequate water to drink was given. A mixture containing Plumbi Acetate 3i in 8 oz. of water was administered twice a day. After two doses, improvement in the colour of the urine was observed and, on the fourth day, it was normal; general tonics were then given. The condition has not recurred subsequently.



Conclusion.—Bovine Haematuria still ranks as one of the obscure diseases, the cause of which is yet undetermined. Since in the two cases mentioned above no bacterial or protozoal infection could be incriminated, the line of treatment adopted was only symptomatic and the result was encouraging.

Acknowledgment.—I am indebted to Rai Sahib S. C. Ghose, Director, Veterinary Department, Assam, for allowing me to publish this note and my thanks are due to Dr. H. B. Sen, Private Practitioner, Tinsukia, for his help in permitting me to work in his Laboratory for microscopical examination.

TAPE WORM VOMITION IN A DOG

BY

T. S. VENKATESA AYYAR, G.M.V.C.,

Veterinary Assistant Surgeon, Periyakulam, Madura District.

Subject.—A country-bred Dog, O. P. No. 950, in good condition, was admitted to the Dispensary on 16th July 1940.

History.—It was reported that the dog had been sick for 3 days with little or no appetite.

Symptoms.—T. 103.8°F, hurried respiration and frequent attempts at vomition, severe coughing, constipated bowels, urine slightly coloured and impaired appetite.

Treatment.—16th July 1940. Warm soap water enema with Turpentine was given to unload the bowels and 1 oz. of an Expectorant mixture composed of Am. Carb, Vinum Ipecac and Tr. Scilla was administered.

17th July 1940.—The coughing and other symptoms subsided. When the dog was about to be given a worm mixture, it coughed out and vomitted about 3½ feet of a segmented Tape worm (probably *Taenia Hydatigena*), which was in 3 pieces. Subsequently, the worm mixture was given but no worms were passed. The Principal, Madras Veterinary College, to whom the worm was sent for identification confirmed my diagnosis.

Course of disease.—There was no further trouble or ill-health and the dog made an uninterrupted recovery.

Remarks.—Vomition of Nematodes such as *Toxacara* species and *Spirocerca Sanguinolenta* species is not uncommon in dogs and cats but I have only seen segments of Tape worms passed by dogs per rectum. Mr. F. E. Turtle Saint, L.R.C.S., L.R.C.P.E., recorded a rare case of this nature in a dog in the Veterinary Record, No. 33, Volume XV, page 951, August 17, 1935. I desire to know if vomition of tape worms has been recorded elsewhere.

A RARE CASE OF ABORTION IN A SHE-BUFFALO WITH RETENTION OF SKELETON BONES OF THE FOETUS IN UTERUS

BY

H. R. CHANDRASEKHARIAH, G.B.V.C.,

Veterinary Assistant Surgeon, Navapur, Bombay.

A she-buffalo, aged 8 years, in debilitated condition, was brought to the Veterinary Dispensary, Navapur, (W. K.) on 13th June 1939, with the history that she was passing a white discharge from the vagina for a fortnight and was losing her condition. After a preliminary douching, an examination per vagina was made. At the cervix uteri a hard object was felt which on removal was found to be a detached rib of a calf. This was interesting and a detailed careful examination was made. Twenty four skeletal bones as detailed below were removed.

Scapula	2
Humorus	1
Femur	2
Right Maxilla	1
Broken pieces of	
left maxilla	1
Dorsal Vertebrae	1
Ilium	1
Os pubis	1
Ribs	14
	—
	24
	—

Further enquiry into the history of the case revealed that the she-buffalo aborted some two months previous to the date of admitting her to the dispensary.

Evidently the abortion had not been complete and the foetus had become retained and decomposed. This retention of the foetal remains had been the cause of the disease.

After the removal of these bones, the uterus was douched for a few days and the case discharged cured on 23rd July, 1939.

The bones have been sent up to the Bombay Veterinary College for exhibition in the College Museum.

A CASE OF ATHEROMA OF AORTA IN A COW

BY

J. D. DAVID, G.M.V.C., P.G. (EDIN.),

Lecturer in Animal Hygiene,

AND

K. VENKATARAMAN, G.M.V.C.,

Assistant Lecturer in Animal Hygiene, Agricultural College,
Coimbatore.

Subject.— An aged cross-bred cow belonging to the Agricultural College.

History.— The animal had been ill off and on since 1938. On 2-6-38 she was given treatment in the hospital for anorexia. On 7-7-38 the animal showed a temperature of 103.4°F. She was dull and depressed with a complete loss of appetite and passed bloody urine. Blood smears revealed no organisms. With a appropriate treatment, the temperature came down to normal on 9-7-38. Still the feeding of the animal was not satisfactory.

On 14-7-38 the animal showed a temperature of 102°F. The urine was high coloured. Blood examination revealed Babesia mutans. 6 c.c. of Acaprin was injected subcutaneously. In the evening the temperature went up to 104°F, and the animal showed restlessness also. On the following day the temperature came down to normal.

On 4-10-38 the animal was tested for Johnes' disease and Tuberculosis with negative results.

As the cow was steadily loosing condition treatment with a view to increase her appetite and to help her to put on flesh was given. She was gaining in weight but only very slowly. So on the advice of the Director of Veterinary Services, Madras, the cow was destroyed and post-mortem examination conducted.

Post-mortem findings.— The rumen contained a large number of amphistomum conicum. The contents of the other three stomach were normal. Intestines, lungs, kidneys, spleen, liver, heart etc., were also normal.

When examining the aorta its wall was found artheromatous with extensive thickening and calcification.

Another bullock (No. 1) belonging to the Central Farm Agricultural College, Coimbatore, died suddenly. On 12-4-38 while this animal was

returning to the College Estate from the town, yoked to a cart, suddenly fell down and died.

Post-mortem findings.— On opening the carcase and examining the heart all the cavities were found filled with clotted blood. On splitting open the aorta, it was found extensively atheromatous. Just close to the semi lunar valves, there was a diffused thrombus adherent to the intima.

The cause of the death was put down as due to thrombosis of aorta consequent on chronic arteritis or atheroma.

Hutyra and Marek, observe that Atheromatous or Arteriosclerosis occurs most frequently in herbivorous animals and that with few exceptions it is limited to the large arterial tubes. But as the record of such cases in this country is very rare, the above cases are recorded.

Association News

BOMBAY VETERINARY MEDICAL ASSOCIATION.

Proceedings of the Annual General Meeting of the Bombay Veterinary Medical Association held on the 28th & 29th December 1940, at the Anjuman-E-Islam, DHARWAR.

The Meeting was held at the Anjuman-E-Islam Hall, Dharwar, tastefully decorated and the President Major E. S. Farbrother, M. R. C. V. S., was received by the Reception Committee Chairman (Mr. E. R. Kulkarni) Secretaries Messrs. Chebbi and Date and the members of the Managing Committee, at 3 P.M.

Following is the list of members and distinguished guests present at the time.

Mr. V. N. Kulkarni	Mr. K. R. Alur
" M. K. Garudachar	" J. G. Kulkarni
" T. R. Khaladkar	" G. A. Hardikar
" P. G. Date	" R. S. Joti
" H. G. Murnal	" K. V. Kaulgud
" N. B. Kotbagi	" G. R. Kulkarni
" M. B. Kulkarni	" S. V. Parvatikar
" B. V. Nagnur	" K. L. Shiggaon
" S. V. Deshpande	" N. G. Kulkarni
" K. H. Maniyar	" R. N. Naik
" D. B. Khole	" S. R. Nadgir
" G.S. Balekundri	" S. K. Angdi

Mr. E. R. Kulkarni

„ G. G. Chebbi

„ U. Y. Gadag

„ G. C. Kafé

„ N. G. Katti

„ S. B. Ghalgi

„ M. M. Murgod

„ H. H. Dhulkhed

„ T. N. Kulkarni

„ G. G. Joshi

„ S. G. Shurplai

„ S. R. Nadgir

„ D. G. Handigol

„ M. N. Ronghe

„ S. M. Nimbalkar

„ R. B. Phadnis

„ P. C. Bapat

„ S. V. Sakhadev

„ P. S. Hegde

„ N. T. Kulkarni

„ N. H. Laxmeshwar

„ G. G. Rege

„ A. B. Gadagkar.

*Guests.*Rao Saheb B. G. Akut, Governor,
Borstal School, Dharwar.Mr. E. J. Bruen, Live-Stock Expert
to Government of Bombay.„ M. P. Wali, M.A., Chief Officer
D. L. B., Belgaum.

„ R. B. Desai, M.B.B.S.

„ H. S. Kulkarni, M.B.B.S., L.D.SC.

„ A. A. Kulkarni, M.B.B.S.

„ Mallangauda Patil of
Harobelavdi.

„ Satti, L.C.P.S.

„ V. M. Inamdar, B.A. (Hons).

„ K. N. Mudliyar

„ V. S. Karigudri

„ Chenkeshav Iyengar

„ Bindurao Deshpande of
Aminbhavi.

„ Iraddi

„ D. S. Prayag

„ Patravali

„ V. E. Kulkarni

„ Mantri

Mr. E. R. Kulkarni welcomed the guests and the members of the Association in a short speech (published elsewhere).

Messages from the following gentlemen wishing success to the Conference were read:

Rao Bahadur. V. R. Phadke

Mr. P. Shrinivasa Rao, Editor,
The Indian Veterinary Journal.

Mr. M. S. Sastry

„ P. V. Nagarsheth

„ S. D. Achar

„ N. B. Guttikar

„ T. V. Mudliar

„ N. K. Barnikar

„ H. R. Kulkarni

„ B. B. Mundhe.

„ S. G. Kalbagal

Sardar M. S. Apte

„ J. P. Damri

Major E. S. Farbrother, the President of the Conference then read his address.

The report and address of Khan Sahib N. D. Dhakmarwala, President of the Association were read by Mr. P. G. Date as Khan Sahib was unable to attend the meeting due to his indifferent health (published elsewhere).

The President then requested the guests connected with the institutions such as Gorakshan etc. to enlighten the Conference with their activities and Mr. Wali then addressed the meeting.

Mr. M. K. Garudachar cheered the audience by singing and dancing to the tune of *Ballad* on Rinderpest in Kanarese. He also recited a poem in English on eversion of uterus in a she-goat.

Mr. G. G. Chebbi then thanked the President, the guests and all members in a short speech (extract published elsewhere).

The proceedings of the day terminated with cheers to the President and guests amidst the rebounding sounds of Band.

On 29-12-40 at 9 A.M. the members reassembled in the Shamiana tents specially pitched for the purpose at the compound of the Veterinary Hospital, Dharwar, Major E. S. Farbrother presiding, when the following papers were read.

List of Papers.

- I. Importance of Minerals in Food and Fodder with special reference to Bare Meal Chalk and Oyster Shells.
By M. K. Garudachar.
- II. Role of Veterinary Asstt. Surgeons in Cattle Improvement in Bombay Province. By A. B. Gadagkar.
- III. An interesting case of Imperforate Anus and Vagina in a Hermaphrodite. By Nimbalkar.
- IV. Eventful Recovery of a collapsing case of a cow after the Reduction of Everted Uterus. By Nimbalkar.
- V. Rinderpest and its Control in the Province of Bombay.
By R. N. Naik.
- VI. Clinical aspect of Anthrax and H. S. as met with under village conditions. By G. G. Chebbi.
- VII. A case of Phuka. By D. B. Khole.
- VIII. Unique combination of Human Veterinary Surgery.
By T. R. Khadalkar.
- IX. Care of Horns. By T. N. Kulkarni.
- X. A Case of Digestive Disorder. By K. R. Alur.
- XI. Fish as a Marketable Commodity and its Inspection by the Market Staff in Bombay. By D. S. Laud.
- XII. Breach Presentation in a Cow. By D. B. Sapre.

On the 29th afternoon at 4-30 P.M. Major E. S. Farbrother vacated the chair as he was to proceed to Poona. A vote of thanks was accorded to him.

Chairman, Secretaries and some Members of Reception Committee and some students of the Bombay Veterinary College gave hearty send off to the President at the Station at 5-30 P.M. as the Engine steamed out the platform.

Mr. V. N. Kulkarni was voted to the chair and he conducted the proceedings to the end.

The following resolutions were passed.

1. *Resolved that this Association learns with deep regret the demise of Messrs. M. K. Patel, B. C. Sidhangouder, V. K. Chatuphale, C. S. Phadnis and R. L. Jayyaokar and authorise the President to convey the sympathy of the Association to their bereaved family.*

2. *Resolved that the State authorities be requested to open adequate number of Veterinary Dispensaries in their States with a view to protect their live Stock from jaws of epizootics and general diseases.*

Further resolved that the above resolution be forwarded to the Government of India for information.

3. *Resolved that Government be requested to inform the Association what appropriate actions has been taken as stated in their letter No. 8150/97-70 dated 2-2-40.*

4. *Resolved that the Government be requested to give Sunday as a full holiday to all Veterinary Dispensaries in the Province.*

5. *Resolved that the audited statement of accounts be passed.*

6. *Resolved that the following members be appointed as Office Bearers of the Association for the next year.*

Khan Sahib N. D. Dhakmarwala

President.

Mr. P. G. Date

Mr. G. S. Balekundri

Mr. T. R. Khaladkar

„ U. Y. Gadag

„ N. T. Kulkarni

„ V. N. Kulkarni

„ R. N. Naik

„ N. B. Kotbagi

„ M. K. Garudachar

„ D. B. Khole

Jt. Hon: Secretaries.

Hon: Treasurer.

Members of the Managing Committee.

Hon. Auditors.

7. *Resolved that Mr. K. R. Alur do continue as Secretary for A. R. P. for Animals and Mr. Mohey-Deen to act as Chairman of the Committee.*

8. *Resolved that the next Annual General Meeting of the Association be held in Northern Circle and if no response is received from the Members of that circle it be held at Bombay during X'mas 1941.*

A vote of thanks to Mr. V. N. Kulkarni, Mr. E. R. Kulkarni, Mr. G. G. Chebbi and others as well as to the retiring Managing Committee terminated the proceedings.

WELCOME SPEECH

OF

E. R. KULKARNI

**Chairman of the Reception Committee of the Bombay
Veterinary Medical Association Conference, held at
Dharwar on 28 December 1940**

MR. PRESIDENT, GENTLEMEN AND FRIENDS,

I have great pleasure in extending a hearty welcome to you all to this Provincial Veterinary Conference and I sincerely thank you for your ready response and kind attendance.

The fact that you have come here from such distant places inspite of a lot of inconvenience and considerable expenses is really an indication of the sustained interest that you all evince in your profession. The Reception Committee has of course made, with its limited budget all the necessary arrangements to provide for your comforts during your short stay here. Very likely there may be something lacking in our arrangements, gentlemen, which might cause some discomforts to you. I have therefore, to crave for your indulgence to kindly bear with us.

I hope you all agree with me when I say that it is a unique opportunity for us to witness this Annual Conference of our Association being opened by an eminent Veterinarian like Major Farbrother the head of our department. Amidst his multifarious engagements, heavy office work and busy Christmas Week. it was so noble of him to have spared his precious time and kindly consented to preside over our deliberations. He has, therefore, placed us under a deep debt of gratitude. On behalf of you all, gentlemen, I extend a most hearty welcome to him. Major Farbrother needs no introduction. We have found it a pleasure to serve under such a popular able and kind officer. I have no doubt that under his very able guidance the deliberations of this Session will be all successful.

We have all met in an important district place like Dharwar which is well-known for its bracing and salubrious climate and its Cultural and Educational institutions. It is the would be capital of the United Karnataka Province and a centre of all nation-building activities. The Karnataka Arts College, The Karnataka Vidya Vardhak Sangha, The Kannada Research Institute, The Karnataka Historical Association, The Mallasajjan Vyayama Shala and the Govt. Agricultural and Poultry Farms are some of the institutions that an outsider would like to visit. Besides, during this week the Karnataka Vidya Vardhaka Sangha is celebrating its Golden Jubilee. The Kannada Literary Conference is also being held here. There is thus an

opportunity for some of us to come in contact with the leading literary and cultural workers of this Province.

Now, gentlemen, it is needless for me to stress the importance and utility of such conferences. We can compare and exchange notes and benefit by the accumulated experience of some of us. We can by free and unfettered discussion amongst us add to our store of knowledge and thereby also render better and more efficient Veterinary Service. We can also by our organised efforts and concerted action, get our wrongs redressed difficulties eliminated and defects remedied.

I have now to refer with a heavy heart to the premature demise of our professional brothers Messrs. Siddangoudar and Jaygaokar. We shall all pray to God that their souls may rest in peace and express our condolence to the bereaved families.

The Veterinary profession has yet to grow and keep pace with other professions which have already stolen a march over it.

The activities of rural uplift and development are in progress and the Veterinarians have to share and shoulder the responsibilities relating to their profession. I can say without fear of contradiction that agricultural live-stock is the nerve-centre of our nation. It is the livestock that does much of our agricultural labour and gives us milk, food, wool, manure, hides and many other similar products which are quite essential for the health and wealth of the nation.

We must thank the Government for having introduced a new curriculum, raising the qualificational standard of students seeking admission to the Veterinary College. Now students who have passed the Inter Science Examination are only allowed to join the Veterinary College.

Due to village propaganda and the present spread of education in the rural areas a persistent cry for more Veterinary aid is heard from all sides and the present staff is rather inadequate to meet their growing demands. While we are painfully aware of the present critical war-time conditions which our Government has to face we cannot leave this vital problem of the welfare of the agriculturists, and their live-stock to its fate. We have to do our duty by the nation by trying to protect and improve our live-stock which is the back-bone of our country.

Many of us are contributing our humble mite towards the war expenses and we are prepared to sacrifice and do our best in all possible ways to help the Nation. We are confident of the ultimate success of our Government and the Allies in their righteous cause and pray to God to give them a splendid victory.

With these few words, gentlemen, I hope you will allow me to request the President to declare the Conference open.

THE BOMBAY VETERINARY MEDICAL ASSOCIATION ANNUAL CONFERENCE, DHARWAR, 28—12—40.

As a well wisher and sympathiser Mr. M. V. Wali, M.A., Chief Officer, District Local Board Belgaum, acknowledged the utility of Civil Veterinary Department to the livestock of India an agricultural country and said that the importance of cattle was not ignored in ancient times and the wealth of a person was counted by the number of cattle he possessed: He also quoted examples from "Rug Ved" showing that our fore-fathers in pre-historic times had made much progress in the Veterinary Science in all its branches, i.e., diagnosis, treatment, feeding, sanitation, training and general management and so he requested the Veterinarians to pay their attention to these old scriptures which he said would surely add to their professional knowledge and in concluding his speech Mr. Wali requested the President to widen the Department by opening more dispensaries in general and particularly two more dispensaries in his district (Belgaum).

Then Mr. G. G. Chebbi, Joint Secretary of the Association gave a vote of thanks in the following words:—

"I am here this evening before you all to offer my hearty thanks to the President Major E. S. Farbrother, Mr. Bruen, Livestock Expert to Government of Bombay and the guests of this evening on behalf of our Association for having spared their valuable time and having attended the Conference.

In the meanwhile I would like to bring to your notice that the Veterinary Service is a sort of missionary work, as we have to deal with dumb patients and their illiterate owners. Under the circumstances, unless the doctor puts his heart and soul into his work, he cannot succeed in his mission. I will not be far from wrong if I tell you that the economic position of the doctor is not sufficiently sound as to induce him to follow his profession with all the necessary enthusiasm.

With this humble suggestion I take this opportunity to thank again, the President and worthy guest Mr. Bruen who inspite of their pressing engagements have graced this occasion, as also the guests who have assembled here and made this Conference a success.

**BOMBAY VETERINARY MEDICAL ASSOCIATION
PRESIDENTIAL ADDRESS**

BY

KHAN SAHEB N. D. DHAKMARWALA,
at the Annual General Meeting on 28th December, 1940

Gentlemen,

As the President of the Bombay Veterinary Medical Association it gives me great pleasure to place before you the Annual Report of the Association for adoption by you at to-day's Annual General Meeting.

At the outset I wish to thank the members for electing me again as the President. I need hardly say that I appreciate the honour very much and shall continue to do my best to maintain the traditions of the office with the cordial support of the members of the Managing Committee.

Gentlemen, it is a matter of great satisfaction to us that Mr. E. S. Farbrother, Director of Veterinary Services, Province of Bombay, has kindly consented to open to-day the Annual Conference of our Association. We wish to convey our best thanks to him for finding time in the midst of his heavy and multifarious duties, to be present here to acquaint himself personally what we have been able to achieve so far.

In accordance with the usual custom I would give a brief and general review of the activities of the Association and also refer in detail to the Veterinary problems and connected matters which are of interest to our profession.

Last year we met at Poona, the Capital of the Central Division and this year we meet at Dharwar which is one of the head quarters of the Southern Division of the Province and a great agricultural district and I am sure that the members will profit by visiting its different institutions.

When we met last year we were just under the beginning of the shadow of the War and although we are now passing through critical times, thanks to the grand efforts and sacrifice which Great Britain is making to fight till the last to win the War, and we sincerely hope that this dreadful time will be over soon and pray that before we meet next year, the Britain will win the war and by their victory peace will be restored in the world and there will be triumph of right over might. In this connection it is a matter of great satisfaction to note that many members of our profession have volunteered to give their services to the Military Departments and also have contributed to the War Fund. Our Association has also paid Rs. 25/- towards the War Fund. We trust that when an opportunity for recruitment of Indian Veterinary Officers to the R. A. V. C. occurs, our claims

to serve in the Corps will be favourably considered by giving us Emergency Commissions in the Army Expansion Scheme.

With these few introductory remarks, I now come to the proper business of to-day's meeting. Since we met last in December 1939, we held two meetings of the Managing Committee and the following resolutions were discussed and some of them forwarded to Government:

- I. Affiliation of the Bombay Veterinary College to the University of Bombay as is done in Madras and the Introduction of the Degree of Bachelor of Veterinary Science *i.e.* B. V. Sc. because the entrance test of the College has been now raised to that of Inter Science examination "B" Group of the University.
- II. Inquiries made by addressing Government again with regard to resolutions forwarded to them.
- III. Formation of a Sub-Committee to frame rules in connection with Air Raid Precautions to be taken for animals.
- IV. Reconsideration by Government of the rules pertaining to the supplementary examination of the final year student in order to give him two chances to be examined in the same subject in the months of June and October of the same year instead of one chance as at present.
- V. Representation made to the President of the Society for the Prevention of Cruelty to Animals, Bombay, that the services of Veterinary Graduates serving under the B. S. P. C. A. be placed under the same footing as that of the Bombay Municipality. In the case of some of these resolutions, only formal acknowledgements were received stating that they were receiving attention.

During the year our profession had to record with great sorrow the loss of 6 of its members *viz.* Mr. V. E. Vakharia, retired Professor, Bombay Veterinary College, Mr. M. K. Patel, Mr. R. L. Jaygaokar, Asst. Supt. of Markets, Bombay Municipality and Messrs. Sidhangoudar Chatphule, and C. S. Phadnis, Assistant Veterinary Surgeons, Civil Veterinary Department. All these officers rendered great service to our profession and we tender our heartfelt condolences to the members of the bereaved families. We have also to record with great sorrow the death of Major General Sir Bernard James during the year. He was the pioneer of Indian Horse-breeding and on his retirement from the post of Director Remounts he made his home in India and the greater part of his life was devoted to the establishment of horse-breeding industry on a sound basis and in order to do this he conceived the idea of a National Horse-Breeding Society and founded the Imperial Delhi Horse Show. The Society was duly established and given the name of "The National Horse-Breeding and Show

Society of India" of which he was President thrice and later on Secretary for several years. Therefore Horse-breeding in this country has lost an organiser and friend through his death.

Our membership is now 92 as against 140 of last year. As regards the financial condition of the Association it may be stated that the balance is Rs. 1593 as against Rs. 1500 of last year, the income being Rs. 239-13-0 and expenditure Rs. 147-3-9.

Cattle-Breeding :—Of this the Cattle shows and fairs are of great value in as much as owners of Cattle from all parts of the Country live with each other in displaying their fine Cattle. Besides this, these fairs provide a great incentive for the improvement of Indian cattle which are the backbone of agriculture and much has been done in the past years to improve the quality of agricultural stock and it is essential that there should be no relaxation in efforts of these kinds. As a result of the great interest and lead taken by His Excellency the Viceroy in rural uplift generally and in the improvement and welfare of Indian Cattle in particular, the fairs receive a great impetus. The various departments of Government co-operate in doing all they can by means of demonstrations, lectures and shows in improving the lot of agriculturists and cattle-breeders. Improved and efficient agricultural implement are brought to the fair and their use is demonstrated. Lectures are given on the proper upkeep and scientific feeding of Cattle, while cinema shows bring home to the simple agriculturist the need of utilising the aid of Veterinary services if their cattle are to be protected from epidemics.

Rural prosperity depends in large measure on vigorous livestock, a fact which has only recently received proper recognition in India. Rural interests were for long prone to neglect this aspect of agricultural development. But during the past few years there has been an appreciable rise in the number of cattle-breeding societies throughout India. In response to the Viceroy's appeal for stud bulls, hundreds of them are now in service and the scheme is now on a sound footing and its continuance depends on mobilising effort in the right channels and conserving what has already been achieved. Few movements have done more to stimulate intelligent interest in the problem than the All India Cattle Conference and the All India Cattle Show. Delhi has already been the venue of three such shows and fourth one is to be held at the end of February 1941. If interest is to be country wide the necessity for regional shows is obvious. A beginning might be made with two regional shows, one in the West and the other in the South. Plans to extend these to other animals and to poultry should also be considered. A committee was appointed some time ago by the Government of Bombay to give final scope to schemes for the improvement of cattle. They reported that it was essential for Government to encourage

better breeding and care of milch cow and buffalo and the various breeds of draught cattle indigenous to or bred in the Province. The committee also recommended that Government should devote all their energy and resources to the improvement of the milking capacity of cows by the introduction where possible of good milch breeds of cattle, such as the Gir and Kankraj; more systematic breeding of such breeds as the Nimar and Dangi to milk and affording encouragement and facilities for the crossing of village cattle by bulls of such milch breeds as have been evolved and which will thrive in specific tracts of the Province. The Committee also recommended that as a preliminary measure, legislation should be brought into force for the licensing under law of all slaughter-houses or places where cattle are killed for commercial purposes. India has nearly 300 millions of domesticated animals and the annual value of animal products reaches great figures. While much has been done to control diseases and to improve the breeding and feeding stock, there is still great scope for improvement on scientific lines. For this purpose, the centre, the Provinces and the State should work together. In a vast country like India it is essential that workers in different parts of the country should have opportunities of meeting each other at regular intervals in order to preserve a continuity of outlook and to check any tendency towards provincial separation and compartments. One of the causes which hindered progress was that there was no precise and complete description of the main breeds of cattle. This defect has been greatly remedied by Sir Arthur Oliver's bulletin, and a more recent bulletin which was to form the basis of pedigree registration. The All India Cattle Show also enables cattle breeders and others interested in cattle improvement to see for themselves the splendid specimens that India could produce.

Breeding of Indian Horses :—It is true that with the increase of mechanism fewer horses are now required. But that is not the reason why India should be debarred from supplying her own race courses with her own products. Why should hundreds of animals from outside India be induced by attractive racing stakes to come to India? India should help her own home to encourage home production and when this expands, apart from supplying India's race courses, they will be sought after and used for all form of equestrian sports as polo, with prospect of a large export market of ponies for this game. India has bred good horses in the past and can do so again. Some even say that the Arab originated in India. The English thorough-bred is merely a highly developed Arab and when he comes to India, he virtually returns to his original habitat. There is nothing wrong with the country-bred. The fault lies with the human element, the lack of encouragement, the lack of a market and the paucity of good breeding stock in the country. The development of the market would induce the importation of better breeding stock and the Indian through-bred would continue to improve. Thus continue to improve him by careful selection and racing until he

They are now carried by all fighting forces, as army posts, in tanks, with gun positions, in submarines, mine sweepers and planes. Trained to return to lofts in England, where their arrival automatically rings a bell they speed home for hundreds of miles at 40 to 70 miles an hour. A national Pigeon Service was formed on the outbreak of war. The trouble is that it never forgets and returns to its home. For this reason they cannot be used when communication with a particular army head quarter was desired. For this purpose many young pigeons just able to fly are transported to the battle zones. Here they are accustomed to the noises of warfare and trained to recognise their new homes to which they will always return. Thus as message carriers in land warfare the pigeons have many advantages over the dog and in some cases war dogs have been trained to carry baskets of pigeons on their backs to supply outposts with the means of communication. The pigeons are also brave and persistent as the dogs. Another use of pigeons is that of aerial photography in areas to which a plane could not penetrate. A miniature camera taking automatic photos has been perfected which winds on its own films.

Before concluding, I wish to thank the Members of the Managing Committee and especially the Secretaries Messrs. P. G. Date and G. G. Chebbi and the Treasurer Mr. T. R. Khaladkar for the great help given to me throughout the year.

With these few remarks, I now propose that the Annual Report be passed.

SIND VETERINARY SERVICE ASSOCIATION

Proceedings of the meeting of General Body of Subordinate Veterinary Service Association held at the R. C. Veterinary Dispensary, Karachi, on 10th October 1940, at 11-30 a.m.

Members Present.

1. Mr. Abdul Majid N. Siddiqi.
2. „ M. W. Mirza.
3. „ S. A. Gulrajani.
4. „ P. M. Devnani.
5. „ K. M. Sullaiman.
6. „ C. G. Krishna Murthy.

The following Resolutions were passed :—

(1) This Association learns with deep regret the news of sad demise of Mr. A. G. Kaka, late Veterinary Assistant Surgeon, Jacobabad and sympathises with his family members in their bereavement and resolves that copy of this resolution be sent to the wife and children of the deceased. (Passed the whole audience standing.)

(2) This Association learns with great regret the news of Jersey Island falling in the hands of enemy whereby our beloved and noble Director and his wife have lost all communications with their only child and other near relations there, and prays that with the success of British arms their anxieties will soon be removed.

(3) This Association approves of the proposed amendments in Rules.

(4) This Association respectfully requests the Director of Veterinary Services to maintain a gradation list of the officers of the Subordinate Veterinary Service and revise it from time to time.

(5) This Association requests the Director of Veterinary Services, Sind, to move the Government to create once again the second post of Veterinary Inspector. The reduction of the post has affected the work in rural area very much. On account of opening of more dispensaries and appointment of Field Compounders his inspection work at dispensaries has increased and his tour in rural area is reduced considerably. With passing of proposed law for compulsory vaccination and serum inoculation and likelihood of opening more dispensaries the work for inspector at Dispensaries and rural area will still increase. The reduction has also indirectly affected attraction for service in the department.

(6) This Association requests the Government through the Director of Veterinary Services, Sind, to revise the new scale of pay of the Veterinary Assistant Surgeons in Sind because the old scale has been reduced by 33 % and as such it is not adequate enough to allow the Assistant Veterinary Surgeons to maintain their status and satisfy their wants. The scale has adversely affected the proposed enlargement of the department. The Government were not able to secure even a single candidate for tuition at the Bombay Veterinary College this year inspite of comparatively attractive scholarship.

(7) This Association respectfully requests the Government through the Director of Veterinary Services to grant house rent allowance as before to the Reserve Veterinary Assistant Surgeons and those in charge of Itinerating Veterinary Dispensaries. It is very hard for those low paid servants of Government to make their two ends meet. The scale of pay for new entrants was sanctioned by the then (Bombay) Government on the understanding that the rent-free quarters or an allowance in lieu of, will be given. The withdrawal has made the service unpopular.

(8) This Association respectfully requests the Director of Veterinary Services to fix a maximum tenure of 18 months for those Veterinary Assistant Surgeons who are posted to desert divisions of Thar and Parkar district. On account of peculiar geographical and climatic conditions of the desert it is extraordinarily difficult to live there.

(9) This Association requests the Government through the Director of Veterinary Services, Sind, that the maximum pay of the post of Field Compounders be raised to Rs. 50/- so as to make the appointment attractive to prevent their leaving the Department and run after services in other departments.

(10) This Association offers respectfully its thanks to the Director of Veterinary Services for his efforts to maintain the policy of filling the post of Officer i/c Goat Virus Producing Station from the Subordinate Service and requests him to move the Government to give assurance to the Association that this policy will be followed in future too, as this is the only Class II post to which members of Subordinate Veterinary Service aspire after putting in a long service.

(11) The statement of Receipts and Expenditure placed before the General Body was approved.

(12) This Association requests that Government be pleased to order that animals for slaughter at all places where services of Veterinary Assistant Surgeons are available should be inspected by the local Veterinary Assistant Surgeons in the interest of public health.

(13) This Association requests that Government will be pleased to direct that the rules for examination of animals by Veterinary Assistant Surgeons for public conveyances be strictly observed.

(14) This Association requests the Director of Veterinary Services to issue instructions that where a Veterinary Field Compounder is placed in charge of Veterinary Dispensary, the nearest Veterinary Assistant Surgeon should attend such dispensary at least twice a month to supervise and guide the Veterinary Field Compounder.

(15) The following office-bearers and members of the Managing Committee were elected for the year 1941 :—

Mr. Abdul Majid N. Siddiqi	— <i>President.</i>
„ M. W. Mirza	— <i>Vice-President.</i>
„ Abdul Majid N. Siddiqi	— <i>Treasurer.</i>
„ S. A. Gulrajani	— <i>Honorary Secretary.</i>
„ I. Y. Shaikh	— <i>Auditor.</i>
„ K. M. Sullaiman.	} <i>Members.</i>
„ J. R. Banna.	
„ K. U. Ramachandani.	
„ H. A. Mughal.	
„ P. P. Badlani.	
„ C. G. Krishna Murthy.	

(16) Letters of sympathy and goodwill received from the following members were read :—

Mr. F. K. Solangi. Mr. Mahomed Baksh. Mr. A. C. Shivnani.

The meeting terminated with a vote of thanks to the chair.

Communication

To

*The Editor of the Indian Veterinary Journal,
26, Wallajah Road,
Mount Road,
Madras.*

RINDERPEST IN INDIA

DEAR SIR,

The editorial comment on the subject in the January 1941 issue has certain remarks in the last few sentences of the article which calls for a reply. "The severity of the infection does not depend upon the infecting dose but on the susceptibility of the animal." Permit me to point out that immunologically the quality of reaction does not depend solely on the susceptibility of a subject as contended. Among other things, this results on the potency of the virus and also of the administration of rinderpest anti-serum. I need hardly say that serum in any quantity would not have been administered in serum simultaneous inoculations, in many parts of the world, if serum had no controlling action in the severity of reactions.

The statement "There is no such thing as a 'blocked out' reaction resulting in immunity" is too dogmatic and sweeping an assertion. A small work on 'blocked out' reaction in rinderpest was undertaken in this Institute and was published in the Indian Journal of Veterinary Science and Animal Husbandry of December 1939 as a magazine article. The main conclusion arrived at is that by producing a symptomless reaction, immunity in rinderpest can be conferred. But since it is a wasteful method, it cannot be put to general use. Topley, in an Outline of Immunity of 1933 says "By the administration of anti-serum in adequate amount and at the correct interval after exposure, it is possible to avoid a severe and typical attack, replacing it by a trivial infection that will confer a lasting immunity." P. 260.

Several times, during the course of my work, have I encountered rinderpest without visible reactions, after injection of rinderpest virus, and such animals when dead showed definite rinderpest lesions in post-mortem examination. In view of these facts, it is hardly correct to conclude "If

there is no reaction at all as a result of the introduction of rinderpest virus, then it means one of two things, namely, that the virus was dead or the animal had pre-existing immunity."

Serum Institute,
Madras
January, 29, 1941.

Yours faithfully,

K. S. NAIR.

The writer of this letter has wholly missed the point in our editorial of the last issue for, it should be obvious from the context that the reference to the so-called "blocked out" reaction is in relation to the use of virus alone and not in connection with the use of virus anti-serum or serum simultaneous inoculation, which is a different matter.

It should be further evident from what we have ourselves said in dealing with serum simultaneous inoculation that anti-serum is intended to moderate the severity of reactions induced by the virus. The quotation from Topley's "Outline of Immunity" serves to lend support to our view that infection is a necessary prelude to immunity. In Rinderpest infection symptomless reaction is the exception rather the rule — the exception which invariably proves the rule. If it were otherwise controlled experiments on Rinderpest would be mere speculation.— (Ed. I.V.J.)

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Obituary



R. L. JAYGAONKAR, G.B.V.C.

We regret to record the demise of Mr. R. L. Jaygaonkar, G.B.V.C., Assistant Superintendent, Municipal Markets, Bombay, of heart failure, while working in his office on 9-11-40. He was aged only fifty at the time.

We tender our heartfelt condolences to the members of the bereaved family.

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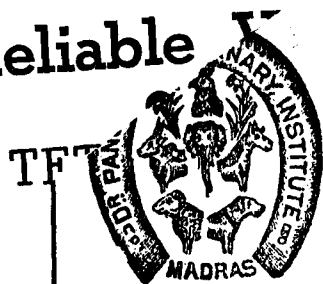
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